MEMORANDUM

TO: Governing Board

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

THRU: David Still, Executive Director DS
Jon Dinges, Department Director JWD

DATE: February 4, 2010

RE: January 2010 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in January was 6.64", which is 181% of the long-term monthly average of 3.66" (Table 1, Figure 1). This was the highest January accumulation since 1994, and the fifth highest since 1932. Rainfall was above average in all counties, and significantly above average in Taylor, Jefferson, Hamilton, Madison, and Lafayette counties. Unusually intense rain was observed along the Santa Fe River on the 21st, with 4-hour accumulations making up more than half of the month's total at a number of gages. At the District's gage in O'Leno State Park, 5.12" fell in two hours, equaling the 100-year event. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal January precipitation.
- Rainfall for the past twelve months was 58.51". The twelve-month surplus was 3.83", the highest surplus since August 2008. Figure 4 depicts the 12-month surplus/deficit across the District. Figure 5 shows the change in annual deficits beginning in 1998.

SURFACEWATER

- **Rivers**: Flows increased at all major gages throughout January, and by the month's end were above the 75th percentile, considered above normal. (The percentile is the percentage of historic levels that are equal to or below the observed value.) Provisional record daily high flows were observed at the New River near Lake Butler, the Santa Fe River near Worthington Springs, the Fenholloway River near Foley, and the Alapaha River near Alapaha, Georgia. The Aucilla River at Lamont and the Alapaha River at Statenville rose above flood stage during the last week of the month. Flooding was characterized by the National Weather Service as minor at the Aucilla, and moderate at the Alapaha. Discharge statistics for six river stations are presented in Figure 6, and streamflow conditions for major gages are shown in Figure 7.

- **Lakes**: Most monitored lake levels rose in January, increasing by an average of 0.6 feet. Ten of the 16 monitored lakes rose above their long-term average levels or remained there. Figure 8 shows levels relative to the long-term average, minimum, and maximum levels for six lakes.
- **Springs:** Average January flow relative to historical flows is shown for 5 spring systems in Figure 11. High river levels caused tannic water to enter the spring pools at Fanning, Troy, and Madison Blue springs, and the Suwannee River flowed into White Springs during the last half of the month.

GROUNDWATER

Groundwater levels increased in 72% of the District's monitored wells (Figure 9). Average groundwater levels rose to the 47th percentile from the 40th percentile in December. Levels in Hamilton and Taylor counties were much above normal for the month, and record monthly high levels were observed at 6 wells in those areas. Below-normal groundwater levels occurred in the middle Suwannee and lower Santa Fe basins. Statistics for a representative sample of wells are shown in Figure 10.

HYDROLOGICAL/METEOROLOGICAL INFORMATION

- The 12-month Standardized Precipitation Index (SPI), based on long-term precipitation patterns that impact streams and groundwater, indicated near-normal conditions throughout the District. The 3-month SPI, which better describes soil moisture deficits, indicated above-normal conditions in most of the District, with moderately-wet to severely-wet conditions in Jefferson, Madison, and Taylor counties.
- Long-term forecasts from the National Weather Service predict above-average precipitation through March 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 (114 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	Jan-2010	Jan-2009	Last 12 Months	Jan. Average
Alachua	6.21	3.77	53.33	2.77
Baker	5.07	3.43	55.89	2.77
Bradford	6.68	3.98	53.96	2.95
Columbia	6.14	2.99	55.33	3.08
Dixie	4.42	3.64	55.84	3.17
Gilchrist	4.65	3.72	52.68	3.07
Hamilton	7.34	2.25	58.47	2.98
Jefferson	7.97	1.56	69.35	4.25
Lafayette	8.33	2.53	62.84	3.33
Levy	4.57	3.65	55.04	3.18
Madison	8.01	2.23	66.61	3.79
Suwannee	7.32	2.94	57.77	2.79
Taylor	8.26	2.47	63.19	3.39
Union	5.52	3.68	49.97	2.86

January 2010 Average:	6.64
Historical January Average (since 1932):	3.66
Historical 12-month Average (since 1932):	54.68
Past 12-Month Total:	58.51
12-month Rainfall Surplus:	3.83

