Hydrologic Conditions

for the month of

September 2009

Prepared by the

Hydrologic Data Section

Operations Department

Southwest Florida Water Management District

October 29, 2009

http://www.watermatters.org

TABLE OF CONTENTS

Introduction 1
Executive Summary – Provisional..... 2
Executive Summary 3
Regional Overview 5
Rainfall ..... 6 - 15
Surface Water
- Lakes..... 16 - 23
- Streams..... 24 - 28
- Springs..... 29 - 32

Ground Water
- Description of Groundwater Monitoring..... 33
- Surficial Aquifer ..... 34 - 35
- Intermediate and Floridan Aquifers ..... 36 - 45
- Public Supply Wellfields ..... 46 - 47
- Aquifer Resource..... 48 - 49

Water Demand
- Public Supply Surface Water Reservoirs..... 50 - 51
- Reservoirs..... 52 - 57

Appendices
- Rainfall Percentiles by Intervals & Region..... 58 - 59
- Rainfall Grid (NEXRAD)..... 60
- Lake Monitoring Stations..... 61 - 66
- Stream Monitoring Stations..... 67 - 68
- Description of Stream Monitoring Stations ..... 69 - 72
- Springs Monitoring Stations ..... 73 - 74
- Description of Springs Monitoring Stations..... 75 - 76
- Surficial Aquifer Monitoring Stations..... 77 - 78
- Groundwater & Aquifer Resource Monitoring Stations..... 79 - 80
- Wellfield Groundwater Monitoring Stations ..... 81 - 83
- Reservoir Locations..... 84

ACKNOWLEDGMENTS

The Hydrologic Conditions Report is a monthly effort of the Operation's Department Hydrologic Data Section. Acknowledgment is made to the following staff for their significant contributions, hard work and dedication to the timely production of this report:

Data Collection:	Terry Burrell, Dave Dunnett, Don Everson, George Prine, Steve Saxon, Larry Rivenbark, James Ferrell, Jeff Taylor, and Everett Eldridge.
SCADA System:	Mike Katherina.
QA/QC and Reporting:	Margit Crowell, Pam Green, Ken Romie, Steve DeSmith, and Tammy Plazak.
Administrative Support/ Document Preparation:	Della Haberle and Susie Holton.

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.

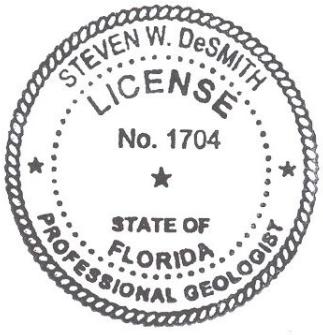
The Hydrologic Data Section is responsible for the implementation and maintenance of a network of observation and monitoring stations used to track changes in various hydrologic parameters over time. Data collected are used by the regulatory, technical, and analytical sections of the District. Data recently 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.

Steven W. DeSmith 10/22/2009

Registration #PG-1704



Americans with Disabilities Act (ADA)

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

EXECUTIVE SUMMARY

Provisional Hydrologic Conditions as of October 21, 2009

Provisional rainfall totals are provided for the period of October 1, 2009 through October 19, 2009. The northern region has received an average of 0.87 inch, while the historic mean for the month of October is 2.96 inches. The central region has received an average of 1.22 inches, while the historic mean for the central region for October is 2.92 inches. The southern region has received 0.79 inch, while the historic mean for the southern region for October is 3.31 inches.

Provisional lake level data indicate that during the first 20 days of October, water levels have decreased in all regions of the District. Average lake levels in the Northern region decreased an average of 0.39 foot and were 3.89 feet below the base of the normal range. Lake levels in the Tampa Bay region decreased an average of 0.19 foot and were 0.14 foot below the base of the normal range. Lake levels in the Polk Uplands region decreased 0.29 foot and were 2.02 feet below the base of the normal range. The Lake Wales Ridge region posted an average decrease of 0.29 foot and was 4.28 feet below the base of the normal range.

As of October 19, 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 at the low-end of the normal range at the 26th percentile. The average streamflow measured at the Hillsborough River near Zephyrhills in the central region was at the lower-end of the normal range at the 30th percentile, while the Peace River at Arcadia in the southern region was below-normal at the 15th percentile.

Provisional groundwater data, as of October 19, 2009, indicate that levels in the intermediate and Floridan aquifers were within the normal range in the northern and central regions of the District, while they were below-normal in the southern region. The normal range is defined as between the 25th and 75th percentiles. The groundwater level in the northern region was at the low-end of the normal range at the 26th percentile. The groundwater level in the central region was in the normal range at the 41st percentile, while the southern region was below-normal at the 19th percentile.

EXECUTIVE SUMMARY

Hydrologic Conditions for September 2009

In September, average rainfall totals for all three regions of the District were considered "normal." The normal range for rainfall is defined by totals that fall on or between the 25th to 75th percentiles of the historical monthly accumulation for each region and where the 50th percentile represents the historical median. The northern region received an average of 5.11 inches of rainfall, equivalent to the 39th percentile of the historical September record. The central region received an average of 6.09 inches of rainfall, equivalent to the 41st percentile of the historical September record. The southern region received an average of 6.71 inches of rainfall, equivalent to the 45th percentile. The District-wide rainfall average of 6.05 inches was equivalent to the 43rd percentile of the historical September record.

During the four-month "wet season," the period from June 1, 2009 through September 30, 2009, rainfall reported in all three regions of the District was considered "normal." The northern region received an average of 26.49 inches, which was 3.11 inches below the median of 29.60 inches. This rainfall average is equivalent to the 33rd percentile of historical readings and is classified as "normal." The central region received an average of 28.99 inches of rainfall, which was 0.49 inch below the median of 29.48 inches. This rainfall average is equivalent to the 47th percentile of historical readings and is classified as "normal." The southern region received an average rainfall accumulation of 30.29 inches, which was 0.29 inch below the median of 30.58 inches. This rainfall average is equivalent to the 48th percentile and is classified as "normal." District-wide, the "wet season" average rainfall was 28.79 inches, which was 1.01 inches below the historical median of 29.80 inches. This rainfall average is equivalent to the 37th percentile of historical readings and is classified as "normal.

During the 12-month period from October 1, 2008 through September 30, 2009, the average rainfall totals in the northern and southern regions of the District were classified as "drier than normal," while the central region was classified as "normal." The northern region received an average of 47.51 inches of rainfall, equivalent to the 23rd percentile of the historical record. The central region received an average of 49.14 inches of rainfall, equivalent to the 37th percentile. The southern region received an average of 46.02 inches of rainfall, equivalent to the 23rd percentile. The District-wide rainfall average of 47.59 inches was equivalent to the 27th percentile of the historical annual record.

Average lake levels in September were below the annual normal range in the Northern, Polk Uplands and Lake Wales Ridge regions of the District, while in the Tampa Bay region they moved into the normal range for the first time since January 2007. 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 increased by an average of 0.37 foot and were 3.50 feet below the base of the annual normal range. Lake levels in the Tampa Bay region increased an average of 0.90 foot and were 0.05 foot above the base of the annual normal range. Lake levels in the Polk Uplands region increased 0.15 foot and were 1.73 feet below the base of the annual normal range. Average lake levels in the Lake Wales Ridge region increased 0.26 foot and ended the month 3.99 feet below the base of the annual normal range.

Total streamflow in regional index streams, in September, was normal in all three regions of the District. Normal streamflow is defined as falling between the 25th and 75th percentiles. Streamflow measured at the Withlacoochee River near Holder station in the northern region was in the 31st percentile. Streamflow in the Hillsborough River near Zephyrhills station in the central region was in the 59th percentile, while total streamflow measured at the Peace River at Arcadia station in the southern region was in the 52nd percentile during September.

In September, groundwater data showed that levels in the intermediate and Floridan aquifers were within the normal range in all three regions of the District. The normal range is defined as between the 25th and 75th percentiles. The groundwater level in the northern counties was in the 35th percentile, while levels in the central and southern counties were in the 52nd and 47th percentiles, respectively.

REGIONAL OVERVIEW OF HYDROLOGIC CONDITIONS

SEPTEMBER 2009

Northern Region

In September, the northern region received an average of 5.11 inches of rainfall, equivalent to the 39th percentile of the historical September readings, which is considered "normal." Average lake levels increased in the northern region and ended the month an average of 3.50 feet below the base of the annual normal range. Total streamflow measured in the Withlacoochee River near Holder station increased and was in the 31st percentile. Regional groundwater levels indicated average surficial aquifer water levels increased and were in the 56th percentile; while levels in the intermediate and Floridan aquifer increased and were in the 35th percentile.

Central Region

In September, the central region received an average of 6.09 inches of rainfall, equivalent to the 41st percentile of historical September readings, which is considered "normal." Average lake levels increased in the Tampa Bay region, ending the month 0.05 foot above the base of the annual range; while levels increased in the Polk Uplands regions but ended the month 1.73 feet below the base of the annual range. Total streamflow measured at the Hillsborough River near Zephyrhills station increased and was in the 59th percentile. Regional groundwater levels indicated average surficial aquifer water levels increased and were in the 49th percentile; while levels in the intermediate and Floridan aquifer increased and were in the 52nd percentile.

Southern Region

In September, the southern region received an average of 6.71 inches of rainfall, equivalent to the 45th percentile of historical September readings, which is considered "normal." Average lake levels increased in the Lake Wales Ridge region and ended the month 3.99 feet below the base of the annual normal range. Total streamflow measured at the Peace River at Arcadia station increased and was in the 52nd percentile. Regional groundwater levels indicated average surficial aquifer water levels increased and were in the 65th percentile; while levels in the intermediate and Floridan aquifer increased and were in the 47th percentile.

RAINFALL

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

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

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

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

In September, rainfall totals for all three regions of the District were normal. The normal range for rainfall is defined by totals that fall on or between the 25th to 75th percentiles of the historical monthly average for each region and where the 50th percentile represents the historical median. The northern region received an average of 5.11 inches of rainfall, equivalent to the 39th percentile of the historical record. The central region received an average of 6.09 inches, equivalent to the 41st percentile; while the southern region received an average of 6.71 inches, equivalent to the 45th percentile. District-wide, rainfall averaged 6.05 inches, which is equivalent to the 43rd percentile of the historical September record.

During the four-month “wet season,” the period from June 1, 2009 through September 30, 2009, precipitation was normal in all three regions of the District. The northern region received an average of 26.49 inches, which was 3.11 inches below the median of 29.60 inches. This rainfall average was equivalent to the 33rd percentile of historical readings and is classified as "normal." The central region received an average of 28.99 inches of rainfall, which was 0.49 inch below the median of 29.48 inches. This rainfall average was equivalent to the 47th percentile of historical readings and is classified as "normal." The southern region received an average rainfall accumulation of 30.29 inches, which was 0.29 inches below the median of 30.58 inches. This rainfall average was equivalent to the 48th percentile and is classified as "normal." District-wide, the “wet season” average rainfall was

28.79 inches, which was 1.01 inches below the historical median of 29.80 inches. This rainfall average was equivalent to the 37th percentile of historical readings and is classified as "normal.

During the 12-month period from October 1, 2008 through September 30, 2009, the average rainfall totals in the northern and southern regions of the District were classified as “drier than normal,” while the central region was classified as “normal.” The northern region received an average of 47.51 inches of rainfall, equivalent to the 23rd percentile of the historical record. The central region received an average of 49.14 inches of rainfall, equivalent to the 37th percentile. The southern region received an average of 46.02 inches of rainfall, equivalent to the 23rd percentile. The District-wide rainfall average was 47.59 inches, which is equivalent to the 27th percentile of the historical annual record.

Tampa Monthly Climate Summary for September 2009

According to the National Weather Service (NWS), the monthly average temperature (°F) in the Tampa Bay area (TBA) was 82.6 degrees, which was 1.0 degree above normal. The highest temperature recorded in the TBA during the month was 93 degrees, while the lowest temperature recorded during the month was 67 degrees.

Temperature and Precipitation Outlook

The Climate Prediction Center's (CPC) three-month weather forecast, as of October 15, 2009, indicates above-normal rainfall in all three regions of the District during November 2009 through January 2010. The temperature forecast for this same time-period is uncertain and indicates an equal chance for below-normal, normal or above-normal temperatures in all regions of the District.

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

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

RELATIONSHIP OF SEPTEMBER 2009 RAINFALL TO HISTORICAL RAINFALL AVERAGES

Regional Summary:

Region	*SEP 2009 Average Rainfall*	*Historical Average for SEP*	*Departure from Historical Average*	*Calendar Year 2009 Cumulative Rainfall JAN-SEP*	*Calendar Year Historical Cumulative Rainfall JAN-SEP*	*Departure from Historical Cumulative SEP 2009*	*Cumulative 12-month Rainfall OCT 2008-SEP 2009*	*Historical 12-month Cumulative Rainfall*	*Departure from Historical 12-month Cumulative*
Northern Counties	5.11	6.34	-1.23	43.62	46.05	-2.43	47.51	53.60	-6.09
Central Counties	6.09	6.93	-0.84	44.60	45.12	-0.52	49.14	52.43	-3.29
Southern Counties	6.71	7.38	-0.67	41.74	45.55	-3.81	46.02	52.50	-6.48
District All Counties	6.05	6.93	-0.88	43.32	45.52	-2.20	47.59	52.74	-5.15

Regional Counties Summary:

NORTHERN COUNTIES	*SEP 2009 Average Rainfall*	*Historical Average for SEP*	*Departure from Historical Average*	*Calendar Year 2009 Cumulative Rainfall JAN-SEP*	*Calendar Year Historical Cumulative Rainfall JAN-SEP*	*Departure from Historical Cumulative SEP 2009*	*Cumulative 12-month Rainfall OCT 2008-SEP 2009*	*Historical 12-month Cumulative Rainfall*	*Departure from Historical 12-month Cumulative*
Levy County	2.80	6.01	-3.21	41.92	45.85	-3.93	45.19	54.02	-8.83
Marion County	5.48	6.19	-0.71	42.78	46.40	-3.62	45.88	54.34	-8.46
Citrus County	5.41	6.18	-0.77	43.58	46.55	-2.97	47.36	54.07	-6.71
Sumter County	5.03	6.12	-1.09	44.01	44.76	-0.75	48.38	52.10	-3.72
Hernando County	5.72	6.65	-0.93	44.98	47.51	-2.53	49.15	55.05	-5.90
CENTRAL COUNTIES									
Pasco County	6.13	6.88	-0.75	46.85	46.50	0.35	51.43	54.01	-2.58
Pinellas County	6.73	7.14	-0.41	41.36	44.21	-2.85	47.22	51.62	-4.40
Hillsborough County	7.07	6.89	0.18	46.88	45.56	1.32	51.05	52.62	-1.57
Polk County	5.26	6.74	-1.48	42.49	45.25	-2.76	47.02	52.07	-5.05
SOUTHERN COUNTIES									
Manatee County	8.15	7.57	0.58	45.41	46.61	-1.20	50.12	53.70	-3.58
Hardee County	5.98	7.30	-1.32	42.02	45.66	-3.64	45.85	52.32	-6.47
Highlands County	5.21	7.32	-2.11	39.66	45.07	-5.41	45.18	52.00	-6.82
Sarasota County	7.18	7.79	-0.61	40.07	45.58	-5.51	44.33	52.87	-8.54
DeSoto County	5.80	7.42	-1.62	40.56	44.97	-4.41	44.69	51.92	-7.23
Charlotte County	6.97	7.92	-0.95	40.24	45.32	-5.08	43.88	52.36	-8.48

SEPTEMBER 2009 RAINFALL CHARACTERIZATION

Regional Characterization:

Region	*SEP 2009 Average Rainfall*	*Historical SEP Percentile*	*SEP Rainfall Characterization*	*Cumulative 12-month Rainfall OCT 2008-SEP 2009*	*Historical 12-month Cumulative Percentile*	*12-month Cumulative Rainfall Characterization*
Northern Counties	5.11	39	Normal	47.51	23	Drier than normal
Central Counties	6.09	41	Normal	49.14	37	Normal
Southern Counties	6.71	45	Normal	46.02	23	Drier than normal
District Counties	6.05	43	Normal	47.59	27	Normal

Regional Counties Characterization:

NORTHERN COUNTIES	*SEP 2009 Average Rainfall*	*Historical SEP Percentile*	*SEP Rainfall Characterization*	*Cumulative 12-month Rainfall OCT 2008-SEP 2009*	*Historical 12-month Cumulative Percentile*	*12-month Cumulative Rainfall Characterization*
Levy County	2.80	18	Drier than normal	45.19	18	Drier than normal
Marion County	5.48	45	Normal	45.88	18	Drier than normal
Citrus County	5.41	43	Normal	47.36	24	Drier than normal
Sumter County	5.03	42	Normal	48.38	32	Normal
Hernando County	5.72	49	Normal	49.15	26	Normal
CENTRAL COUNTIES						
Pasco County	6.13	53	Normal	51.43	40	Normal
Pinellas County	6.73	49	Normal	47.22	35	Normal
Hillsborough County	7.07	57	Normal	51.05	44	Normal
Polk County	5.26	33	Normal	47.02	30	Normal
SOUTHERN COUNTIES						
Manatee County	8.15	59	Normal	50.12	36	Normal
Hardee County	5.98	35	Normal	45.85	25	Drier than normal
Highlands County	5.21	31	Normal	45.18	22	Drier than normal
Sarasota County	7.18	48	Normal	44.33	20	Drier than normal
DeSoto County	5.80	34	Normal	44.69	25	Drier than normal
Charlotte County	6.97	47	Normal	43.88	21	Drier than normal

RELATIONSHIP OF WET SEASON (JUN 2009 to SEP 2009) RAINFALL TO HISTORICAL WET SEASON RAINFALL

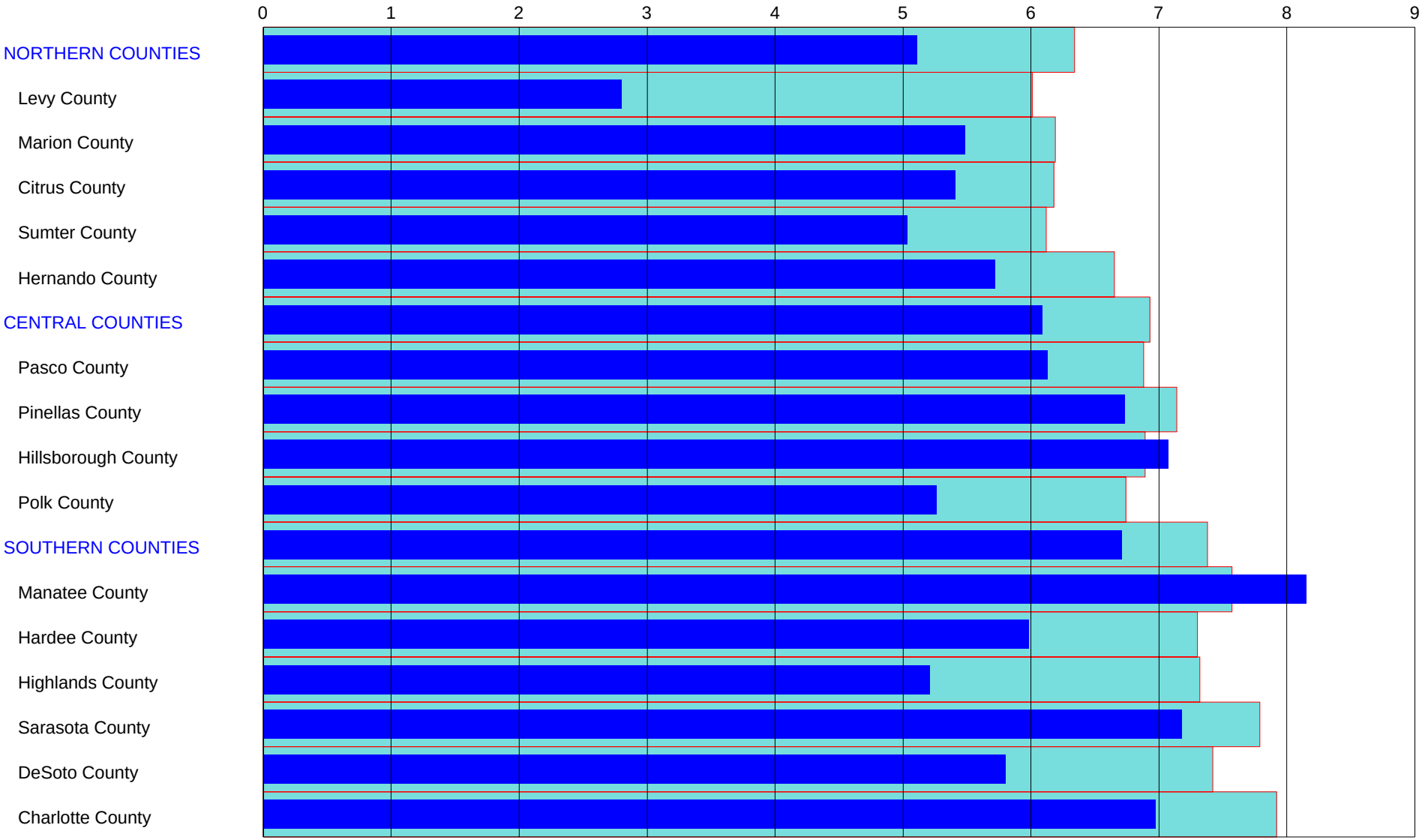
Regional Characterization:

Region	*Wet Season Rainfall JUN 2009-SEP 2009*	*Historical Wet Season Rainfall Median*	*Departure from Historical Rainfall Median*	*Historical Wet Season Percentile*	*Wet Season Rainfall Characterization JUN 2009-SEP 2009*
Northern Counties	26.49	29.60	-3.11	33%	Normal
Cental Counties	28.99	29.48	-0.49	47%	Normal
Southern Counties	30.29	30.58	-0.29	48%	Normal
District Counties	28.79	29.80	-1.01	37%	Normal

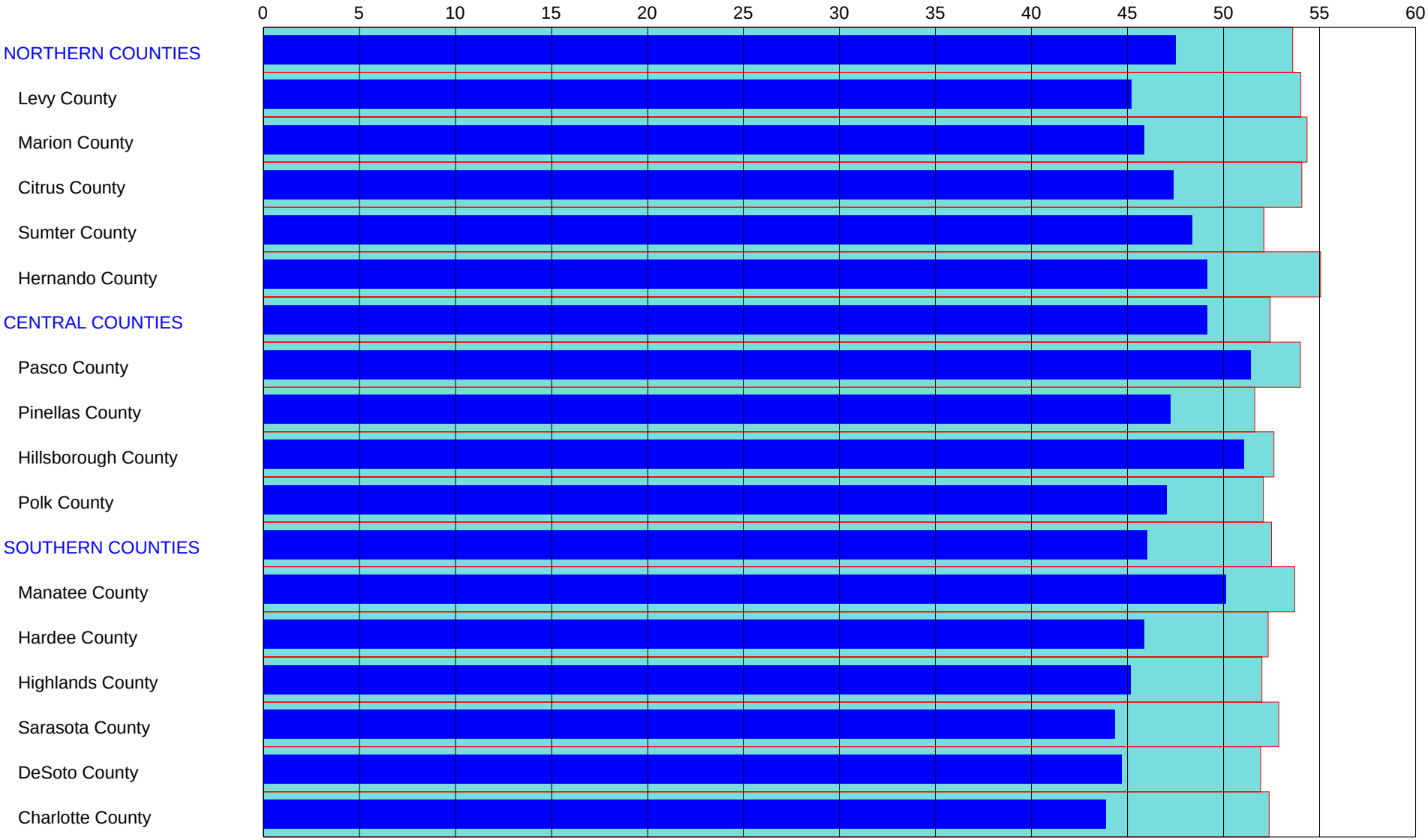
Regional Counties Characterization:

NORTHERN COUNTIES	*Wet Season Rainfall JUN 2009-SEP 2009*	*Historical Wet Season Rainfall Median*	*Departure from Historical Rainfall Median*	*Historical Wet Season Percentile*	*Wet Season Rainfall Characterization JUN 2009-SEP 2009*
Levy County	23.29	28.69	-5.40	14%	Drier than normal
Marion County	24.79	30.05	-5.26	25%	Drier than normal
Citrus County	27.45	30.58	-3.13	34%	Normal
Sumter County	26.67	28.80	-2.13	41%	Normal
Hernando County	28.56	30.01	-1.45	44%	Normal
CENTRAL COUNTIES					
Pasco County	30.56	29.43	1.13	55%	Normal
Pinellas County	29.49	28.66	0.83	55%	Normal
Hillsborough County	31.54	30.34	1.20	57%	Normal
Polk County	26.33	29.45	-3.12	31%	Normal
SOUTHERN COUNTIES					
Manatee County	33.50	31.34	2.16	61%	Normal
Hardee County	28.10	30.43	-2.33	28%	Normal
Highlands County	27.12	30.74	-3.62	29%	Normal
Sarasota County	30.16	31.11	-0.95	43%	Normal
DeSoto County	30.48	31.36	-0.88	46%	Normal
Charlotte County	29.96	31.05	-1.09	40%	Normal

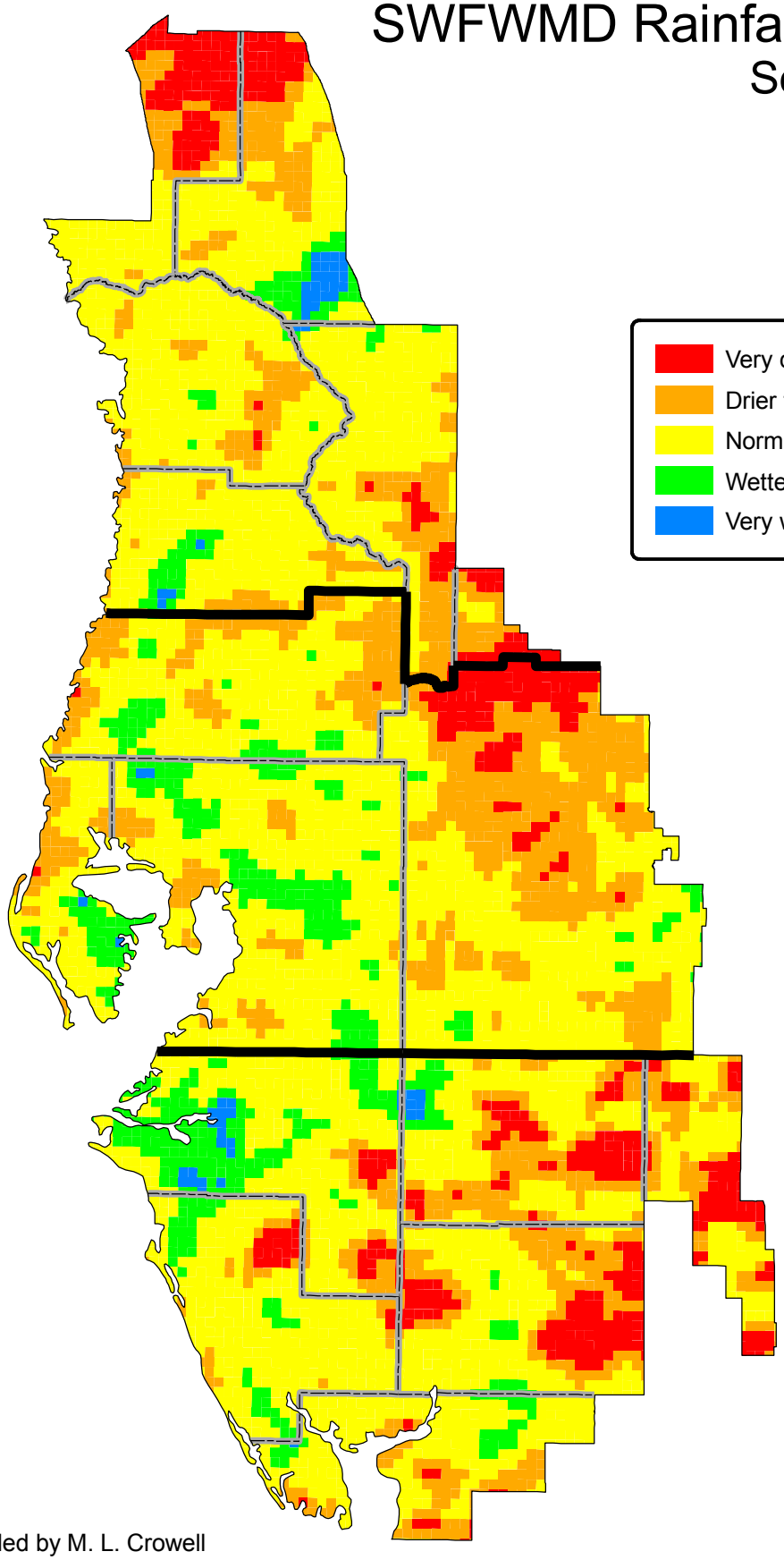
SEPTEMBER 2009 RAINFALL HISTORIC AVERAGE VS HISTORICAL SEPTEMBER AVERAGE (INCHES)



