

MEMORANDUM

TO: Governing Board

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

THRU: David Still, Executive Director *DS*
Kirk B. Webster, Deputy Executive Director *KBW*

DATE: November 5, 2009

RE: October 2009 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in October was 2.18", which is 72% of the long-term monthly average of 3.03" (Table 1, Figure 1). Only Jefferson County received above-average precipitation. Hamilton County received only 40% of its long-term average. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal October precipitation.
- Rainfall for the past twelve months was 50.19", 92% of the long-term average of 54.68". The twelve-month deficit was 4.49". Figure 4 depicts the 12-month surplus/deficit across the District. Figure 5 shows the change in annual deficits beginning in 1998.

SURFACEWATER

- **Rivers:** Discharge statistics for six river stations are presented in Figure 6. Stations in the upper Suwannee River basin continued to fall, but conditions were still normal for this time of year. Downstream of Branford, flows deteriorated to below-normal conditions. Similarly, upper Santa Fe stations ended with statistically normal flows, but the Santa Fe near Fort White in the lower Santa Fe Basin fell below the 10th percentile, considered much below normal (Figure 7). (The percentile is the percentage of historic levels that are equal to or below the observed value.) With the exception of the Steinhatchee River, which fell to below-normal conditions, rivers in coastal basins remained near average.
- **Lakes:** Levels at monitored lakes dropped an average of 0.3 feet. Hampton, Altho, and Santa Fe lakes remained above their long-term average levels. Figure 8 shows levels relative to the long-term average, minimum, and maximum levels for six lakes. A number of lakes with known aquifer interactions, including Alligator Lake, Waters Lake, Pickett Lake, Governor Hill Lake, and Watermelon Pond remained dry or extremely low.

- **Springs:** Average October flow relative to historical flows is shown for 5 spring systems in Figure 11.

GROUNDWATER

Groundwater levels decreased in 78% of the District's monitored wells, but 71% remained above the 25th percentile, in a range normal for October (Figure 9). Average groundwater levels dropped to the 35th percentile from the 37th percentile in September. Areas of below-normal groundwater occurred in the central portion of the District and in southern Levy County. 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 below-normal conditions throughout the District. The 3-month SPI, which better describes soil moisture deficits, also indicated below-normal conditions.
- The U.S. Geological Survey categorized streamflow in the lower Suwannee and coastal basins as below normal, and other basins as normal.
- Long-term forecasts from the National Weather Service predict above-average precipitation this winter due to strengthening El Niño conditions in the Pacific.

WATER CONSERVATION

A Phase I Water Shortage Advisory requesting voluntary reductions in water use remains in effect. The District urges all water users to eliminate wasteful and inefficient water use. Water is conserved by using the minimum amount needed and by irrigating only when necessary and in the morning before 10 a.m. and in evening hours after 4 p.m., when lower temperature and wind velocity reduce the amount of water lost to evaporation. The District offers a variety of free water conservation information to the public via its website and by request.

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 (112 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.

/bmp

Table 1: Estimated Rainfall Totals

County	Oct-2009	Oct-2008	Last 12 Months	Oct. Average
Alachua	1.99	3.14	48.58	3.05
Baker	1.60	2.14	50.54	3.31
Bradford	1.78	2.38	48.71	2.76
Columbia	1.57	2.71	47.53	3.06
Dixie	2.77	3.14	51.70	3.07
Gilchrist	2.58	3.24	48.74	2.98
Hamilton	1.25	3.91	47.38	3.01
Jefferson	3.68	3.28	55.57	3.07
Lafayette	1.77	2.38	52.72	3.09
Levy	2.25	1.98	50.11	3.14
Madison	2.71	3.58	54.26	3.24
Suwannee	1.52	2.14	48.02	3.22
Taylor	2.62	2.92	51.75	3.17
Union	2.07	2.04	45.45	3.27

October 2009 Average: 2.18
 Historical October Average (since 1932): 3.03
 Historical 12-month Average (since 1932): 54.68
 Past 12-Month Total: 50.19
 12-month Rainfall Deficit: -4.49

