

MEMORANDUM

TO: Governing Board

FROM: Megan Wetherington, P.E., Senior Professional Engineer *MW*

THRU: David Still, Executive Director *DS*
Jon Dinges, Department Director *JMD*

DATE: March 4, 2010

RE: February 2010 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in February was 4.11", which is 106% of the long-term monthly average of 3.87" (Table 1, Figure 1). Rainfall was near normal in most parts of the District. Figure 2 shows the estimated rainfall accumulation, and Figure 3 shows the rainfall totals as a percent of normal February precipitation.
- Rainfall for the past twelve months was 61.08". The twelve-month surplus was 6.4". Figure 4 depicts the 12-month surplus/deficit across the District. Figure 5 shows the change in annual deficits beginning in 1998.

SURFACEWATER

- **Rivers:** After significant rises caused by above-average rainfall in January, river levels throughout the District crested by the third week of February. Conditions at gages in the upper Suwannee and Santa Fe rivers fell to normal conditions by the end of the month. Lower gages remained above the 75th percentile, considered above normal. (The percentile is the percentage of historic levels that are equal to or below the observed value.) Discharge statistics for six river stations are presented in Figure 6, and streamflow conditions for major gages are shown in Figure 7. The National Weather Service (NWS) issued flood warnings for the Aucilla River and the Santa Fe River at Three Rivers Estates. Flooding was characterized by the NWS as minor at both forecast points. No-wake/idle speed restrictions were enforced by the Fish and Wildlife Commission between Little River Springs and Fowler's Bluff on the Suwannee River, and on the lower Santa Fe River.
- **Lakes:** Levels at most monitored lakes were stable, increasing by an average of less than an inch. Five of the 16 monitored lakes remained below their long-term average levels. The greatest increase was observed at Lake Butler (Union County), with a rise of 8" since January, but the lake still remained below its historic average. Levels at Waters Lake and

Governor Hill Lake did not rise high enough to be measured at the gage locations. Figure 8 shows levels relative to the long-term average, minimum, and maximum levels for six lakes.

- **Springs:** Average February flow relative to historical flows is shown for 5 spring systems in Figure 11. Flows decreased since January due to backwater from high river levels.

GROUNDWATER

Groundwater levels increased in 93% of the District's monitored wells (Figure 9). Average groundwater levels rose to above the 60th percentile from the 47th percentile in January. Levels in Hamilton, Madison, and Taylor counties were much above normal for the month, and record monthly high levels were observed at 4 wells in those areas. A persistent area of low groundwater improved in the middle Suwannee and lower Santa Fe basins, with only 10 wells in scattered areas remaining below normal. Statistics for a representative sample of wells are shown in Figure 10.

HYDROLOGICAL/METEOROLOGICAL INFORMATION

- The Palmer Drought Severity Index (PDSI), a climatological tool produced by the National Weather Service, evaluates the scope, severity, and frequency of prolonged periods of abnormally dry or wet weather. The PDSI indicated near normal conditions during February.
- Long-term forecasts from the National Weather Service predict above-average precipitation through April due to ongoing El Niño conditions in the Pacific.

The hydrologic conditions report is compiled in compliance with Chapter 40B-21.211, Florida Administrative Code, using water resource data collected from the following: rainfall (radar-derived estimate), groundwater levels (113 wells), surfacewater levels (16 lakes and 11 rivers), river flows (6 stations on 4 rivers), spring flows (5 stations, courtesy of the Florida Department of Environmental Protection and the U.S. Geological Survey), and general hydrological and meteorological information (drought indices and weather forecasts). Data are provisional, and subject to revision. Statistics are updated as revised data become available.

MW/bmp

cc: Charles H. Houder, III, Assistant Executive Director

Table 1: Estimated Rainfall Totals

County	Feb-2010	Feb-2009	Last 12 Months	Feb. Average
Alachua	4.02	1.47	53.27	3.59
Baker	3.49	1.28	55.56	3.44
Bradford	3.62	1.36	53.87	3.64
Columbia	3.56	1.35	55.29	3.72
Dixie	4.52	1.39	55.89	3.98
Gilchrist	3.83	1.36	52.76	4.18
Hamilton	3.87	2.11	58.64	4.01
Jefferson	4.42	1.90	69.36	4.65
Lafayette	4.20	1.24	62.78	3.98
Levy	4.94	1.60	55.12	3.63
Madison	4.18	1.94	66.65	4.36
Suwannee	4.08	1.40	57.64	3.73
Taylor	4.06	1.59	63.19	3.94
Union	3.42	1.12	49.97	3.63

February 2010 Average: 4.11
 Historical February Average (since 1932): 3.87
 Historical 12-month Average (since 1932): 54.68
 Past 12-Month Total: 61.08
 12-month Rainfall Surplus: 6.40