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



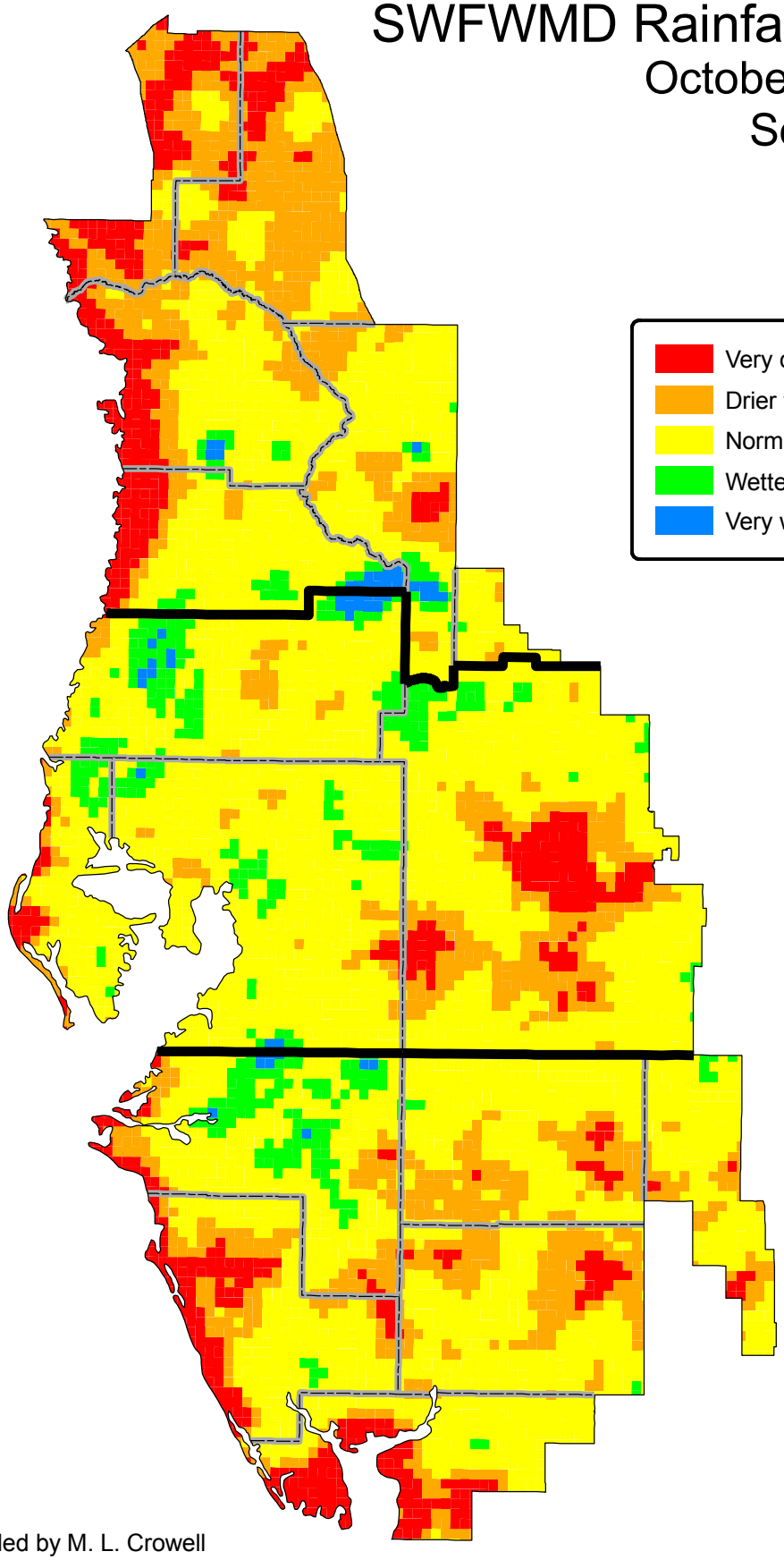
SWFWMD Rainfall Distribution
September 2009



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

Southwest Florida
Water Management District

SWFWMD Rainfall Distribution
October 2008 through September 2009



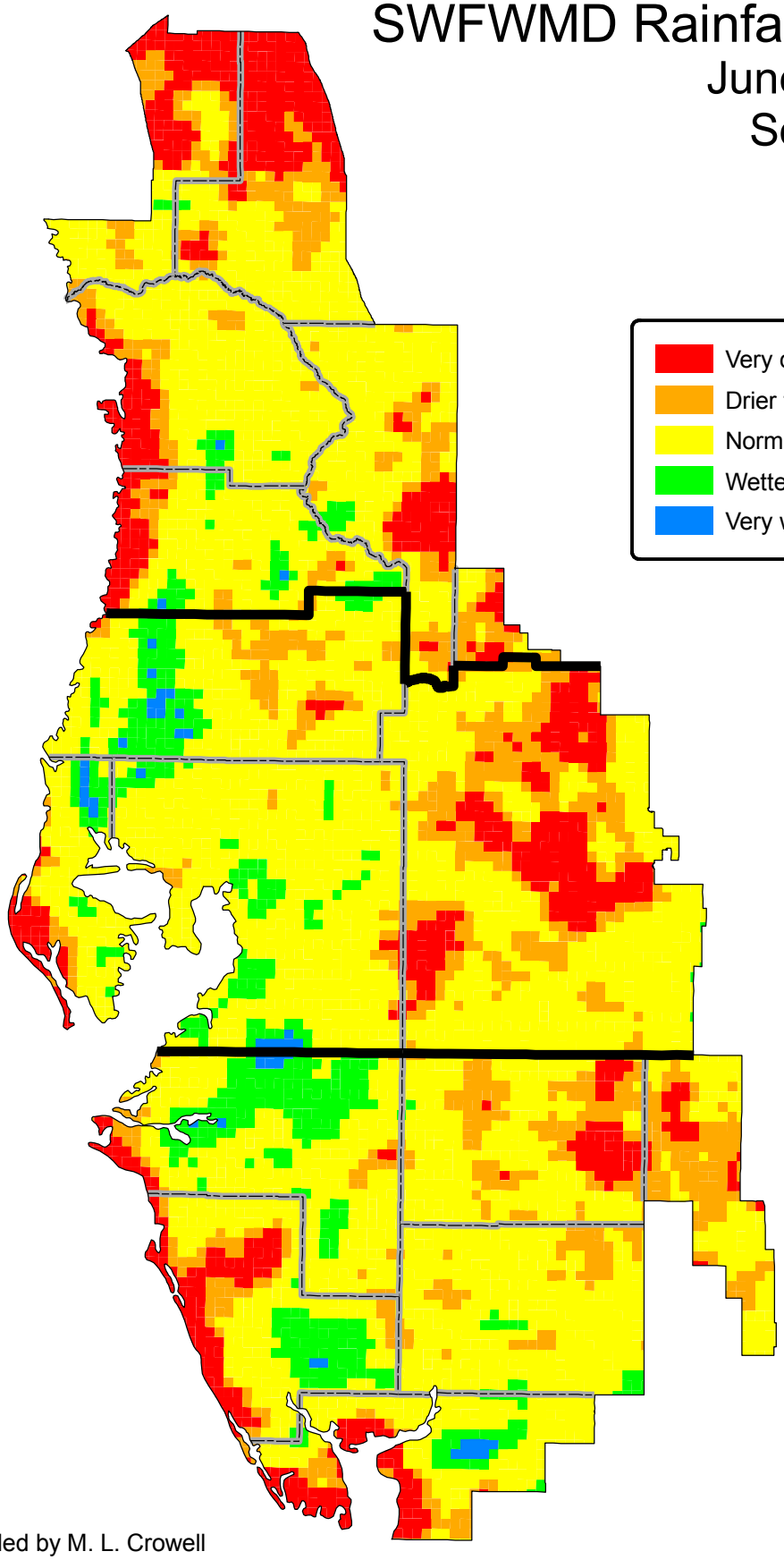
Compiled by M. L. Crowell
Data source: Vieux, Inc.

Southwest Florida Water Management District

SWFWMD Rainfall Distribution

June 2009 through September 2009

Wet Season



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 September, 62 of the 76 lakes monitored for this report recorded water level increases, while twelve recorded decreases and two remained unchanged. Water levels increased in the Northern, Tampa Bay, Polk Uplands and Lake Wales Ridge regions of the District by 0.37, 0.90, 0.15 and 0.26 foot, respectively. District-wide, average water levels increased by 0.53 foot, compared to last month.

In September, average water levels were lower in 45 of the 76 lakes, compared to September 2008. In the Northern and Tampa Bay regions, average lake levels were higher by 0.09 and 0.78 foot, respectively, compared to last year's levels. In the Polk Uplands and Lake Wales Ridge regions, average regional lake levels were lower by 0.60 and 0.43 foot, respectively. District-wide, average lake levels were higher by 0.16 foot.

Water levels in 49 of the 76 lakes were below the base of the annual normal range. Average lake levels in the Northern, Polk Uplands and Lake Wales Ridge regions were 3.50, 1.73 and 3.99 feet, respectively, below the base of the annual normal range. In the Tampa Bay region, average lake levels were 0.05 foot above the base of the annual normal range. District-wide, average lake levels were 1.57 feet below the base of the annual normal range. Water levels in 27 of the 76 lakes were below the drought-year levels.

SUMMARY OF LAKE ELEVATIONS OF REGIONAL LAKES (feet)

NORTHERN LAKES

Lake Name	County	Beginning of Record	AUG 2009	SEP 2009	SEP 2008	Change from AUG 2009	Change from SEP 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	69.13	69.45	69.88	0.32	-0.43	-2.30	71.75	73.05	76.05	65.45	JUN 1997	77.40	SEP 2004
Crews Lake	Pasco	1964	48.18	49.14	46.87	0.96	2.27	-0.86	50.00	52.00	55.00	42.63	APR 2001	56.60	SEP 1964
Hancock Lake	Pasco	1978	92.86	92.86	92.89	0.00	-0.03	-9.14	102.00	104.00	106.50	90.00	MAR 2009	108.90	MAR 1998
Hunters Lake	Hernando	1965	13.24	13.91	14.28	0.67	-0.37	-2.09	16.00	17.50	20.50	11.90	JUN 2001	20.70	MAR 1970
Lake Iola	Pasco	1965	133.73	133.54	136.42	-0.19	-2.88	-8.96	142.50	145.00	147.50	133.37	MAY 2009	148.70	JAN 1989
Lake Lindsey	Hernando	1965	63.20	63.24	63.90	0.04	-0.66	-1.26	64.50	66.00	69.00	61.57	MAY 2009	70.14	AUG 1965
Little Lake (Consu	Citrus	1975	36.82	37.10	36.14	0.28	0.96	-0.15	37.25	39.00	41.50	31.10	MAY 2001	42.84	SEP 2004
Lake Miona	Sumter	1978	50.92	51.44	50.69	0.52	0.75	0.44	51.00	53.00	55.00	47.88	MAY 2002	56.60	OCT 1982
Moon Lake	Pasco	1965	34.34	35.22	34.47	0.88	0.75	-0.28	35.50	37.50	40.50	32.98	APR 2009	41.26	SEP 2004
Lake Panasoffkee	Sumter	1955	39.91	39.83	39.64	-0.08	0.19	1.33	38.50	39.50	42.50	36.93	JUN 2002	44.28	APR 1960
Lake Pasadena	Pasco	1984	83.37	83.83	85.84	0.46	-2.01	-6.17	90.00	91.50	94.50	81.56	MAY 2001	94.86	OCT 2004
Spring Lake	Hernando	1965	177.20	177.70	176.94	0.50	0.76	-0.55	178.25	181.25	184.25	174.75	APR 2009	183.57	OCT 1984
Floral City Pool	Citrus	1957	40.40	40.34	39.49	-0.06	0.85	2.09	38.25	40.25	42.50	30.29	APR 2008	44.22	MAR 1960
Inverness Pool	Citrus	1957	38.14	38.47	37.60	0.33	0.87	2.22	36.25	38.25	40.50	31.56	MAY 2001	42.94	APR 1960
Hernando Pool	Citrus	1936	35.01	35.96	35.60	0.95	0.36	1.21	34.75	36.75	39.00	30.92	JUL 1957	41.74	APR 1960

TAMPA BAY LAKES

Lake Name	County	Beginning of Record	AUG 2009	SEP 2009	SEP 2008	Change from AUG 2009	Change from SEP 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	37.54	38.55	37.18	1.01	1.37	1.05	37.50	40.25	42.25	33.24	MAY 2002	42.42	SEP 2004
Lake Ann-Parker	Pasco	1969	45.96	46.69	46.81	0.73	-0.12	1.69	45.00	45.75	48.75	43.28	JUN 2001	49.29	SEP 1979
Bay Lake	Hillsborough	1982	45.48	45.62	45.49	0.14	0.13	3.12	42.50	44.00	46.75	41.86	APR 1985	46.46	DEC 1997
Lake Brant	Hillsborough	1971	56.20	56.90	56.00	0.70	0.90	2.40	54.50	56.50	58.75	51.65	JUN 1994	60.04	AUG 1979
Brooker Lake	Hillsborough	1977	60.97	63.14	62.31	2.17	0.83	4.14	59.00	61.00	64.25	56.49	MAY 2002	64.08	DEC 1997
Calm Lake	Hillsborough	1965	45.99	47.22	45.86	1.23	1.36	2.22	45.00	47.50	50.50	41.88	JUN 2002	50.73	SEP 2004
Camp Lake	Pasco	1968	59.62	61.52	57.44	1.90	4.08	2.52	59.00	61.75	64.00	50.82	MAY 2002	64.00	SEP 1979
Carlton Lake	Hillsborough	1976	90.96	91.52	90.96	0.56	0.56	3.52	88.00	90.50	93.50	86.82	MAY 2001	94.60	FEB 1998
Lake Carroll	Hillsborough	1946	34.34	35.04	35.09	0.70	-0.05	2.54	32.50	34.50	37.00	30.87	MAY 2002	40.08	SEP 1947
Church Lake	Hillsborough	1957	34.09	35.06	34.68	0.97	0.38	3.56	31.50	34.00	36.25	27.94	MAY 2002	37.28	AUG 1959
Lake Cooper	Hillsborough	1946	58.63	59.46	58.47	0.83	0.99	2.46	57.00	59.75	61.75	55.60	JUN 2001	62.54	SEP 1947
Crescent Lake	Hillsborough	1981	41.55	42.48	41.48	0.93	1.00	3.98	38.50	40.00	42.50	35.34	JUN 2001	42.48	SEP 2009
Deer Lake	Hillsborough	1977	62.68	63.63	63.28	0.95	0.35	1.13	62.50	64.50	67.25	60.72	MAY 2002	67.42	DEC 1997
Egypt Lake	Hillsborough	1978	36.58	36.84	36.25	0.26	0.59	4.34	32.50	35.00	37.50	33.06	MAY 2000	38.15	SEP 1985
Gornto Lake	Hillsborough	1979	34.34	35.81	33.32	1.47	2.49	1.81	34.00	36.00	38.50	29.86	MAR 1979	39.48	FEB 1998
Lake Harvey	Hillsborough	1970	59.16	61.46	59.08	2.30	2.38	3.46	58.00	60.25	62.50	53.94	MAY 2002	63.90	DEC 1997
Lake Hiawatha	Hillsborough	1981	49.45	50.29	49.92	0.84	0.37	5.29	45.00	48.00	50.50	46.14	JUN 2000	51.04	DEC 2002
Horse Lake	Hillsborough	1930	42.11	42.91	42.19	0.80	0.72	0.91	42.00	44.00	46.50	36.33	JUN 2002	50.00	AUG 1959
Lake Keene	Hillsborough	1948	58.94	60.90	59.79	1.96	1.11	1.90	59.00	60.50	63.00	56.12	JUN 2002	63.30	SEP 1953
Keystone Lake	Hillsborough	1946	41.53	41.77	40.99	0.24	0.78	2.77	39.00	39.75	42.00	37.84	JUN 2000	43.55	MAR 1960
King Lake	Pasco	1977	95.69	95.86	96.91	0.17	-1.05	-4.14	100.00	102.50	105.25	94.20	APR 2009	104.92	SEP 1983
Lake Leclare	Hillsborough	1977	48.43	49.40	49.19	0.97	0.21	2.40	47.00	49.50	52.00	44.95	JUN 2001	52.34	DEC 1997
Lake Linda	Pasco	1969	63.78	64.62	63.26	0.84	1.36	2.62	62.00	64.00	66.75	60.07	MAY 2001	67.13	AUG 1979
Little Lake	Hillsborough	1979	44.91	45.81	45.05	0.90	0.76	3.81	42.00	43.50	46.50	38.06	JUN 1994	46.44	FEB 1998
Long Pond	Hillsborough	1978	41.81	42.66	42.65	0.85	0.01	0.66	42.00	44.00	46.50	36.33	MAY 1979	48.27	SEP 1998
Mud (Walden) Lake	Hillsborough	1978	113.00	112.96	112.82	-0.04	0.14	2.46	110.50	112.50	115.00	111.90	APR 2009	114.42	MAR 1978
Lake Padgett	Pasco	1965	69.23	69.58	69.09	0.35	0.49	2.08	67.50	69.00	71.25	66.27	JUN 2001	71.90	SEP 1988
Platt Lake	Hillsborough	1946	47.48	48.94	48.82	1.46	0.12	2.94	46.00	47.75	50.50	42.53	JUN 2001	51.88	SEP 1979
Rainbow Lake	Hillsborough	1971	34.53	35.38	35.18	0.85	0.20	0.38	35.00	37.50	40.50	29.82	JUN 2002	40.74	AUG 2003
Lake Stemper	Hillsborough	1946	57.23	57.88	56.70	0.65	1.18	-0.12	58.00	59.50	62.00	53.36	JUN 2001	62.30	MAR 1960
Lake Thomas	Hillsborough	1971	61.74	62.56	61.87	0.82	0.69	3.31	59.25	61.25	63.50	56.48	JUN 2002	64.48	SEP 1979
Turkey Ford Lake	Hillsborough	1970	52.08	52.67	50.81	0.59	1.86	2.67	50.00	51.50	54.00	48.07	JUN 1985	55.28	SEP 1988
Lake Wimauma	Hillsborough	1974	74.83	75.54	75.85	0.71	-0.31	-5.46	81.00	83.00	86.75	70.12	MAY 2001	84.38	MAR 1998

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

Compiled by Ken Romie

SUMMARY OF LAKE ELEVATIONS OF REGIONAL LAKES (feet)

POLK UPLANDS LAKES

Lake Name	County	Beginning of Record	AUG 2009	SEP 2009	SEP 2008	Change from AUG 2009	Change from SEP 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	125.11	125.10	125.83	-0.01	-0.73	-1.15	126.25	128.25	130.75	122.40	MAY 1977	132.76	MAR 1998
Lake Ariana	Polk	1945	132.80	132.86	133.47	0.06	-0.61	0.36	132.50	134.50	137.00	131.28	MAY 1976	137.90	AUG 1946
Lake Arietta	Polk	1970	139.02	139.02	138.40	0.00	0.62	1.02	138.00	141.00	144.00	136.50	MAY 1977	144.33	OCT 2004
Blue Lake South	Polk	1986	110.91	111.96	112.44	1.05	-0.48	-0.54	112.50	114.00	117.00	103.38	FEB 1991	119.19	DEC 2005
Lake Bonny	Polk	1954	124.41	124.74	125.12	0.33	-0.38	-1.26	126.00	128.00	130.50	122.34	MAY 2009	133.08	SEP 2004
Lake Buffum	Polk	1972	125.19	125.72	126.83	0.53	-1.11	-1.03	126.75	129.25	132.25	123.90	JUN 1991	133.00	JUN 2005
Clearwater Lake	Polk	1979	140.24	140.52	140.20	0.28	0.32	1.52	139.00	141.00	143.50	137.93	MAY 2001	146.06	AUG 1984
Lake Conine	Polk	1989	124.63	124.48	125.34	-0.15	-0.86	-0.02	124.50	126.50	128.75	124.11	MAY 2001	129.95	SEP 2004
Eagle Lake	Polk	1965	125.75	125.58	126.94	-0.17	-1.36	-0.92	126.50	128.50	130.75	118.76	MAY 1976	131.50	SEP 1996
Lake Fannie	Polk	1967	120.40	120.34	121.86	-0.06	-1.52	0.34	120.00	123.50	125.75	118.67	MAY 1977	127.51	SEP 2004
Lake Garfield	Polk	1969	100.85	101.39	102.95	0.54	-1.56	1.39	100.00	101.00	104.75	97.38	JUN 2001	105.91	SEP 1979
Lake Hamilton	Polk	1945	118.45	118.86	119.22	0.41	-0.36	1.61	117.25	119.00	121.50	116.61	JUN 2001	124.34	OCT 1948
Lake Helene	Polk	1961	136.58	136.64	135.90	0.06	0.74	-2.36	139.00	141.00	144.00	134.06	JUN 2008	146.48	MAR 1998
Lake Howard	Polk	1946	129.49	129.33	130.55	-0.16	-1.22	2.33	127.00	129.50	132.00	127.69	MAY 2001	133.10	SEP 1960
Lake Juliana	Polk	1961	127.96	128.00	128.76	0.04	-0.76	0.50	127.50	130.00	132.50	126.20	MAY 1976	134.10	MAR 1998
Lake Mcleod	Polk	1965	125.81	125.70	127.17	-0.11	-1.47	-2.30	128.00	129.50	132.00	115.11	MAY 1976	131.98	SEP 1998
Lake Otis	Polk	1954	124.12	124.18	124.87	0.06	-0.69	1.18	123.00	125.00	128.00	119.58	MAY 1976	129.12	SEP 1960
Lake Ruby	Polk	1976	123.82	123.88	124.68	0.06	-0.80	2.88	121.00	123.00	125.25	117.41	MAY 1976	125.98	SEP 2004
Lake Gibson	Polk	1954	142.75	142.90	142.04	0.15	0.86	1.40	141.50	141.50	143.50	140.21	MAY 2009	145.40	SEP 1988

LK WALES RIDGE LAKES

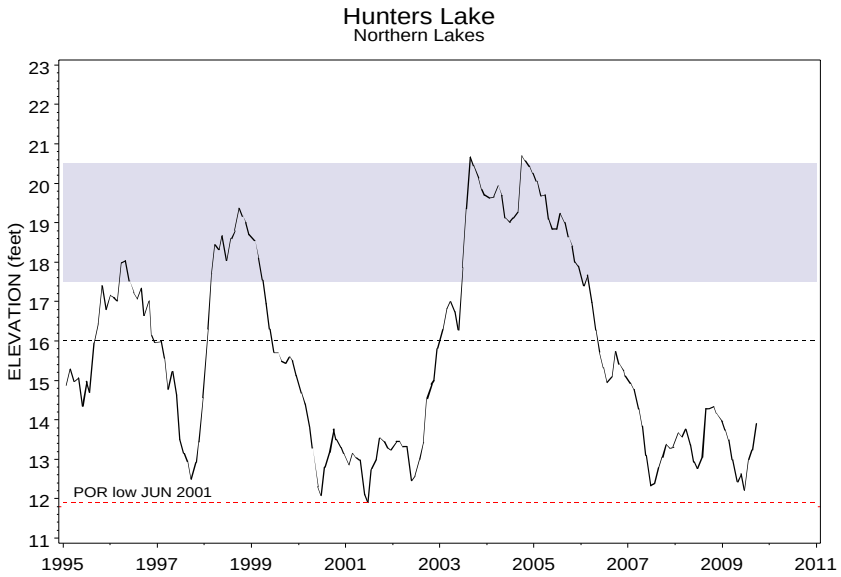
Lake Name	County	Beginning of Record	AUG 2009	SEP 2009	SEP 2008	Change from AUG 2009	Change from SEP 2008	Diff from MELM	(MELM) Drought Year Low	(MLM) Normal Year Low	(MF) Normal Year High	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Lake Annie	Polk	1970	111.43	111.42	112.70	-0.01	-1.28	-2.58	114.00	116.00	119.00	108.36	JUN 1990	117.56	OCT 2005
Lake Clay	Highlands	1983	77.71	77.79	77.73	0.08	0.06	2.79	75.00	76.00	78.75	74.34	MAY 2001	78.38	OCT 1995
Crooked Lake	Polk	1945	115.75	116.36	117.38	0.61	-1.02	-0.64	117.00	118.50	122.00	106.10	MAY 1991	123.98	OCT 1948
Lake Jackson	Highlands	1945	98.62	98.90	99.08	0.28	-0.18	0.90	98.00	100.00	103.00	96.37	JUN 2008	103.76	SEP 1947
Lake Letta	Highlands	1951	92.82	93.27	92.77	0.45	0.50	-1.73	95.00	97.00	100.00	90.27	JUN 2008	101.38	OCT 1953
Lake Lotela	Highlands	1950	98.43	98.59	98.89	0.16	-0.30	-5.41	104.00	105.00	108.50	97.00	JUN 2008	109.38	JUL 1954
Lake Placid	Highlands	1984	90.42	90.58	91.37	0.16	-0.79	0.58	90.00	91.50	94.50	88.08	JUN 2008	94.24	SEP 2003
Starr Lake	Polk	1983	99.55	99.38	100.81	-0.17	-1.43	-8.62	108.00	110.00	113.00	96.23	JUL 2001	109.80	DEC 2005
Trout Lake	Highlands	1981	89.00	89.77	89.18	0.77	0.59	-5.23	95.00	98.00	101.00	87.15	MAY 2001	98.90	MAR 1998

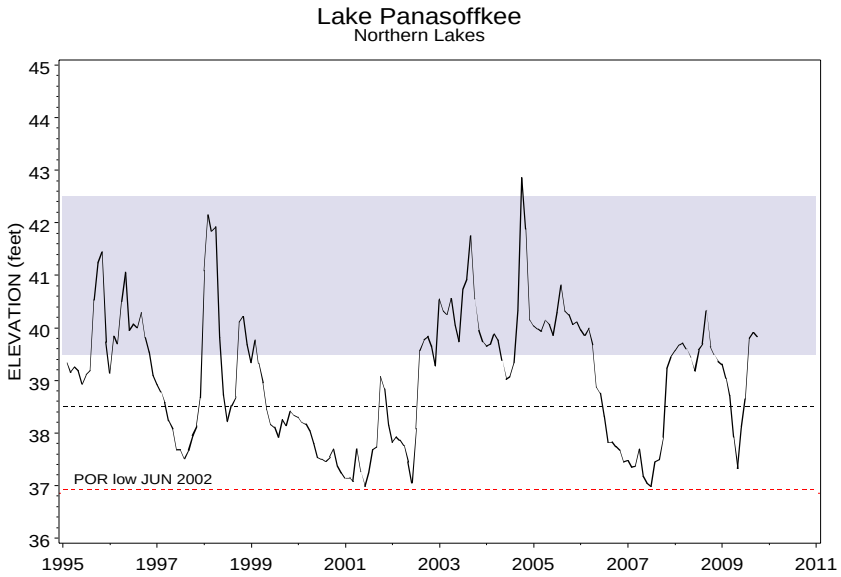
NOTE: M='no data' or 'not determined'

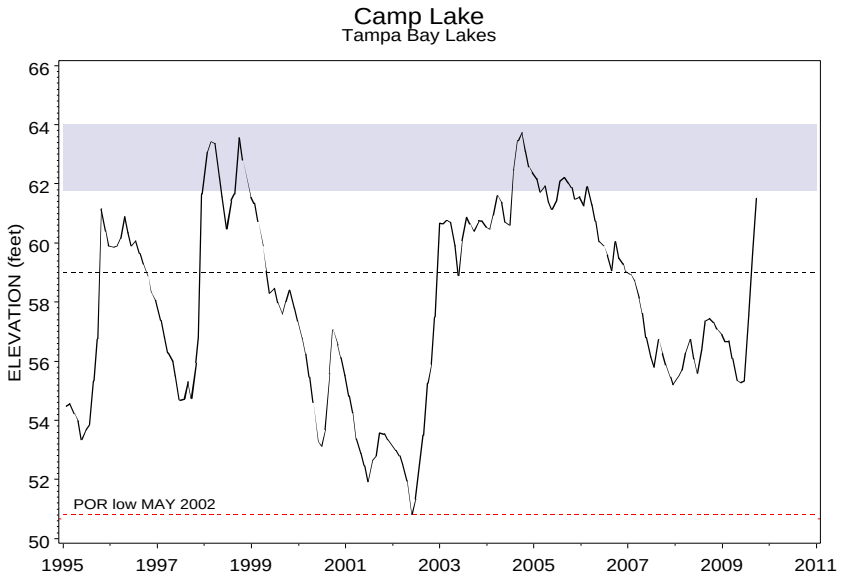
Compiled by Ken Romie

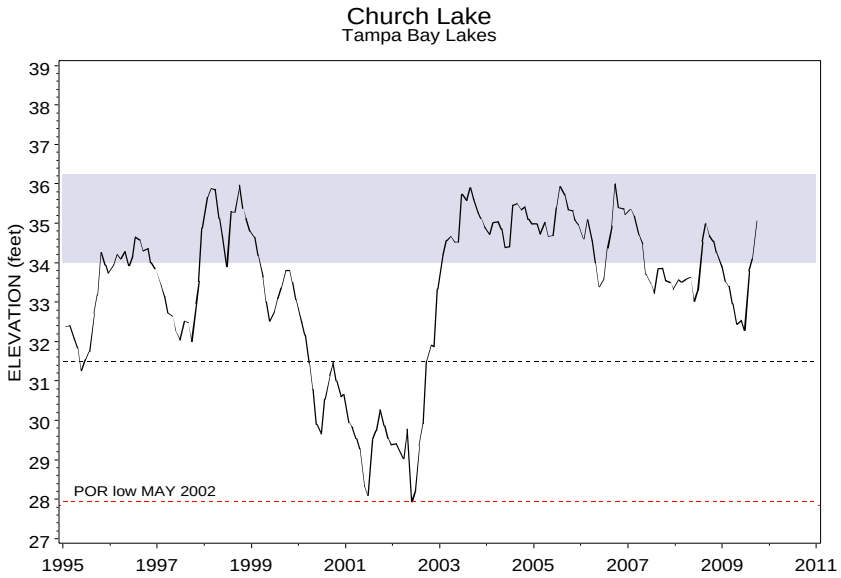
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record