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

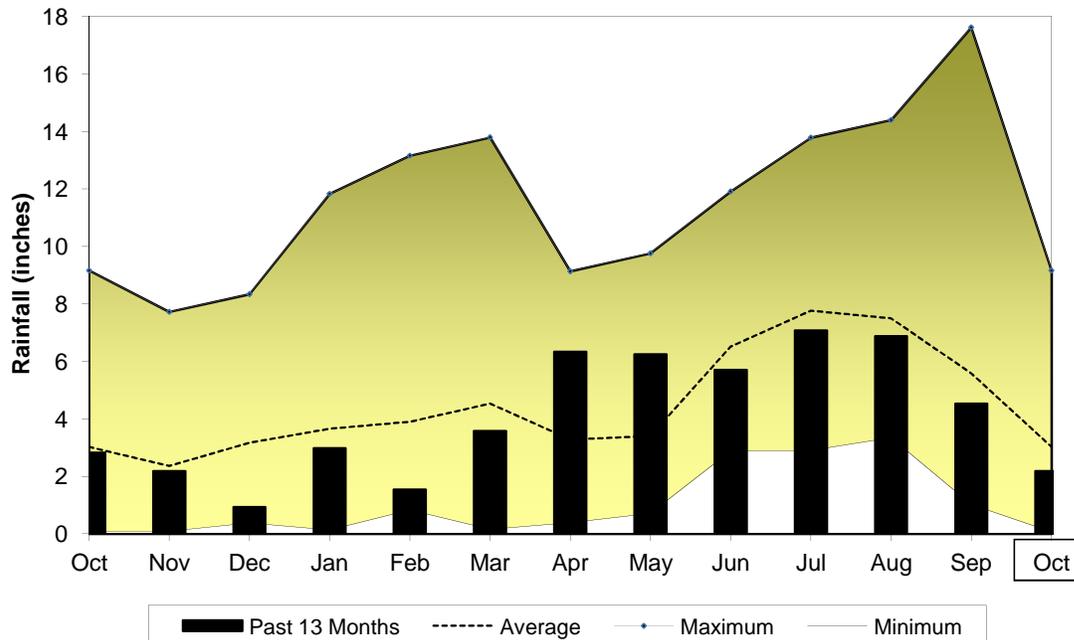


Figure 2: October 2009 Rainfall Estimate

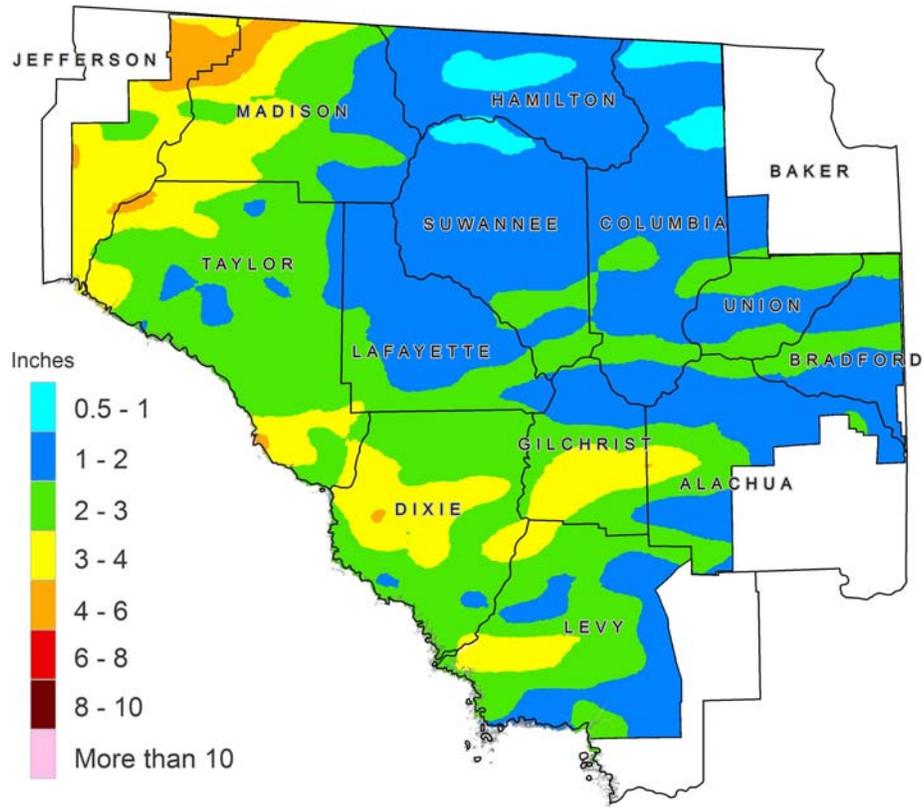


Figure 3: October 2009 Percent of Normal Rainfall

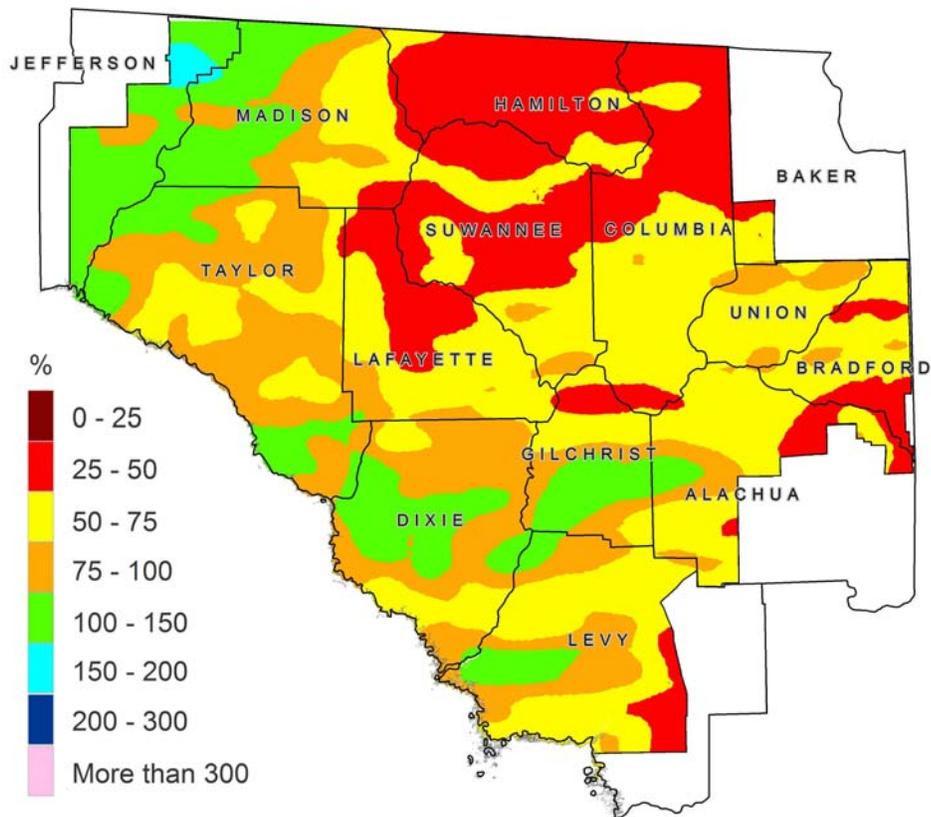


Figure 4: October 2009 Rainfall Surplus/Deficit