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

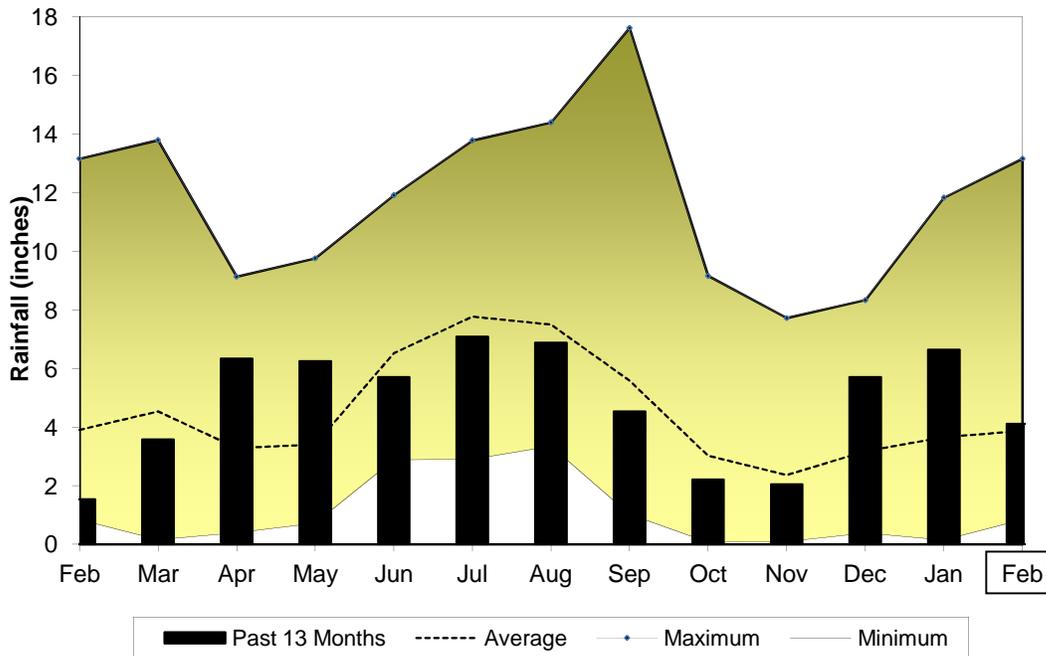


Figure 2: February 2010 Rainfall Estimate

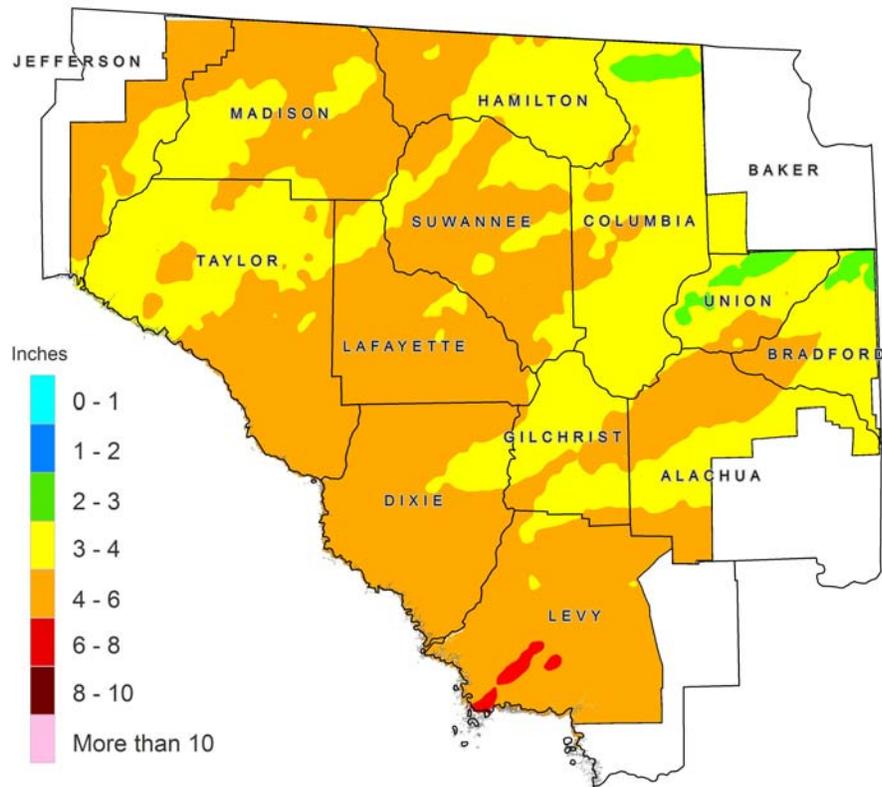


Figure 3: February 2010 Percent of Normal Rainfall

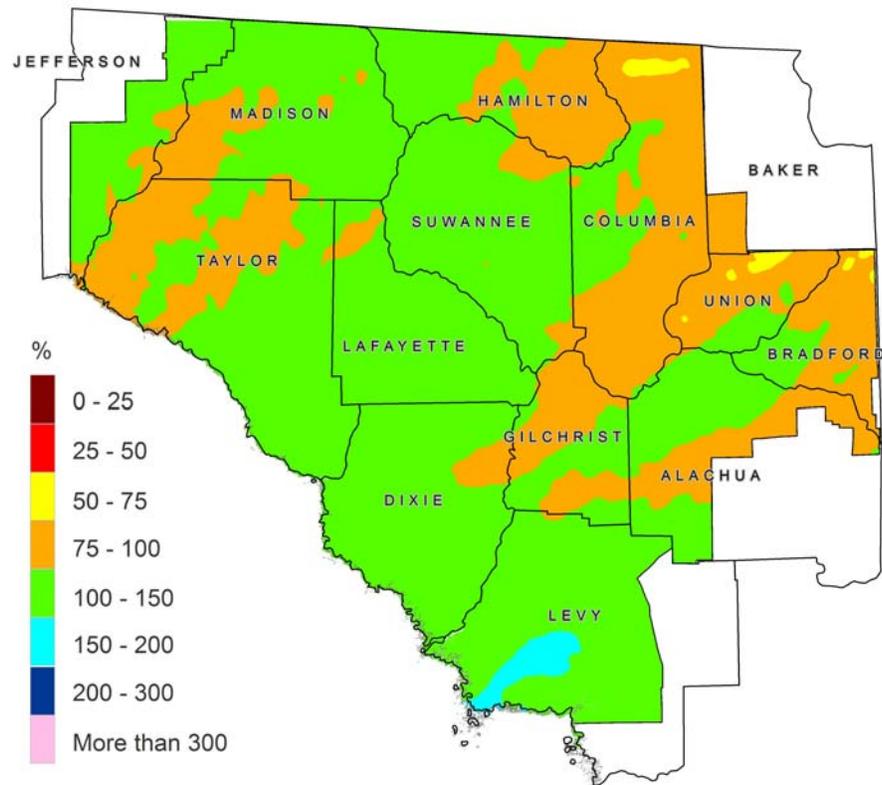


