MEMORANDUM

TO: Governing Board

FROM: Megan Wetherington, P.E., Water Resources Engineer MW

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

DATE: June 4, 2009

RE: May 2009 Hydrologic Conditions Report for the District

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 (99 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.

RAINFALL

- Average District rainfall in May was 6.25", nearly twice the long-term monthly average of 3.40" (Table 1, Figure 1). This is the highest May total since 1991. The highest gage total, recorded at Louis Hill Tower in Bradford County, was 12.24" in 10 days, which is approximately a 10-year event. Most of Columbia County received over 8", with large areas receiving more than 10". Above-normal rainfall was widespread, with only limited areas along the coast receiving below-normal rain. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal May precipitation.
- Twelve-month rainfall was 2.3" above average. Figure 4 depicts the 12-month surplus/deficit across the District. Figure 5 shows the change in annual deficits beginning in 1998.

SURFACEWATER

- **Rivers**: Streamflow at Suwannee, Withlacoochee, and Alapaha stations declined during the first half of the month, but generally remained at normal to above-normal levels. The Santa Fe River near Fort White fell below normal. After the mid-month storms, almost all major river stations were flowing above the 90th percentile, considered much above normal

(Figure 6). (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 8.

- **Lakes**: Most monitored lakes responded well to the May storms, rising by an average of 0.5 feet. Santa Fe Lake rose to its highest level since 2005. However, half the lakes in the network remained below their long-term averages. Figure 7 shows levels relative to the long-term average, minimum, and maximum levels for six lakes.
- **Springs:** Springflow on the Suwannee and Withlacoochee Rivers was affected by high river levels, with many springs reported as flooded. Real-time flow data are unreliable under these conditions, and will not be presented until reviewed by the USGS. White Springs began discharging tannic water during the second week of May. This was the first recorded positive discharge since 2006. However, as the river rose again, the spring once again reversed flow.

GROUNDWATER

- Groundwater levels decreased in 61% of the District's monitored wells (Figure 9). However, 71% of the levels remained above the 25th percentile (normal range). Ten percent were below the 10th percentile, considered extremely low, the same number as in April. Every monitored well in the Santa Fe Basin was below normal. 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 moderately wet conditions.
- As characterized by the US Geological Survey based on seven-day average streamflow, none of the District's rivers are below normal or in hydrological drought.
- Long-range outlooks from the National Weather Service Climate Prediction Center shows equal chances of above-normal or below-normal precipitation through August.

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.