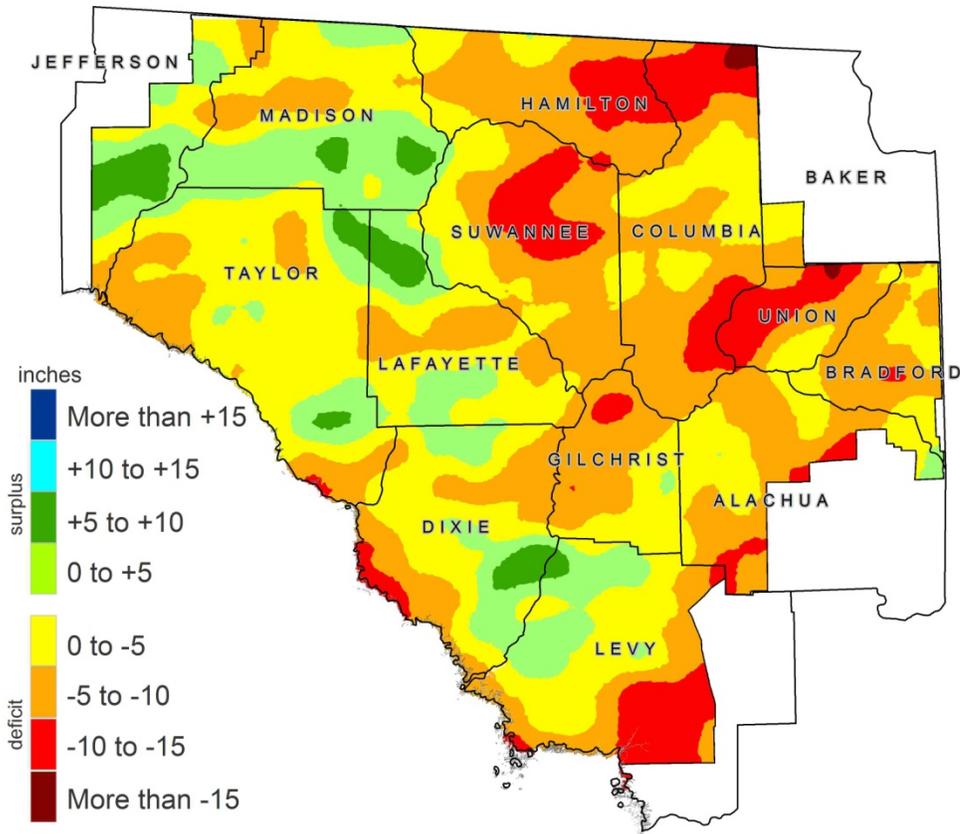


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

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

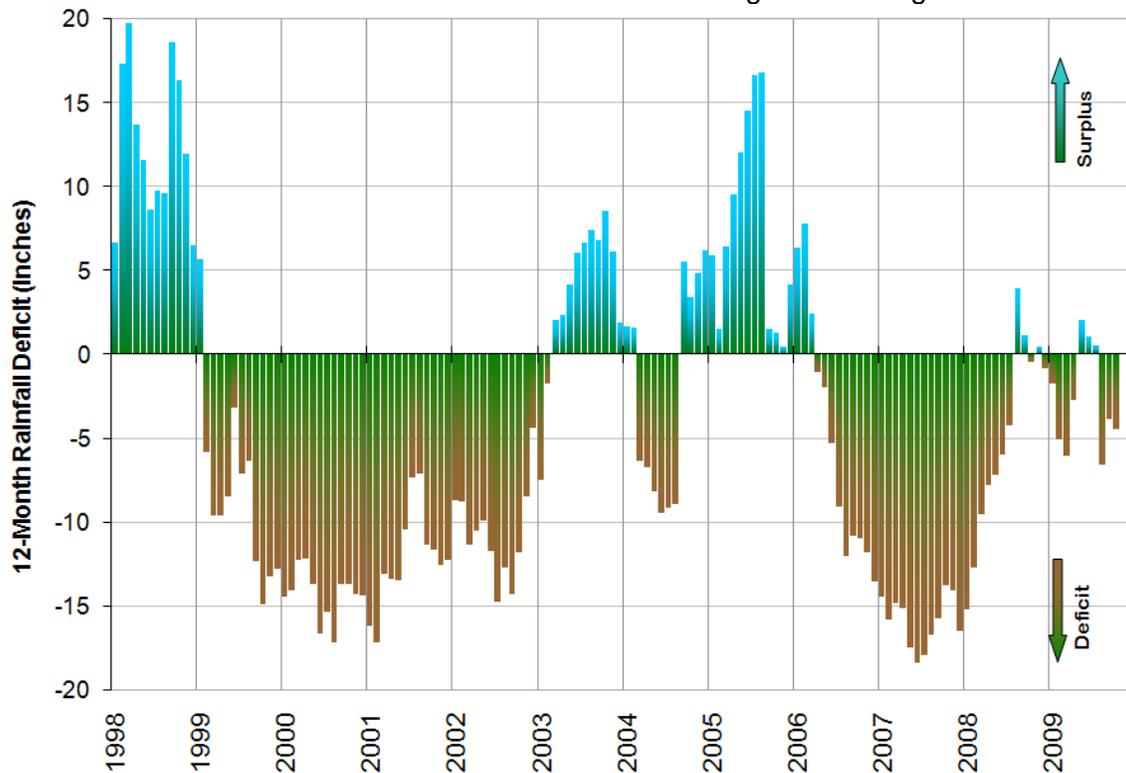
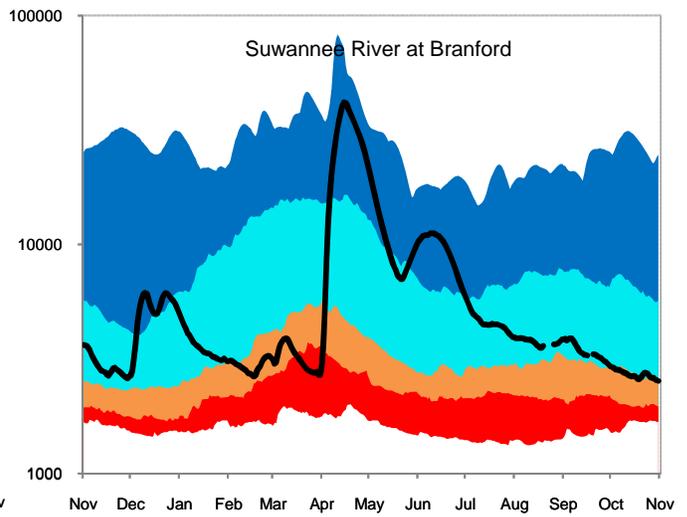
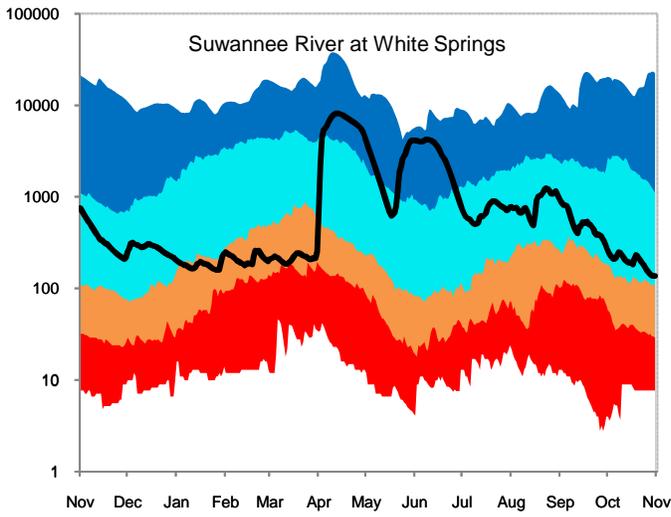
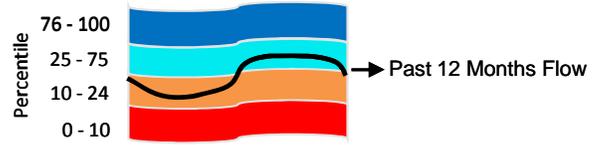