Figure 4: February 2010 Rainfall Surplus/Deficit

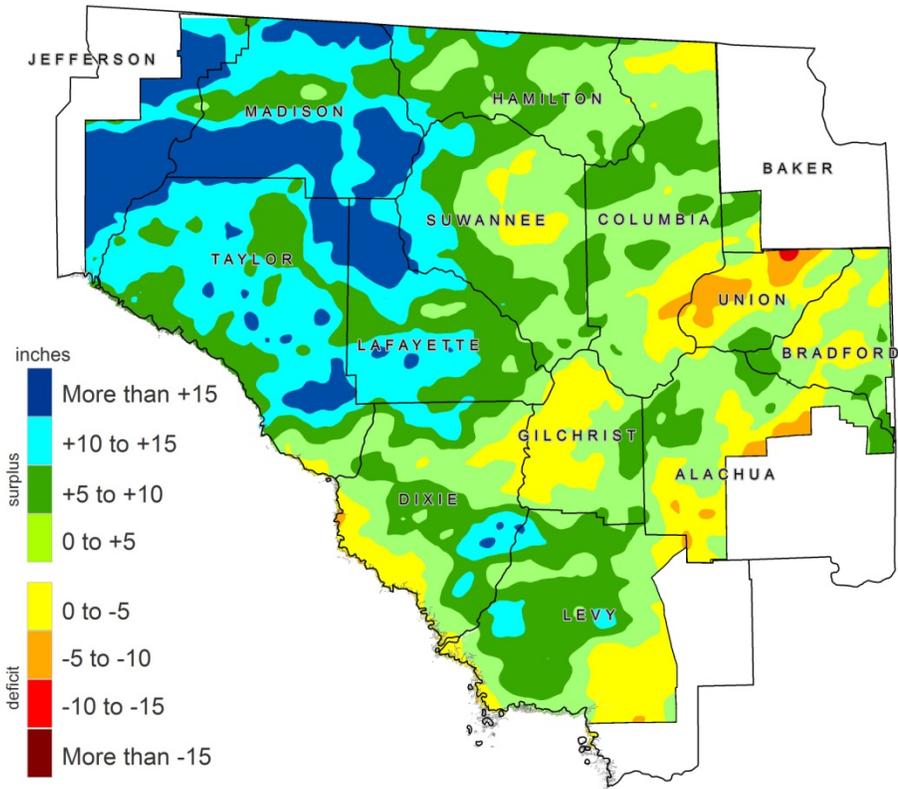


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

Difference between observed 12-month rainfall and the long-term average over the same period