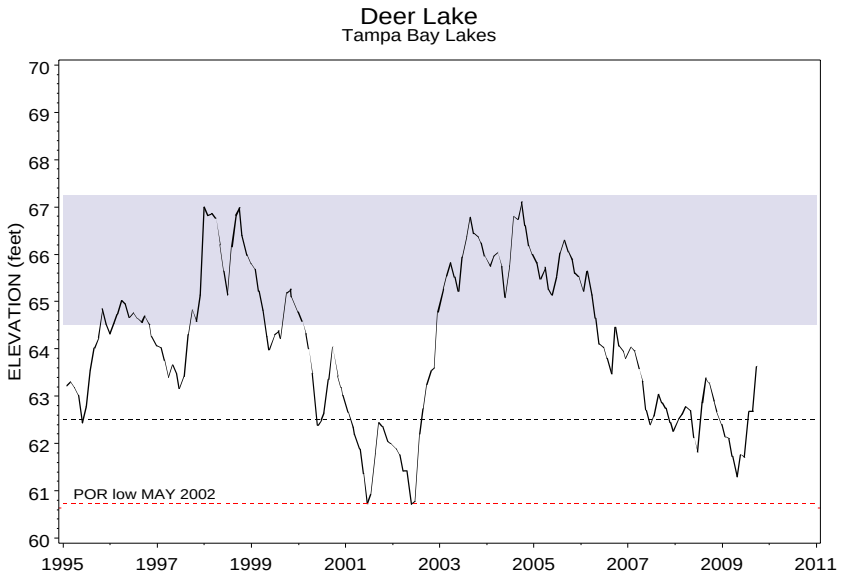


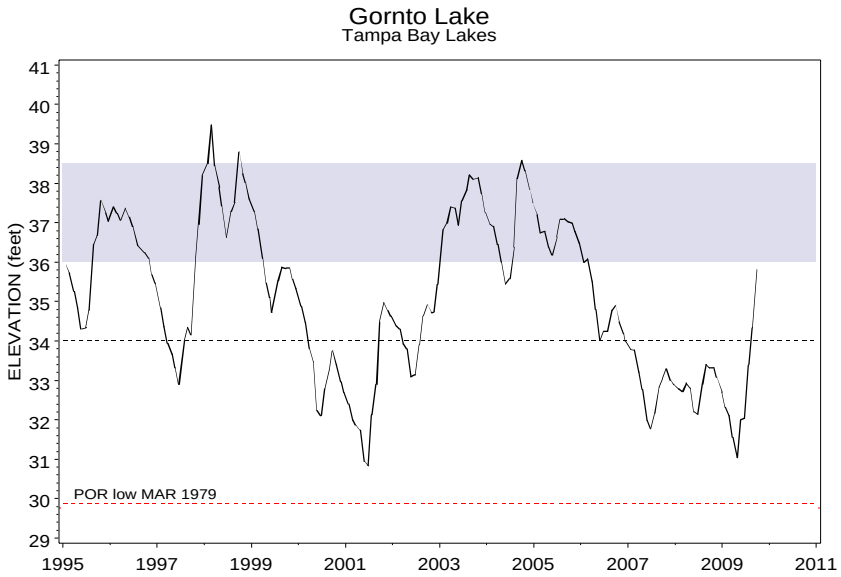
Monthly Mean Elevation **Drought Year Low** **Normal Range**

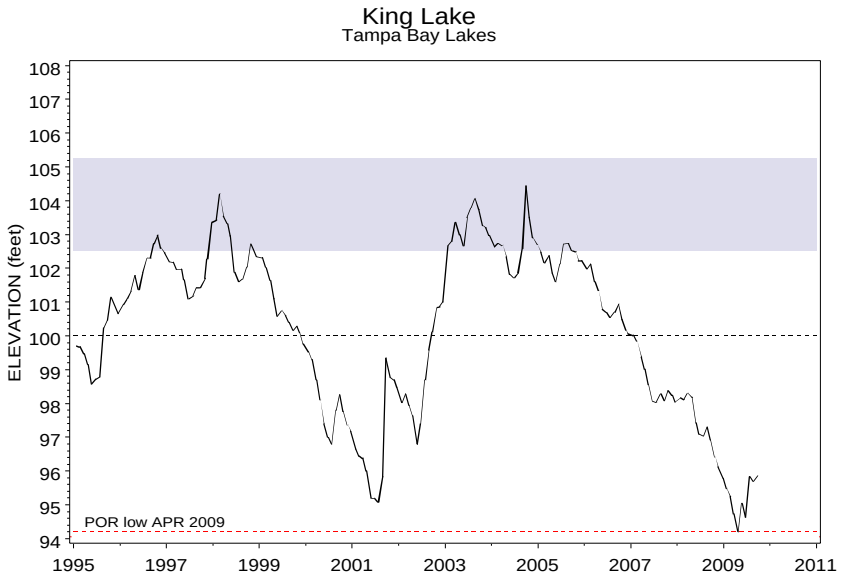
Compiled by Ken Romie

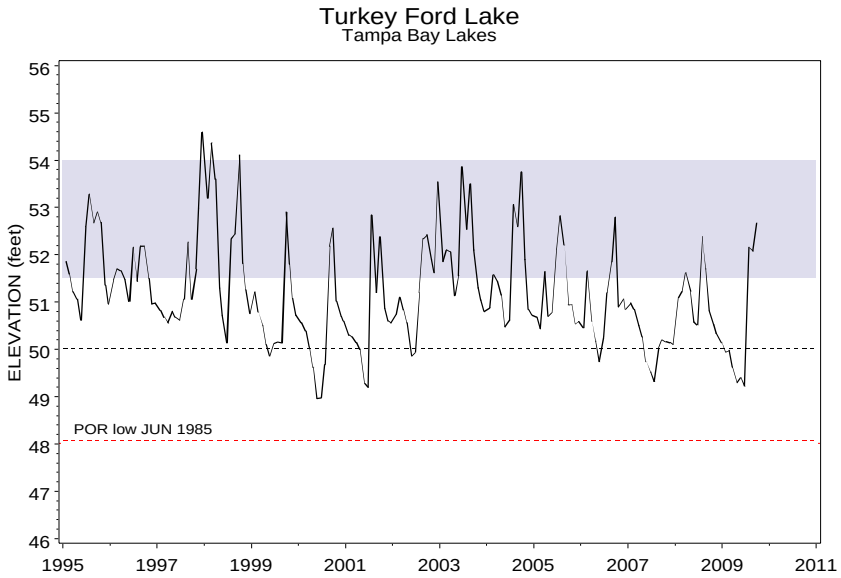
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record







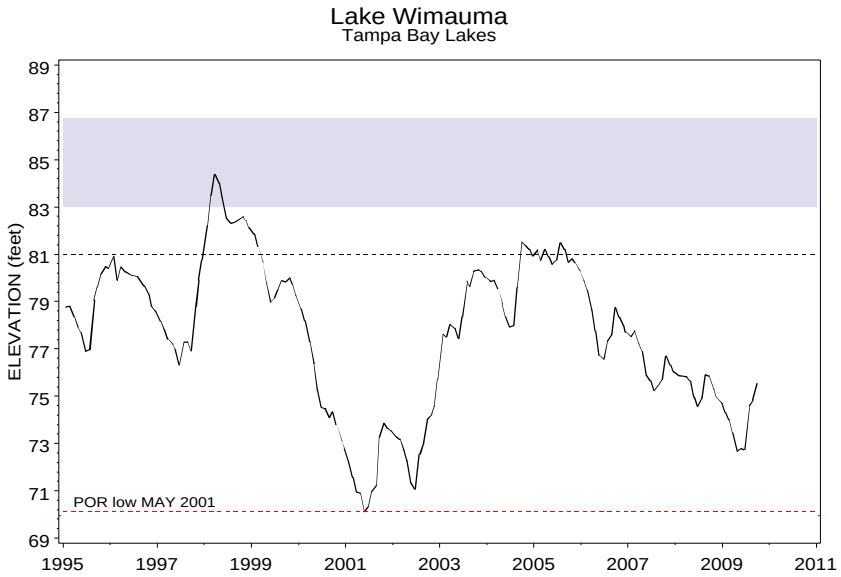


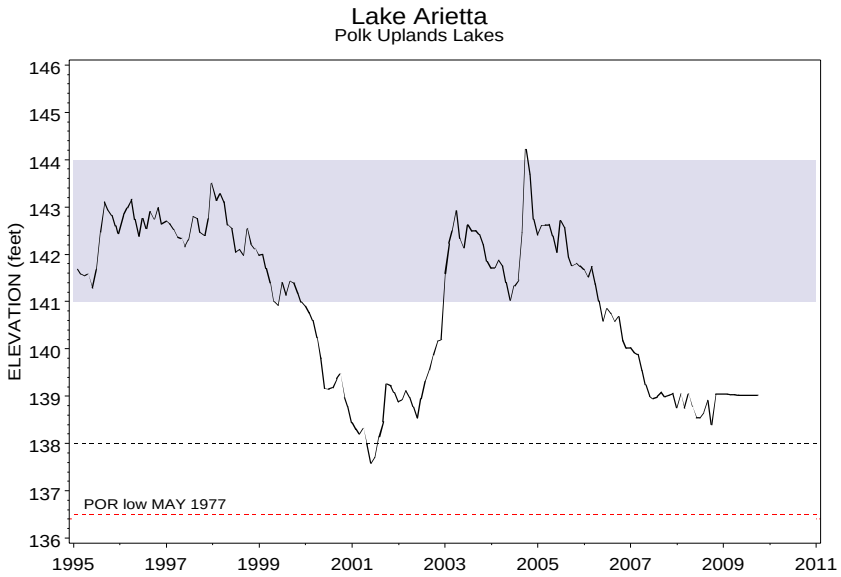
Monthly Mean Elevation Drought Year Low Normal Range

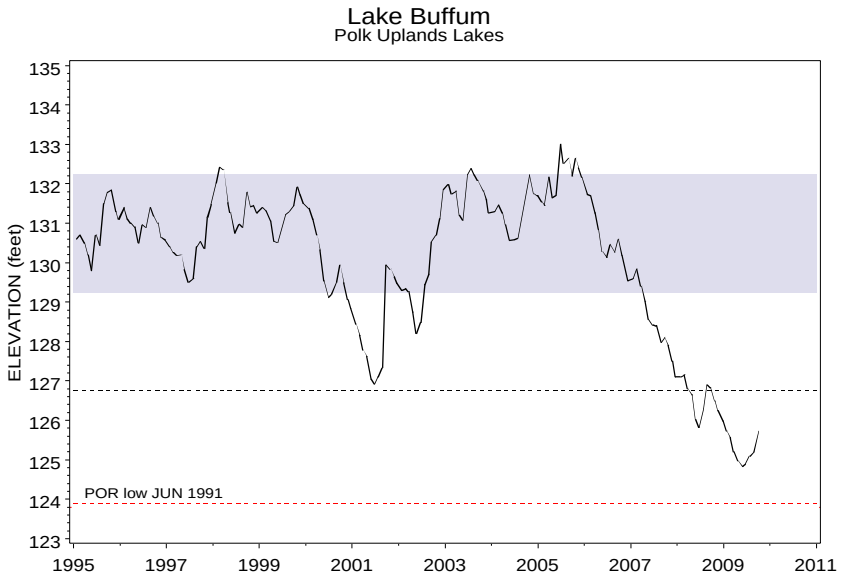
Compiled by Ken Romie

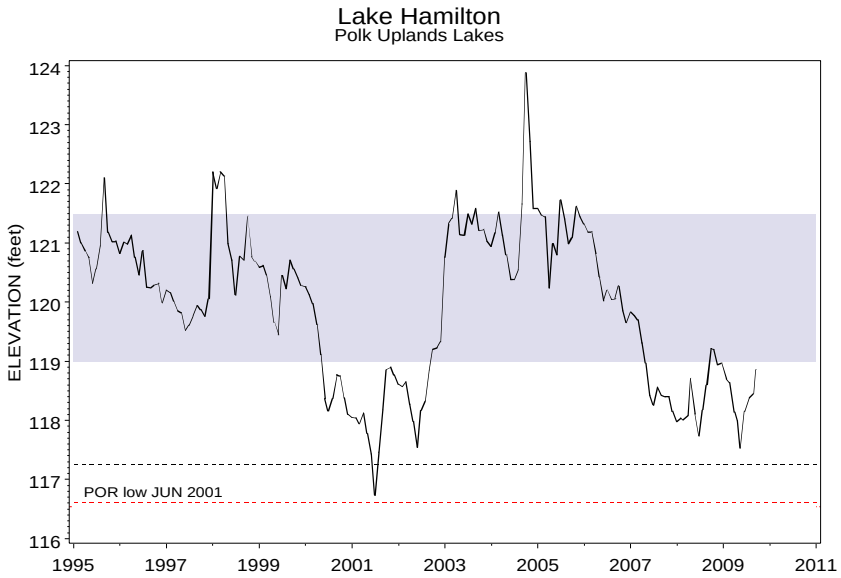
HYDROGRAPHS OF REGIONAL LAKES

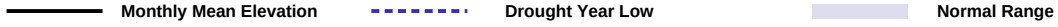
15-yr Period of Record







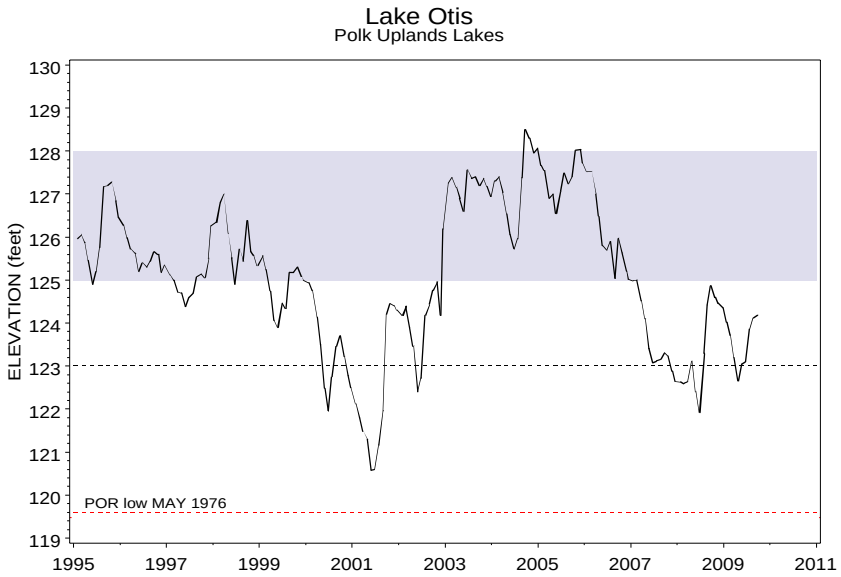


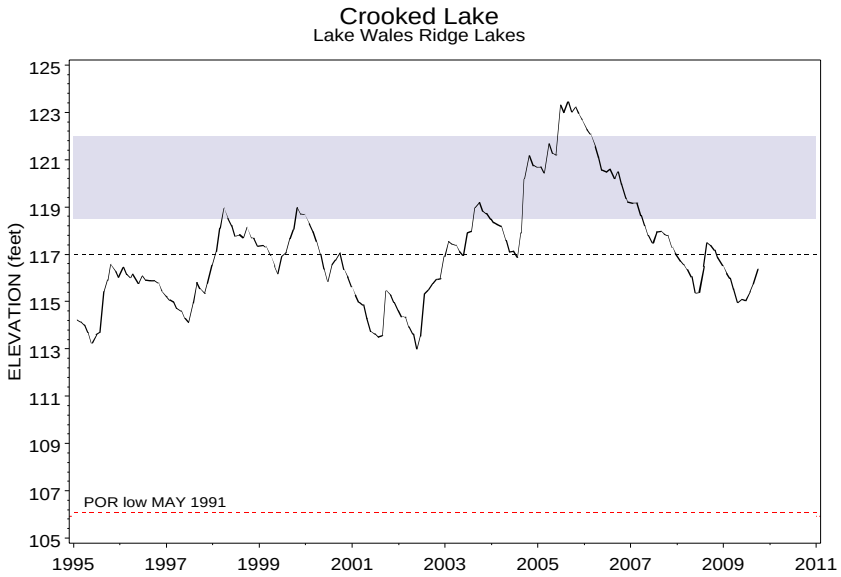


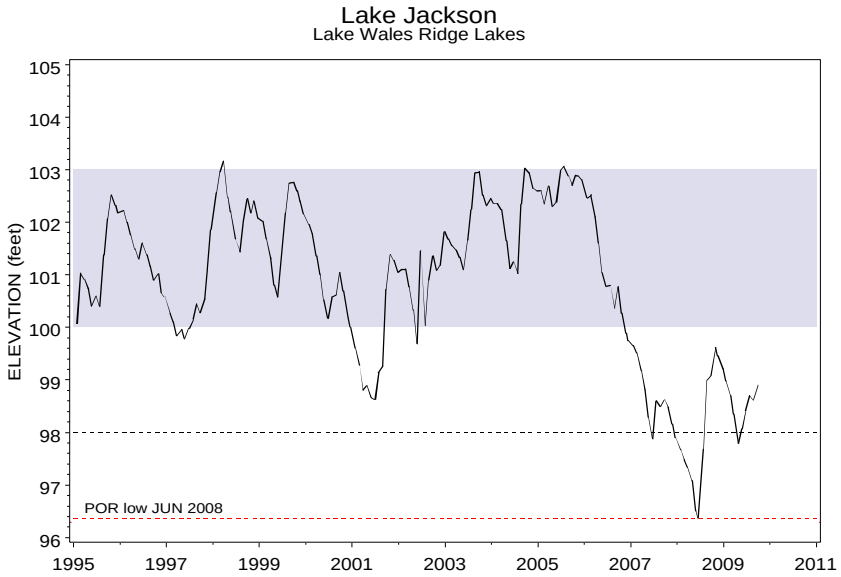
Compiled by Ken Romie

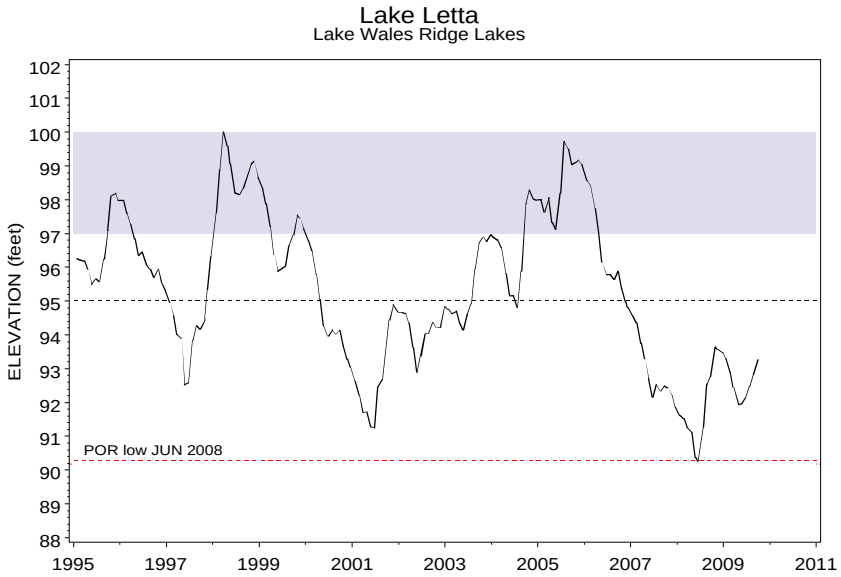
HYDROGRAPHS OF REGIONAL LAKES

15-yr Period of Record









Monthly Mean Elevation Drought Year Low Normal Range

Compiled by Ken Romie

Streams

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

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

In September, eleven of the twelve stations monitored for this report had increased streamflow compared to last month. Total streamflow increased in the northern region of the District by 299.3 cfs (193.3 mgd), while it increased in the central and southern regions by 675.4 cfs (436.3 mgd) and 1869.0 cfs (1207.4 mgd), respectively. District-wide, total streamflow increased an average of 2843.7 cfs (1837.0 mgd).

Ten of the twelve monitoring stations recorded higher streamflow in September 2009 than in September 2008. Streamflow was higher in the northern region of the District by 540.6 cfs (349.2 mgd), while it was higher in the central and southern regions by 1217.9 cfs (786.8 mgd) and 1592.2 (1028.6 mgd), respectively. District-wide, total streamflow was higher, on average, by 3350.7 cfs (2164.6 mgd), than the September 2008 average.

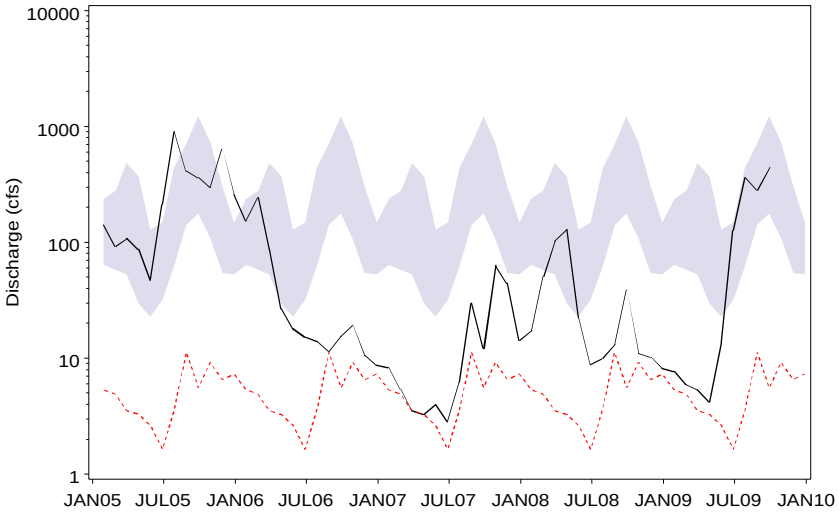
Compared to historical September discharge values, Withlacoochee River streamflow, measured at the Trilby station and the Holder station averaged in the 47th and 31st percentiles, respectively. Streamflow measured at the Anclote, Hillsborough and Pithlachascotee River stations averaged in the 65th, 56th and 59th percentiles of respective historical September readings. Streamflow measured at the Alafia River, Little Manatee River and Peace River at Bartow stations averaged in the 59th, 75th and 23rd percentiles of respective historical September readings. Additionally, streamflow measured at the Josephine Creek, Manatee River, Myakka River and Peace River at Arcadia stations averaged in the 38th, 86th, 73rd and 52nd percentiles of respective historical September readings.

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

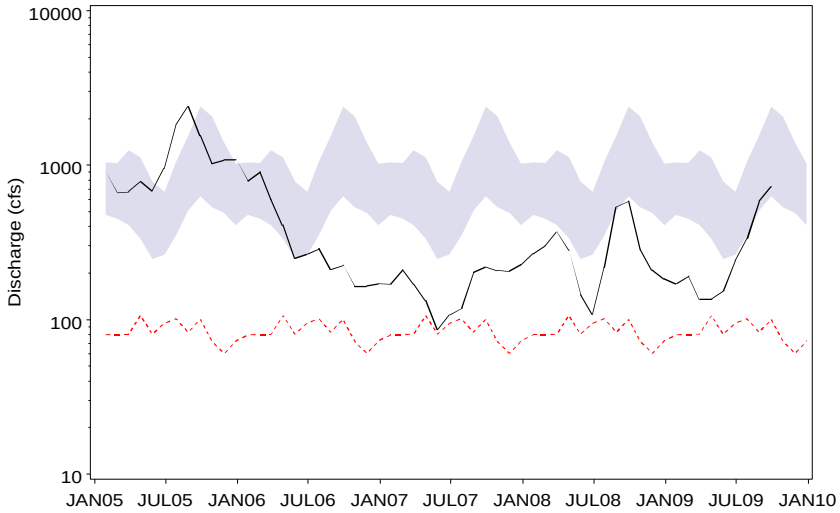
NORTHERN COUNTIES	*Beginning Year of Record*	*Mean Discharge SEP 2009*	*Mean Discharge AUG 2009*	*Mean Discharge SEP 2008*	*Change from AUG 2009*	*Change from SEP 2008*	*SEP 2009 Percentile Rank*	*Period of Record Low*	*Record Low Date*	*Period of Record High*	*Record High Date*
Withlacoochee R at Trilby	1928	442.0	283.4	38.8	158.6	403.2	47%	0.1	JUN2000	8840	JUN1934
Withlacoochee R near Holder	1928	723.1	582.4	585.7	140.7	137.4	31%	33.0	MAR2001	8660	APR1960
CENTRAL COUNTIES											
Anclote River near Elfers	1946	156.4	97.9	14.3	58.5	142.1	65%	0.8	MAY1962	3710	JUL1960
Pithlachascottee R near New Port Richey	1963	39.8	34.6	6.1	5.2	33.7	56%	0.0	JUN2009	1420	SEP1988
Hillsborough R near Zephyrhills	1939	386.0	192.9	90.2	193.1	295.8	59%	27.0	MAY2001	12300	MAR1960
Alafia River at Lithia	1932	568.4	310.5	131.9	257.9	436.5	59%	4.1	JUN2000	40800	SEP1933
Little Manatee R near Wimauma	1939	500.1	290.6	155.9	209.5	344.2	75%	0.9	DEC1976	11100	SEP1960
Peace River at Bartow	1939	146.4	58.8	200.0	87.6	-53.6	23%	0.0	MAY2009	4100	SEP1947
SOUTHERN COUNTIES											
Josephine Cr near DeSoto City	1946	86.0	134.8	120.4	-48.8	-34.4	38%	0.5	MAY1956	1680	SEP1948
Manatee River near Myakka Head	1966	304.0	176.7	48.8	127.3	255.2	86%	0.1	MAY1975	6440	JUN2003
Myakka River near Sarasota	1936	847.5	330.0	261.8	517.5	585.7	73%	0.0	MAY2009	10800	JUN2003
Peace River at Arcadia	1931	1839.7	703.1	1034.8	1136.6	804.9	52%	5.6	MAY2000	34700	SEP1933

HYDROGRAPHS OF MAJOR STREAMS
JANUARY 2005 TO SEPTEMBER 2009

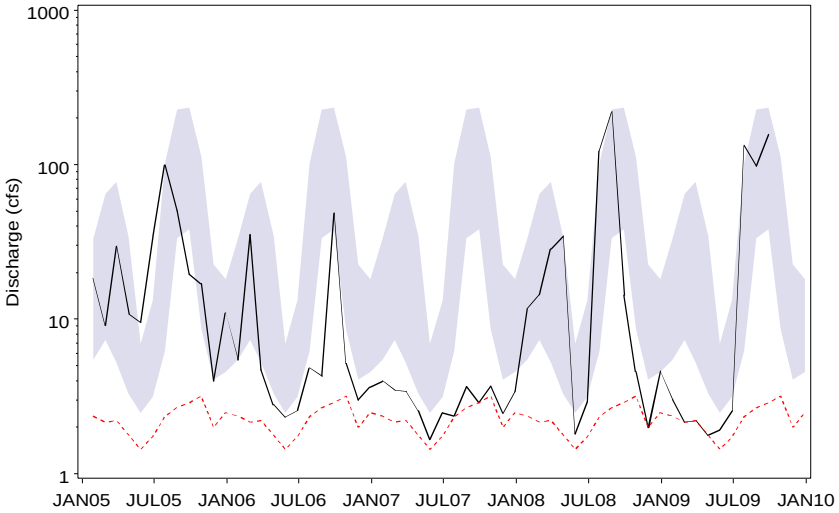
Withlacoochee R at Trilby
Northern Counties



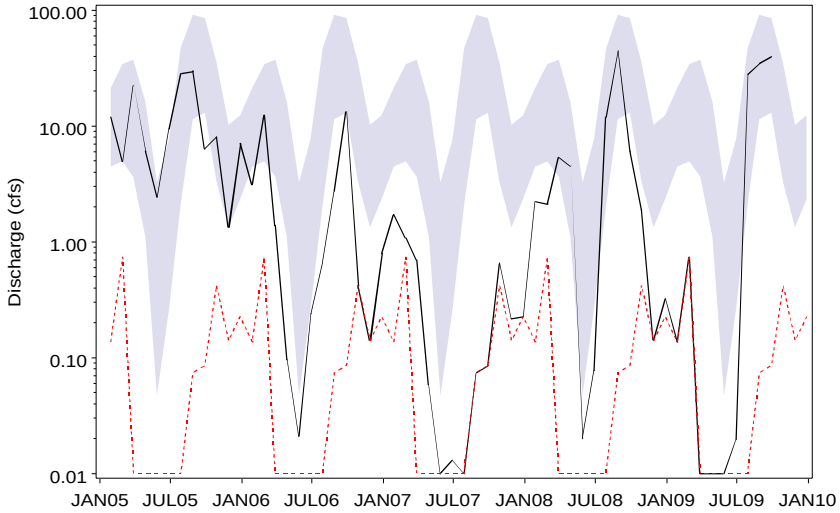
Withlacoochee R near Holder
Northern Counties



Anclote River near Elfers
Central Counties

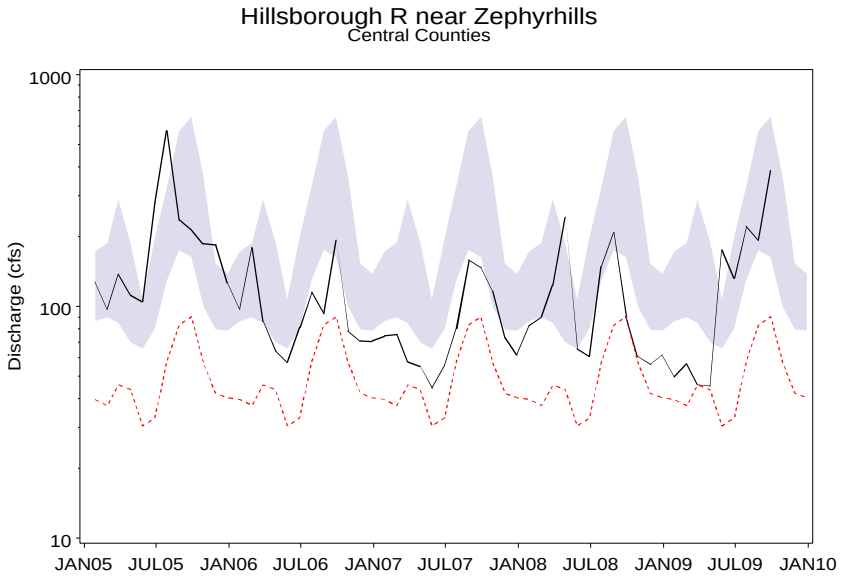


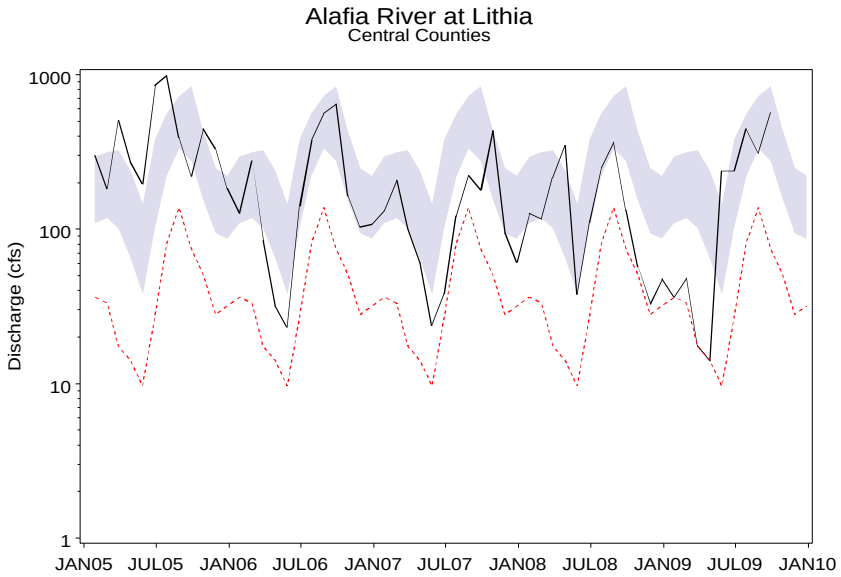
Pithlachascottee R near New Port Richey
Central Counties