/dd

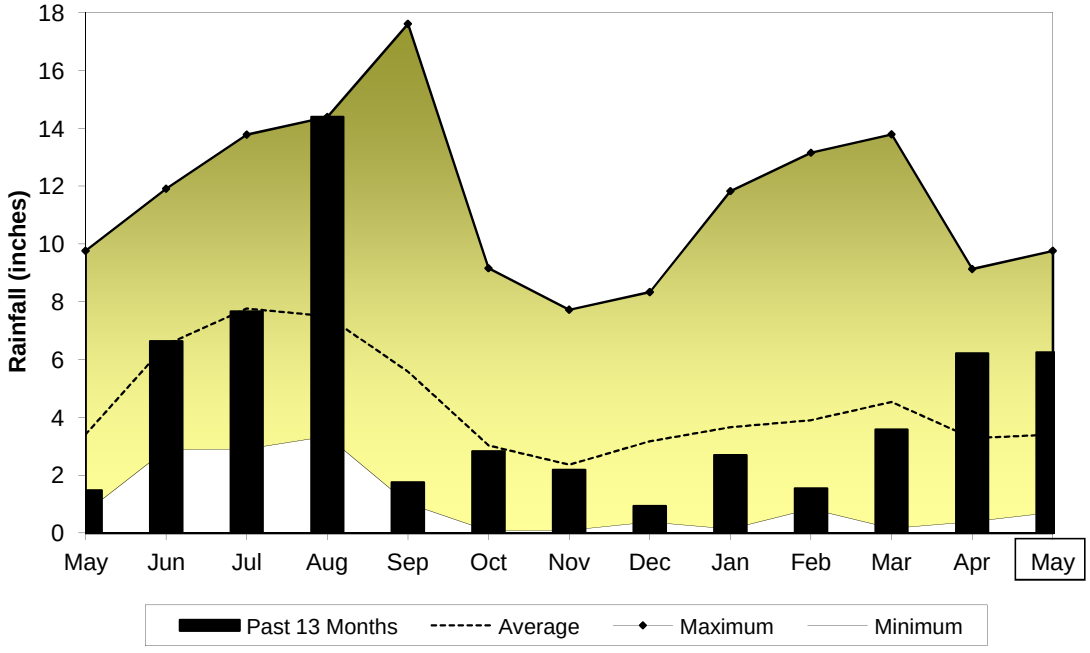
Table 1. Estimated Rainfall Totals

County	May-2009	May-2008	Last 12 Months	May Average
Alachua	7.78	0.58	55.40	3.07
Baker	9.91	1.67	60.80	3.29
Bradford	9.05	0.62	57.68	3.16
Columbia	8.94	1.63	56.44	3.15
Dixie	4.94	1.08	60.11	3.48
Gilchrist	6.50	0.98	56.11	3.58
Hamilton	5.56	2.78	53.27	3.45
Jefferson	4.13	3.10	60.73	3.63
Lafayette	7.74	1.40	59.10	3.07
Levy	6.09	0.54	56.00	3.47
Madison	5.24	2.93	62.55	3.22
Suwannee	5.94	1.35	57.11	3.29
Taylor	4.19	1.16	57.58	3.23
Union	7.72	0.86	51.72	3.65

May 2009 Average:	6.25
Historical May Average:	3.40
Historical 12-month Average:	54.68
Past 12-Month Total:	56.97
12-month Rainfall Surplus:	2.29

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall



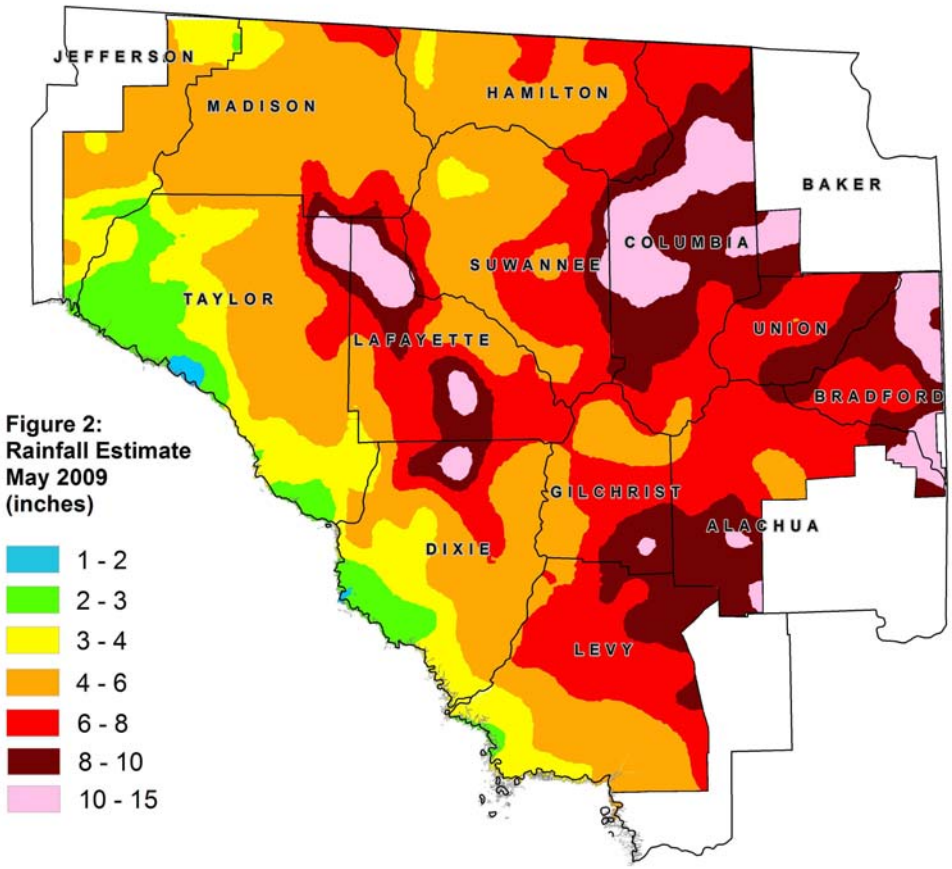


Figure 2:
Rainfall Estimate
May 2009
(inches)