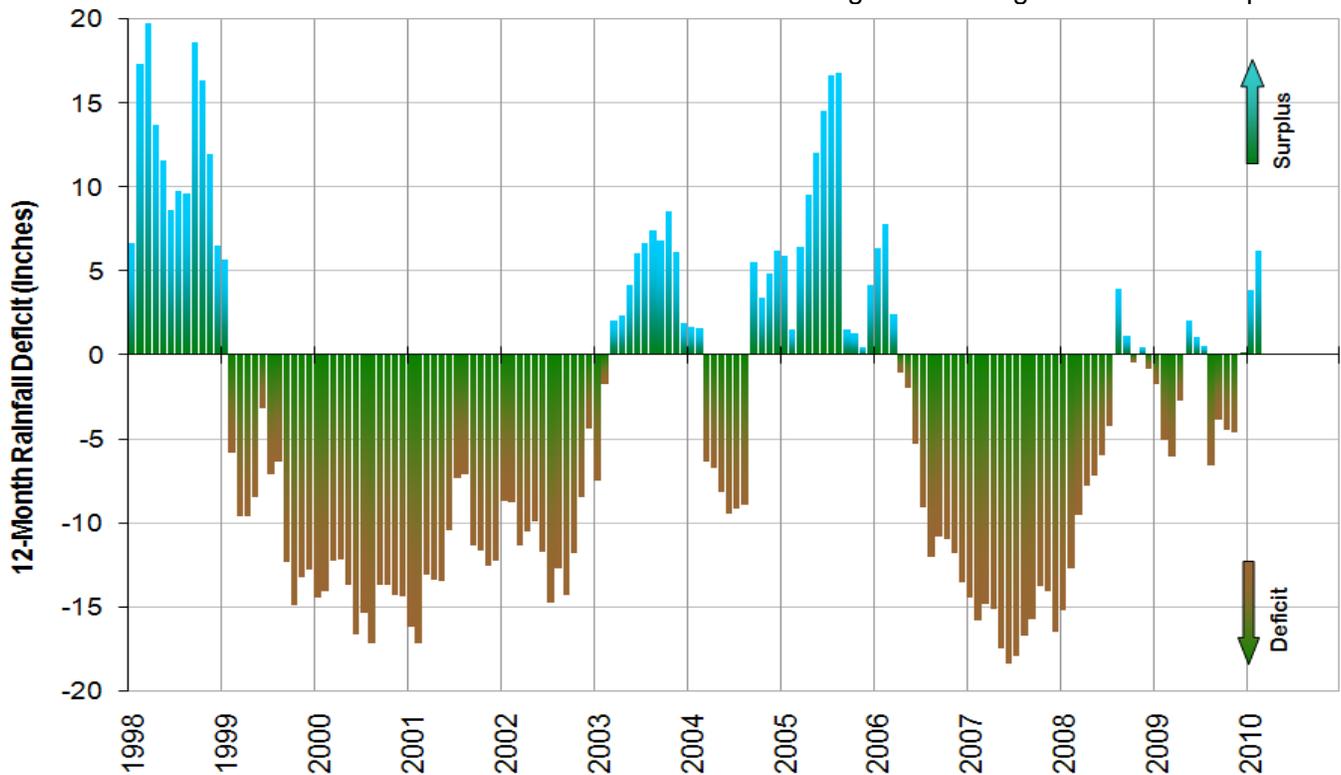
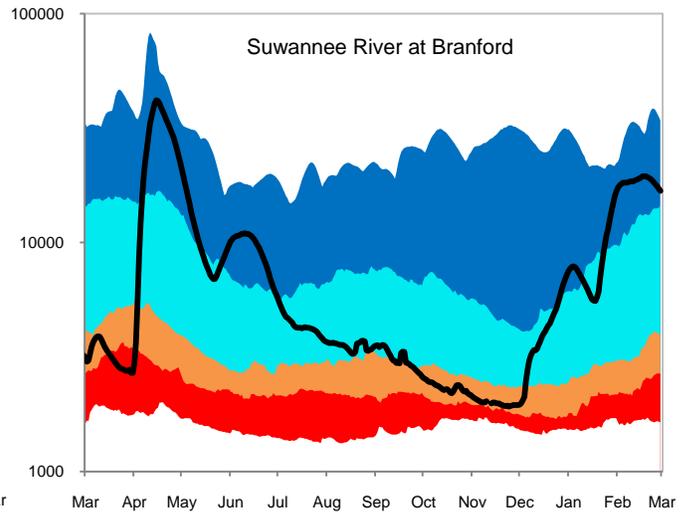
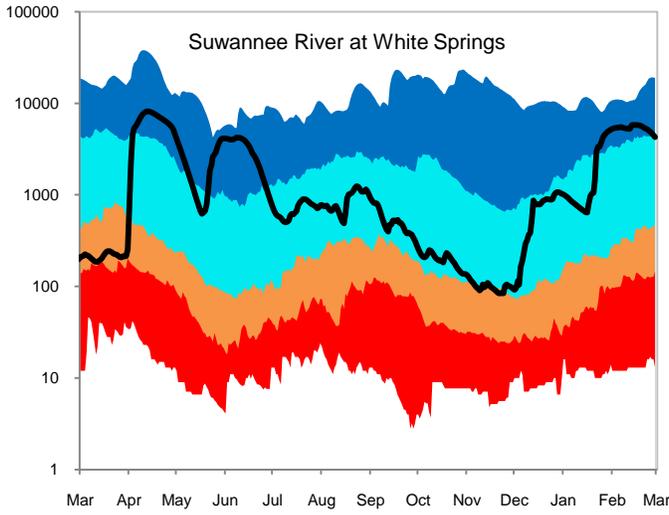
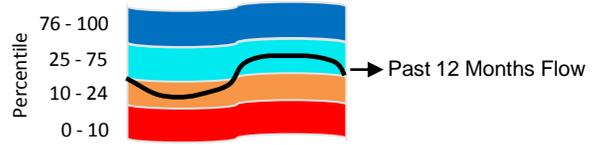