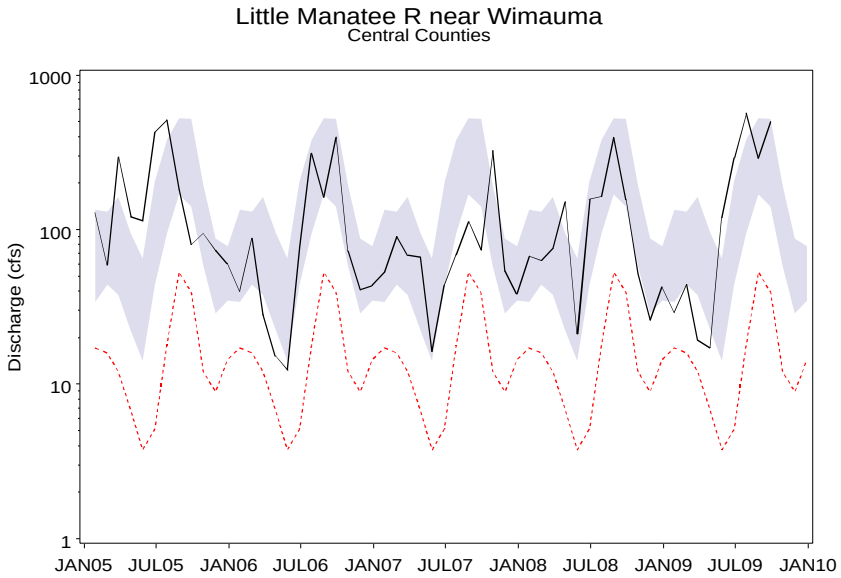


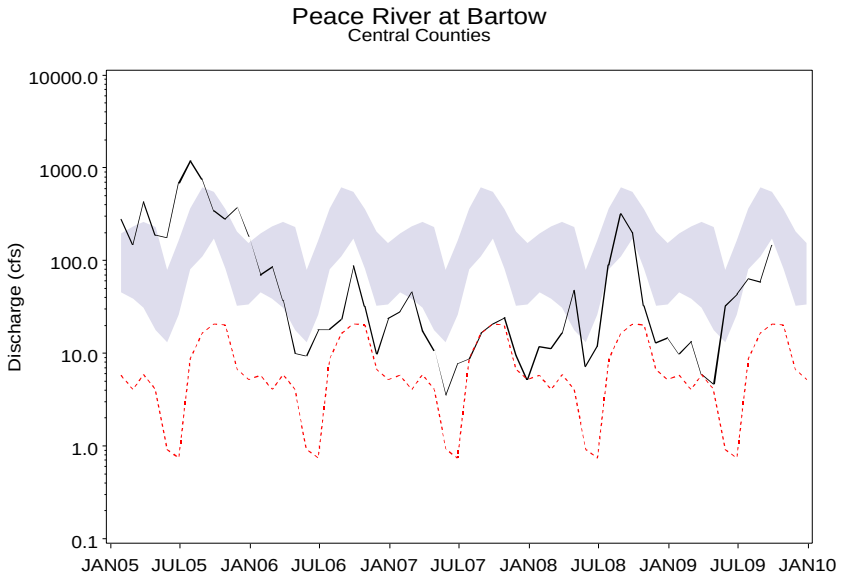
Monthly Mean Discharge POR Monthly Low Normal Range

HYDROGRAPHS OF MAJOR STREAMS
JANUARY 2005 TO SEPTEMBER 2009



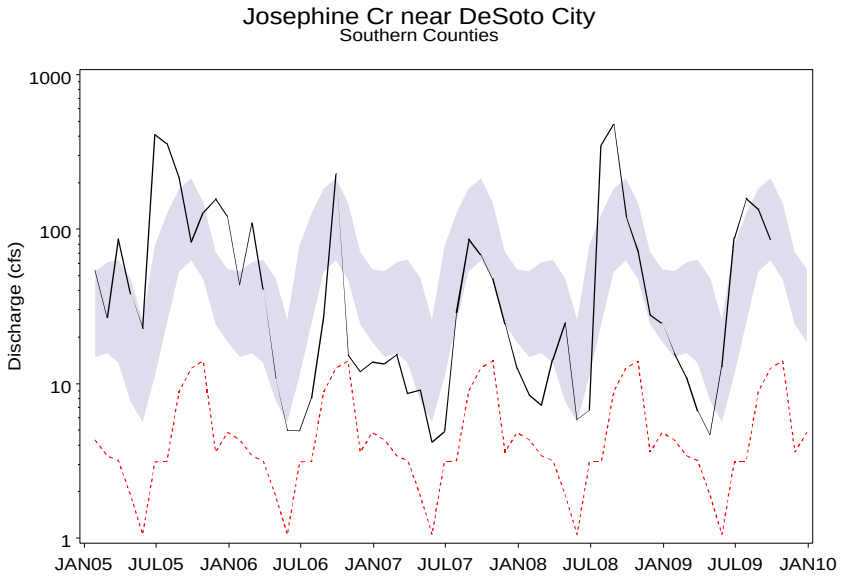


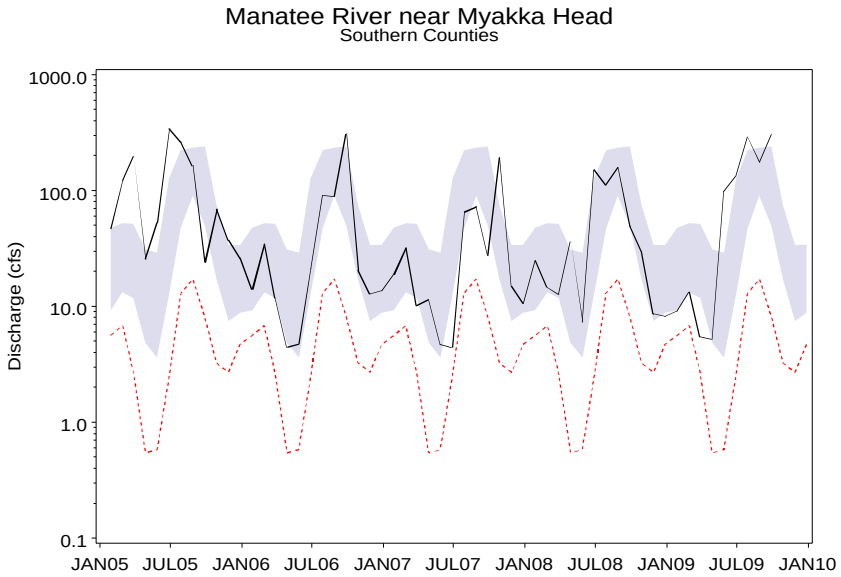


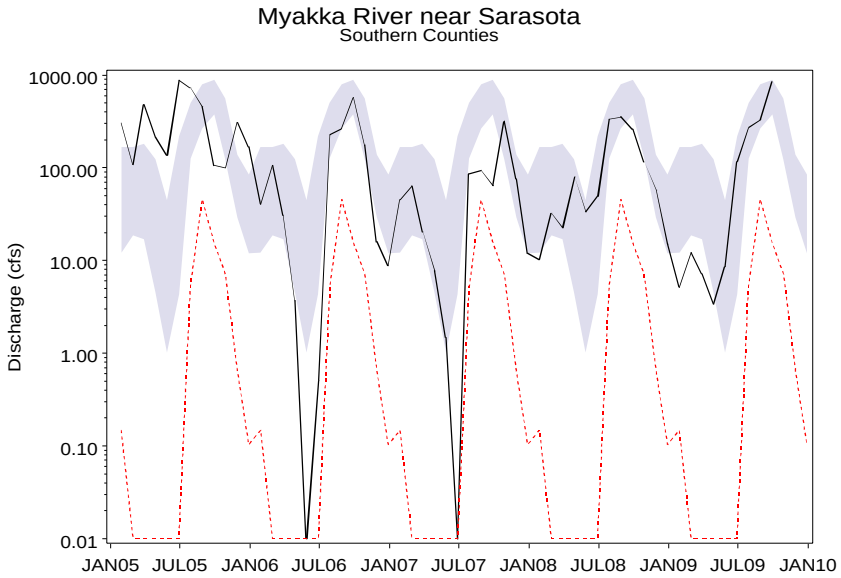


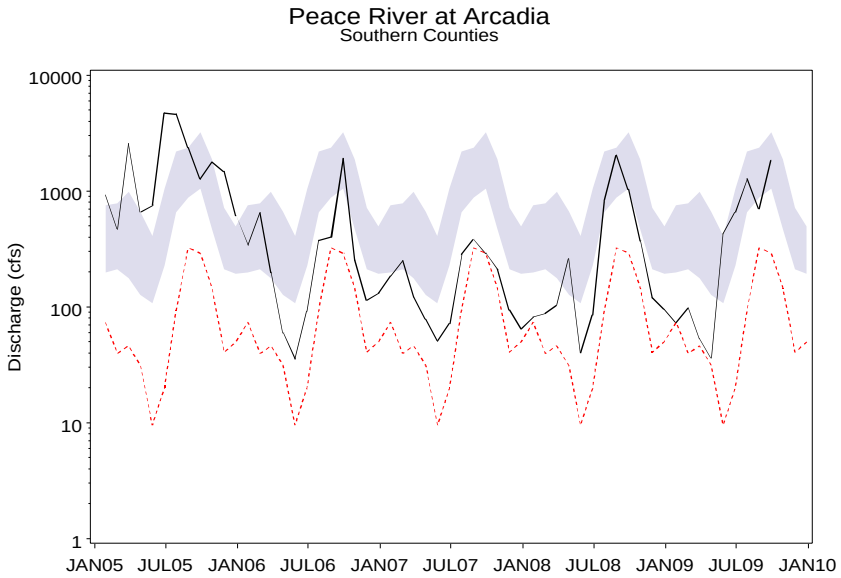
Monthly Mean Discharge POR Monthly Low Normal Range

HYDROGRAPHS OF MAJOR STREAMS
JANUARY 2005 TO SEPTEMBER 2009









Monthly Mean Discharge POR Monthly Low Normal Range

Springs

The District processes springflow data collected by Tampa Bay Water through a mutual agreement and by the U.S. Geological Survey (USGS) under a cooperatively funded program between the District and the USGS. Springflow is monitored at seven gauging stations in two regions of the District (see index map in the Appendix). Springflow data for Rainbow, Silver and Sulphur Springs are recorded as daily water levels. The USGS uses rating curves developed for these springs from historical water level elevations to calculate springflow discharge in units of cubic feet per second (cfs). Crystal and Weeki Wachee Springs discharge (cfs) is provided as an instantaneous reading calculated by the USGS. Buckhorn and Lithia Springs discharge is obtained from Tampa Bay Water biweekly and weekly, respectively. Period-of-record high and low values correspond to monthly theoretical means and not to peak events. Values are reported as percentiles calculated from an analysis of historical monthly means recorded during a given month. The percentile is the monthly mean ranked on a scale of zero to 100 that indicates the percent of period-of-record values that are above, equal to or below the median (50^{th} 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^{th} and 75^{th} percentiles that are calculated from historical data. The 25^{th} and 75^{th} percentiles are calculated using the SAS™ software system for data analysis using period-of-record monthly theoretical means for each springflow station analyzed.

In September, four of the seven stations reported increased springflow, compared to the previous month. Total springflow increased in the northern region by 25.0 cfs (16.2 mgd), while springflow decreased in the central region by 7.0 cfs (4.5 mgd), respectively. District-wide, springflow increased by 18.0 cfs (11.5 mgd).

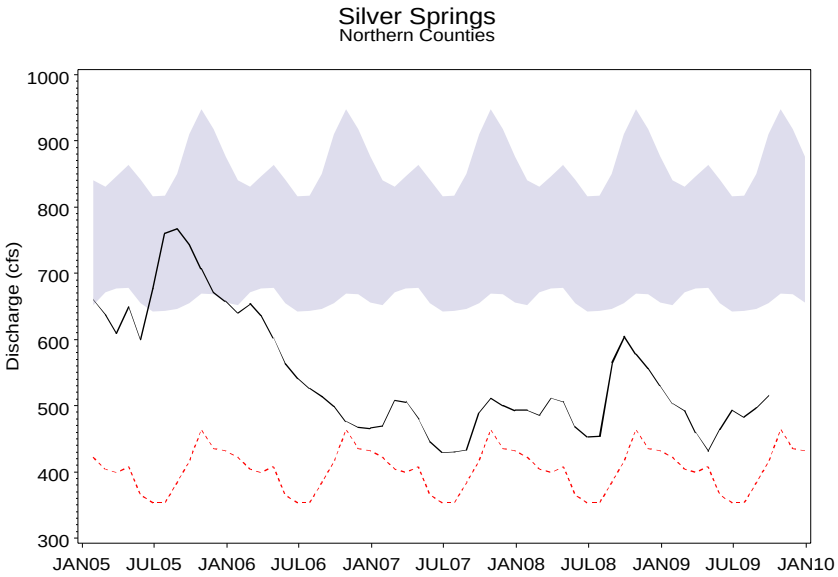
Total springflow recorded in four of the seven stations was lower in September 2009 than September 2008. Total springflow for the northern region was lower by 244.0 cfs (155.3 mgd), while the central region was lower by 5.0 cfs (3.2 mgd). District-wide, springflow decreased by 247.2 cfs (157.3 mgd) compared to September 2008 rates.

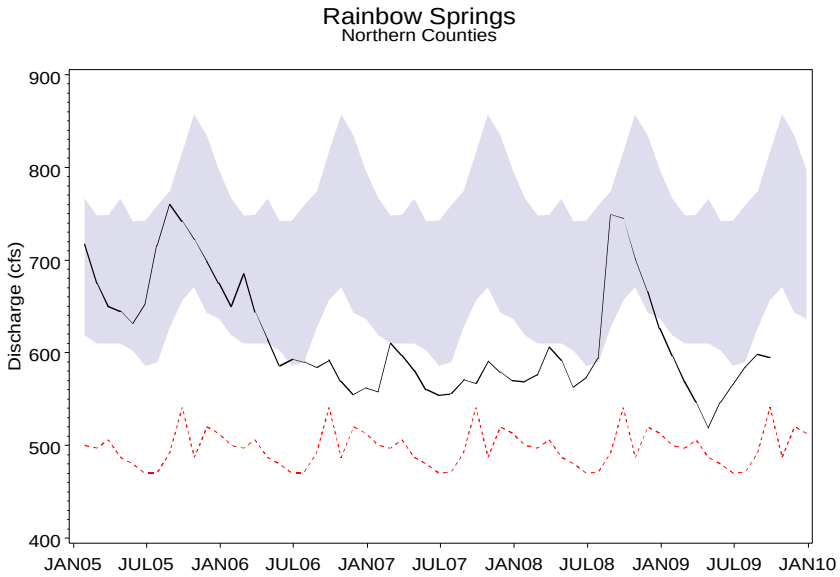
Compared to historical period-of-record values for September, total springflow measured in Rainbow, Silver and Weeki Wachee Springs, in the northern region, was in the 14^{th}, 6^{th} and 44^{th} percentiles of respective historical readings. Springflow measured in Crystal, Sulphur, Buckhorn and Lithia Springs in the central region was in the 31^{st}, 10^{th}, 48^{th} and 25^{th} percentiles, respectively, of historical September readings.

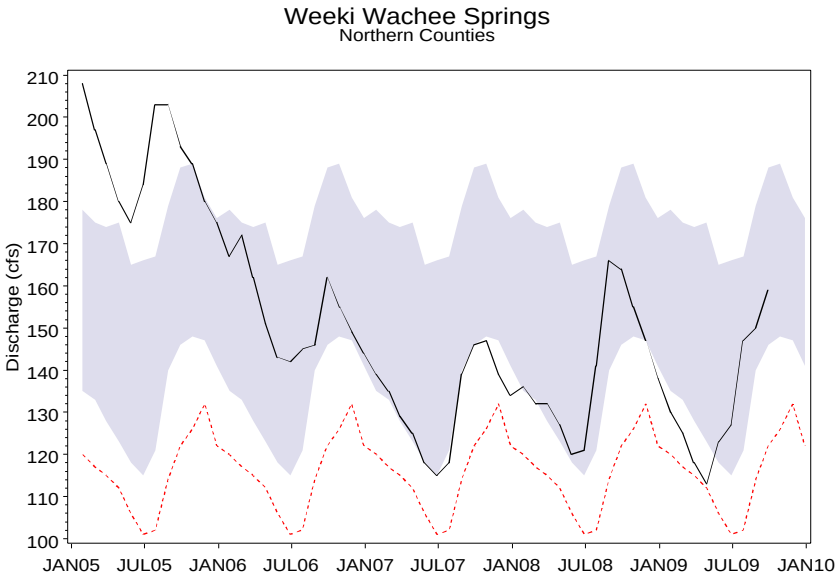
SUMMARY OF SPRINGS DISCHARGE FROM MAJOR SPRINGS (CFS), SEPTEMBER 2009

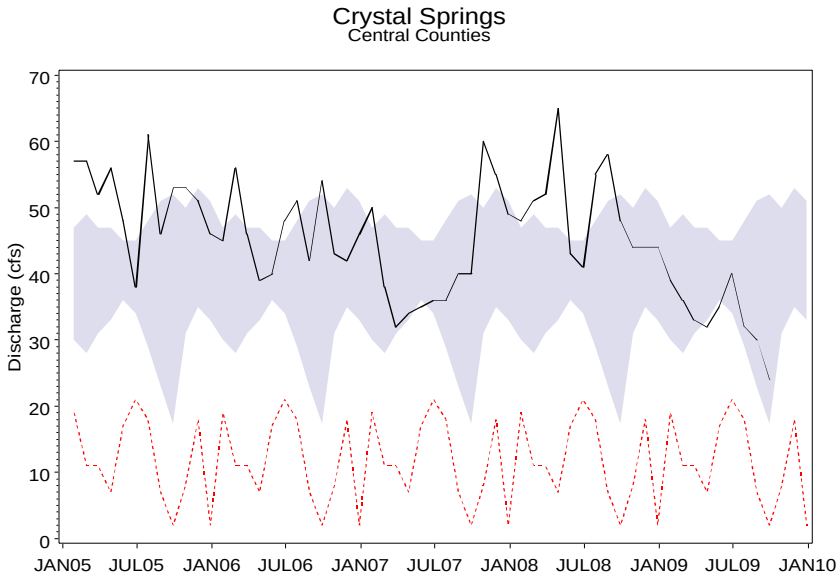
NORTHERN COUNTIES	*SEP 2009 Discharge*	*AUG 2009 Discharge*	*SEP 2008 Discharge*	*Change From AUG 2009*	*Change From SEP 2008*	*SEP 2009 Percentile Rank*	*Period of Record Low*	*Record Low Date*	*Period of Record High*	*Record High Date*
Rainbow Springs	595.0	598.0	745.0	-3.0	-150.0	14%	470.0	JUN2001	1230.0	OCT1964
Silver Springs	516.0	497.0	605.0	19.0	-89.0	6%	353.0	JUL2001	1290.0	OCT1960
Weeki Wachee Springs	159.0	150.0	164.0	9.0	-5.0	44%	101.0	JUN1994	257.0	OCT2004
CENTRAL COUNTIES										
Crystal Springs	24.0	30.0	48.0	-6.0	-24.0	31%	2.0	DEC1988	142.0	DEC2002
Sulphur Springs	32.0	29.0	18.0	3.0	14.0	10%	0.0	MAY2007	145.0	MAR1960
Buckhorn Springs	13.0	11.0	11.0	2.0	2.0	48%	2.0	MAY2006	33.0	AUG2004
Lithia Springs	42.0	48.0	39.0	-6.0	3.0	25%	6.0	JUN1985	92.0	NOV2004

HYDROGRAPHS OF REGIONAL SPRINGS
JANUARY 2005 TO SEPTEMBER 2009





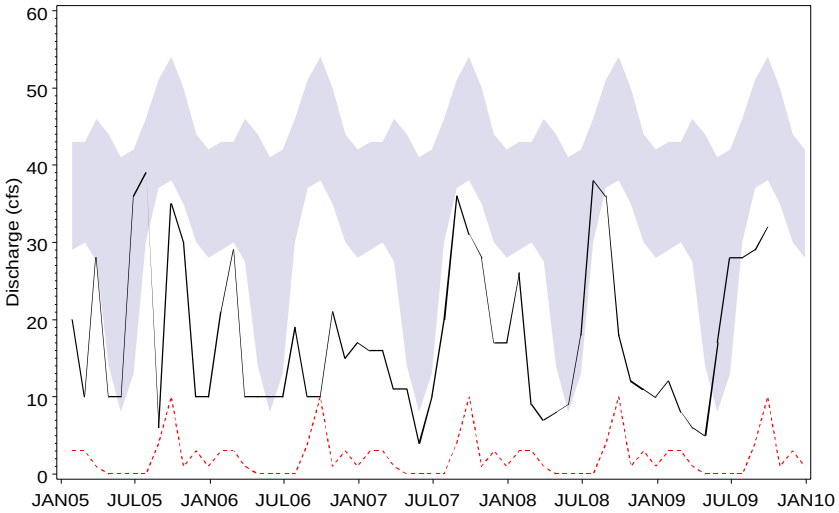




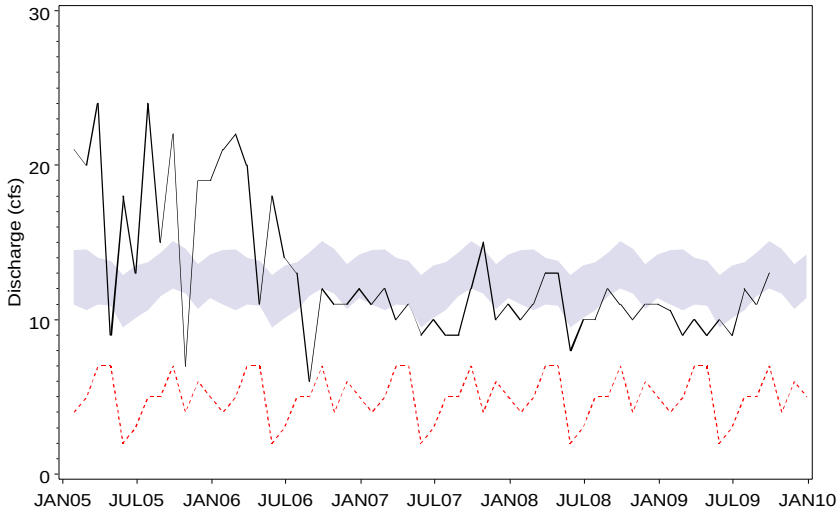
Monthly Discharge POR Monthly Low Normal Range

HYDROGRAPHS OF REGIONAL SPRINGS
JANUARY 2005 TO SEPTEMBER 2009

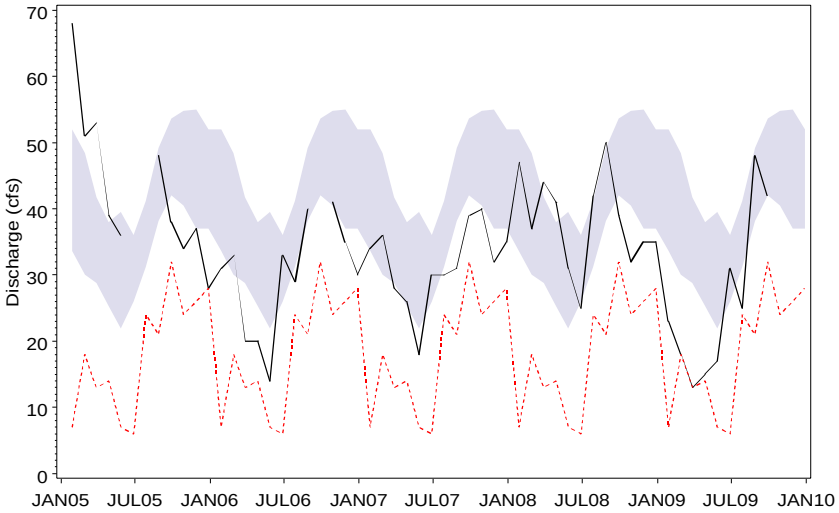
Sulphur Springs
Central Counties



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^{th} and 75^{th} percentiles ("low normal" and "high normal," respectively) were calculated for each week of the year using the period-of-record data. The 25^{th} and 75^{th} 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 September, seven of the twelve surficial aquifer wells recorded water level increases compared to last month. Regionally, average surficial aquifer water levels increased in the northern, central and southern regions of the District by 0.59, 0.11 and 0.06 foot, respectively. District-wide, average surficial aquifer water levels increased by 0.18 foot.

In September, average water levels in nine of the twelve surficial aquifer wells were higher than September 2008 levels. Average surficial aquifer water levels were higher in the northern and southern regions by 0.70 and 0.83 foot, respectively; while they were lower in the central region by 0.03 foot. District-wide, average water levels in surficial wells were 0.31 foot higher than September 2008 levels.

At the end of September, water levels were above the normal range in eleven of the twelve surficial wells. Average surficial aquifer water levels in the northern, central and southern regions were above the bottom of the normal range by 1.09, 1.14 and 1.61 feet, respectively. District-wide, the average water level in surficial wells was 1.25 feet above the bottom of the normal range.

SUMMARY OF SURFICIAL AQUIFER LEVELS IN REPRESENTATIVE WELLS, SEPTEMBER 2009

NORTHERN COUNTIES	*SEP 2009 Elev*	*AUG 2009 Elev*	*SEP 2008 Elev*	*Change From AUG 2009*	*Change From SEP 2008*	*SEP Historical Low Normal*	*SEP Historical High Normal*	*Departure From Low Normal*	*Period of Record Low*	*Record Low Date*	*Period of Record High*	*Record High Date*
Green Swamp	91.57	91.50	89.97	0.07	1.60	89.90	91.52	1.67	82.95	MAY2000	93.07	SEP1985
Lecanto 2	8.56	7.44	8.77	1.12	-0.21	8.05	10.12	0.51	5.76	MAY2001	13.92	SEP1974
CENTRAL COUNTIES												
Loughman	93.29	93.38	92.44	-0.09	0.85	91.66	92.95	1.63	88.19	AUG2000	95.79	SEP2004
Lutz-Lake Fern	57.84	57.76	56.85	0.08	0.99	57.09	58.42	0.75	53.39	AUG1992	67.92	MAY1966
ROMP 50 Shallow	41.90	41.95	41.59	-0.05	0.31	41.62	42.37	0.28	39.93	MAY1989	44.05	SEP2001
SR 33 & Combee Road	133.46	133.68	132.58	-0.22	0.88	133.82	135.24	-0.36	129.16	FEB2001	136.97	OCT1995
SR 577 Shallow	124.24	124.92	123.51	-0.68	0.74	120.77	124.08	3.47	110.18	FEB1991	129.02	AUG2003
Tarpon Road Shallow	11.28	11.04	15.87	0.24	-4.59	10.97	13.23	0.31	9.31	JUN1978	16.30	OCT2006
USGS P-48	100.57	99.09	99.97	1.48	0.60	98.64	100.72	1.93	96.07	JUN2001	104.79	SEP2004
SOUTHERN COUNTIES												
Edgeville 4 Shallow	67.72	68.20	68.45	-0.48	-0.73	67.71	68.69	0.01	63.85	MAY1975	69.93	SEP1971
ROMP 26 Shallow	71.20	70.84	68.71	0.35	2.48	68.91	71.66	2.29	64.32	JUN1999	75.11	JUN1982
SR 74	18.20	17.89	17.46	0.31	0.74	15.67	16.61	2.53	12.66	MAY2000	18.32	JUL2001

Intermediate and Floridan Aquifers

In September, 41 of the 51 intermediate and Floridan aquifer wells monitored for this report recorded water level increases. Regionally, average water levels increased in the northern, central and southern regions of the District by 0.04, 0.25 and 0.77 foot, respectively. District-wide, the mean water level in the intermediate and Floridan aquifer wells increased 0.35 foot.

During September, water levels in 37 of the 51 intermediate and Floridan aquifer wells were higher than those measured in September 2008. Regionally, the mean water level in the northern region was 0.14 foot lower than September 2008 levels, while in the central and southern regions it was above by 2.37 and 1.76 feet, respectively. District-wide, average water levels in intermediate and Floridan aquifer wells were 1.33 feet above last year's levels.

For September, 36 of the 51 intermediate and Floridan aquifer wells had levels above the bottom of the normal range, compared to historical monthly levels. Regionally, the average water level in the northern, central and southern regions was 0.77 foot, 2.52 feet and 2.13 feet, respectively, above the bottom of the normal range. District-wide, the average water level in intermediate and Floridan aquifer wells was 1.81 feet above the bottom of the normal range.