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

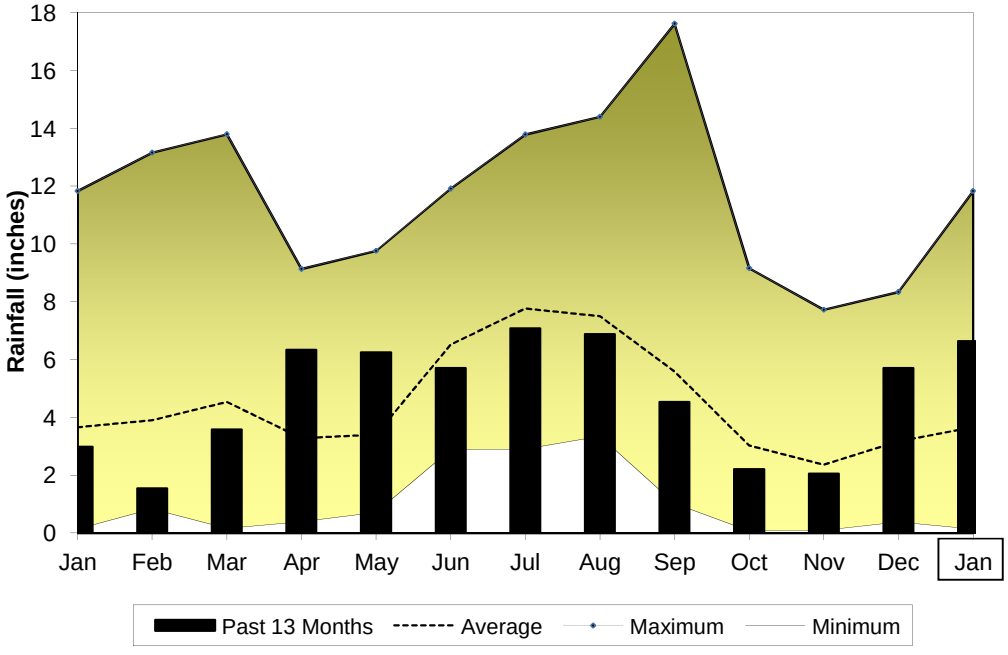


Figure 2: January 2010 Rainfall Estimate

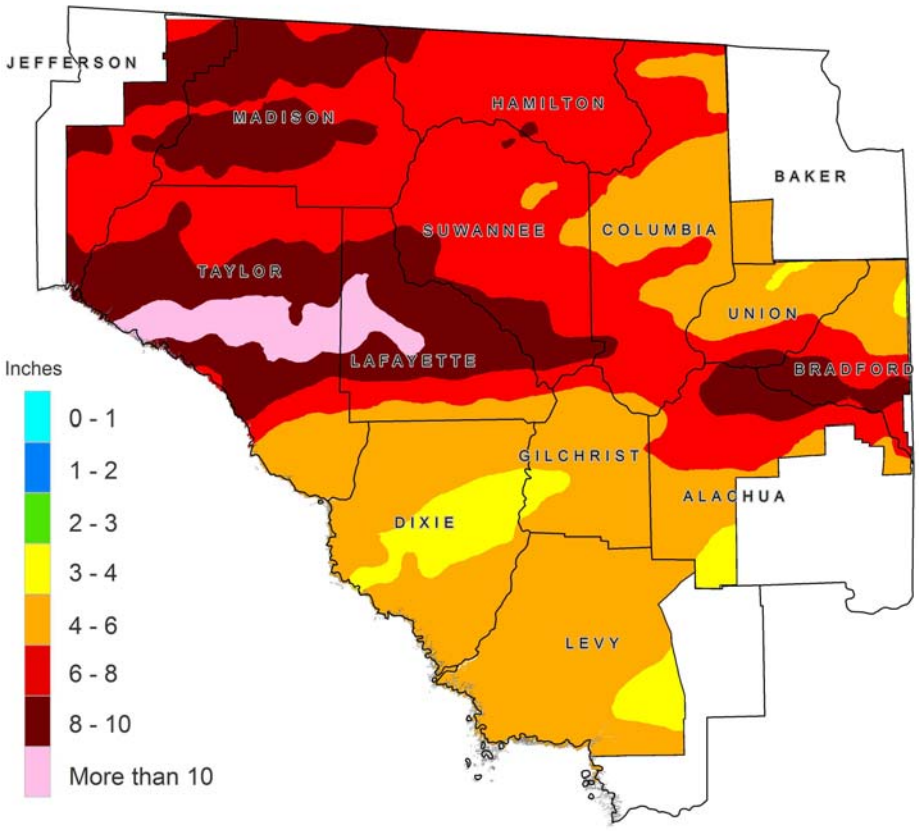


Figure 3: January 2010 Percent of Normal Rainfall

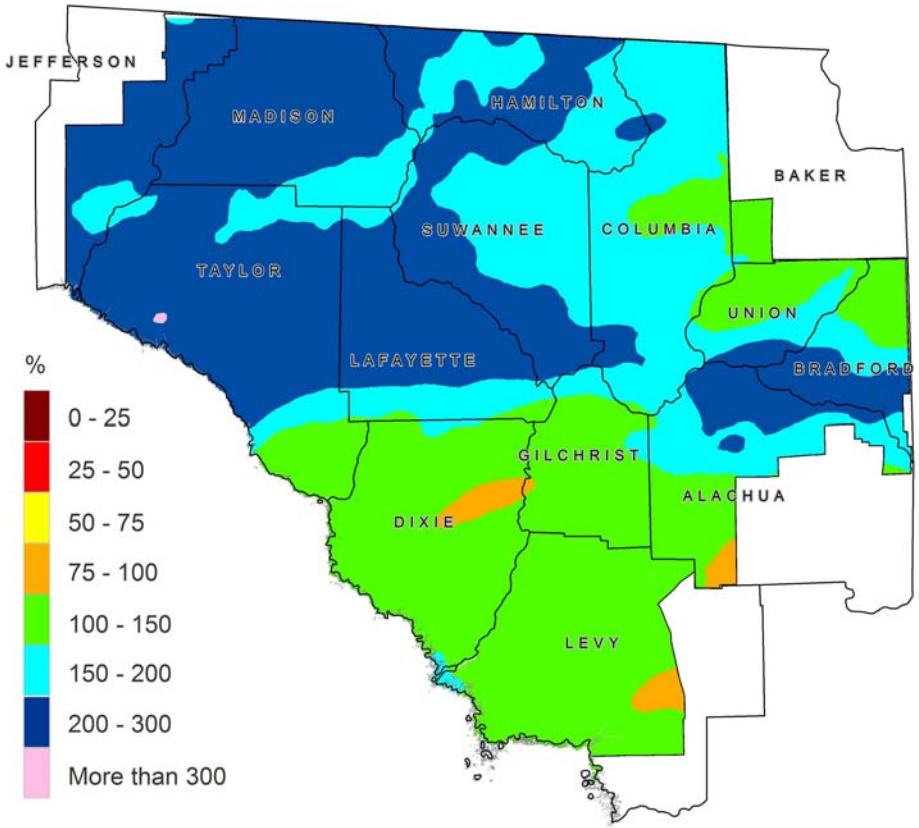