Figure 6: Daily River Flow Statistics

November 1, 2008 through October 31, 2009



RIVER FLOW, CUBIC FEET PER SECOND

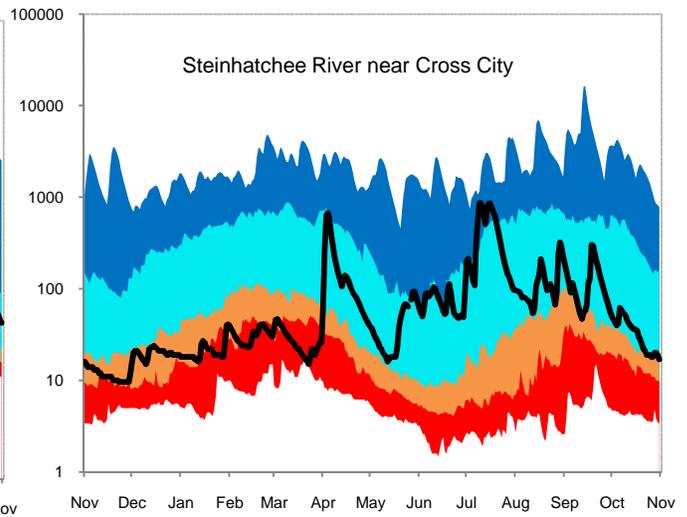
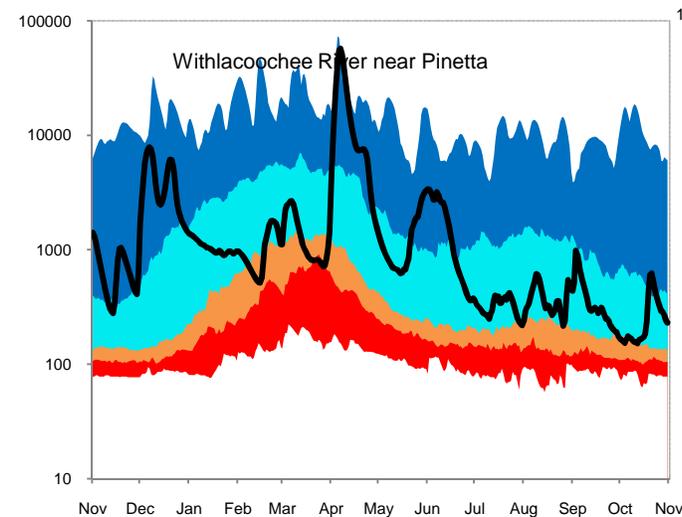
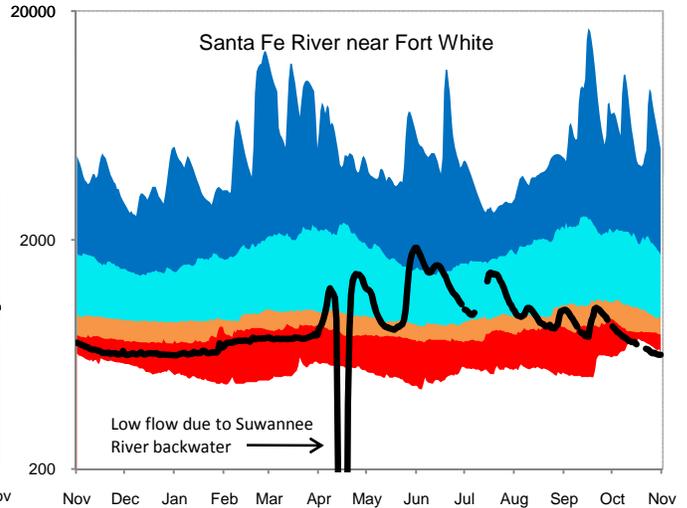
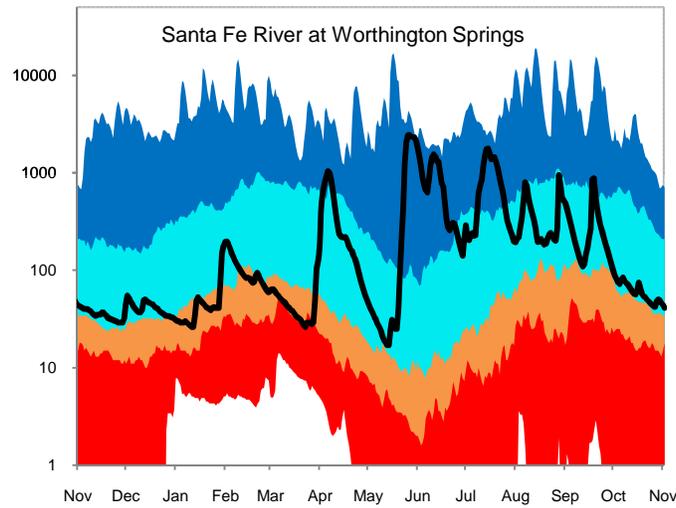