Figure 6: Daily River Flow Statistics

March 1, 2009 through February 28, 2010



RIVER FLOW, CUBIC FEET PER SECOND

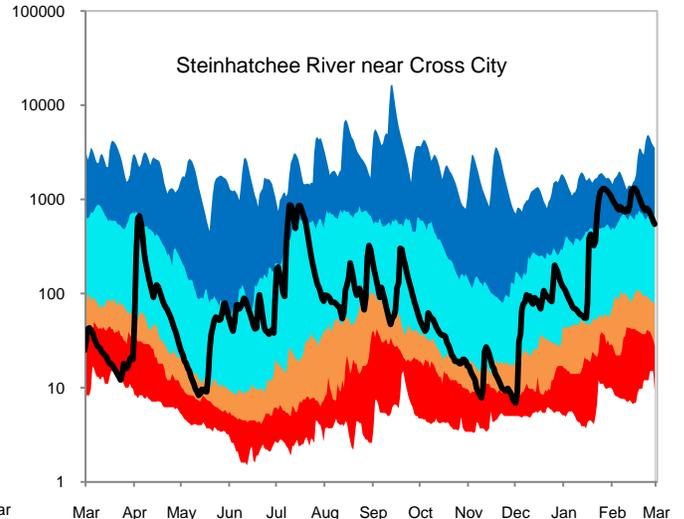
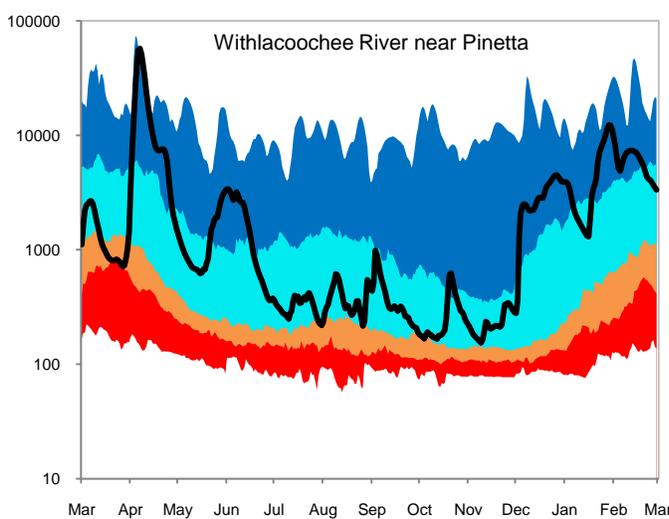
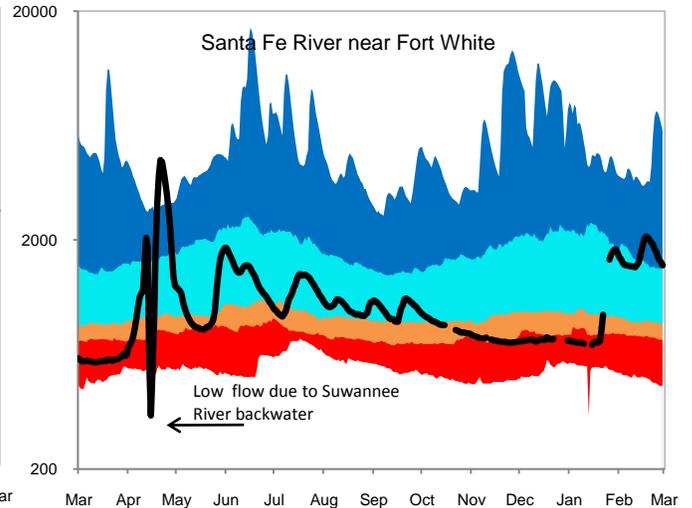
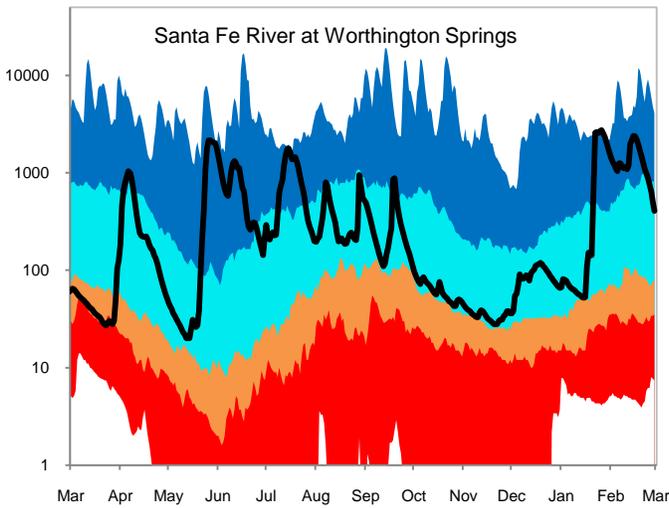