Figure 4: January 2010 Rainfall Surplus/Deficit

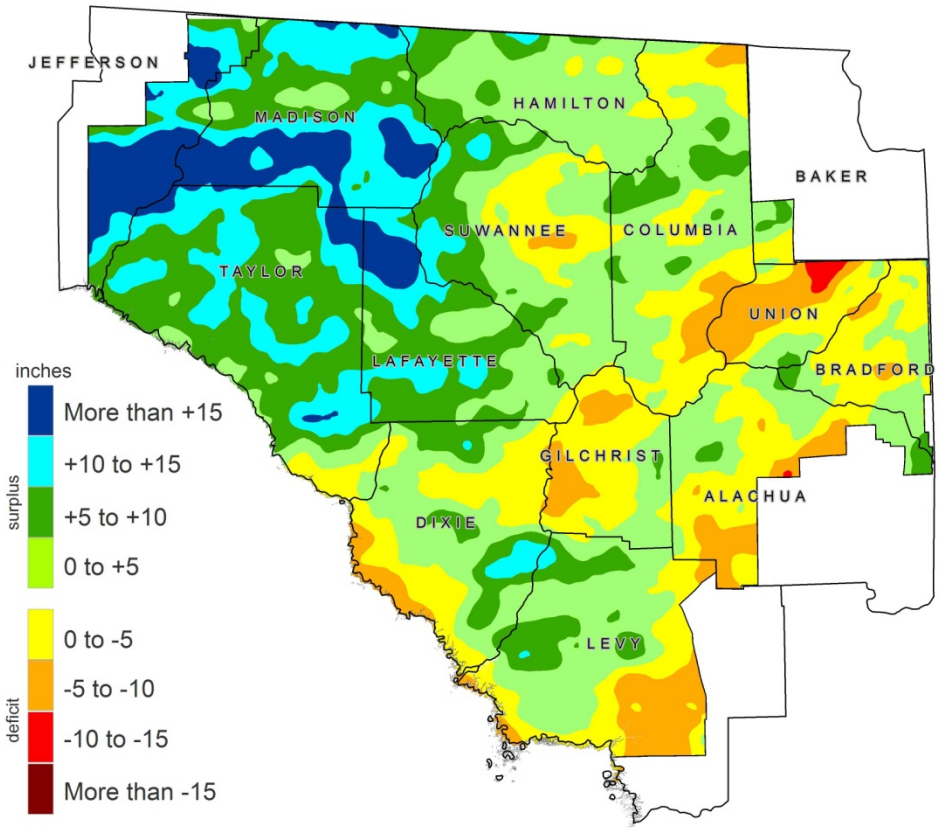


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

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

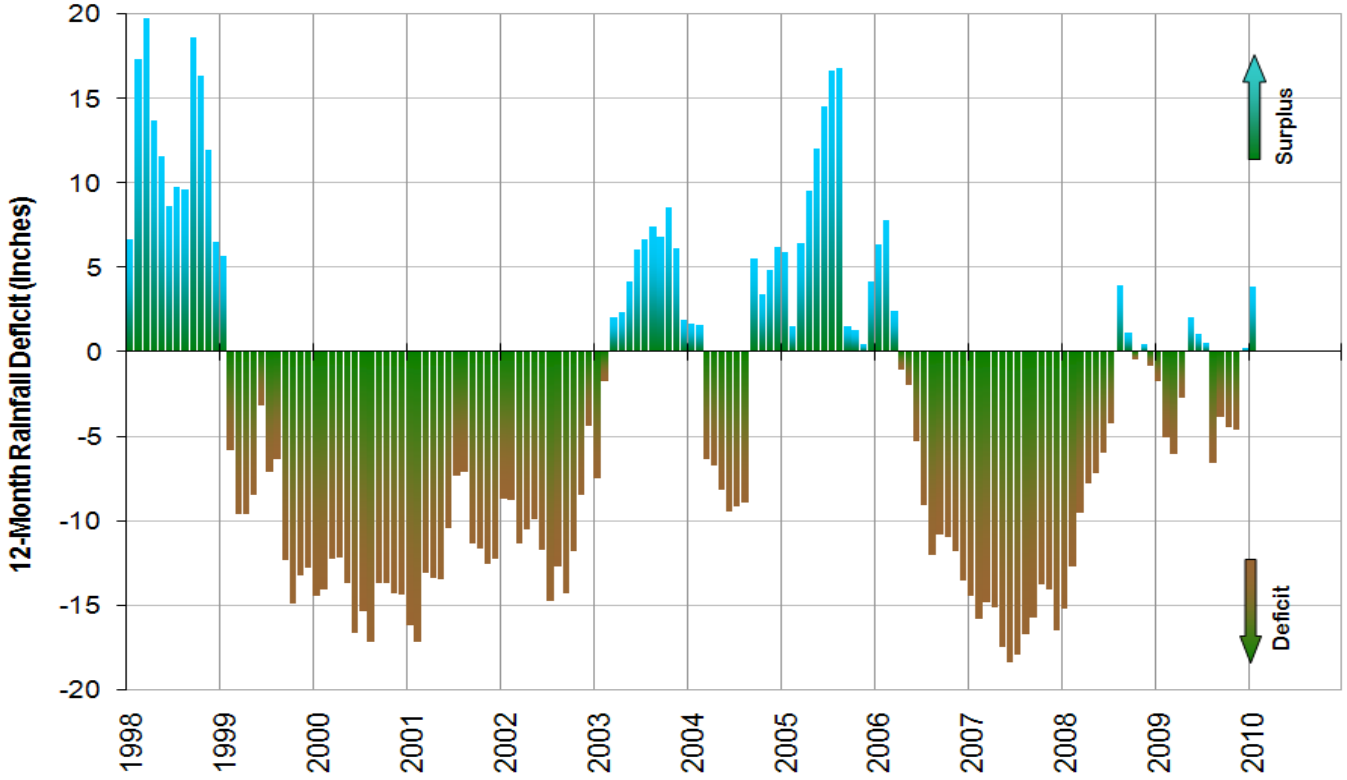