Figure 7: October Streamflow Conditions

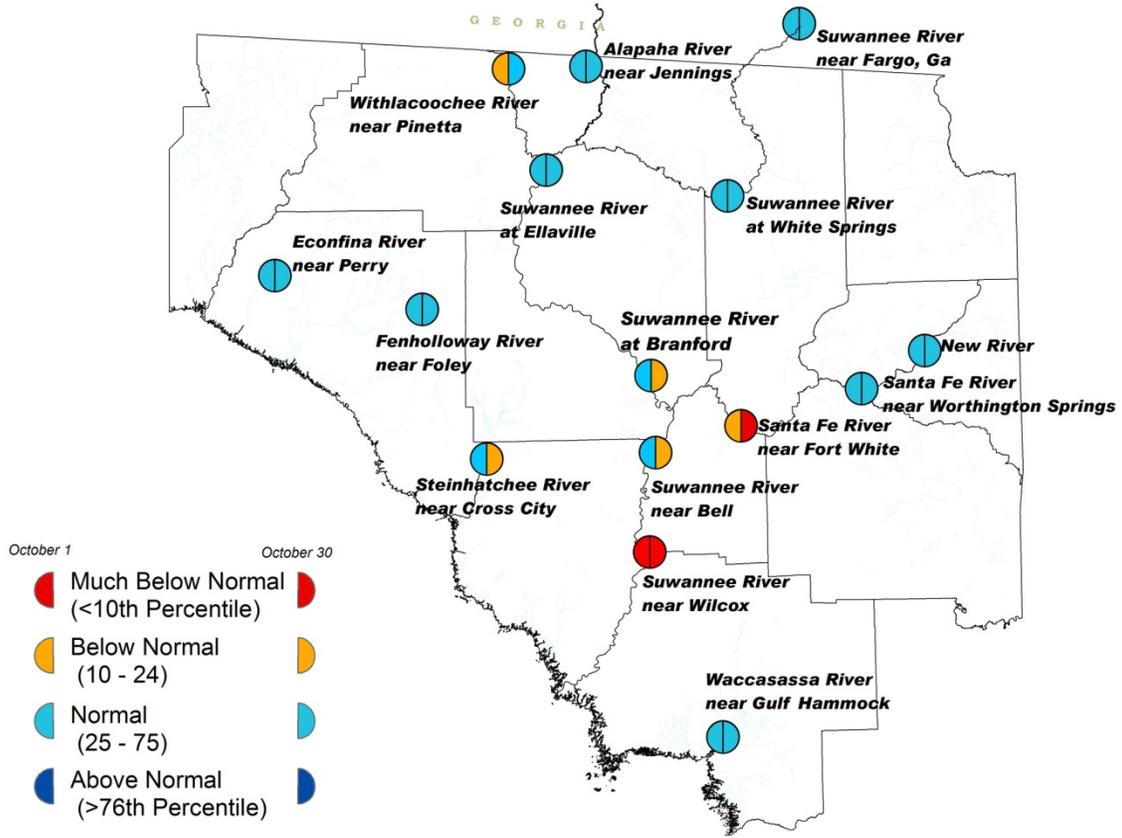
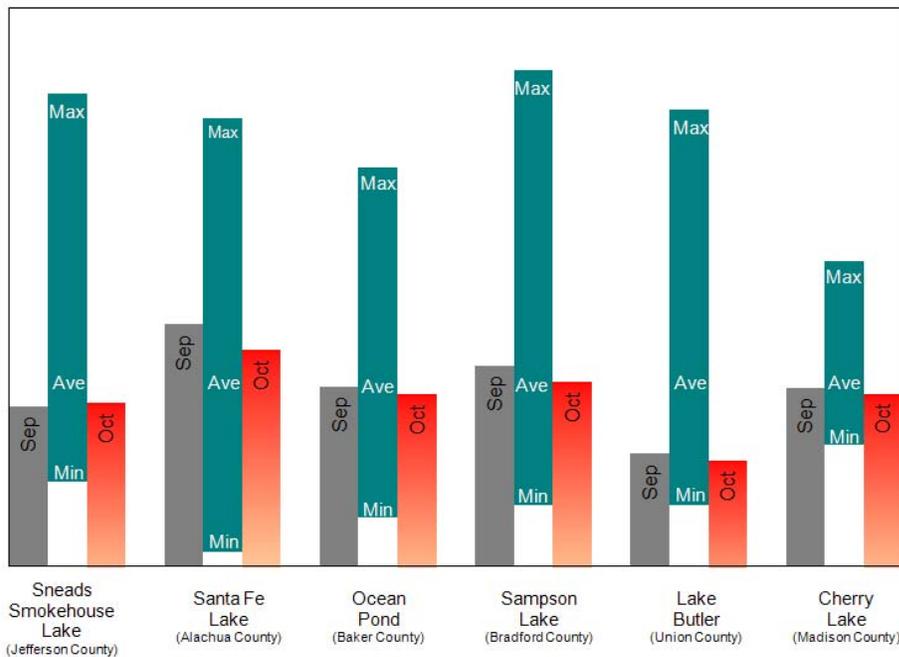


Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.



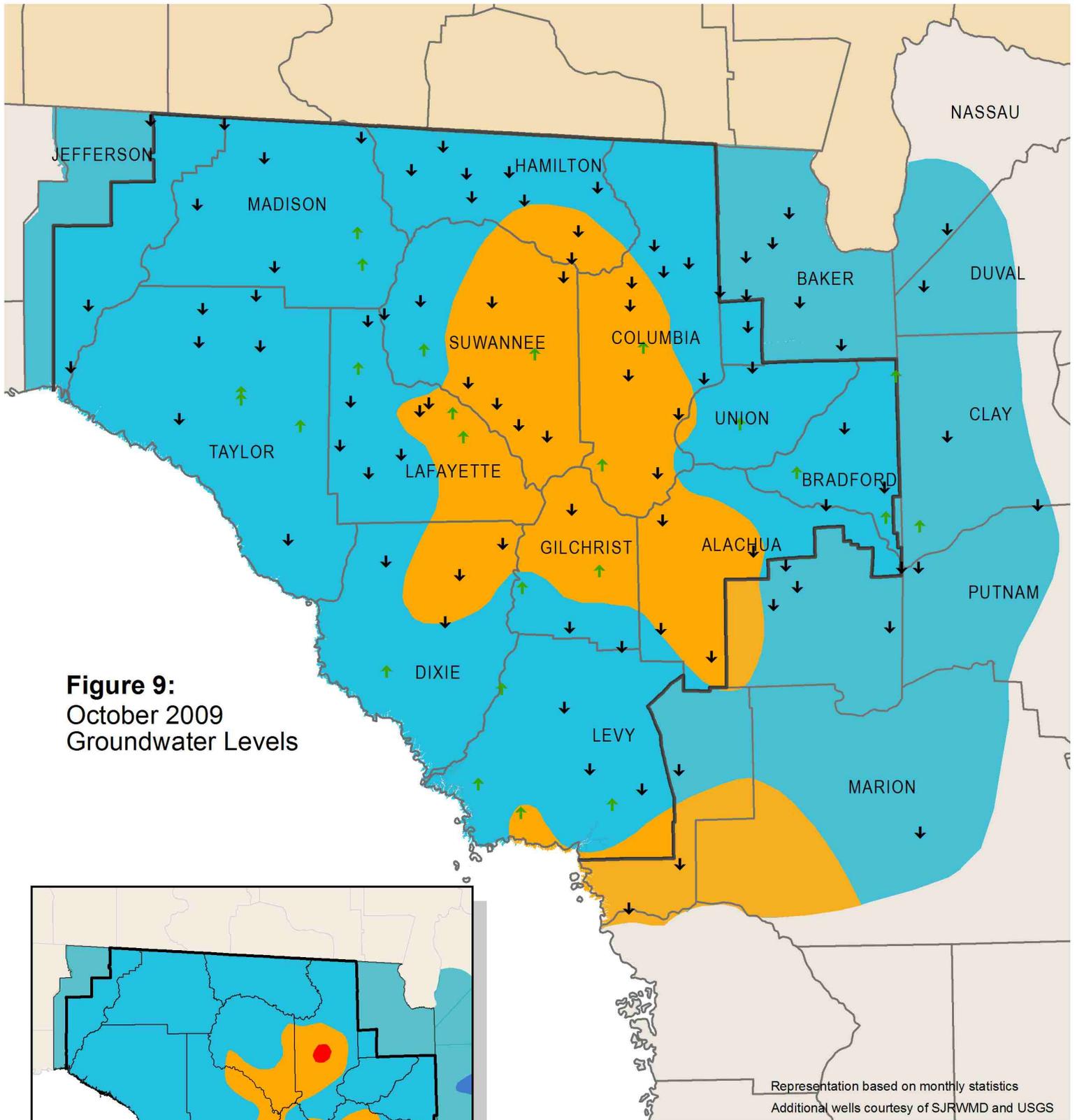
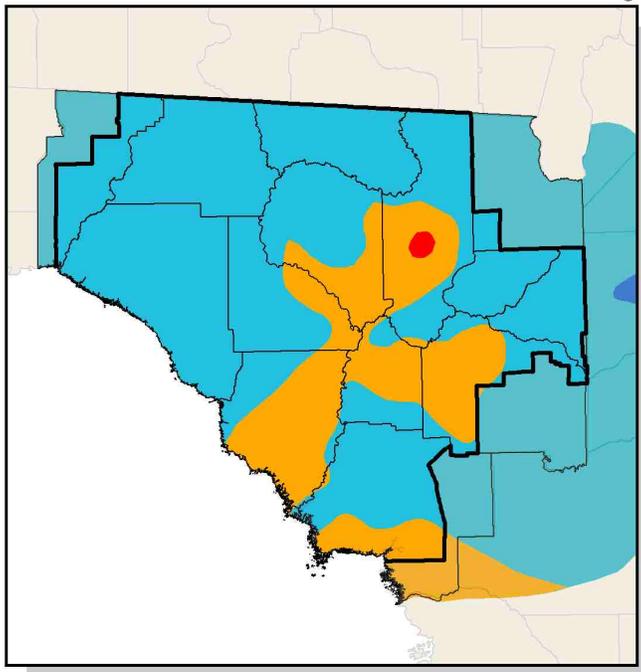