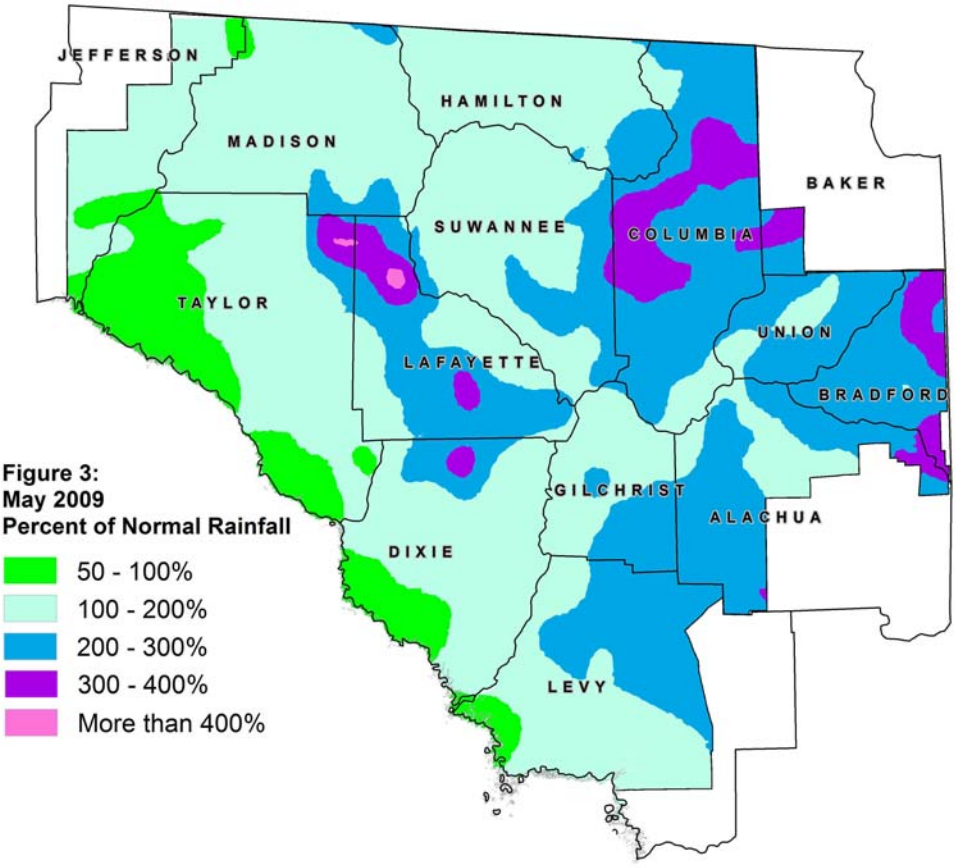
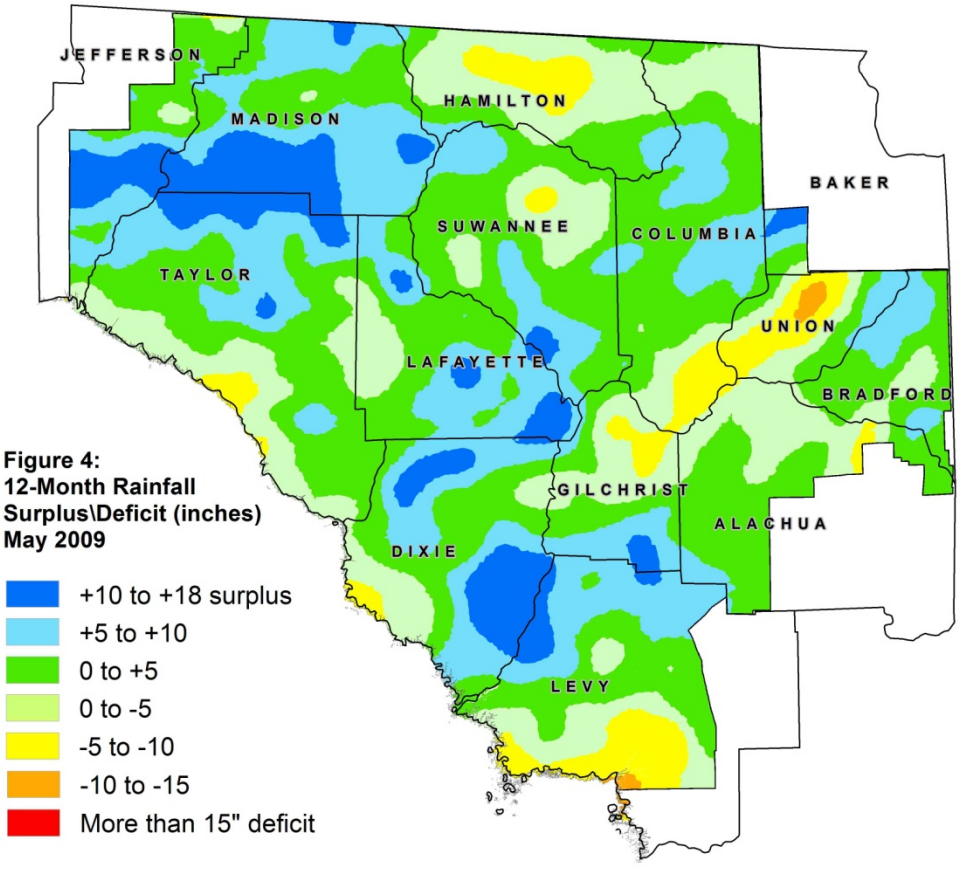