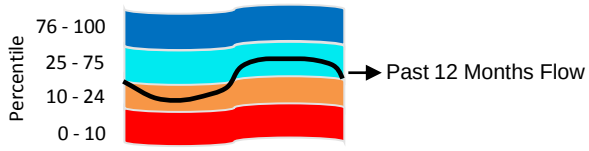
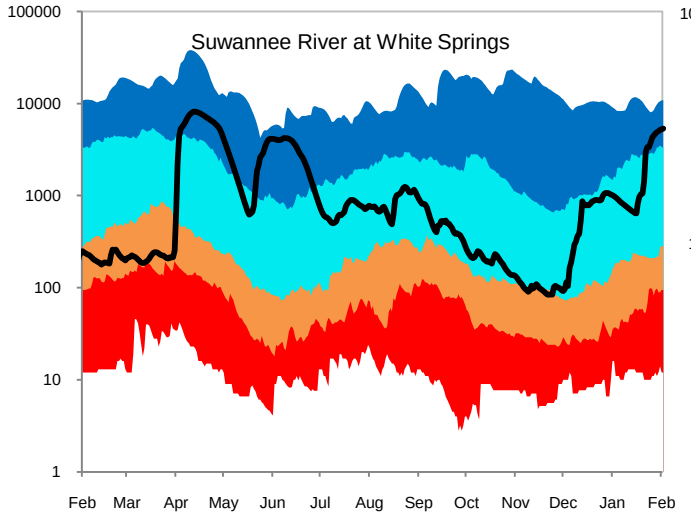


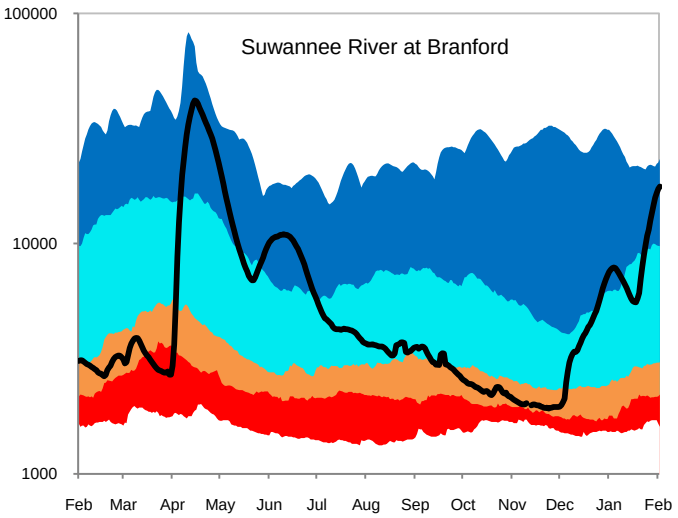
Figure 6: Daily River Flow Statistics

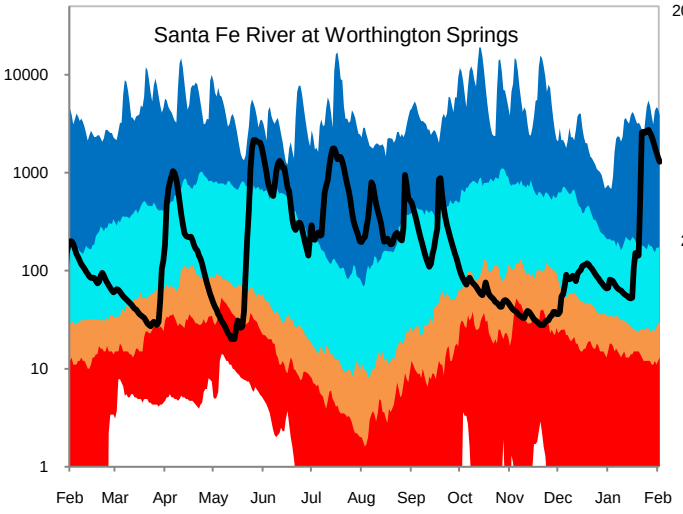
February 1, 2009 through January 31, 2010