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

Regional Summary:

Region	*SEP 2009 Mean Elevation*	*SEP 2009 Relation to POR Median*	*SEP 2009 Relation to 25th Percentile*	*SEP 2009 Mean Percentile Rank*	*AUG 2009 Mean Percentile Rank*	*SEP 2008 Mean Percentile Rank*
Northern Counties	37.75	-0.96	0.77	35%	37%	37%
Central Counties	57.65	0.21	2.52	52%	49%	27%
Southern Counties	35.16	-0.35	2.13	47%	34%	31%

Regional Wells Summary:

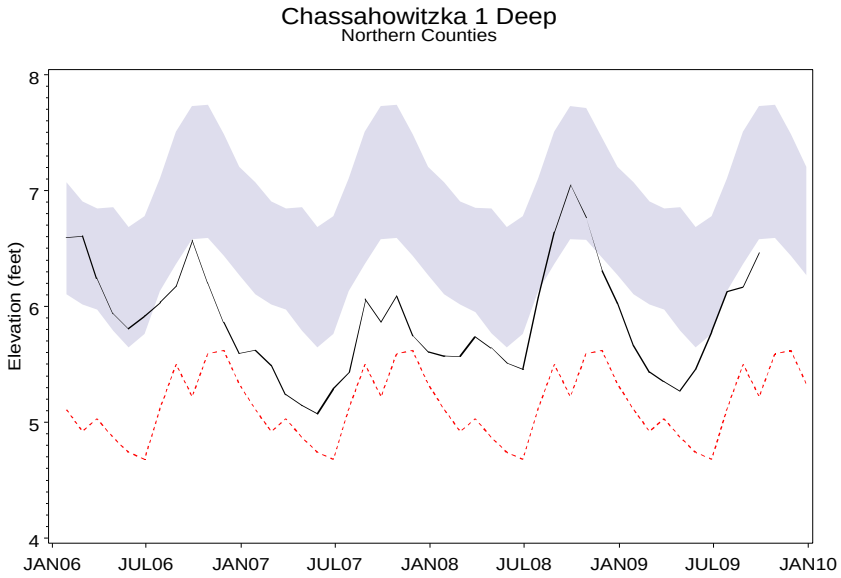
NORTHERN COUNTIES	*SEP 2009 Elev*	*AUG 2009 Elev*	*SEP 2008 Elev*	*Change From AUG 2009*	*Change From SEP 2008*	*SEP Historical Low Normal*	*SEP Historical High Normal*	*Departure From Low Normal*	*SEP 2009 Percentile Rank*	*Period of Record Low*	*Record Low Date*	*Period of Record High*	*Record High Date*
CE 14 Dunnellon Deep	37.58	37.08	40.83	0.50	-3.25	38.95	44.62	-1.37	12%	34.14	JUN2001	50.90	MAR1998
Chassahowitzka 1 Deep	6.51	6.18	6.99	0.33	-0.48	6.59	7.74	-0.08	22%	4.68	JUN2001	9.75	SEP2004
Inverness Dot Fldn	27.01	26.60	27.80	0.41	-0.79	28.21	32.91	-1.20	14%	21.63	JUN2001	37.80	OCT1982
Mascotte Deep	99.82	100.72	99.14	-0.90	0.68	99.54	101.17	0.28	33%	93.61	JUN2000	102.66	SEP1988
ROMP 103 Suwannee/Ocala	39.18	38.74	37.26	0.44	1.92	38.77	44.15	0.41	32%	33.75	MAY2009	51.03	OCT2004
ROMP 107 Ocala/Avon Park	11.13	10.73	11.71	0.40	-0.58	11.77	14.84	-0.64	16%	8.05	AUG2007	19.78	NOV1982
ROMP 134 Ocala/Avon Park	44.08	43.96	47.37	0.12	-3.29	44.69	50.64	-0.61	21%	38.71	JUL2002	57.37	APR1998
ROMP 89 Ocala	92.24	92.54	89.46	-0.30	2.78	90.61	92.69	1.63	64%	82.42	JUN2000	94.99	DEC1997
ROMP 97 Avon Park	17.51	16.81	16.58	0.70	0.93	16.51	22.68	1.00	34%	11.84	MAY2009	26.24	SEP2004
ROMP Tr 124 Avon Park	3.55	3.45	3.79	0.10	-0.24	2.92	3.58	0.63	74%	0.77	SEP2004	6.11	AUG1985
ROMP Tr 21-2 Ocala/Avon Pk	2.30	2.19	2.45	0.11	-0.15	1.77	2.33	0.53	74%	0.03	FEB2001	4.56	NOV1987
Sumter 13 JC 59 Up Fldn	42.43	43.27	42.33	-0.84	0.10	40.75	43.92	1.68	51%	36.84	JUL2007	47.01	JUN2003
Webster City Fldn	80.56	81.20	82.16	-0.64	-1.60	80.39	85.60	0.17	29%	74.48	JUL1981	88.77	SEP2005
Weeki Wachee Deep	14.93	13.97	15.35	0.96	-0.42	16.22	21.21	-1.29	12%	10.67	MAY2009	23.91	AUG1984

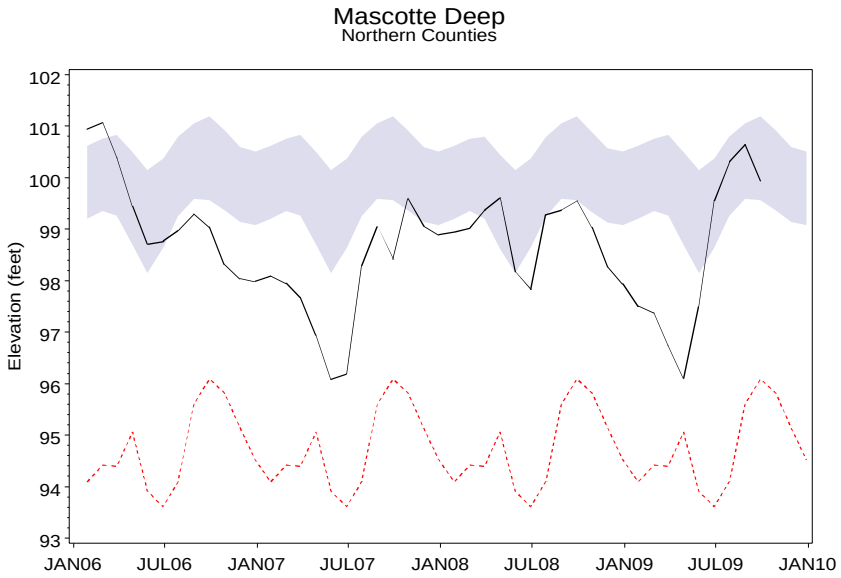
Regional Wells Summary (continued):

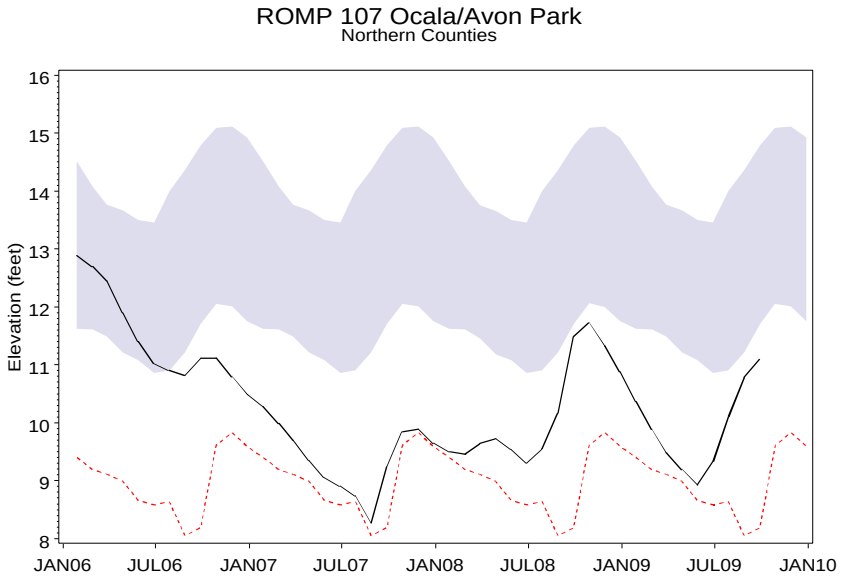
CENTRAL COUNTIES	SEP 2009 Elev	AUG 2009 Elev	SEP 2008 Elev	Change From AUG 2009	Change From SEP 2008	SEP Historical Low Normal	SEP Historical High Normal	Departure From Low Normal	SEP 2009 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Bexley 2 Fldn	63.22	63.11	61.18	0.11	2.04	61.11	62.60	2.11	92%	56.08	JUN2000	64.07	SEP1988
Hills State Pk Parking Deep	41.62	39.67	38.14	1.95	3.48	38.47	41.46	3.15	77%	35.35	JUN2000	47.42	DEC1997
Lk Alfred Deep nr Lake Alfre	127.08	127.47	126.69	-0.39	0.39	127.23	128.94	-0.15	22%	119.85	MAY1974	131.62	OCT1960
Lykes Pasco Fldn	65.48	64.70	64.49	0.78	0.99	64.25	69.16	1.23	38%	56.94	JUN2000	74.89	MAR1998
Masaryktown Deep	26.97	26.49	27.57	0.48	-0.60	29.89	42.23	-2.92	13%	21.89	AUG1994	50.32	SEP1984
Moon Lake Deep	30.84	29.94	29.43	0.90	1.41	30.29	31.92	0.55	40%	26.15	JUN2000	34.38	MAR1998
Pasco Well 13 nr Drexel Fldn	71.84	72.48	71.23	-0.64	0.61	72.86	74.65	-1.02	11%	68.00	JUN2001	77.14	JUL1960
Pinellas 665 Fldn	9.94	9.60	9.05	0.34	0.89	10.02	12.28	-0.08	23%	6.70	MAY2006	14.79	SEP1959
ROMP 45 Avon Park	75.47	71.76	71.30	3.71	4.17	63.54	72.96	11.93	86%	31.75	MAY1981	84.42	OCT2004
ROMP 50 Avon Park	8.64	6.20	5.80	2.44	2.84	5.39	10.50	3.25	64%	-17.09	JAN2005	14.95	AUG1982
ROMP 59 Swnn/AvPk	76.39	72.56	72.28	3.83	4.11	63.45	73.33	12.94	86%	33.33	MAY1981	85.92	OCT2004
ROMP 66 Tampa	19.45	19.00	19.57	0.45	-0.12	18.08	20.46	1.37	54%	12.04	JUN1977	24.51	DEC1997
ROMP 87 Avon Park	103.47	103.50	100.43	-0.03	3.04	102.33	104.14	1.14	53%	94.90	JUN2000	106.30	FEB1998
ROMP 93 Swnn/AvPk	66.52	66.27	66.76	0.25	-0.24	66.83	74.38	-0.31	25%	59.02	JUN2001	76.60	SEP1982
SR 52 Deep W nr Fivay Jct	53.75	54.56	51.73	-0.81	2.02	52.45	53.82	1.30	73%	48.08	JUN2000	56.75	SEP1988
SR 577 Deep	84.06	82.88	82.73	1.18	1.33	87.54	94.30	-3.48	14%	72.76	JUN2000	98.51	MAR1998
Sanlon Ranch Fldn	96.72	93.92	94.53	2.80	2.19	88.07	95.67	8.65	81%	66.38	MAY1975	105.27	OCT2004
Tarpon Rd Deep	11.87	11.46	10.04	0.41	1.83	10.46	11.37	1.41	88%	6.95	MAY2007	13.06	SEP1971

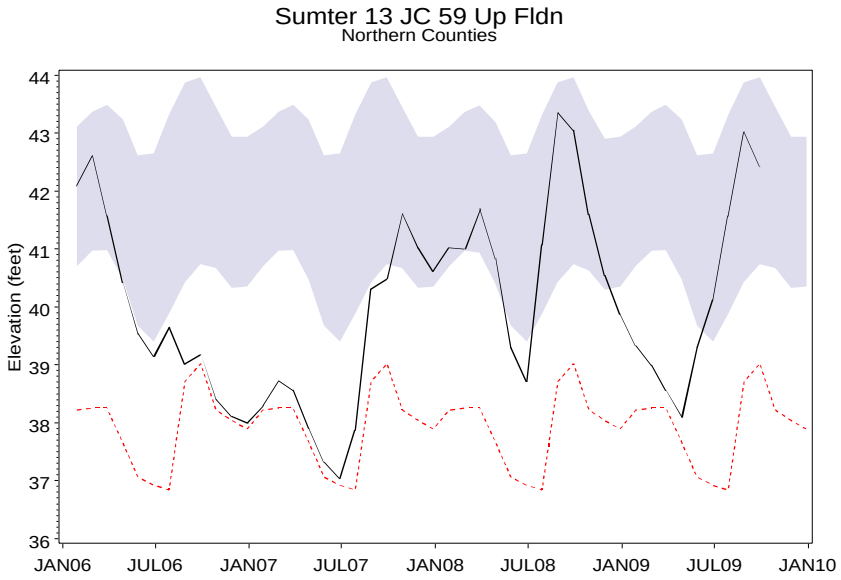
SOUTHERN COUNTIES	SEP 2009 Elev	AUG 2009 Elev	SEP 2008 Elev	Change From AUG 2009	Change From SEP 2008	SEP Historical Low Normal	SEP Historical High Normal	Departure From Low Normal	SEP 2009 Percentile Rank	Period of Record Low	Record Low Date	Period of Record High	Record High Date
Big Slough Deep	34.93	33.61	33.70	1.32	1.23	33.82	34.89	1.11	78%	26.82	MAY2006	36.12	OCT1995
Edgeville 3 Deep	32.88	32.70	30.00	0.18	2.88	32.11	37.68	0.77	32%	1.13	MAY2000	46.40	OCT1965
Englewood 14 Deep	7.40	4.50	7.26	2.90	0.14	4.48	7.44	2.92	75%	-0.97	FEB2001	11.37	SEP1974
Florida Cities Test 1	11.23	6.82	8.78	4.41	2.45	12.53	20.93	-1.30	18%	-15.98	MAY2006	25.89	SEP1977
Kibler Deep	15.91	18.49	8.65	-2.58	7.26	13.23	22.31	2.68	38%	-29.95	MAY2000	29.30	AUG1978
Manasota 14 Deep	18.87	17.83	19.24	1.04	-0.37	20.11	21.79	-1.24	5%	14.88	JUL2004	22.70	NOV1971
Marshall Deep	47.77	46.53	46.53	1.24	1.24	45.23	49.68	2.54	49%	8.96	JUN2000	55.24	MAR1964
ROMP 16 Ocala	49.63	49.00	49.13	0.63	0.50	48.53	50.10	1.10	57%	28.94	JAN2001	51.21	SEP1995
ROMP 26 Swnn/AvPk	48.60	48.06	48.03	0.54	0.57	46.34	49.51	2.26	57%	19.62	JAN2001	51.28	OCT1979
ROMP 28X Swnn/AvPk	70.01	69.81	70.78	0.20	-0.77	68.56	71.92	1.45	44%	58.40	JAN2001	74.68	OCT1995
ROMP 30 Swnn/AvPk	54.00	51.67	52.09	2.33	1.91	47.50	54.97	6.50	70%	-0.20	JUN2000	60.52	MAR1998
ROMP 31 Swnn/AvPk	50.11	47.52	47.87	2.59	2.24	43.31	51.49	6.80	68%	-8.20	JUN2000	57.92	MAR1998
ROMP 32 L Ocala/Avon Park	33.65	33.36	30.96	0.29	2.69	30.21	37.39	3.44	47%	-17.54	JUN2000	44.72	FEB1998
ROMP 43XX Avon Park	87.97	87.14	86.86	0.83	1.11	87.38	91.29	0.59	31%	73.61	MAY1986	94.60	MAR1998
ROMP Tr 5-1 Suwannee	21.00	19.66	19.87	1.34	1.13	20.09	21.81	0.91	49%	13.26	JUN2000	23.00	SEP1983
ROMP Tr 7-1 Tampa	21.17	20.02	18.56	1.15	2.61	18.71	20.80	2.46	83%	10.08	JUN2000	23.56	SEP2003
Sarasota 11th St Deep	10.02	8.77	7.02	1.25	3.00	10.19	13.01	-0.17	23%	0.39	MAY2000	19.31	SEP1979
Sarasota 9 Deep	25.13	22.94	20.33	2.19	4.80	25.01	31.72	0.12	27%	0.31	JUN2000	37.56	AUG1932
Verna Test 0-1	21.43	22.01	16.10	-0.58	5.33	20.31	26.96	1.12	32%	-18.05	MAY2000	33.32	JAN1984

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



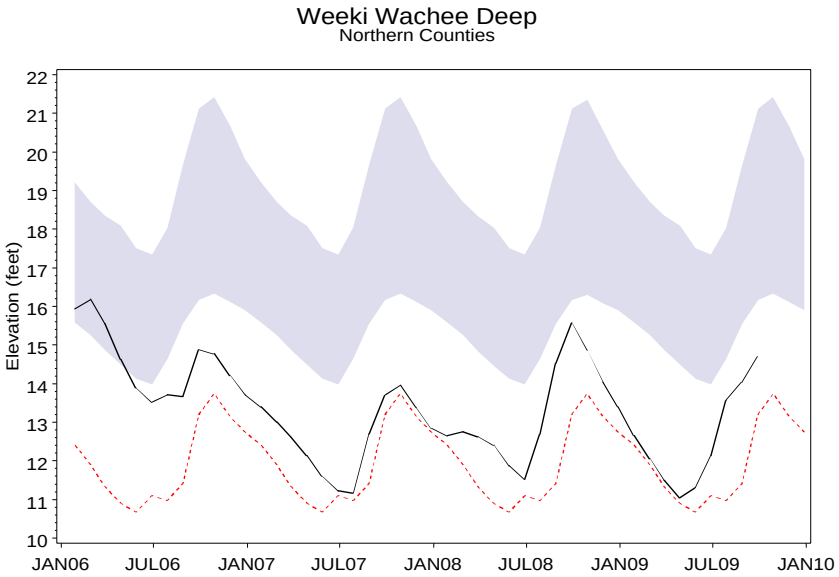


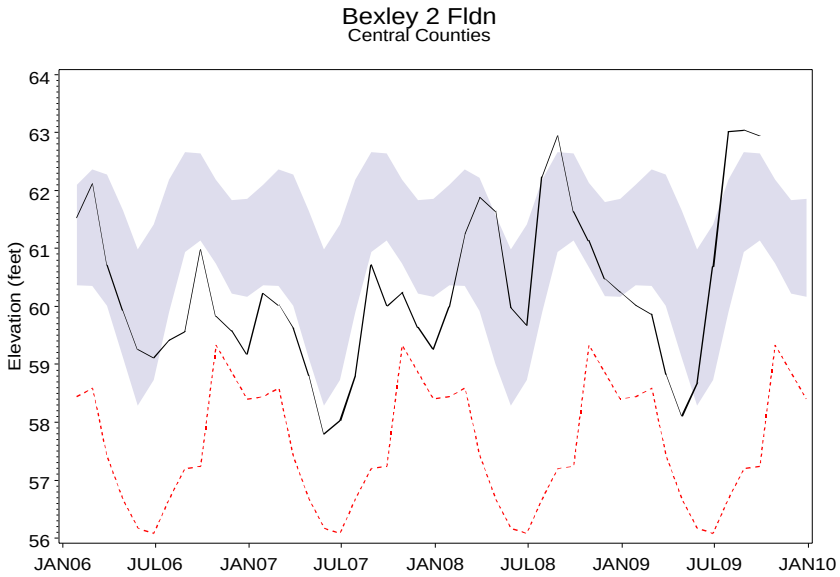


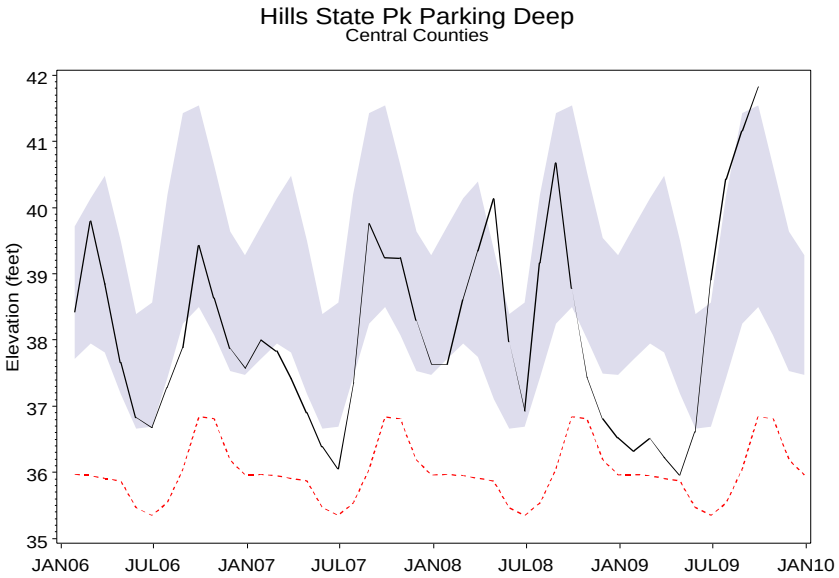


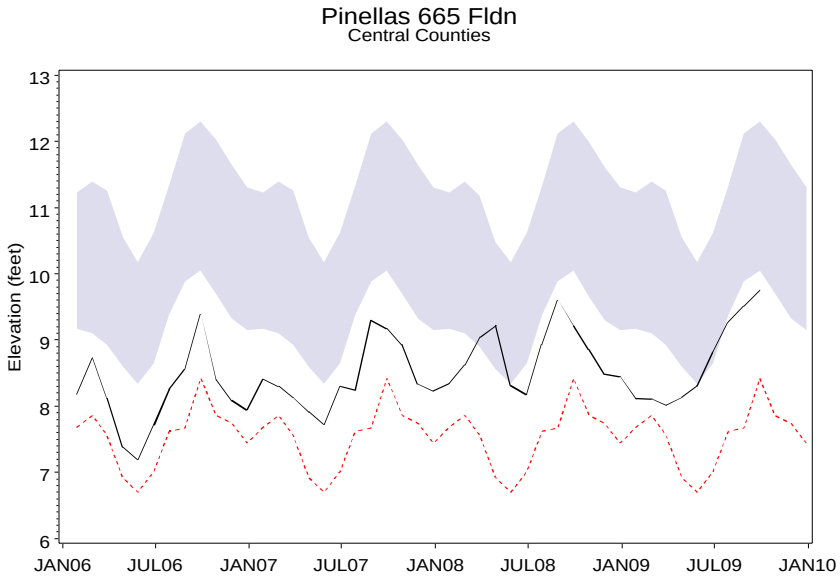
Average Monthly Elevation POR Monthly Low Normal Range

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



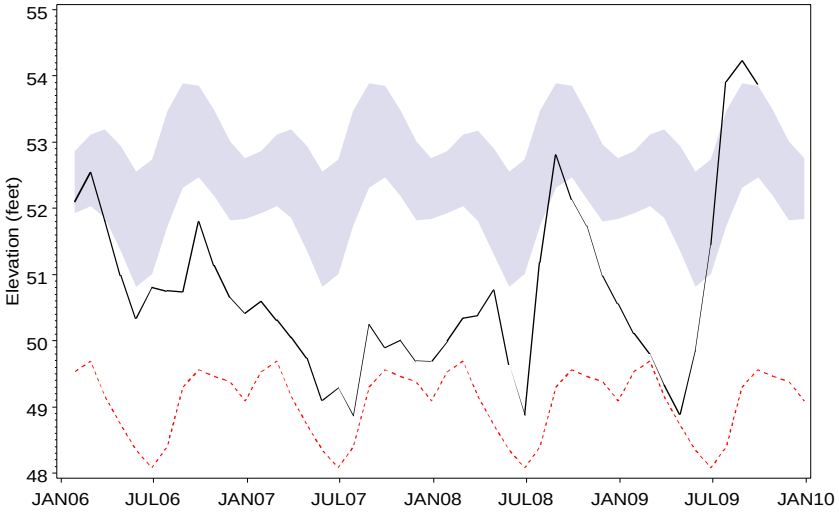




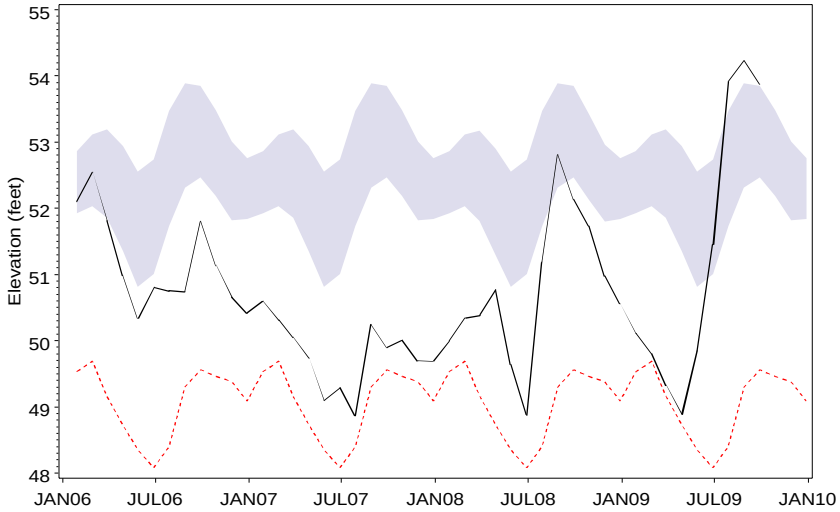


HYDROGRAPHS OF REPRESENTATIVE INTERMEDIATE AND FLORIDAN AQUIFER WELLS
JANUARY 2006 TO SEPTEMBER 2009

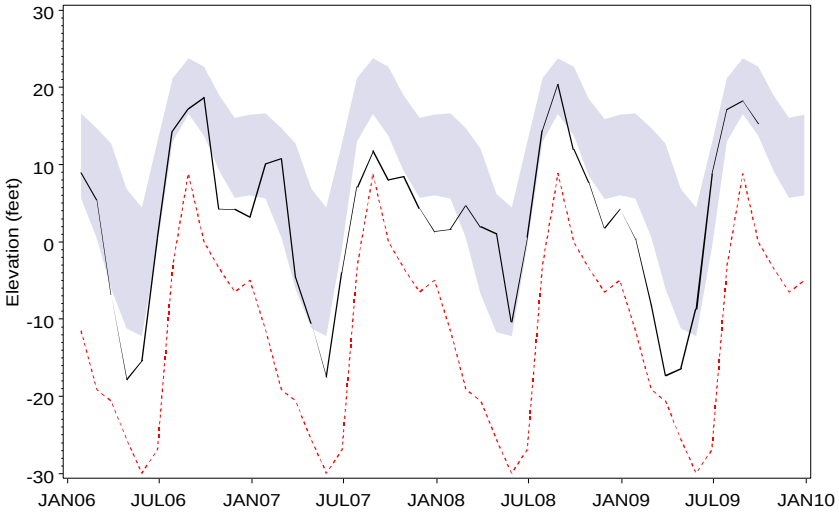
SR 52 Deep W nr Fivay Jct
Central Counties



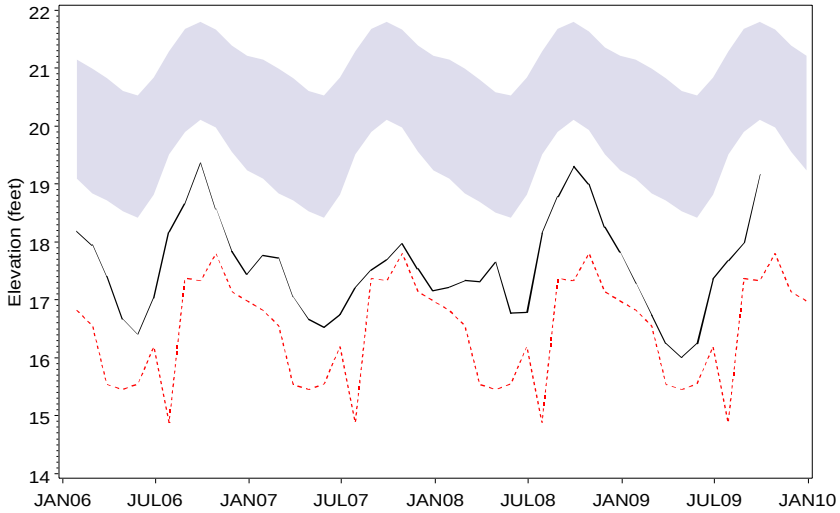
SR 52 Deep W nr Fivay Jct
Central Counties



Kibler Deep
Southern Counties

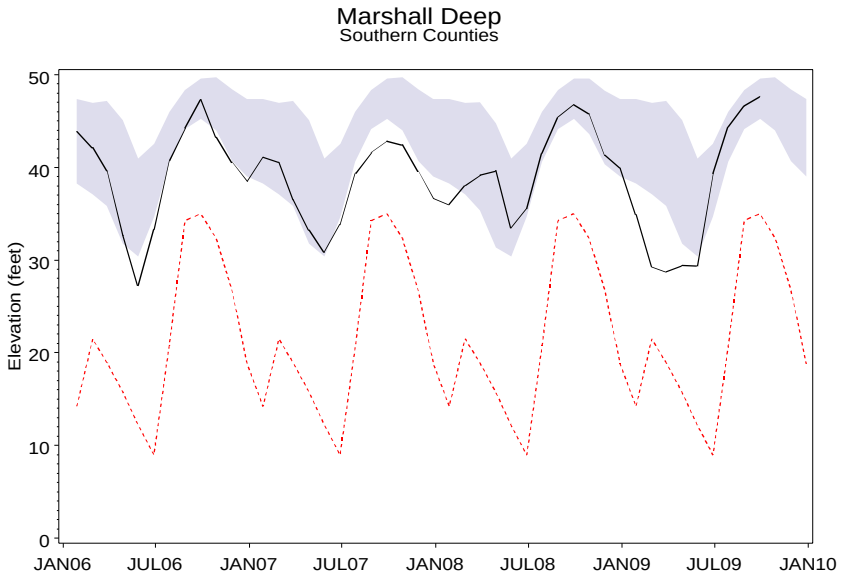


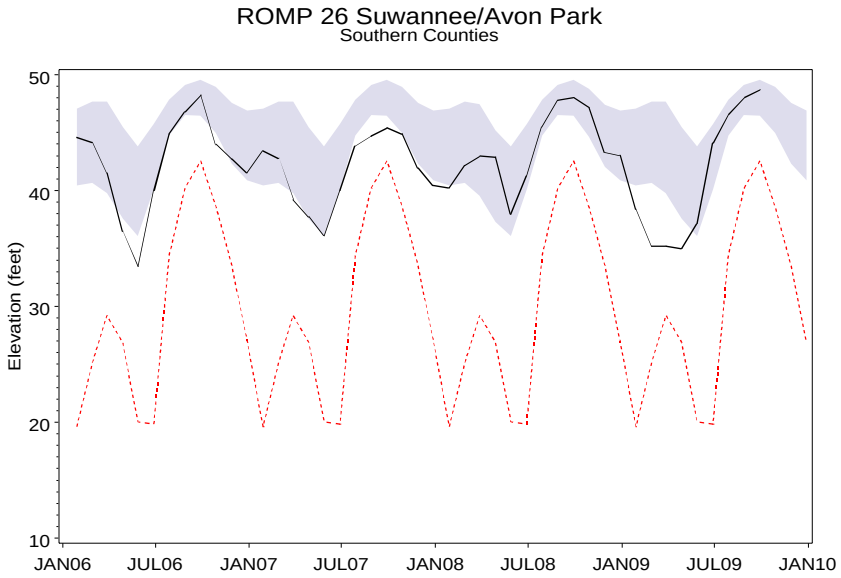
Manasota 14 Deep
Southern Counties

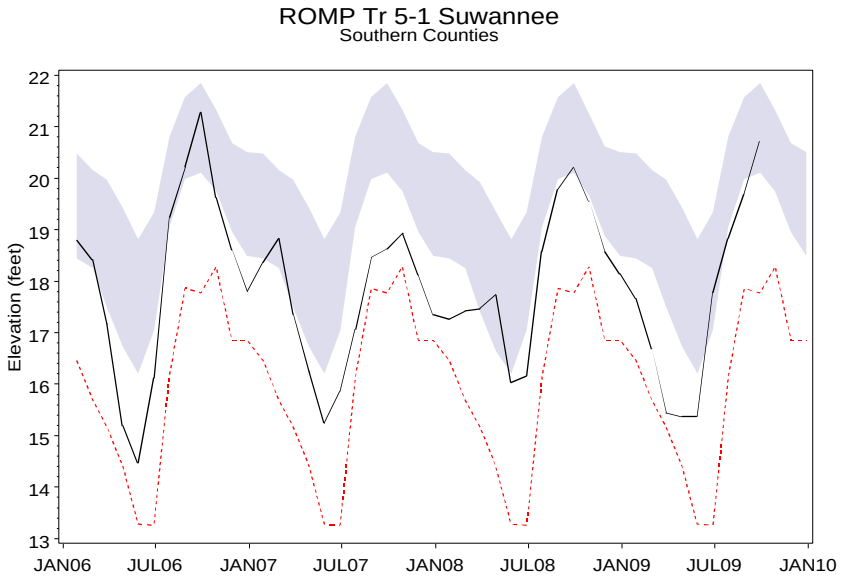


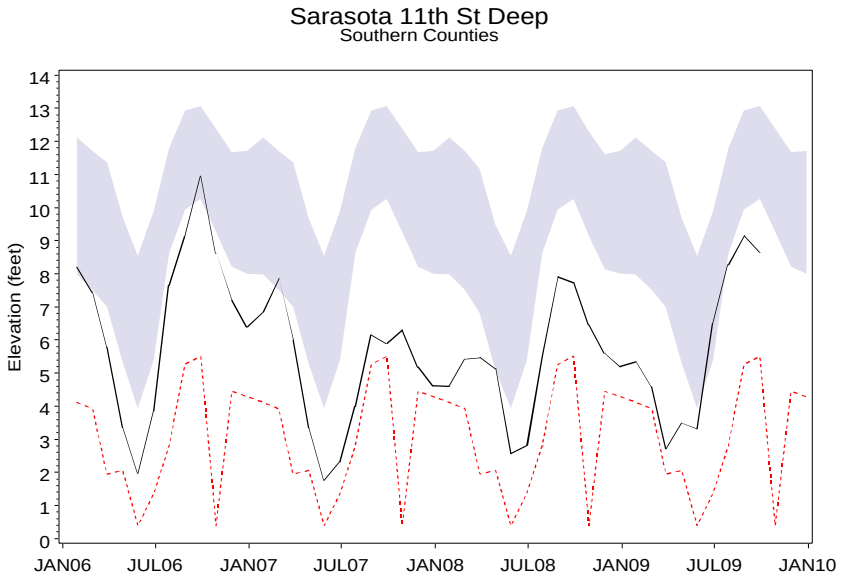
Average Monthly Elevation POR Monthly Low Normal Range