Figure 7: February 2010 Streamflow Conditions

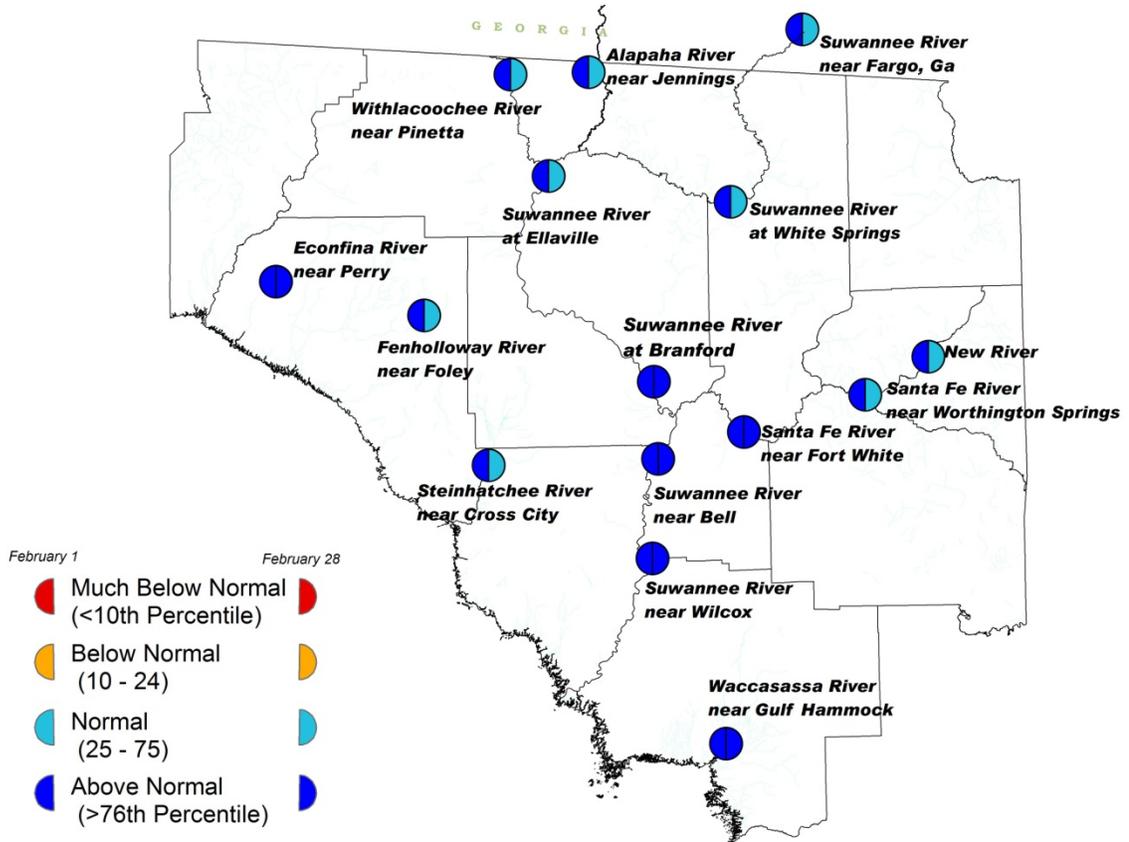
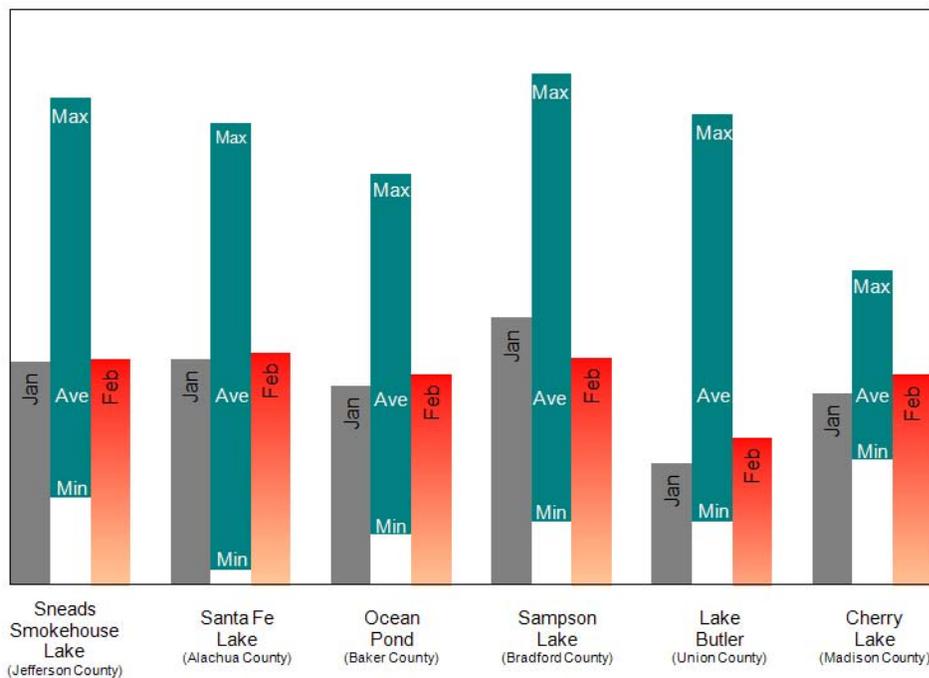
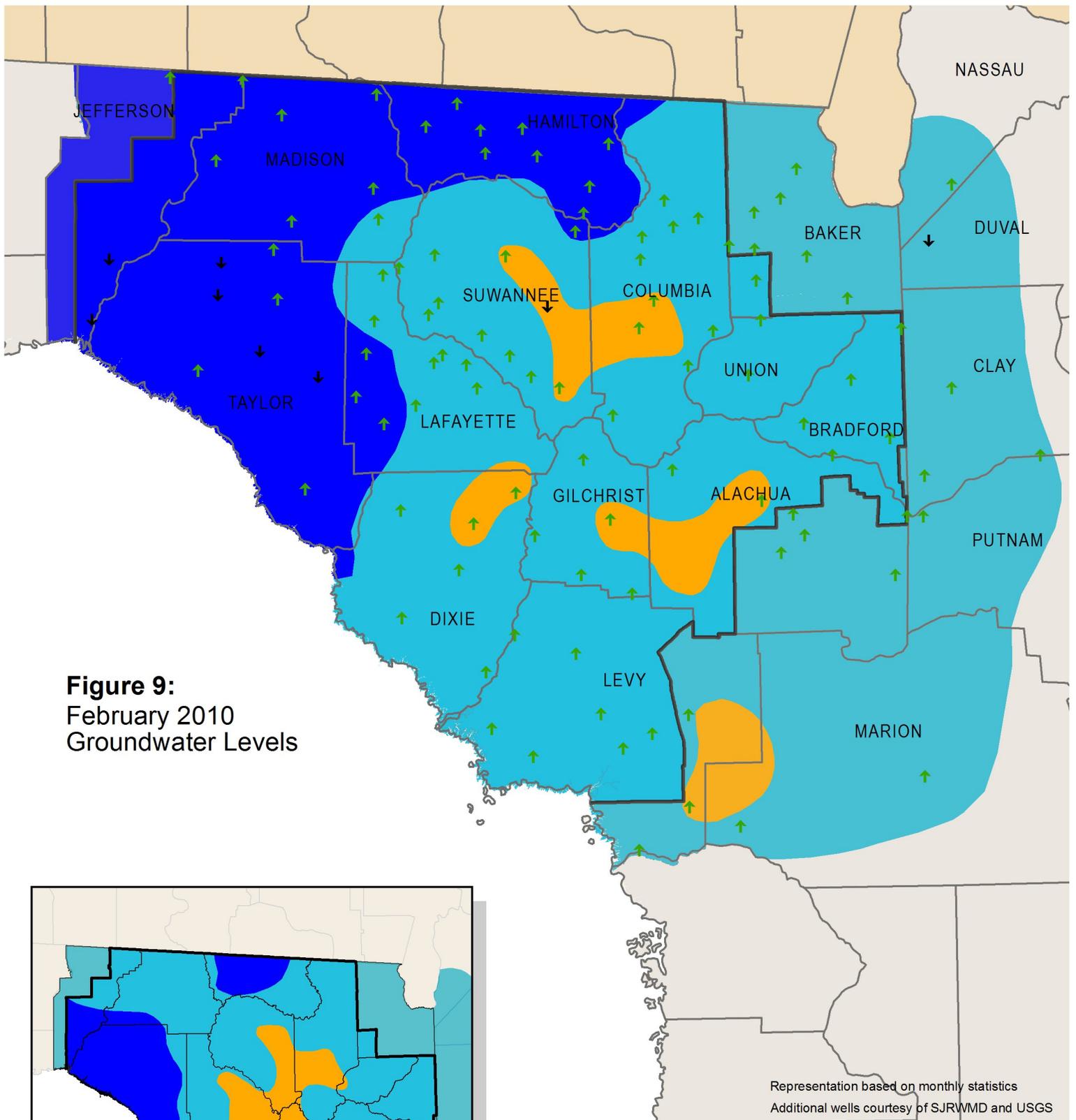