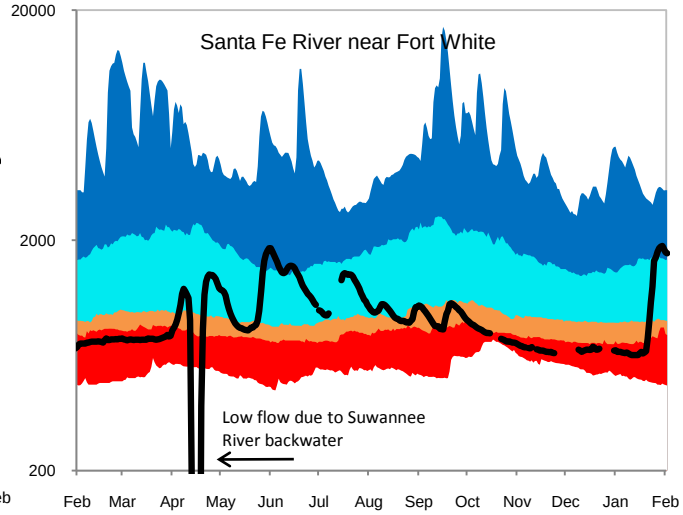


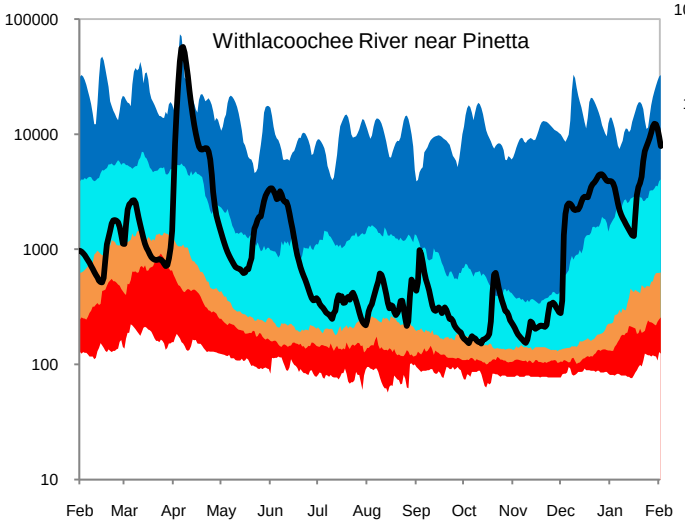
RIVER FLOW, CUBIC FEET PER SECOND











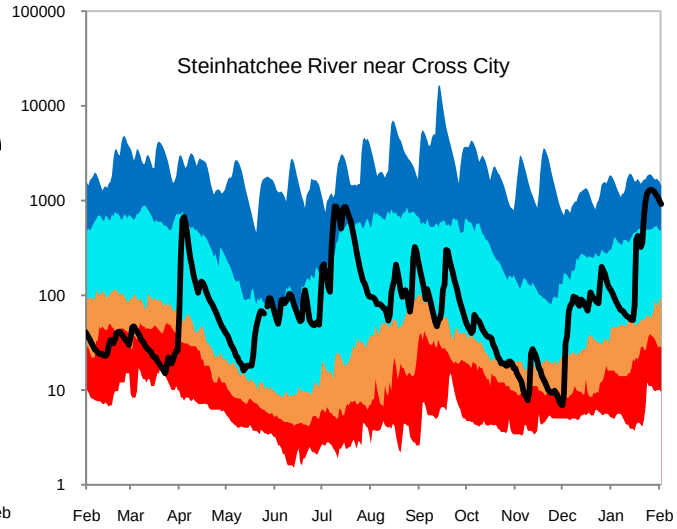