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



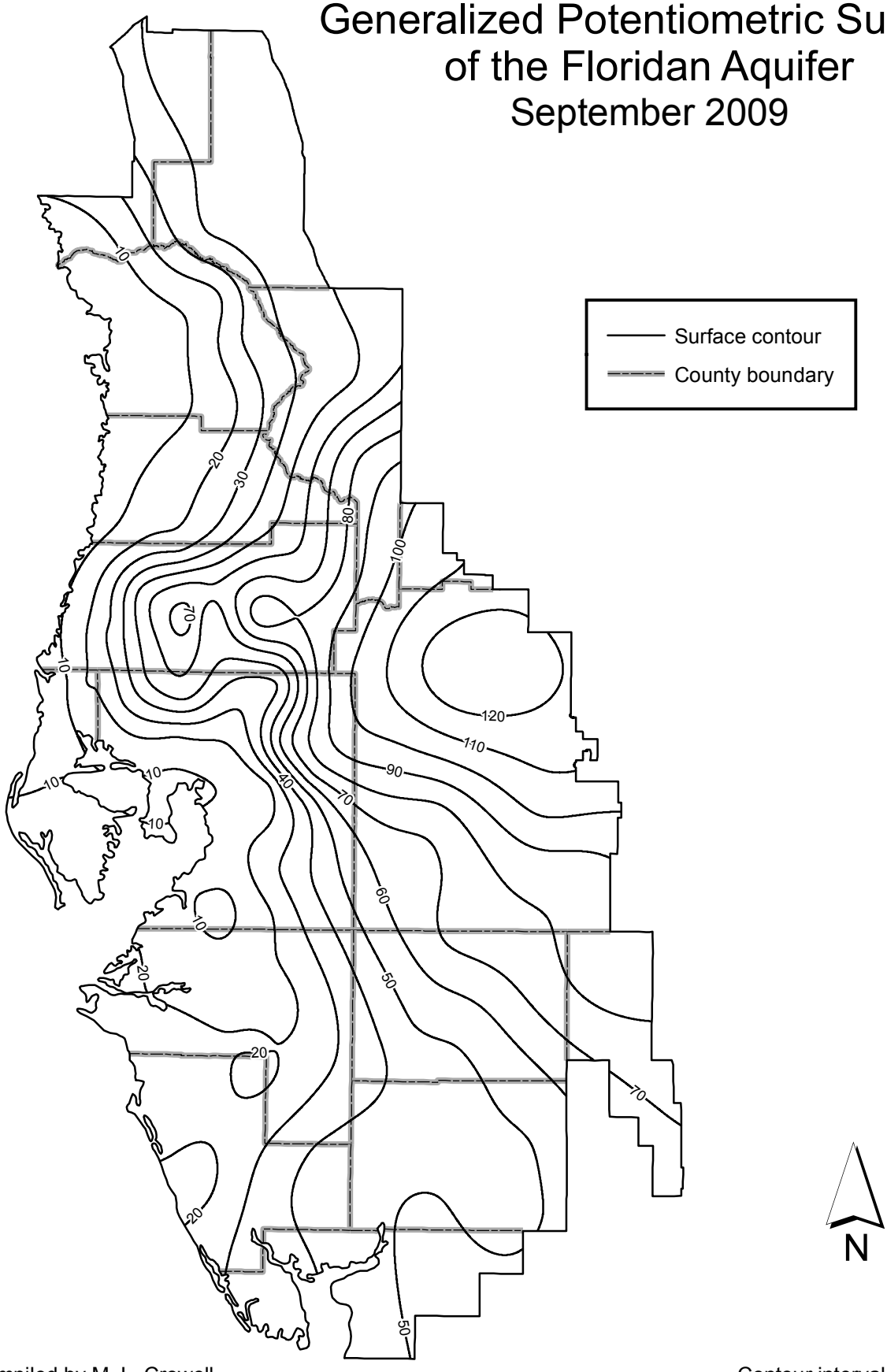






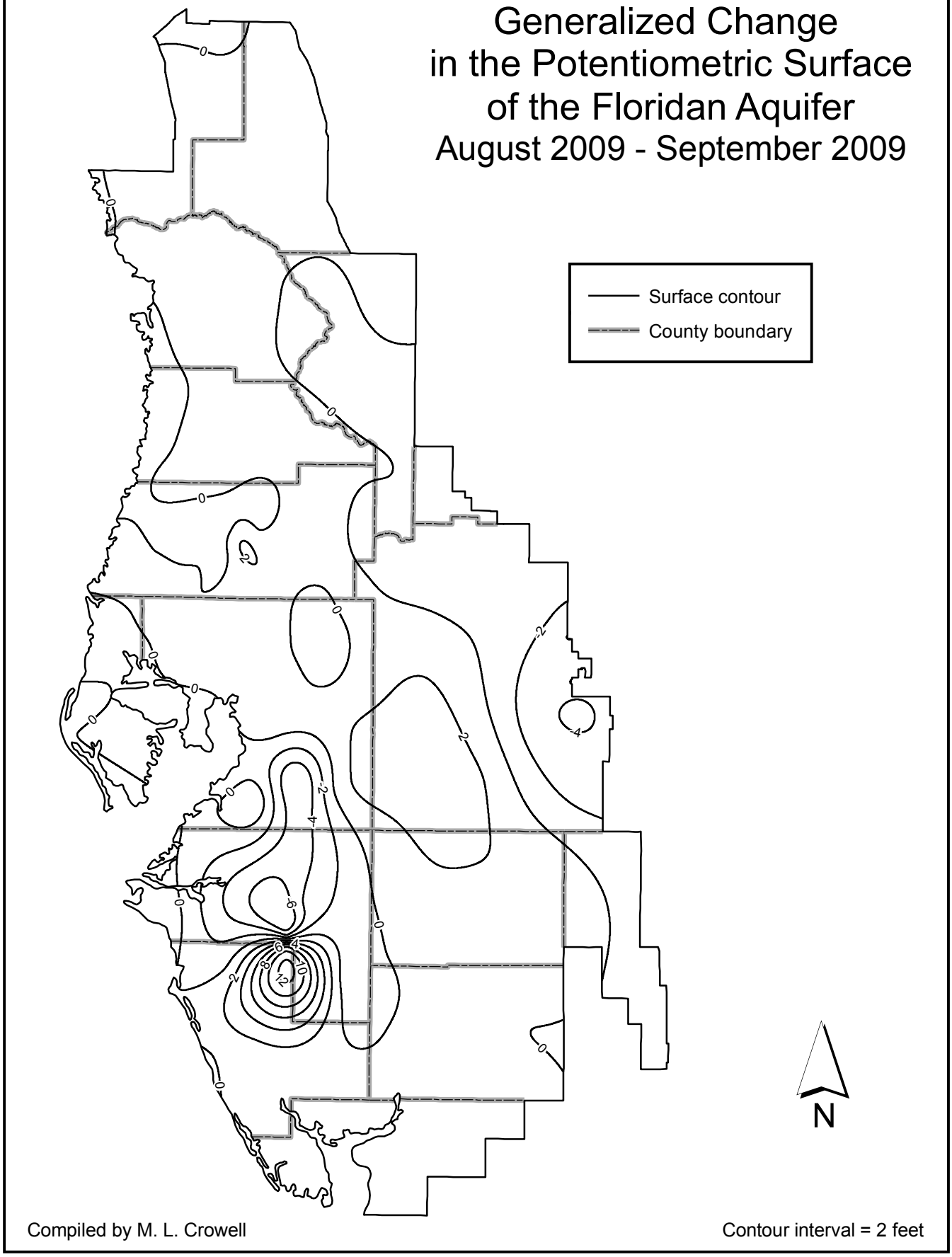
Average Monthly Elevation POR Monthly Low Normal Range

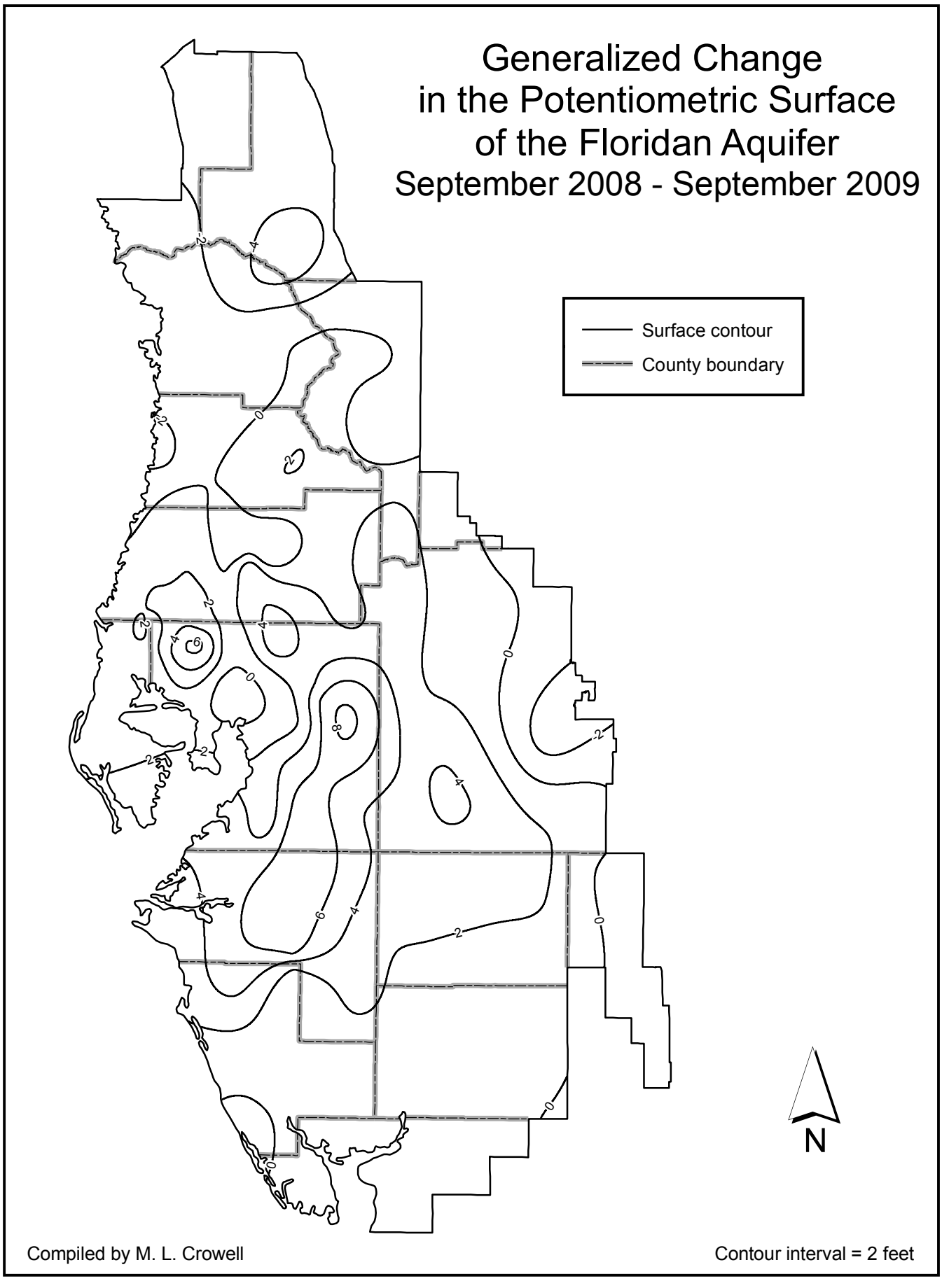
Generalized Potentiometric Surface of the Floridan Aquifer
September 2009



Compiled by M. L. Crowell

Contour interval = 10 feet


Generalized Change
in the Potentiometric Surface
of the Floridan Aquifer
August 2009 - September 2009
Surface contour
County boundary
N
Compiled by M. L. Crowell
Contour interval = 2 feet


Generalized Change
in the Potentiometric Surface
of the Floridan Aquifer
September 2008 - September 2009
Surface contour
County boundary
N
Compiled by M. L. Crowell
Contour interval = 2 feet

Public Supply Wellfields

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

During September, average water levels increased in nine of the twelve intermediate and Floridan wells and seven of the nine surficial wells. Average water levels measured in the intermediate and Floridan wells increased 1.03 feet, while levels measured in surficial wells increased 0.87 foot.

In September, average water levels in ten of the twelve intermediate and Floridan wells and four of the nine surficial wells were above those measured in September 2008. Water levels measured in the intermediate and Floridan wells averaged 1.21 feet above last year's levels, while surficial water levels averaged 0.19 foot below September 2008 levels.

At the end of September, average water levels in all twelve intermediate and Floridan wells and six of the nine surficial wells were above the low normal level, compared to historical monthly levels. Water levels measured in the intermediate and Floridan wells averaged 6.57 feet above the base of the normal range, while levels in the surficial wells averaged 1.98 feet above the base of the normal range.

SUMMARY OF GROUNDWATER LEVELS IN REPRESENTATIVE WELLFIELD WELLS, SEPTEMBER 2009

INT/FLORIDAN WELLS	*SEP 2009 Elev*	*AUG 2009 Elev*	*SEP 2008 Elev*	*Change From AUG 2009*	*Change From SEP 2008*	*SEP Historical Low Normal*	*SEP Historical High Normal*	*Departure From Low Normal*	*Period of Record Low*	*Record Low Date*	*Period of Record High*	*Record High Date*
Cosme-Odessa Cosme No. 3	28.53	26.90	26.44	1.63	2.09	23.86	27.82	4.67	10.94	MAY2000	33.51	OCT1979
Cross Bar WRW	41.90	41.15	43.93	0.76	-2.03	40.93	54.67	0.97	33.88	DEC1993	61.65	AUG1984
Cypress Crk TMR-1 Deep	57.77	56.58	57.84	1.18	-0.07	51.77	61.10	6.00	36.93	FEB2001	70.78	JUN1976
Cypress Crk TMR-3 Deep	56.69	54.95	55.40	1.74	1.29	50.73	57.80	5.96	34.22	FEB2001	68.79	JUL1976
Eldridge-Wilde 11 Deep	20.71	20.02	19.44	0.69	1.27	10.77	16.83	9.94	0.31	SEP1990	24.17	SEP2004
Eldridge-Wilde 2S	20.58	19.63	19.65	0.95	0.93	10.97	17.10	9.61	-1.16	JUN2000	25.24	OCT1982
Morris Bridge 3A Deep	32.31	30.57	28.95	1.74	3.36	30.36	33.94	1.95	17.91	MAY2009	36.99	DEC1997
Section 21 Hills 13 Deep	44.73	44.99	42.44	-0.26	2.29	36.09	44.06	8.64	21.88	JUN2002	52.08	JUL1944
South Pasco 42	53.81	55.45	53.59	-1.64	0.22	42.85	48.55	10.96	27.98	MAY2002	56.79	SEP2003
South Pasco SR 54 Deep	55.50	56.70	54.93	-1.20	0.56	46.90	54.36	8.60	33.49	MAY2002	57.94	SEP2003
Starkey Regional	35.26	34.13	33.77	1.13	1.49	32.08	35.11	3.18	24.97	JUN2000	37.55	SEP2004
Verna 08	18.55	12.90	15.47	5.65	3.08	10.19	18.65	8.36	-24.32	MAY1989	26.68	FEB1998
SURFICIAL WELLS												
Cosme-Odessa IC-6	38.31	37.53	37.32	0.78	0.99	37.36	39.01	0.95	31.91	JUL1973	42.72	SEP1988
Cross Bar SERW	59.12	59.41	62.42	-0.29	-3.29	59.13	69.43	-0.01	53.09	JUL1994	72.53	JUL1984
Cypress Crk TMR-1 Shallow	57.75	56.61	58.05	1.14	-0.30	54.24	61.93	3.51	40.07	JUN2001	69.46	FEB1977
Cypress Crk TMR-3 Shallow	53.75	53.75	53.94	0.00	-0.19	54.07	62.13	-0.32	53.55	MAY1997	64.80	JUN2003
Eldridge-Wilde 11 Shallow	23.39	22.21	24.21	1.18	-0.82	17.26	22.53	6.13	10.77	JUN1994	29.34	SEP2004
Morris Bridge 3A Shallow	32.14	31.12	32.87	1.02	-0.73	33.22	35.77	-1.08	24.02	MAY2009	39.20	DEC1997
Section 21 Hills 13 Shallow	46.27	44.20	45.57	2.07	0.70	40.52	49.08	5.75	33.81	MAY2001	53.78	SEP1979
South Pasco SR 54 Shallow	58.93	58.48	58.43	0.45	0.50	57.86	59.13	1.07	54.43	OCT1980	60.49	SEP1998
Starkey 707	29.68	28.20	28.21	1.48	1.47	27.87	30.46	1.81	22.70	JUN2000	33.85	MAR1998

Aquifer Resource Index

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

The ARI is derived by comparing current ground-water levels with historical levels for 51 intermediate and Floridan aquifer (deep) monitor wells located throughout the three geographic areas of the District. Monitor wells with an adequate and reliable period-of-record to calculate weekly percentiles were selected for the network.

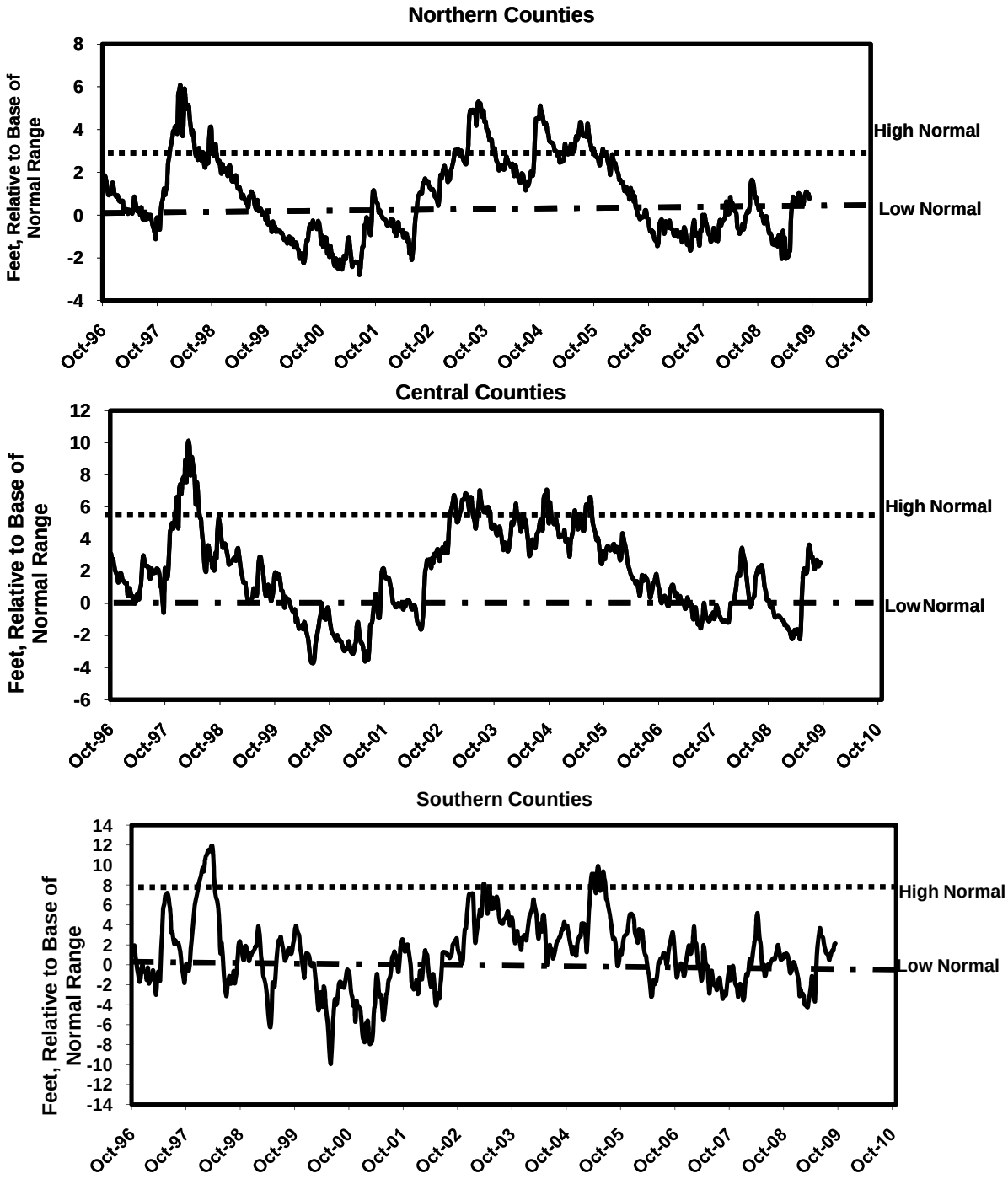
To determine the ARI value for a geographic area, each well is compared to its respective low-normal value weekly, and the difference is calculated. The weekly differences are used to determine the regional ARI value and the resulting ARI value represents how far water levels in the aquifer have to rise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

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

Report Date	Northern Counties	Central Counties	Southern Counties
09/08/2009	1.10	2.65	1.44
09/14/2009	0.99	2.30	1.41
09/21/2009	0.98	2.43	2.06
09/28/2009	0.77	2.52	2.13

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

AQUIFER RESOURCE INDEX*
September 2009



*Average Groundwater Level Relative to Low Normal

Compiled By Pam Green

PUBLIC SUPPLY SURFACE WATER RESERVOIRS

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

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

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

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

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

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

Reservoirs

The reporting of reservoir water-level data has been expanded to include seven reservoirs, with the completion of a new reservoir at the PRMRWSA facility in July 2009. Data are obtained weekly from the USGS, Manatee County Utilities Department, Peace River/Manasota Regional Water Supply Authority, or Tampa Bay Water. The water-level value obtained for the last week of the month is used for this report. The values reported are provisional and subject to revision.

In September, five of the seven reservoirs monitored for this report recorded average water-level increases compared to last month. The Hillsborough River, Lake Manatee, Bill Young, Peace River No. 2 and Shell Creek reservoirs posted average water level increases of 0.15 foot, 1.43 feet, 13.05 feet, 9.40 feet and 0.01 foot, respectively. The Evers and Peace River No. 1 reservoirs posted a water-level decrease of 0.06 foot and 1.20 feet, respectively.

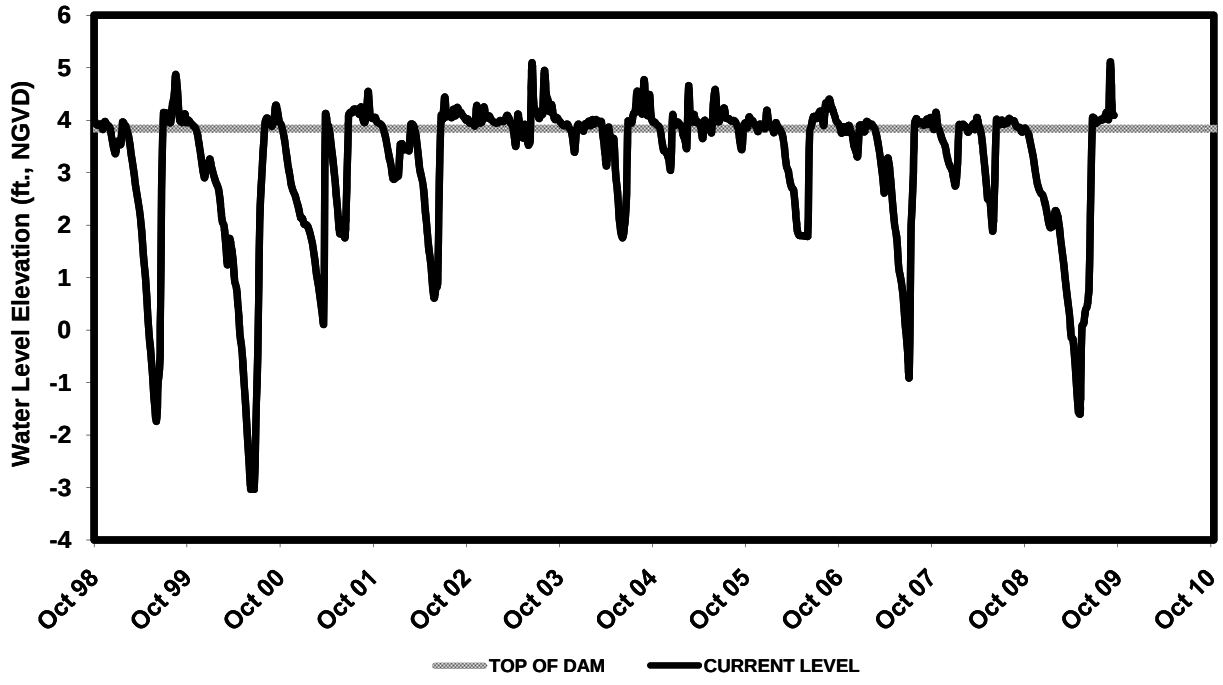
SUMMARY OF WATER LEVELS IN WATER SUPPLY RESERVOIRS (ELEVATION IN FEET, NGVD)

RESERVOIR	2009 August	2009 Sep	2008 Sep	Change from Prior Month	Change from Prior Year
Evers					
City of Bradenton	**4.15**	**4.09**	**3.78**	**-0.06**	**0.31**
Hillsborough					
City of Tampa	**22.01**	**22.16**	**20.81**	**0.15**	**1.35**
Lake Manatee					
Manatee County	**38.47**	**39.9**	**39.74**	**1.43**	**0.16**
C.W. Bill Young Regional					
Tampa Bay Water	**115.6**	**128.65**	**104.8**	**13.05**	**23.85**
Peace River					
PRMRWSA Reservoir #1	**23.8**	**22.6**	**27.7**	**-1.20**	**-5.10**
PRMRWSA Reservoir #2	**42.5**	**51.9**	**N/A**	**9.40**	**N/A**
Shell Creek					
City of Punta Gorda	**5.49**	**5.5**	**5.3**	**0.01**	**0.20**

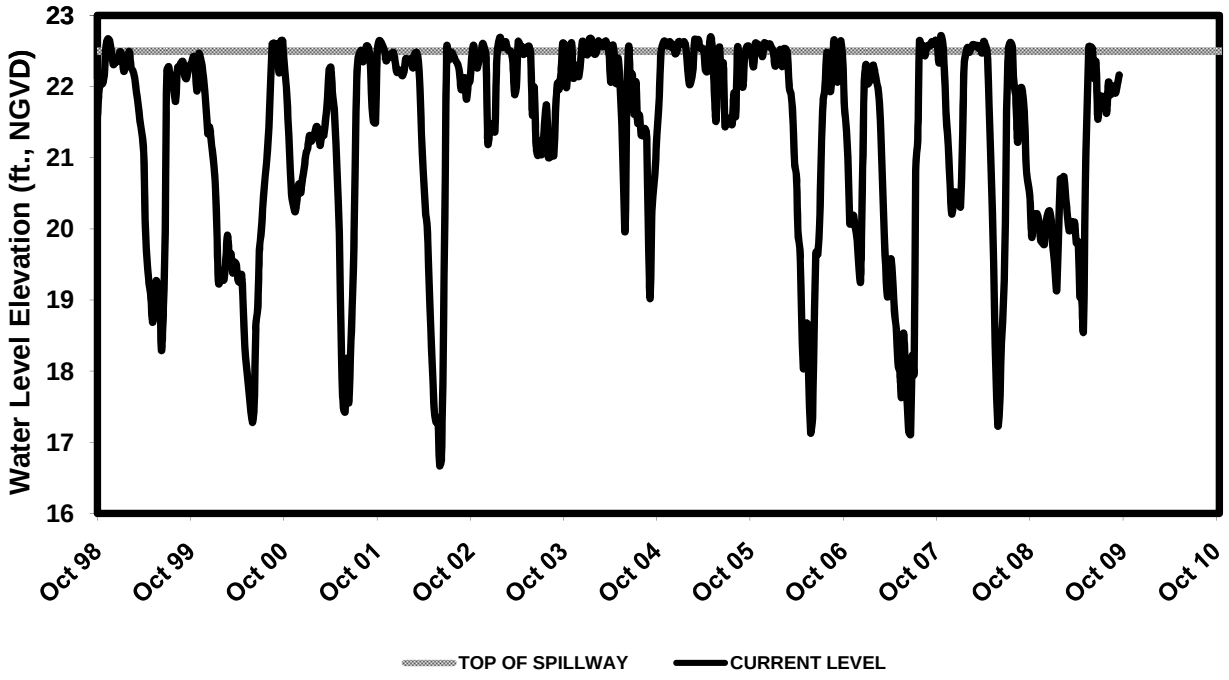
NGVD - National Geodetic Vertical Datum
Reported data are provisional and subject to revision.