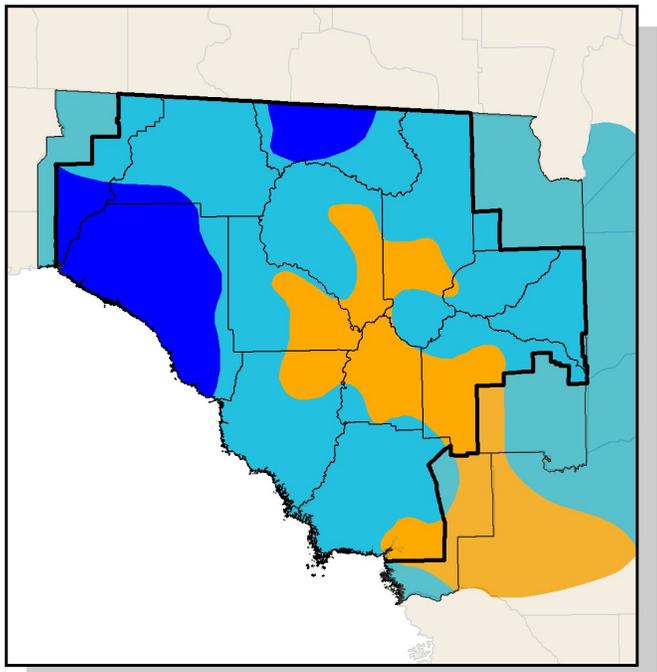
Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.





Representation based on monthly statistics
 Additional wells courtesy of SJRWMD and USGS

Figure 9:
 February 2010
 Groundwater Levels



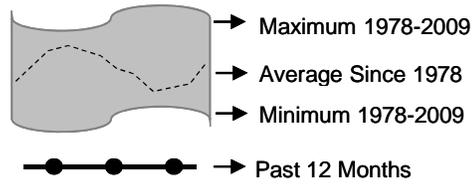
Inset: January 2010 Groundwater Levels

- High
(Greater than 75th Percentile)
- Normal
(25th to 75th Percentile)
- Low
(10th to 25th Percentile)
- Extremely Low
(Less than 10th Percentile)
- Increase/decrease in level since last month
- District Boundary

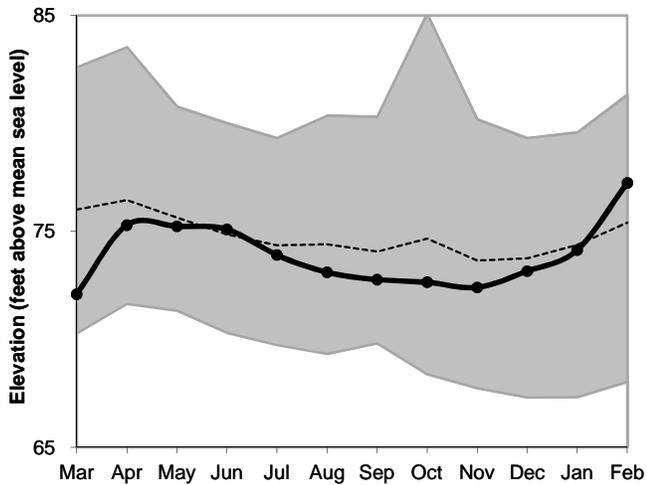
Figure 10: Monthly Groundwater Level Statistics