Figure 7: January 2010 Streamflow Conditions

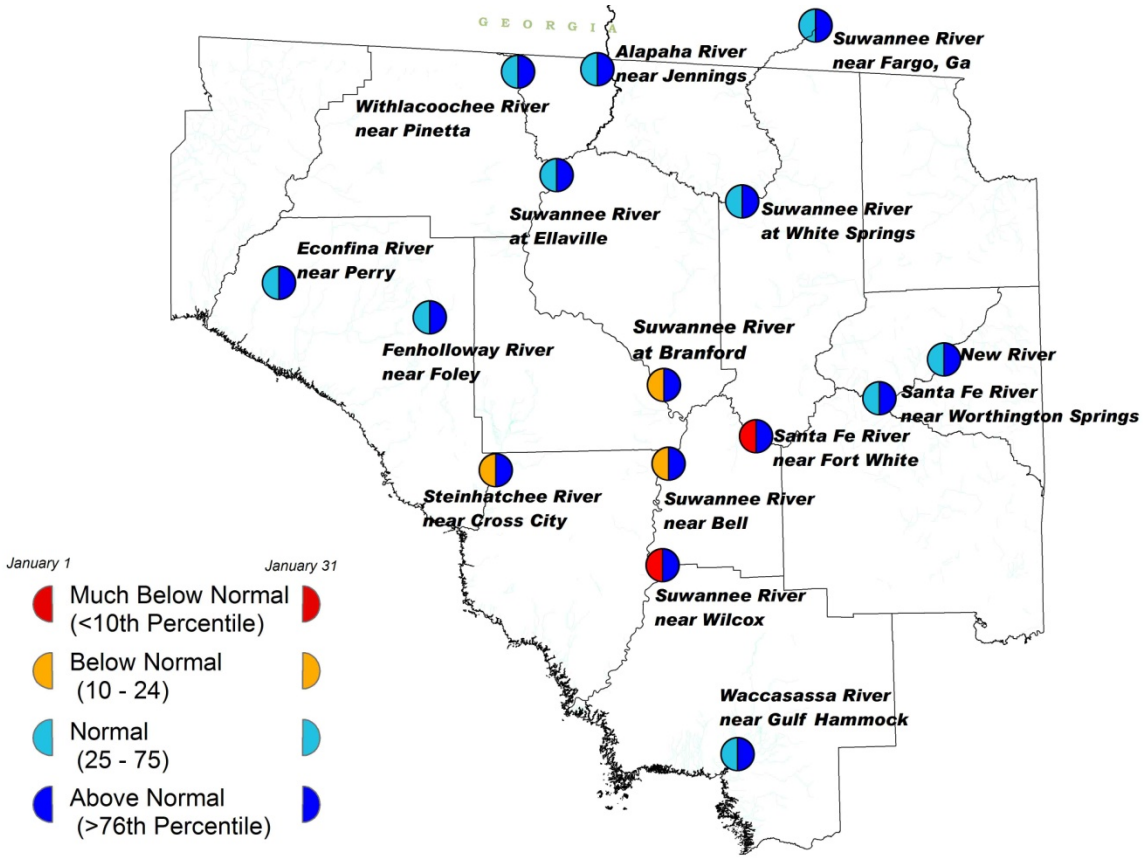
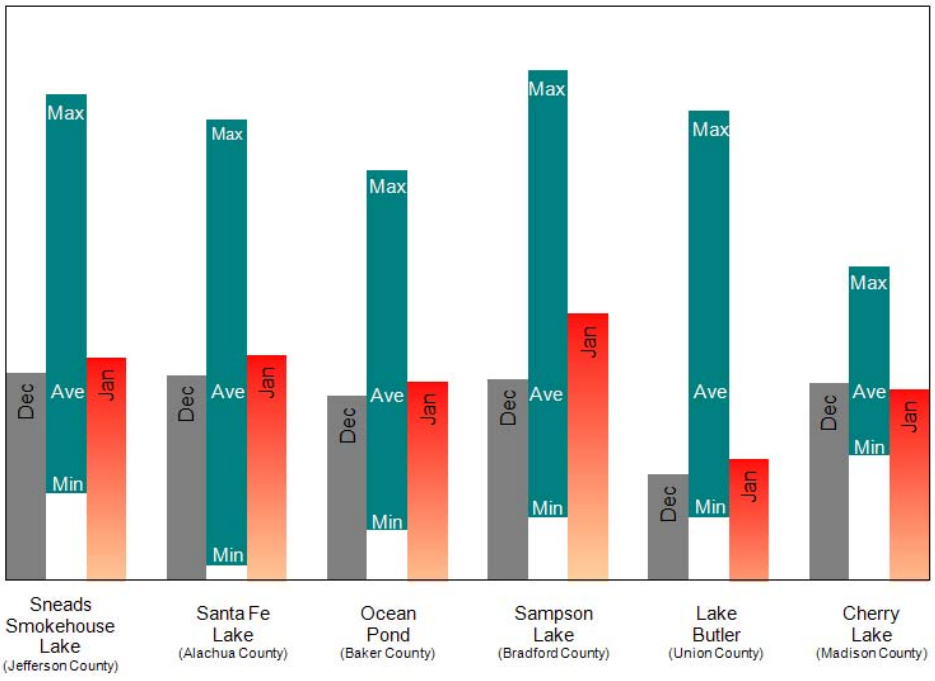


Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.