Compiled by Pam Green

EVERS RESERVOIR
City of Bradenton

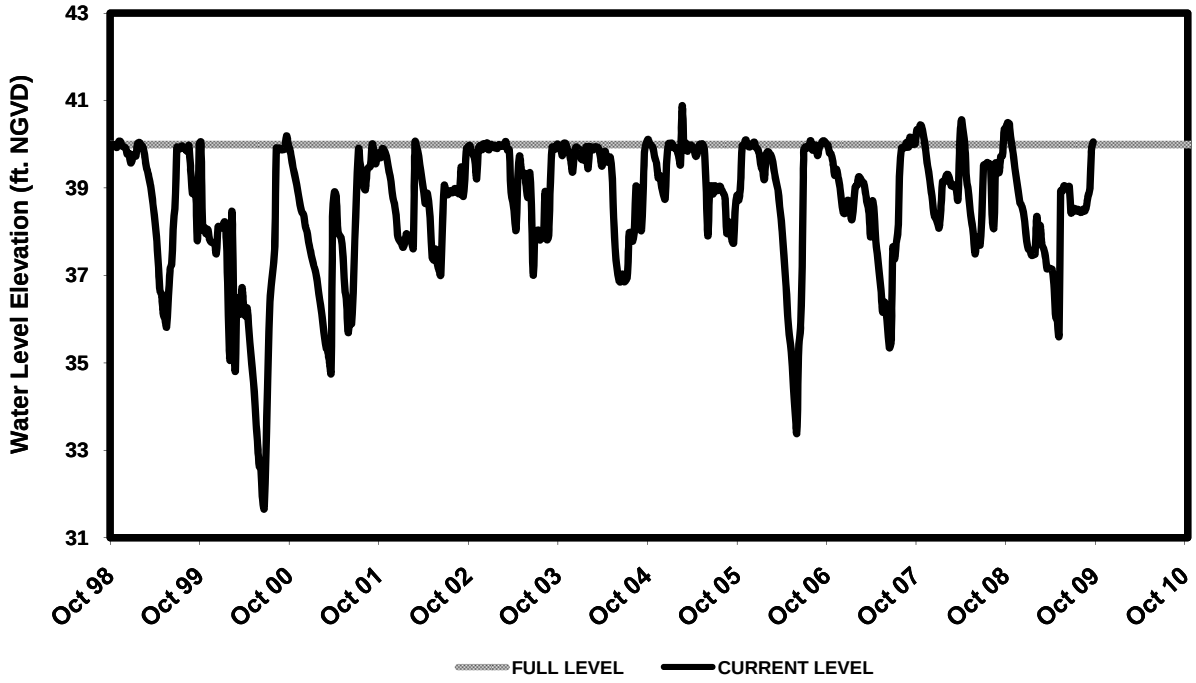


HILLSBOROUGH RESERVOIR
City of Tampa

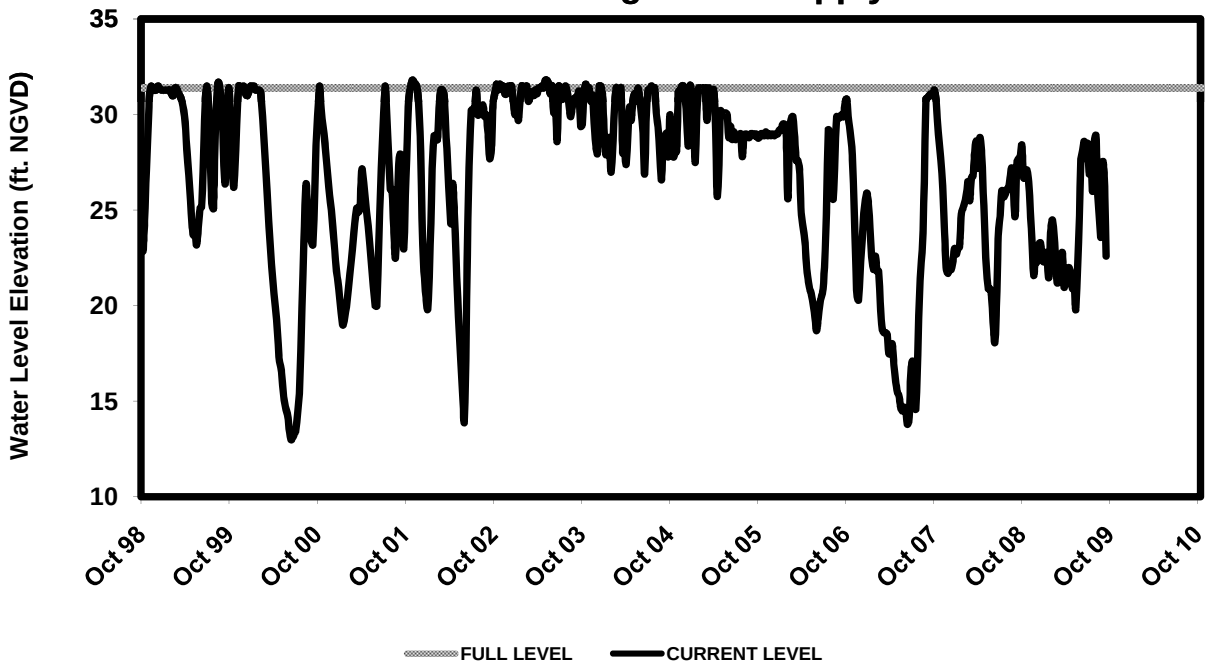


Compiled by Pam Green

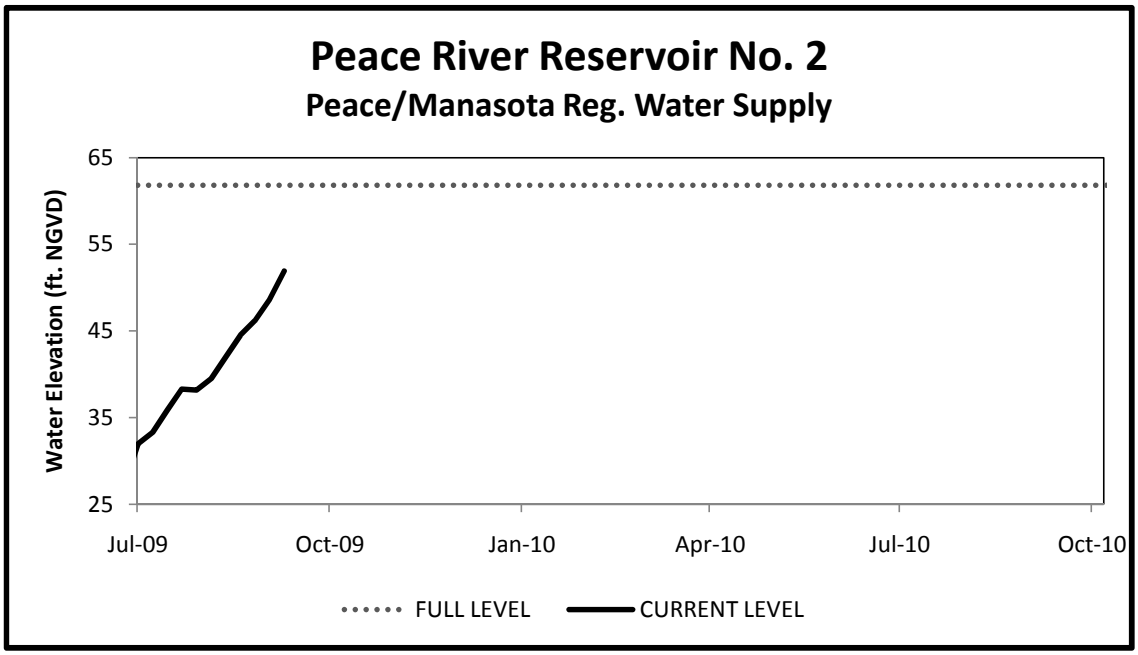
LAKE MANATEE RESERVOIR
Manatee County



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

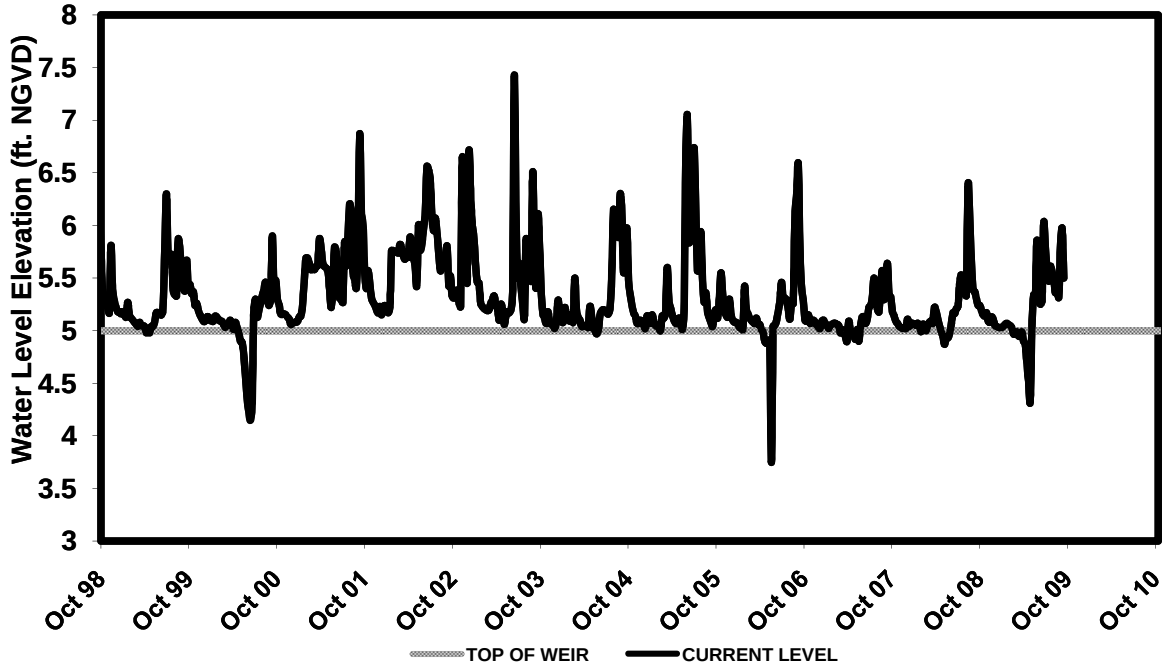


Compiled by Pam Green

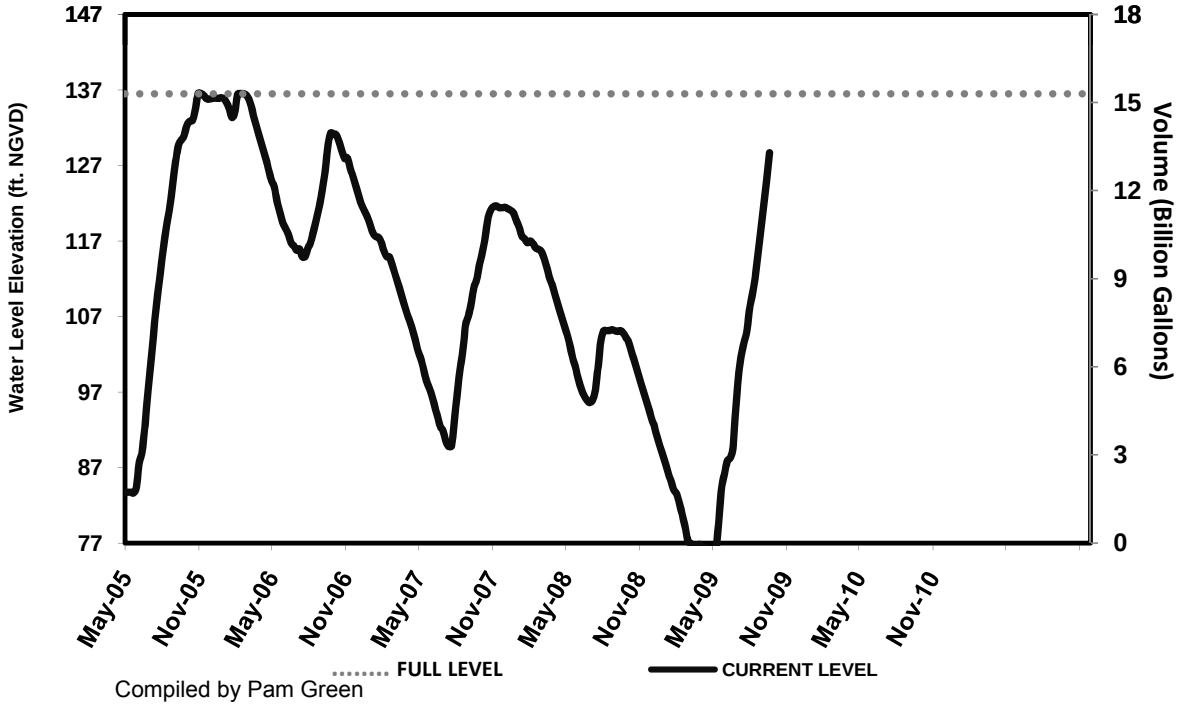


Compiled by Pam Green

SHELL CREEK RESERVOIR
City of Punta Gorda



C.W. BILL YOUNG REGIONAL RESERVOIR
Tampa Bay Water



Compiled by Pam Green

APPENDICES

Rainfall percentiles by interval and region, inches.

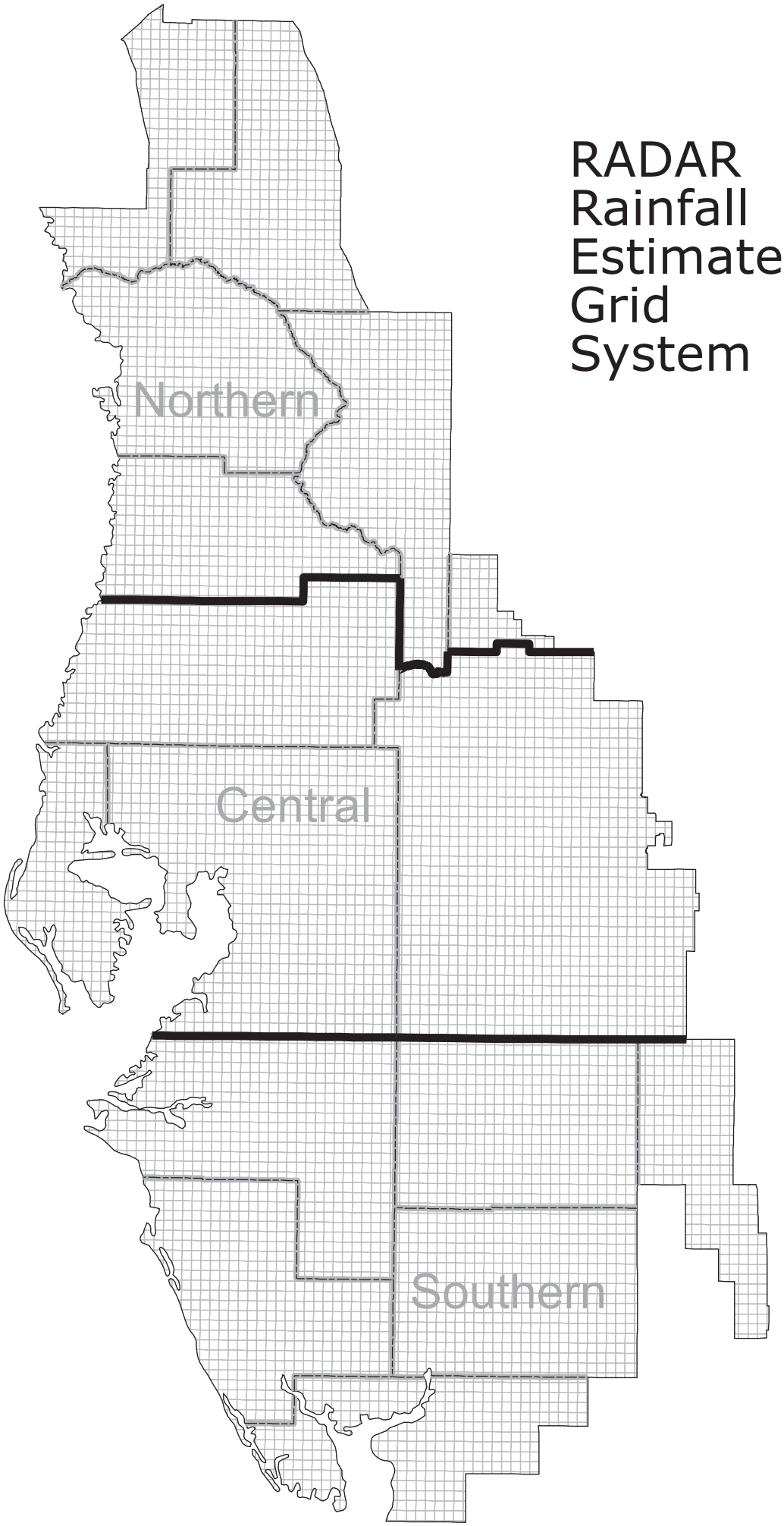
Rainfall Interval	Region	10TH Percentile (P10)	25th Percentile (P25)	50th Percentile (P50)	75th Percentile (P75)	90th Percentile (P90)
Annual total	*Northern*	43.19	48.35	54.01	58.86	63.46
Annual total	*Central*	41.45	46.10	52.16	57.28	63.82
Annual total	*Southern*	42.05	46.25	52.19	57.82	63.43
Annual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

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

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

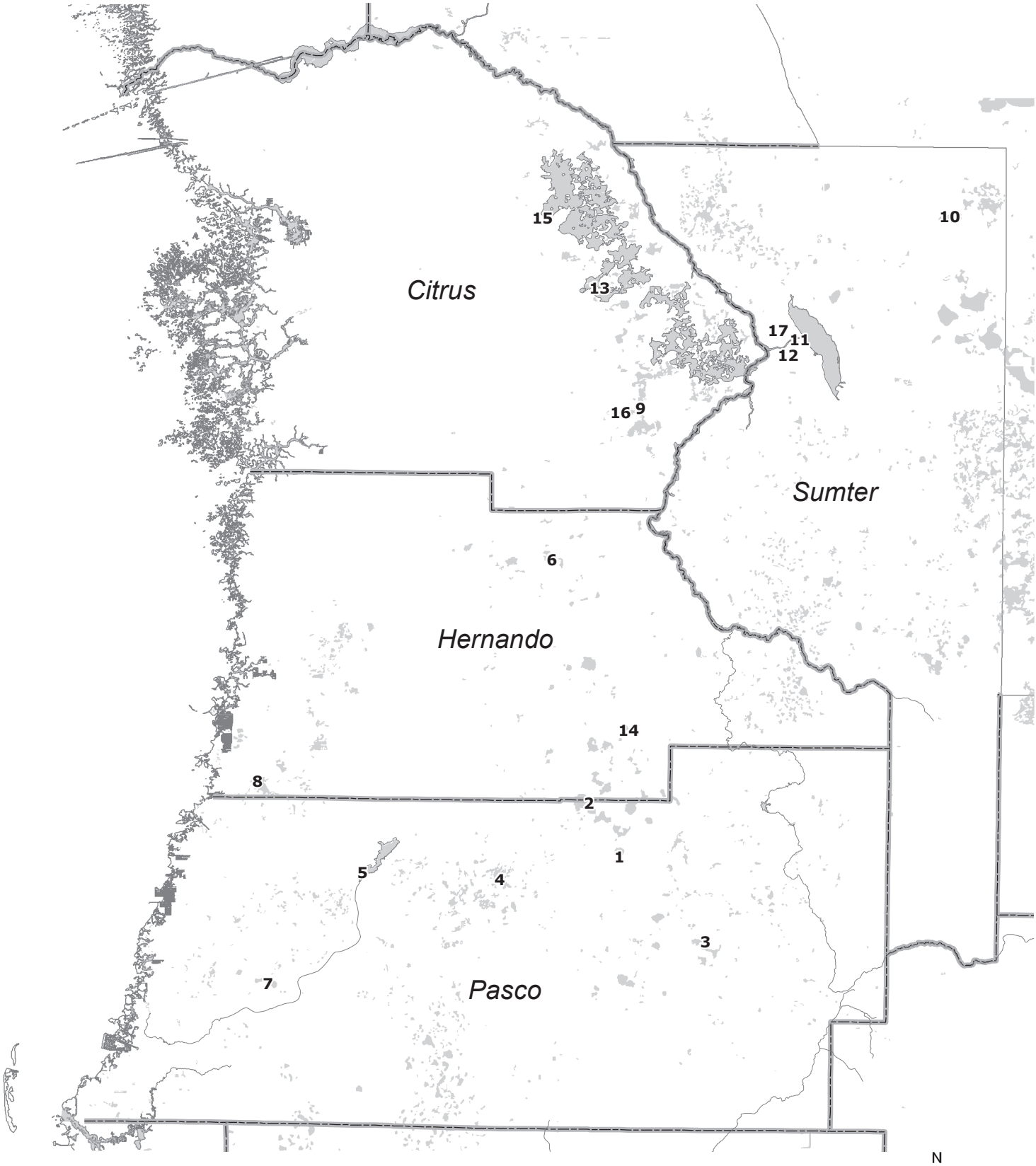
Rainfall characterization ranges

Characterization	Range	Corresponding Rainfall Percent of Normal (approximate)
Very dry	Less than the P10 rainfall	Less than 80 percent of normal
Drier than normal	P10 to 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

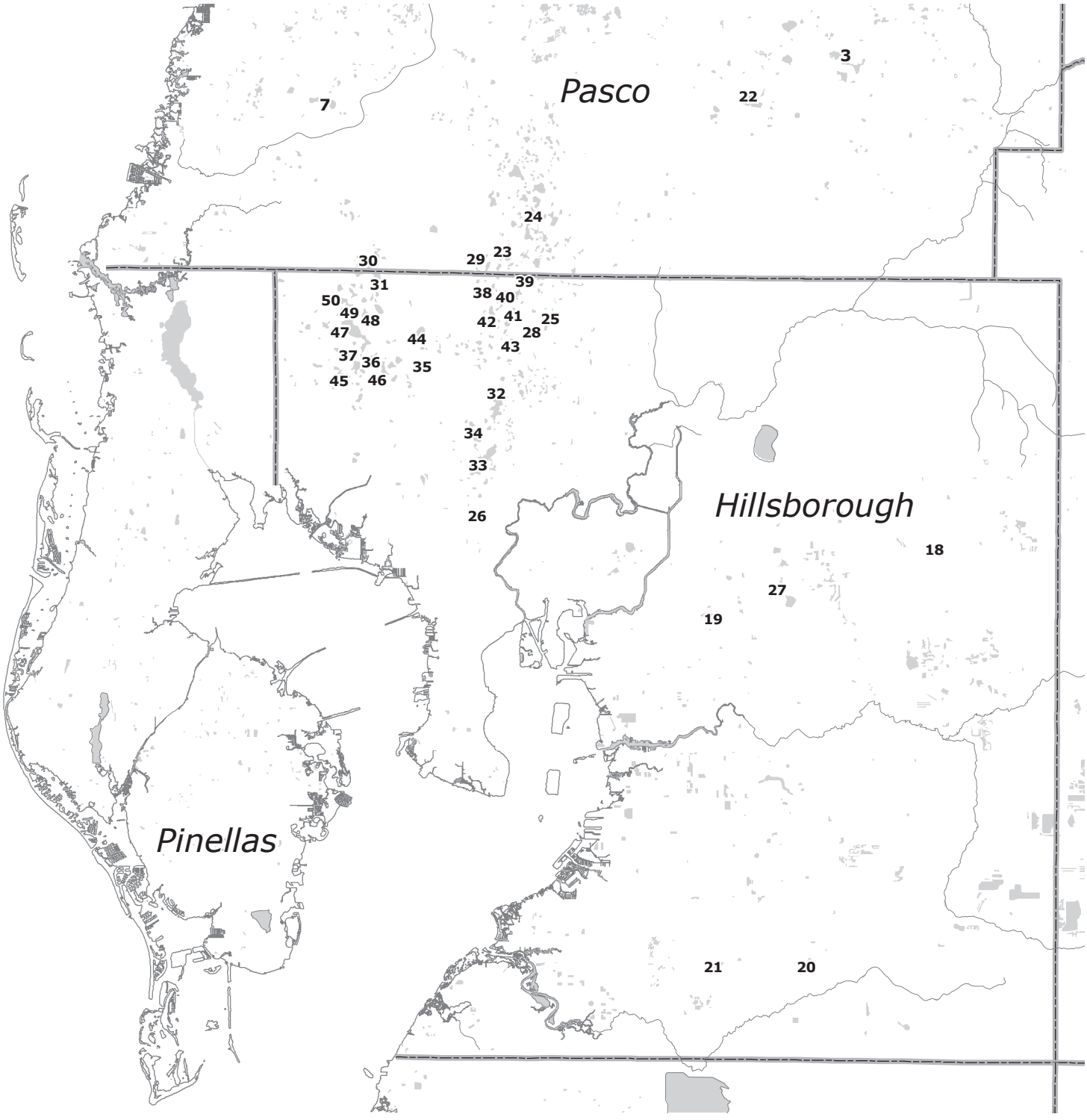

RADAR
Rainfall
Estimate
Grid
System
Northern
Central
Southern
N
W
E
S

02/2009

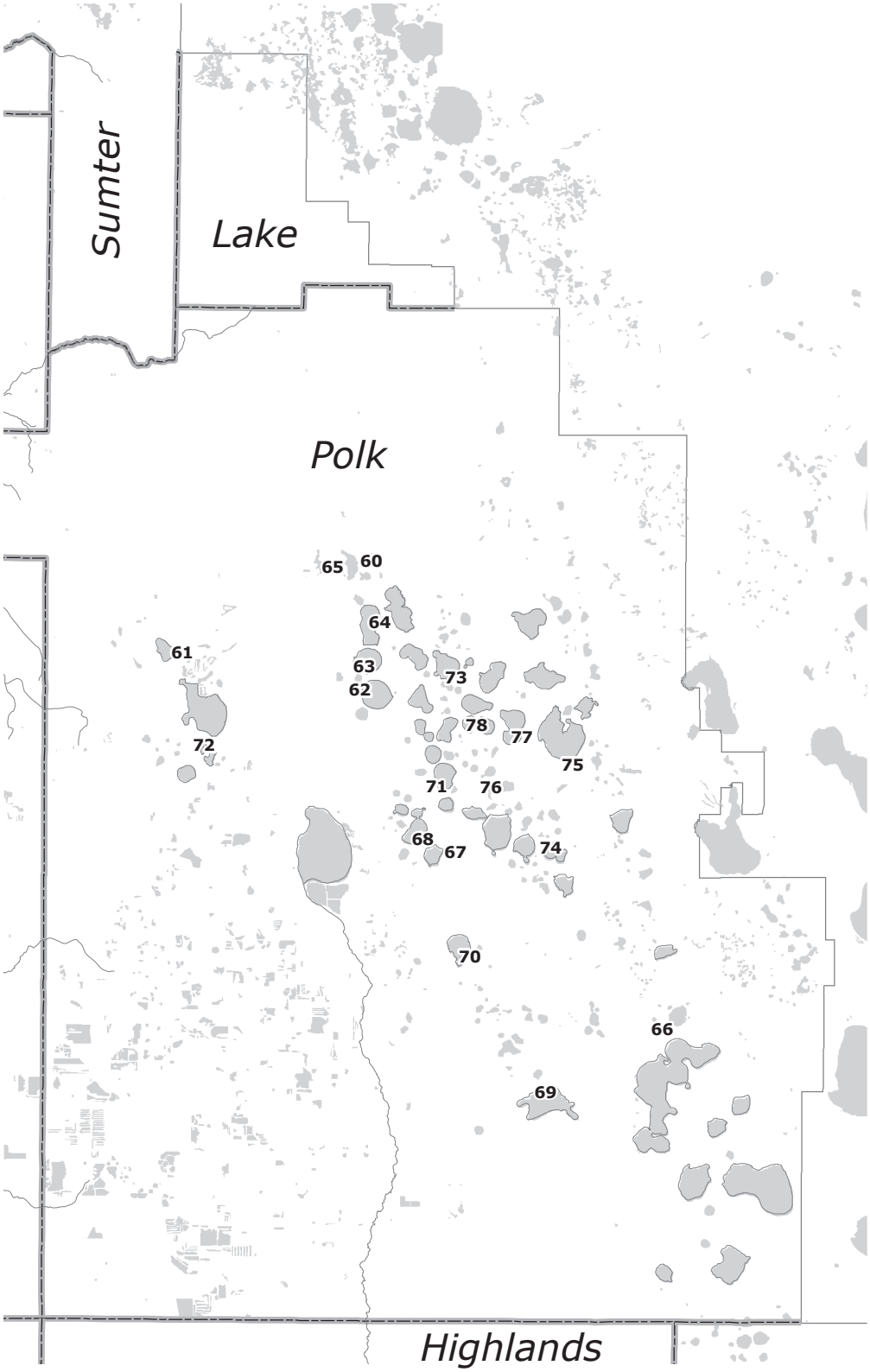
Selected Lake Monitoring Stations
Northern Region



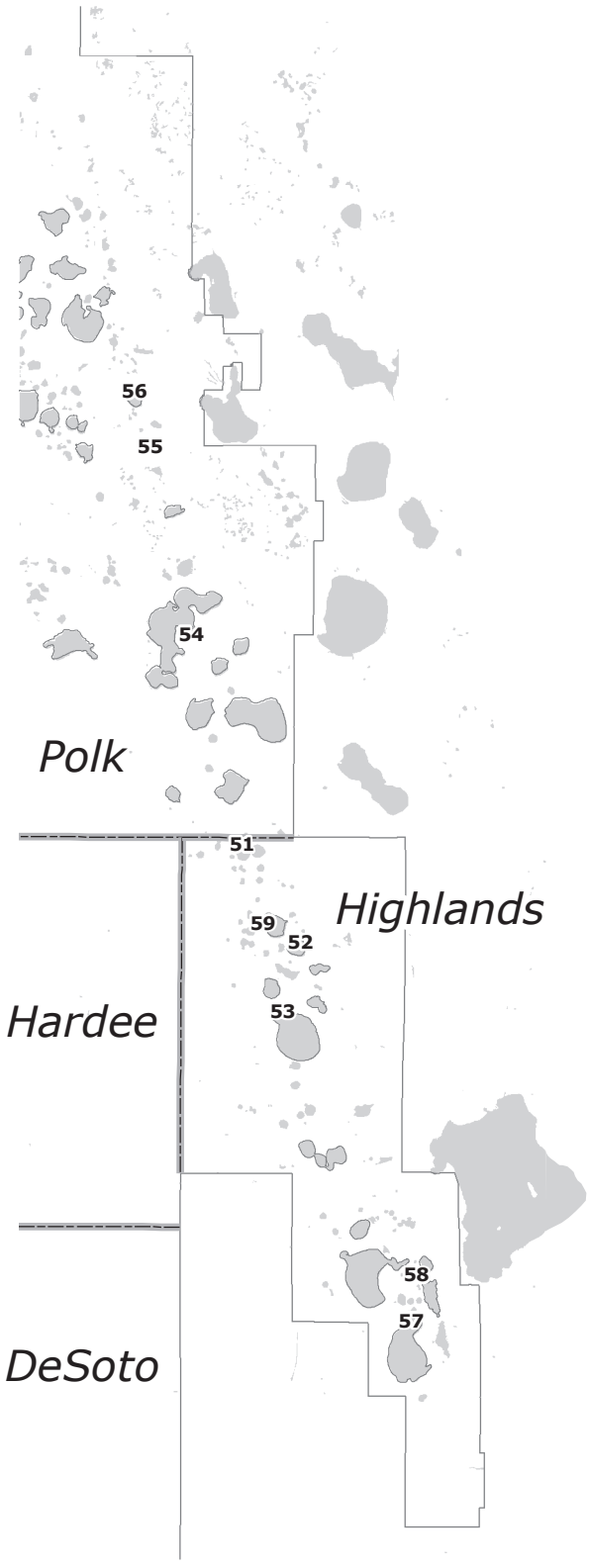
Selected Lake Monitoring Stations
Tampa Bay Region