Figure 9:
 October 2009
 Groundwater Levels



Inset: September 2009 Groundwater Levels

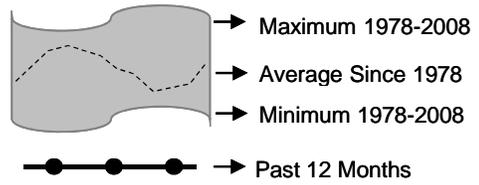
Representation based on monthly statistics
 Additional wells courtesy of SJRWMD and USGS

- 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

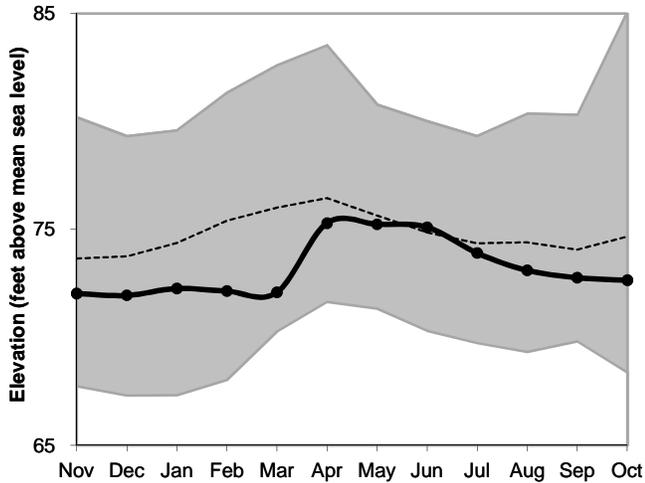
Figure 10: Monthly Groundwater Level Statistics