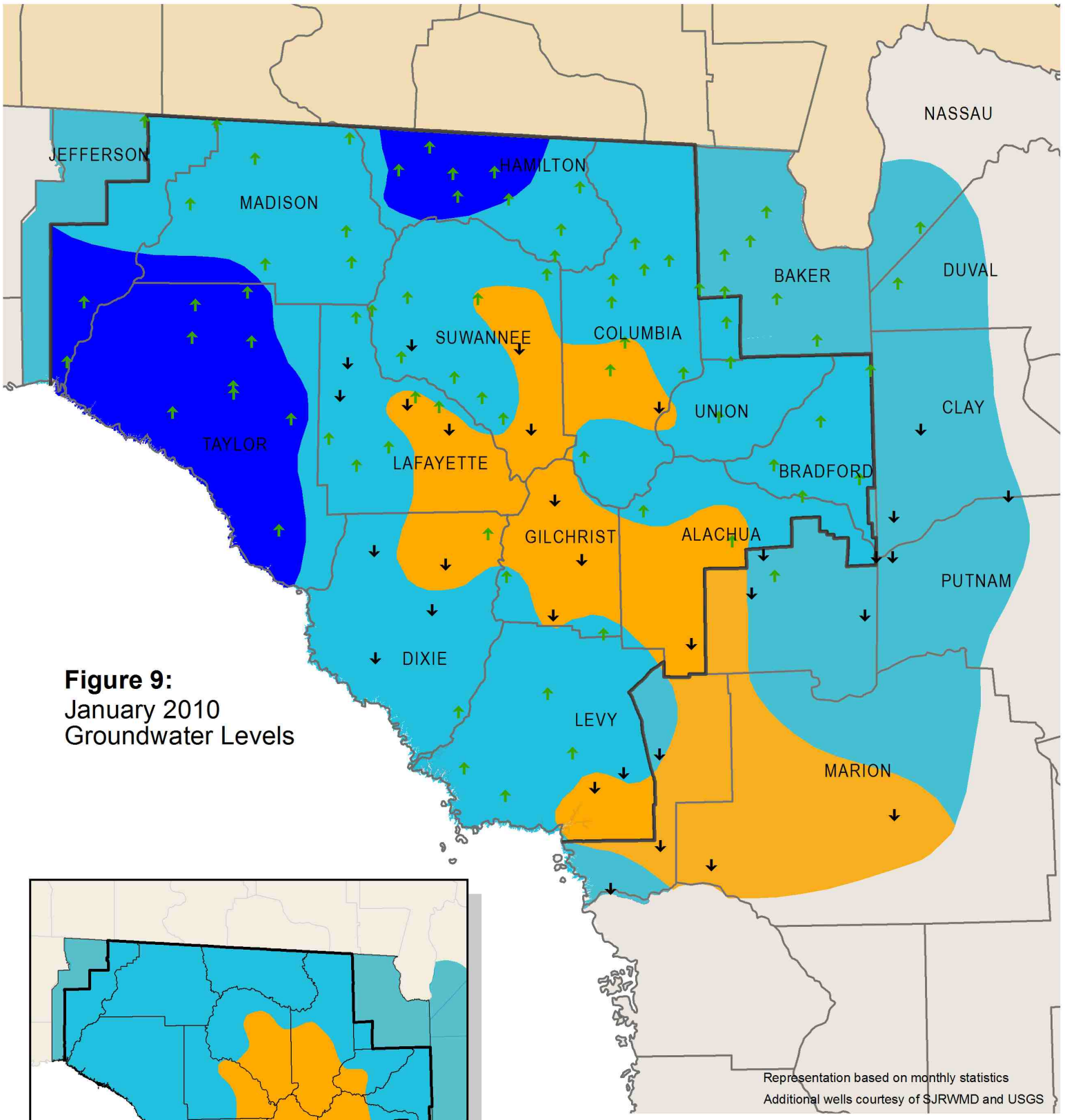
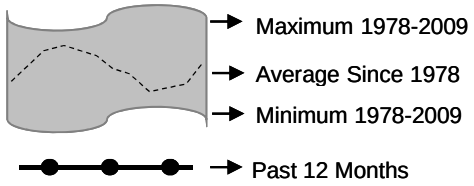


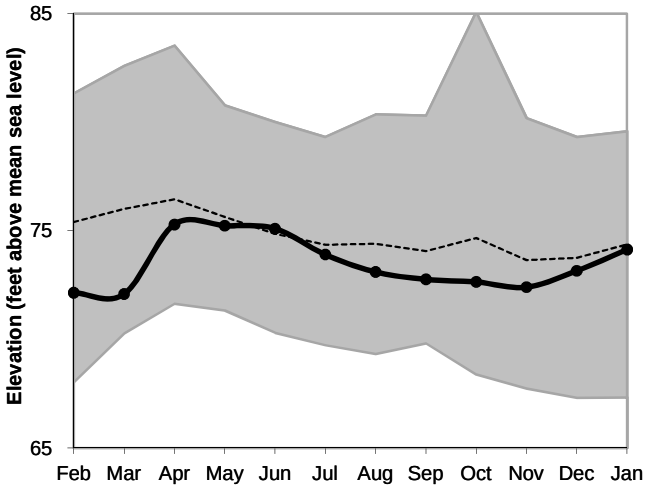
Figure 9:
January 2010
Groundwater Levels

Inset: December 2009 Groundwater Levels

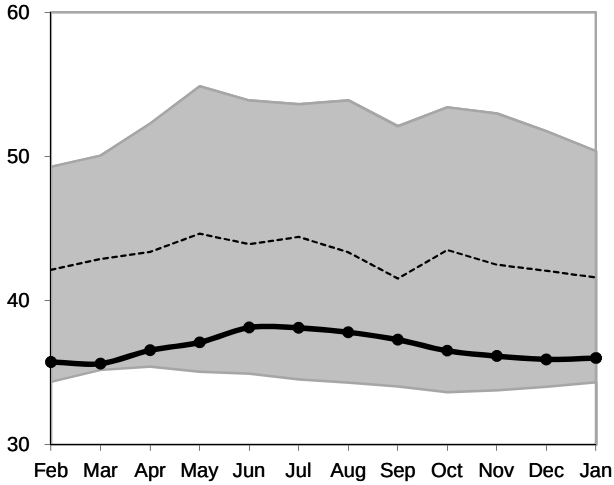
Figure 10: Monthly Groundwater Level Statistics
Levels February 1, 2009 through January 31, 2010
Period of Record Beginning 1978