Figure 3:
May 2009
Percent of Normal Rainfall



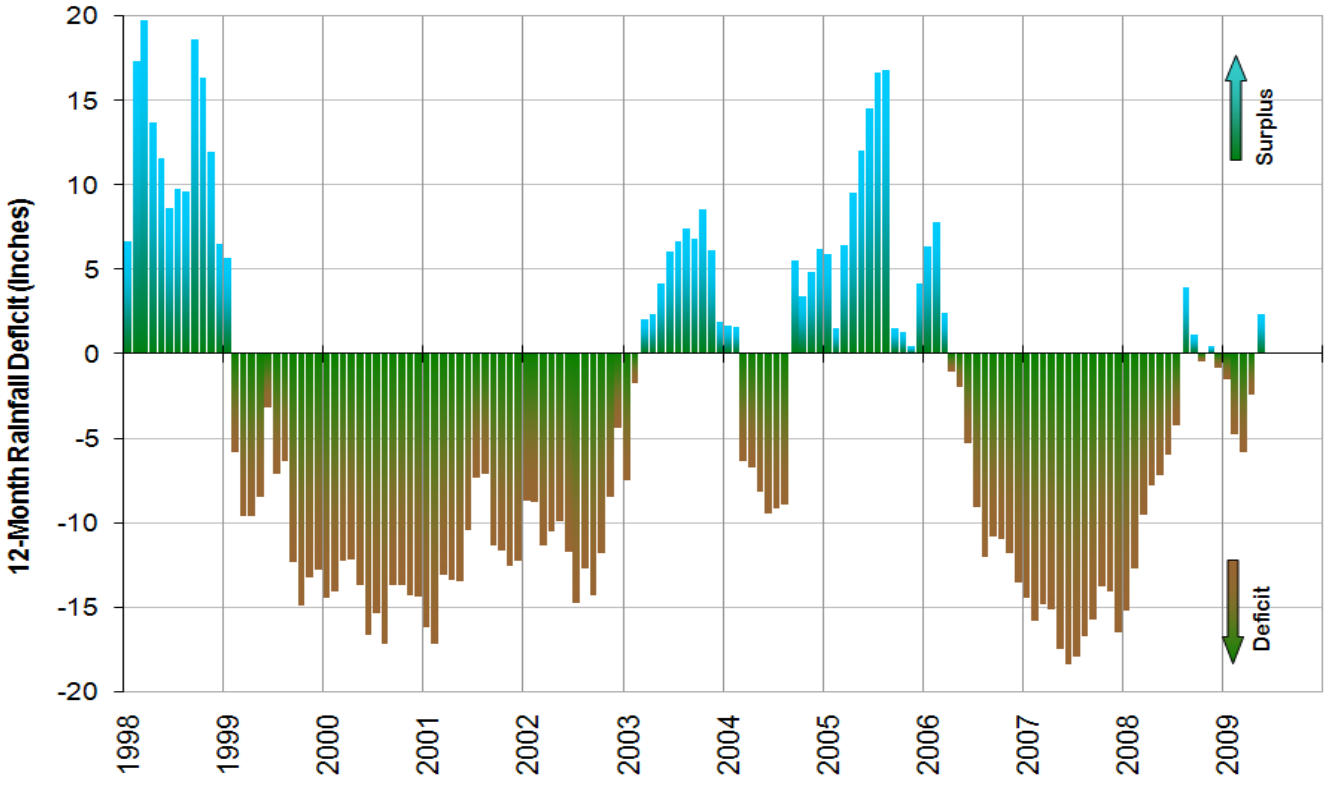


Figure 5: 12-month rolling rainfall deficit (difference between the rainfall that fell during any 12-month period and the long-term average expected over the same period, January 1998-May 2009)