Levels November 1, 2008 through October 31, 2009

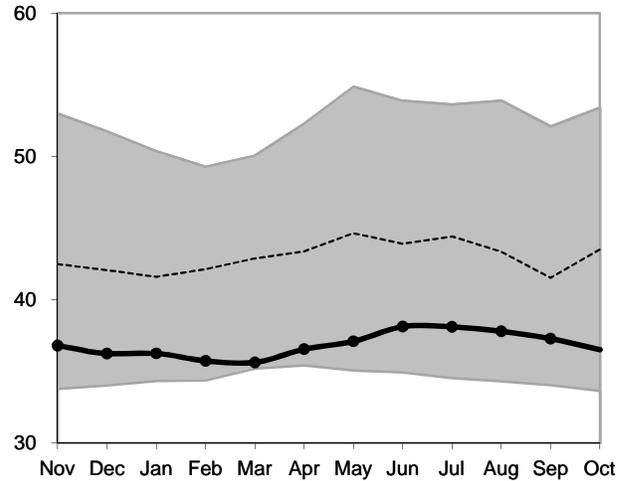
Period of Record Beginning 1978



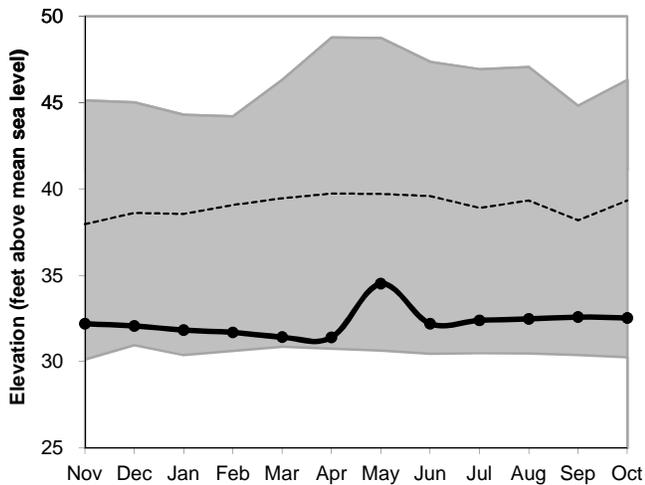
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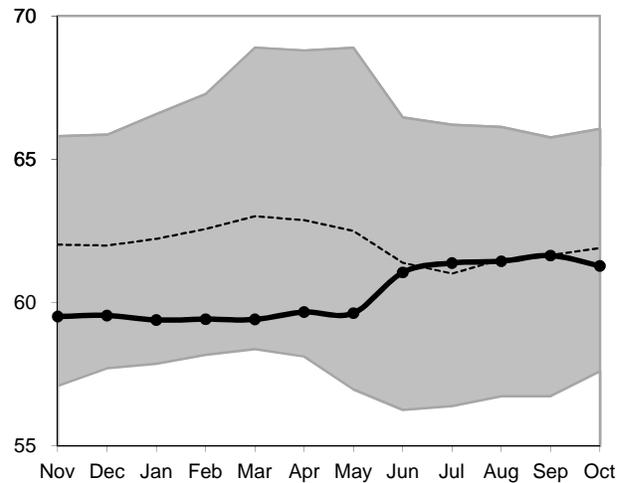
Suwannee County S021335001



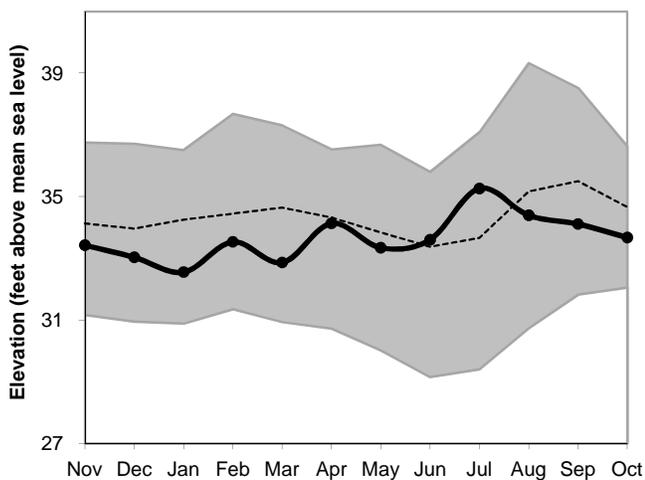
Columbia County S041625001



Bradford County S072132001



Dixie County S101210001



Taylor County S050701001

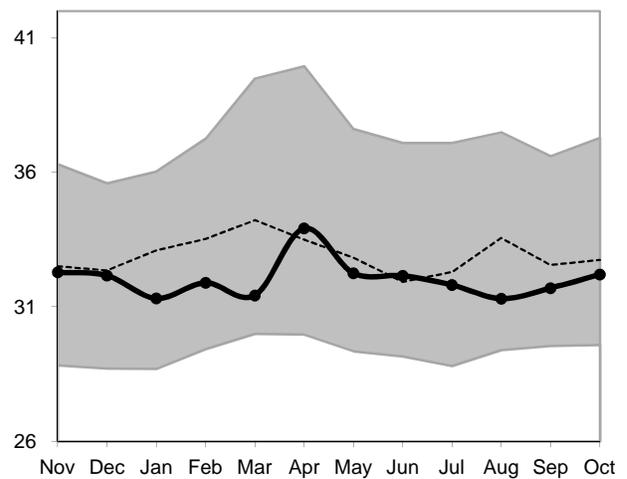
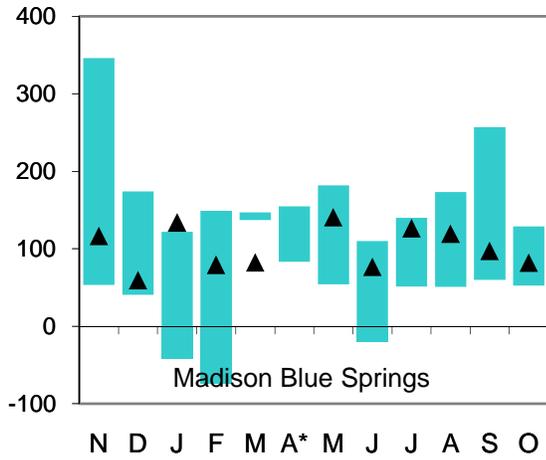
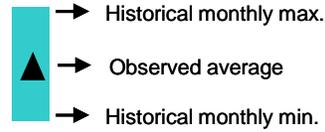


Figure 11: Monthly Springflow Statistics

Flows November 1, 2008 through October 31, 2009
 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.