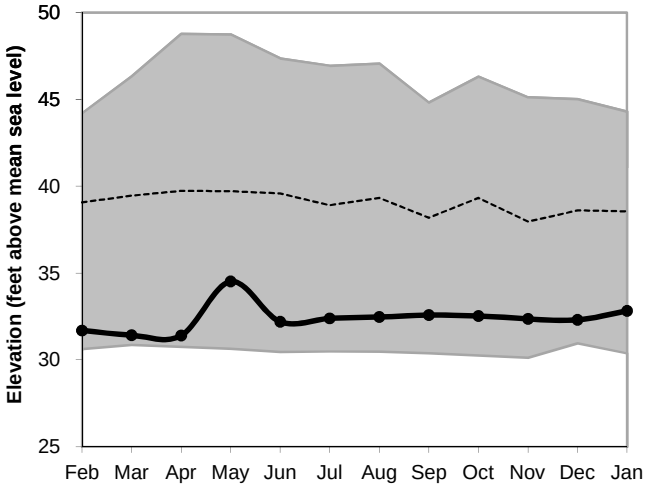
Madison County N010719001



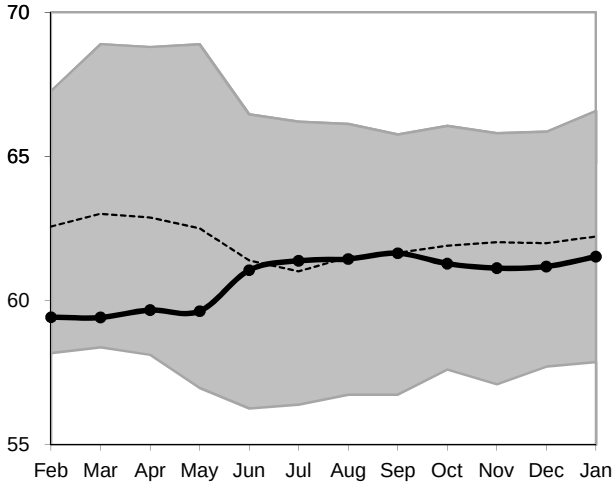
Suwannee County S021335001



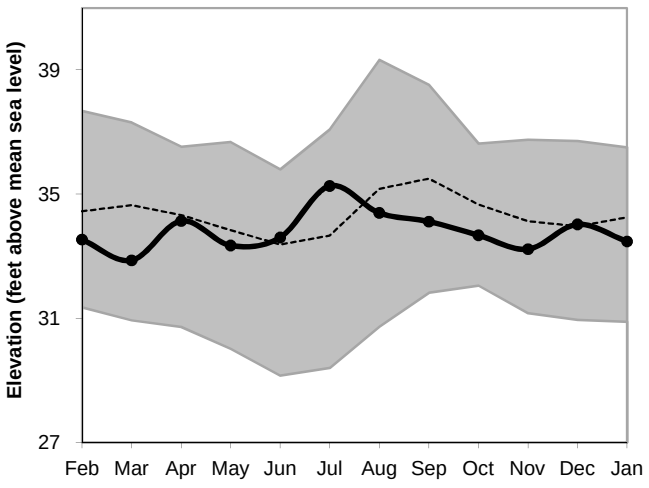
Columbia County S041625001



Bradford County S072132001



Dixie County S101210001



Taylor County S050701001

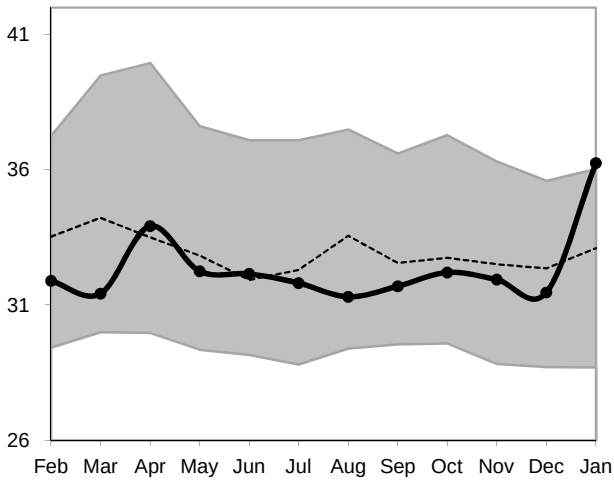
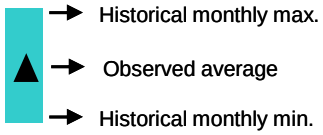
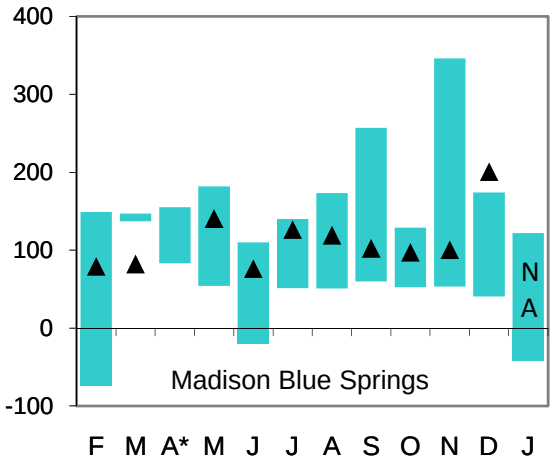


Figure 11: Monthly Springflow Statistics

Flows February 1, 2009 through January 31, 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.