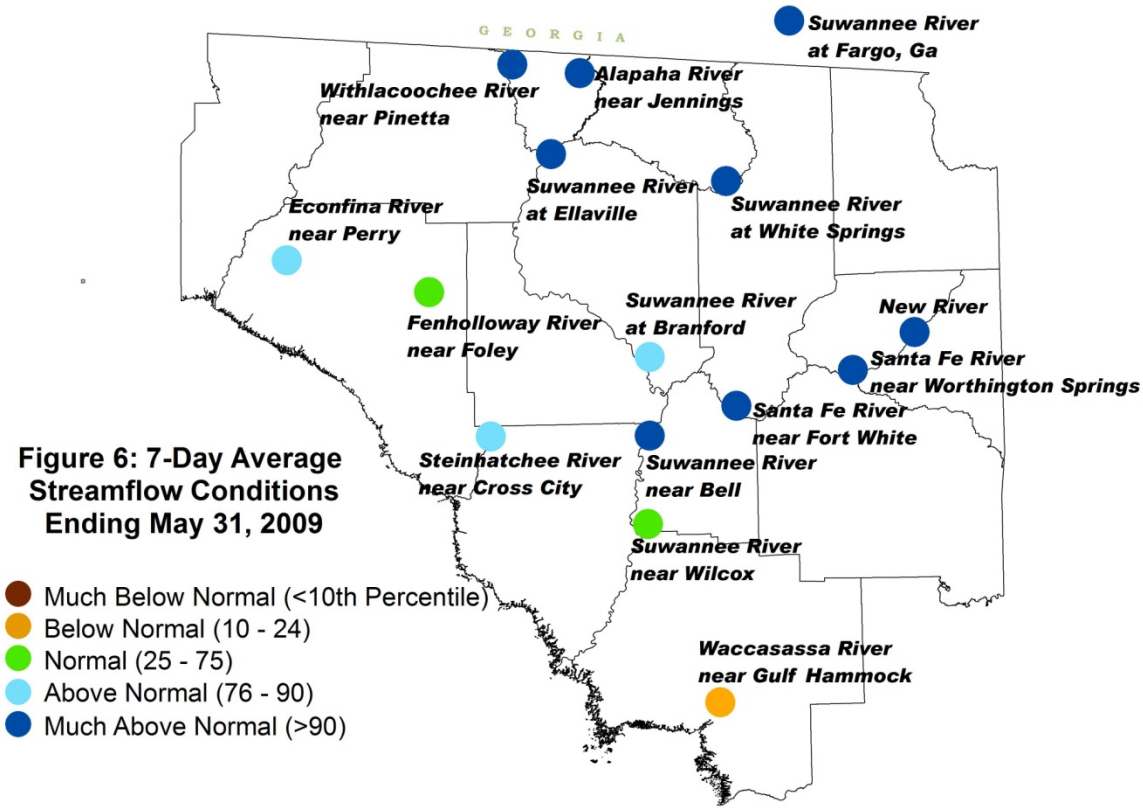


Figure 6: 7-Day Average Streamflow Conditions Ending May 31, 2009

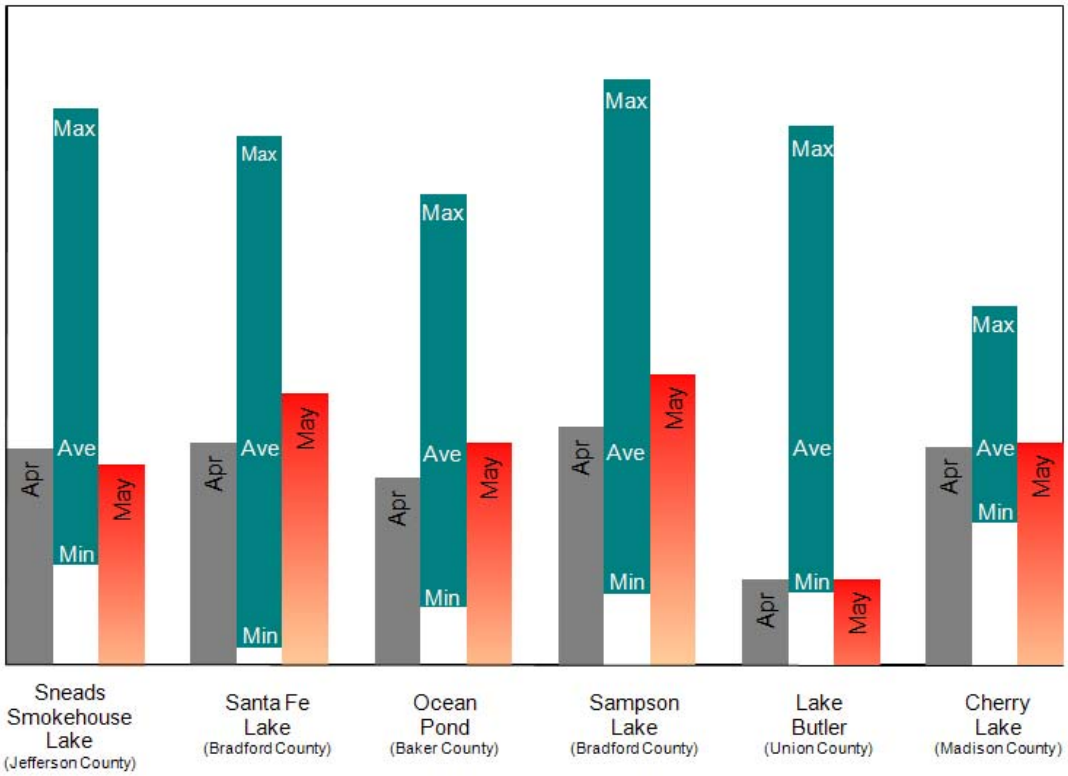
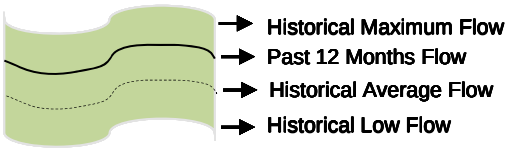