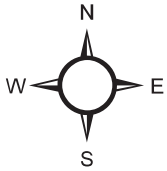


Selected Lake Monitoring Stations
Polk Uplands Region



Selected Lake Monitoring Stations
Lake Wales Ridge Region





Selected Lake Monitoring Stations

Northern Region

Map ID	Site Name
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

Map ID	Site Name
18	Mud (Walden) Lake
19	Gornto Lake
20	Carlton Lake
21	Lake Wimauma
22	King Lake near San Antonio
23	Lake Linda
24	Lake Padgett
25	Keene Lake
26	Egypt Lake
27	Long Pond
28	Lake Stemper
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

Map ID	Site Name
40	Lake Brooker
41	Cooper Lake
42	Lake Thomas
43	Brant Lake
44	Turkey Ford Lake
45	Church Lake
46	Horse Lake
47	Lake Alice
48	Lake Calm
49	Keystone Lake
50	Crescent Lake

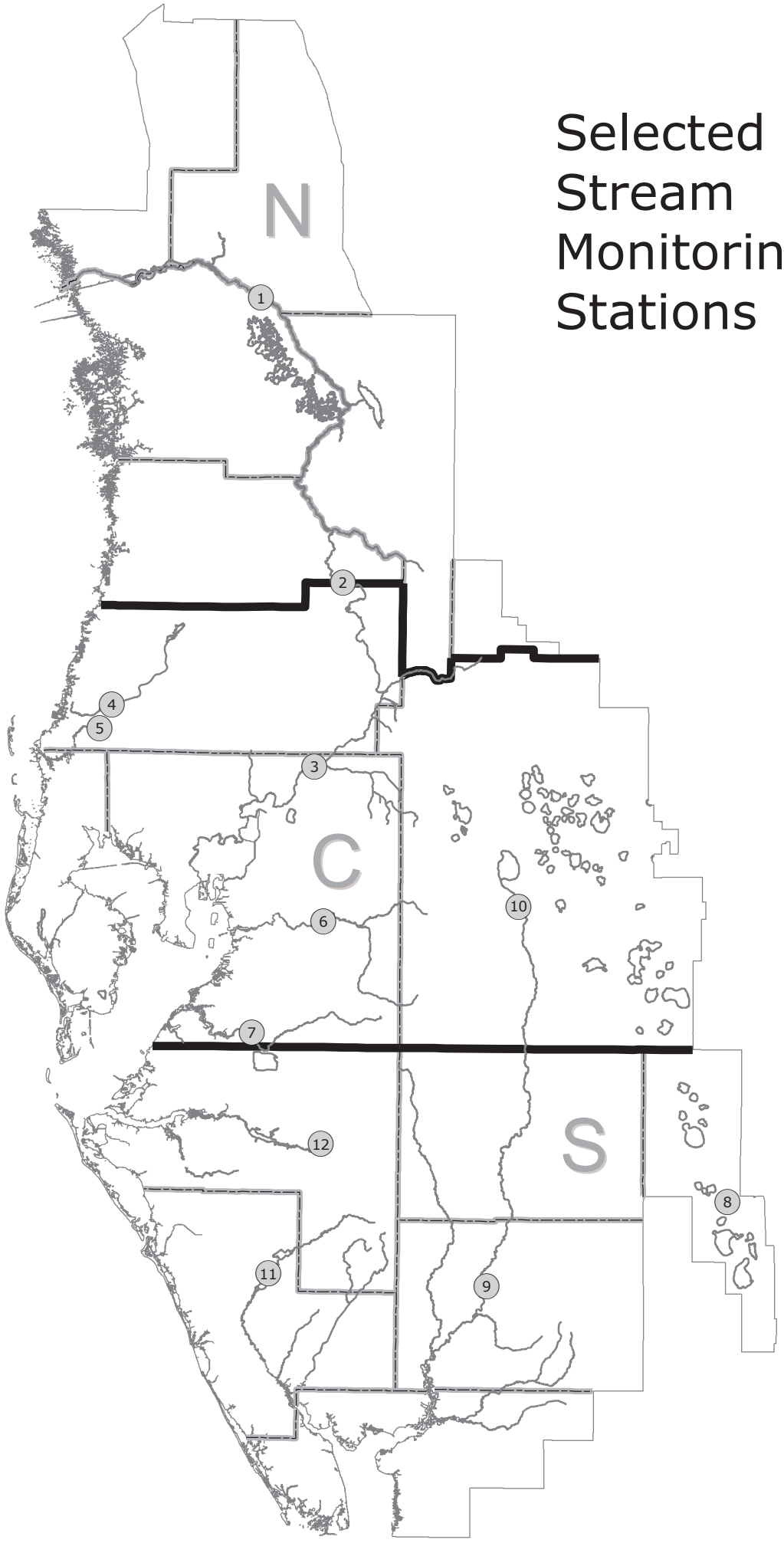
Selected Lake Monitoring Stations

Lake Wales Ridge Region

Map ID	Site Name
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

Map ID	Site Name
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
N
C
S
1
2
3
4
5
6
7
8
9
10
11
12
N
W
E
S

02/2009

Selected Stream Monitoring Stations

Map ID	Site Name
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

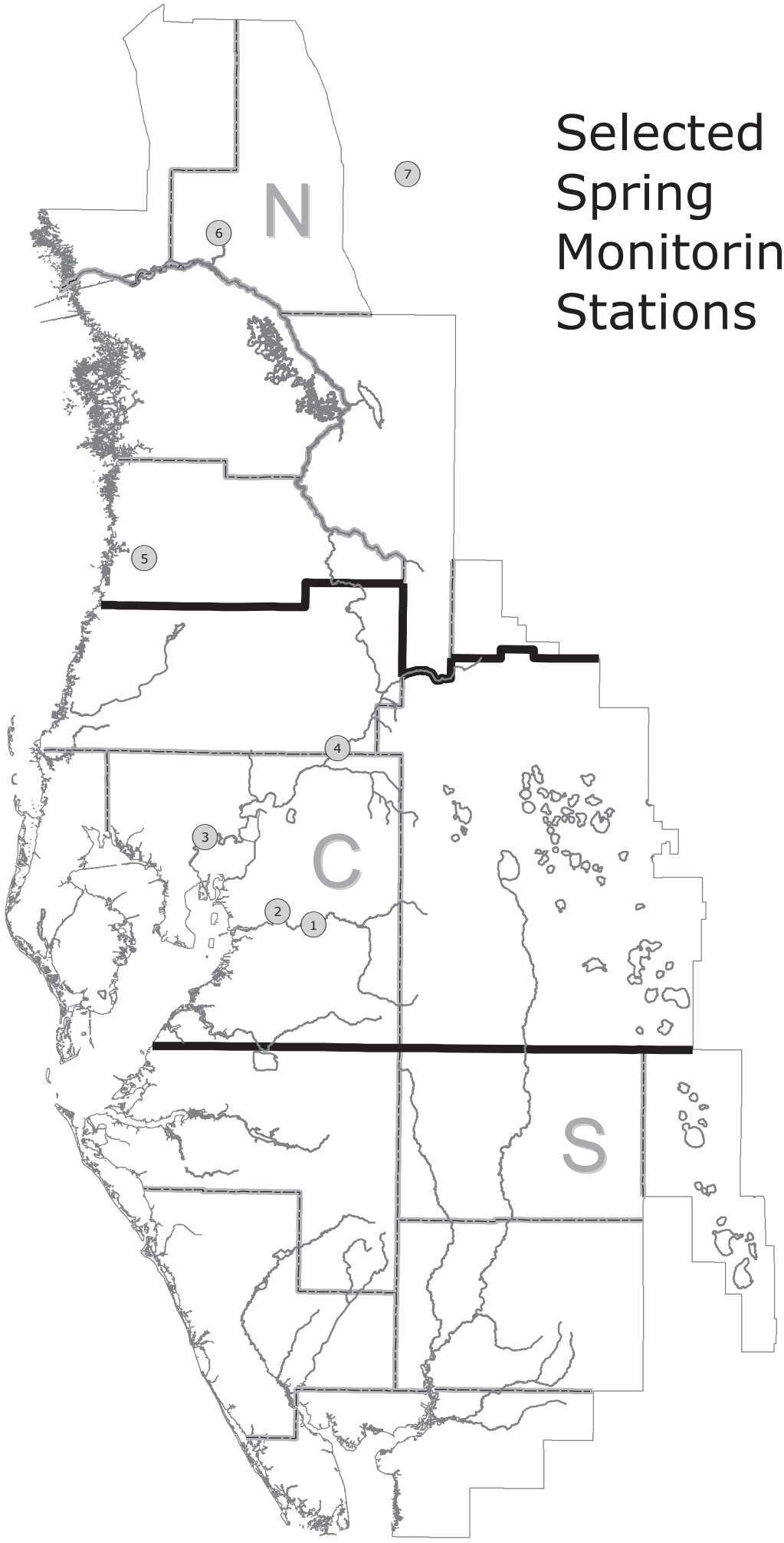
Arcadia Station (Southern Region):

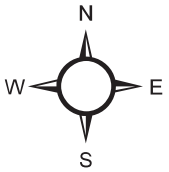
County:	Desoto
Period-of-record:	1931
Location:	36 miles upstream from mouth
Avg daily discharge:	1078.9 cfs
Runoff per year:	10.79 inches
Max of monthly avg discharge:	9876.0 cfs in 09/1933
Min of monthly avg discharge:	51.6 cfs 05/85
Drainage area:	1367 square miles

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





02/2009

Selected Spring Monitoring Stations

Map ID	Site Name
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:	1st
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:	1st
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:	1st
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:	2nd
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:	2nd
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

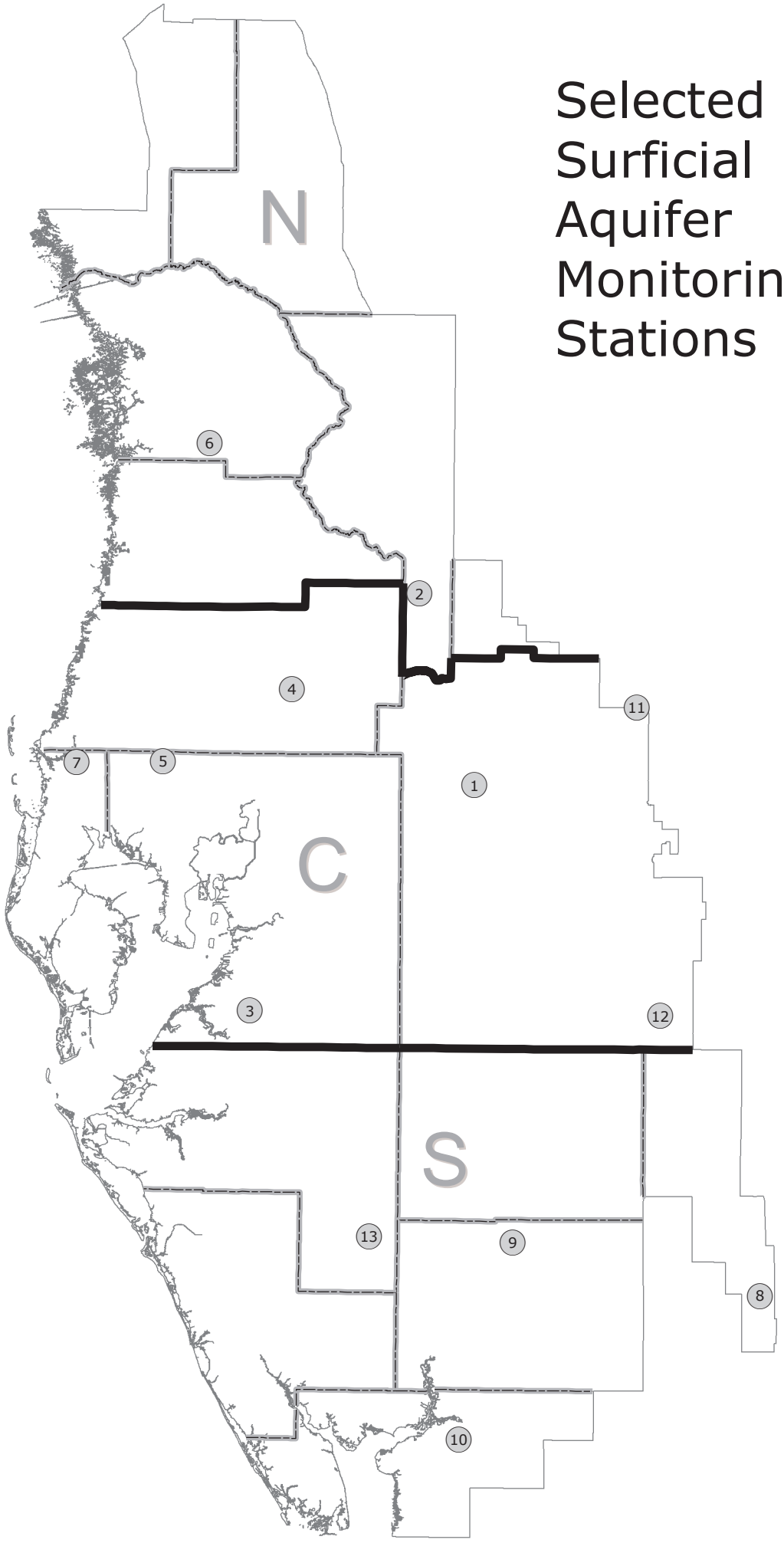
BUCKHORN SPRINGS (Central Region)

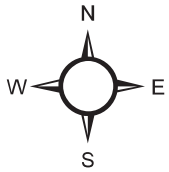
County:	Hillsborough
Basin:	Alafia River
Magnitude:	2nd
Discharge measurement location:	Difference between discharge measurements of Buckhorn Creek made 25 ft upstream from and 100 ft downstream from Buckhorn Springs
Discharge contributes to:	Buckhorn Creek, Alafia River
Public Access:	No
Period-of-record:	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:	2nd
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



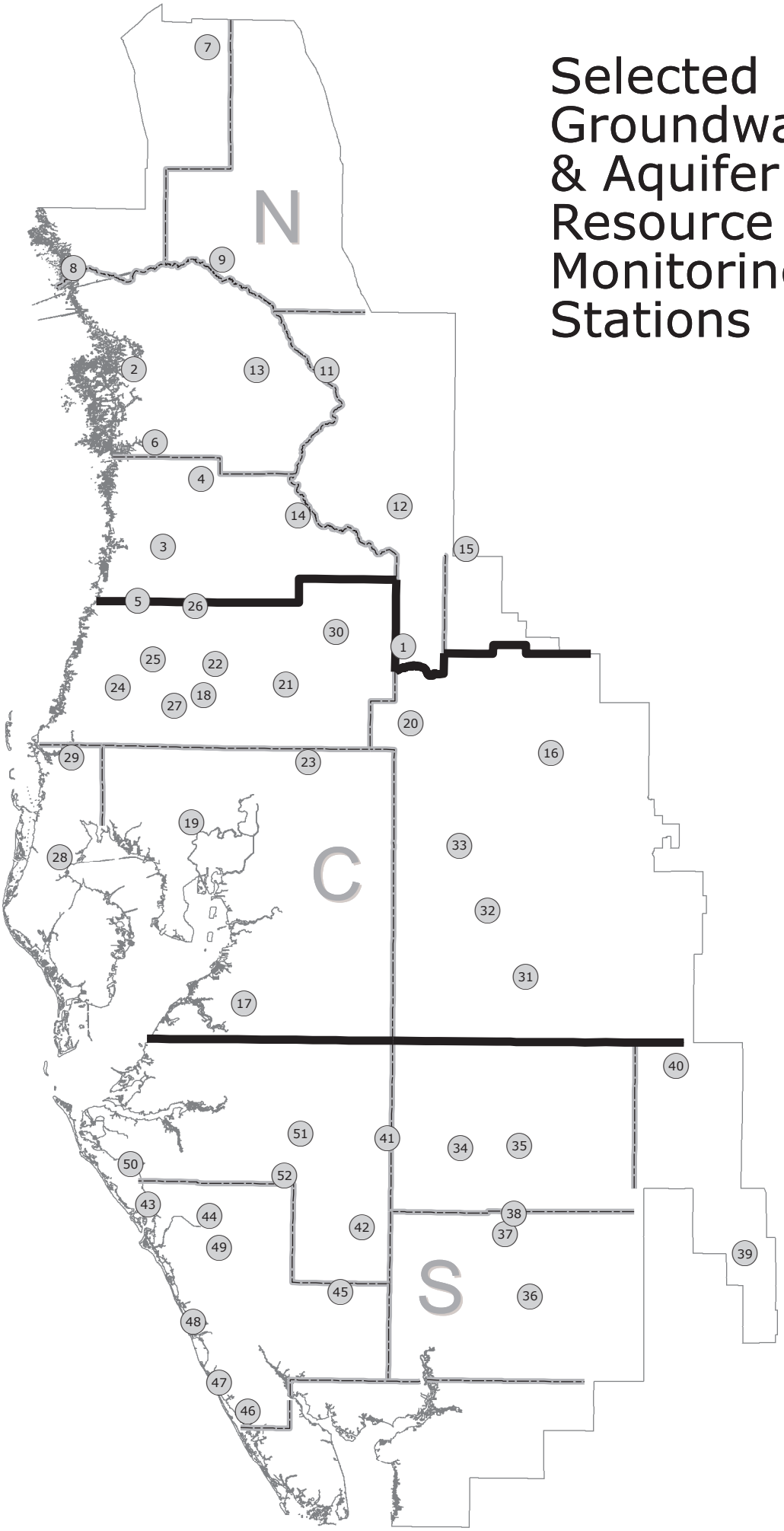


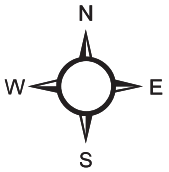
02/2009

Selected Surficial Aquifer Monitoring Stations

Map ID	Site Name
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

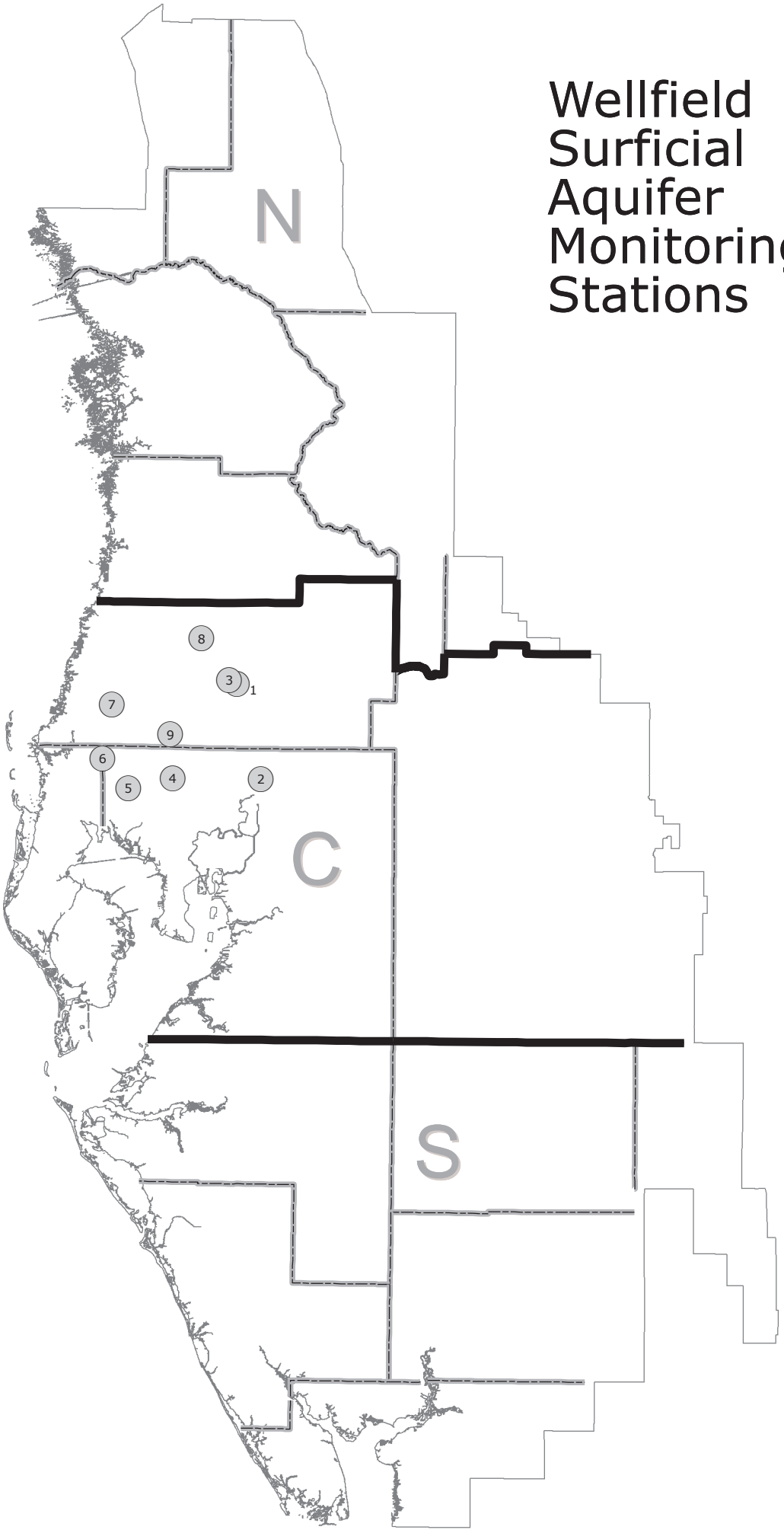




02/2009

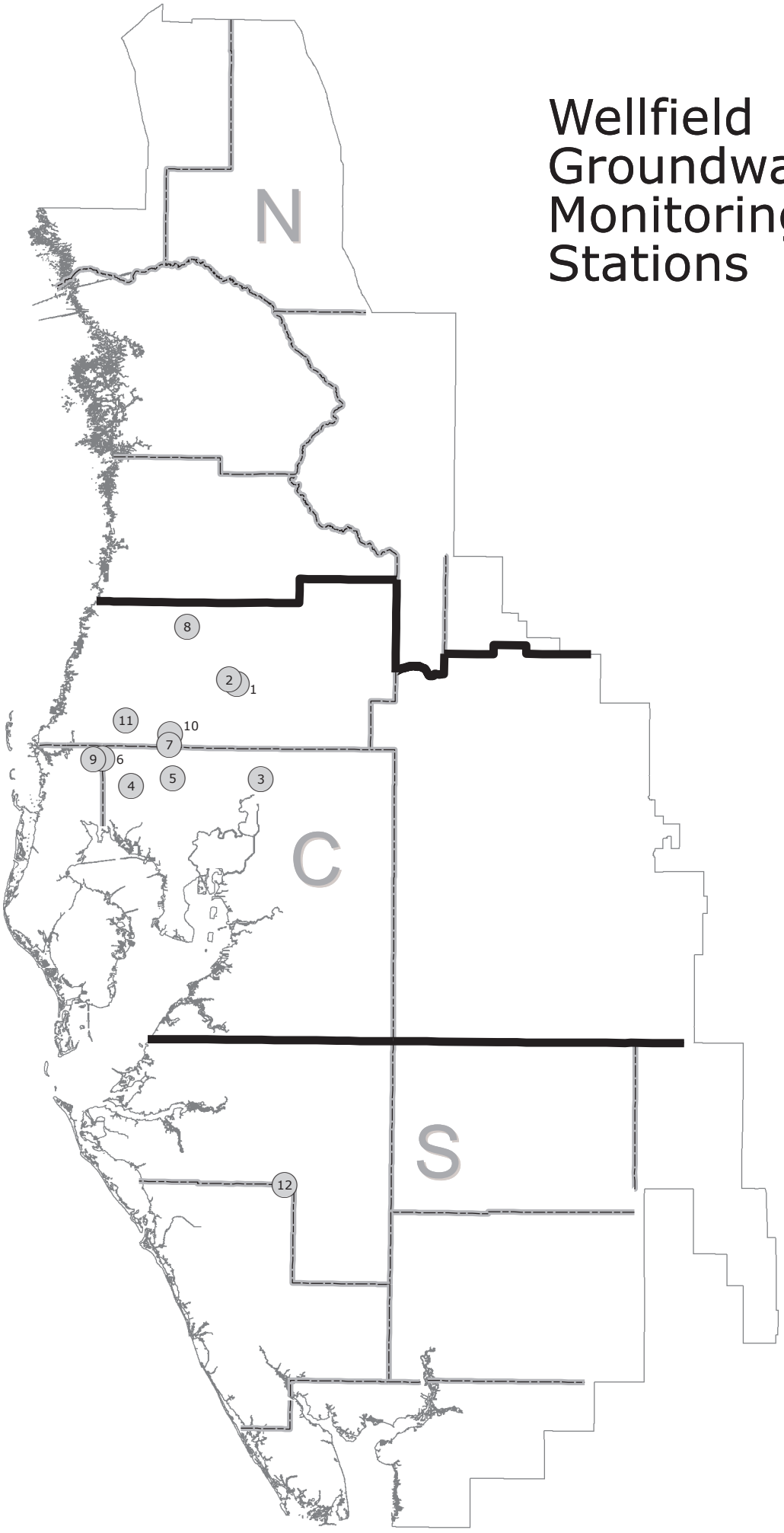
Selected Groundwater & Aquifer Resource Monitoring Stations

Map ID	Site Name
1	ROMP 89 Ocala
2	ROMP TR 21-2 Ocala/Avon Park
3	Weeki Wachee Deep
4	ROMP 107 Ocala/Avon Park
5	ROMP 97 Avon Park
6	Chassahowitzka 1 Deep
7	ROMP 134 Ocala/Avon Park
8	ROMP TR 124 Avon Park
9	CE 14 Dunnellon 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
43	Sarasota 11th Street Deep
44	Sarasota 9 Deep
45	Big Slough Deep
46	Englewood 14 Deep
47	Manasota 14 Deep
48	ROMP TR 5-1 Suwannee
49	Florida Cities Test 1
50	ROMP TR 7-1 Tampa
51	Kibler Deep


Wellfield
Surficial
Aquifer
Monitoring
Stations
N
C
S
8
3
1
7
9
6
5
4
2
N
W
E
S

02/2009

Wellfield Groundwater Monitoring Stations



02/2009

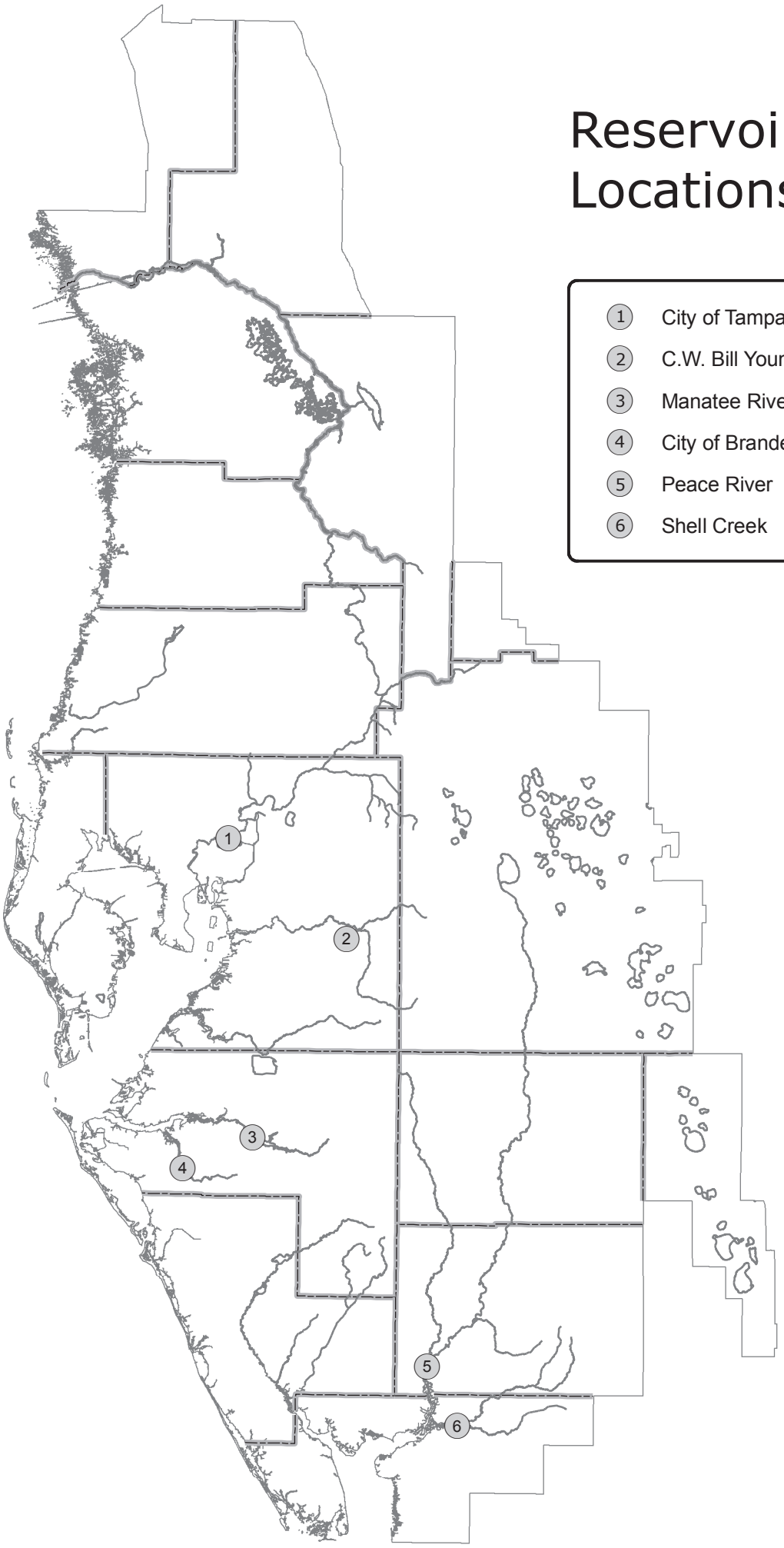
Wellfield Groundwater Monitoring Stations

Map ID	Site Name
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

Map ID	Site Name
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



1. City of Tampa
2. C.W. Bill Young Regional
3. Manatee River
4. City of Brandenton (Evers)
5. Peace River
6. Shell Creek

N
W
E
S

02/2009