Levels March 1, 2009 through February 28, 2010

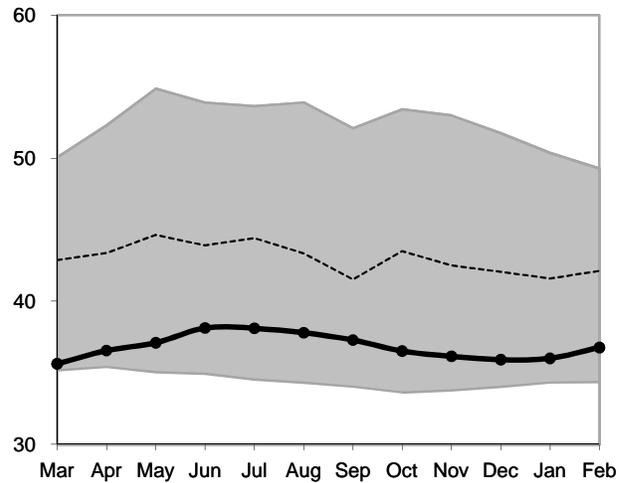
Period of Record Beginning 1978



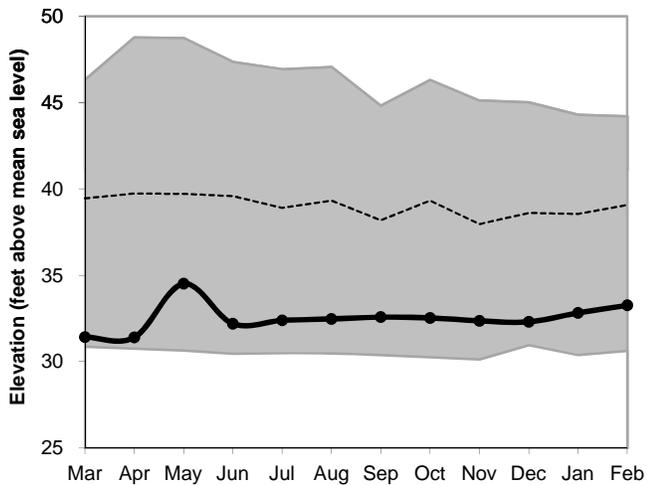
Madison County N010719001



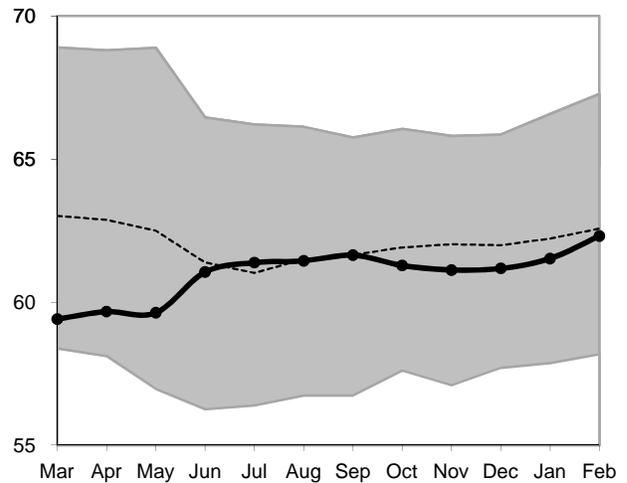
Suwannee County S021335001



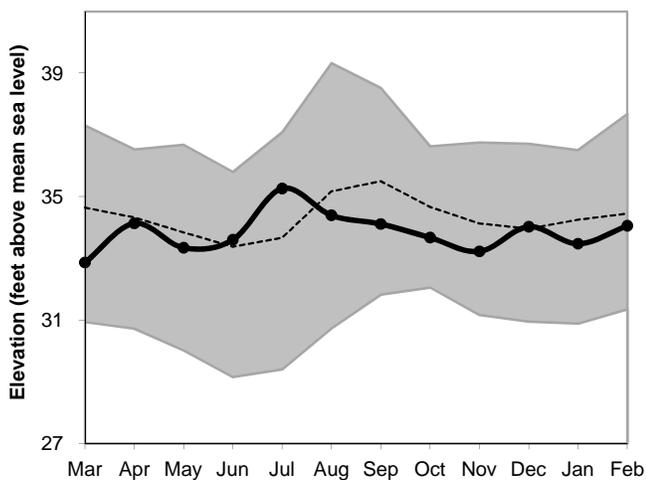
Columbia County S041625001



Bradford County S072132001



Dixie County S101210001



Taylor County S050701001

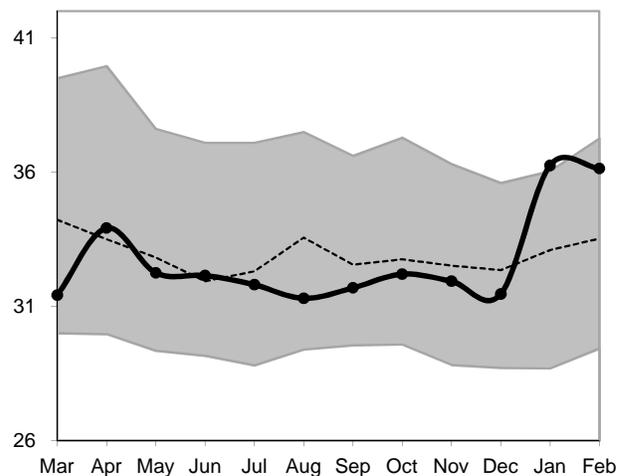
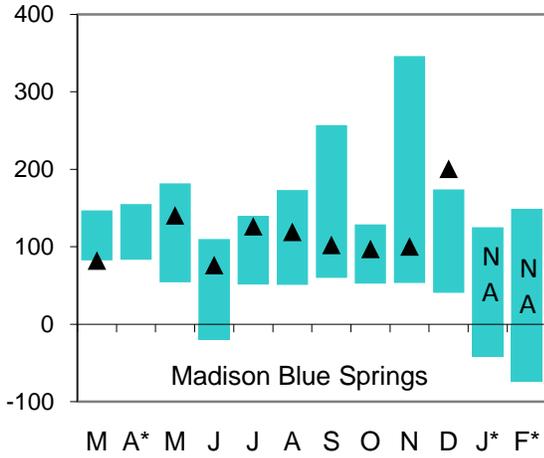
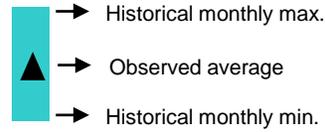


Figure 11: Monthly Springflow Statistics

Flows March 1, 2009 through February 28, 2010
 Springflow data are given in cubic feet per second.
 Period of record beginning 2002. Data are provisional.



Note: Rising river levels caused by high tides or flooding can cause springflow to slow or reverse.

Springflow for months marked by an asterisk (*) was strongly affected by river conditions.

Data will be revised once approved and published by the U.S. Geological Survey.