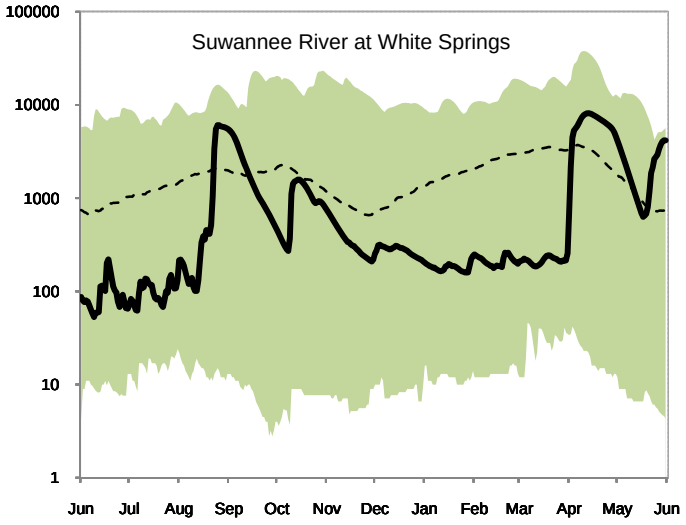


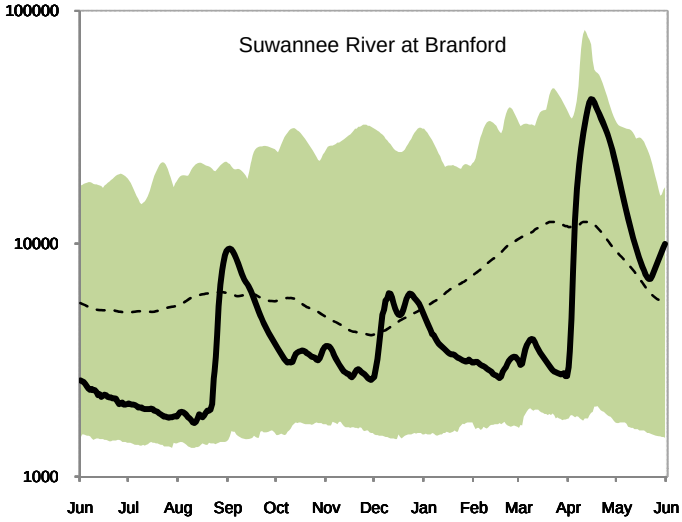
Figure 7: Lake levels, relative to historic maximum, minimum, and average levels.

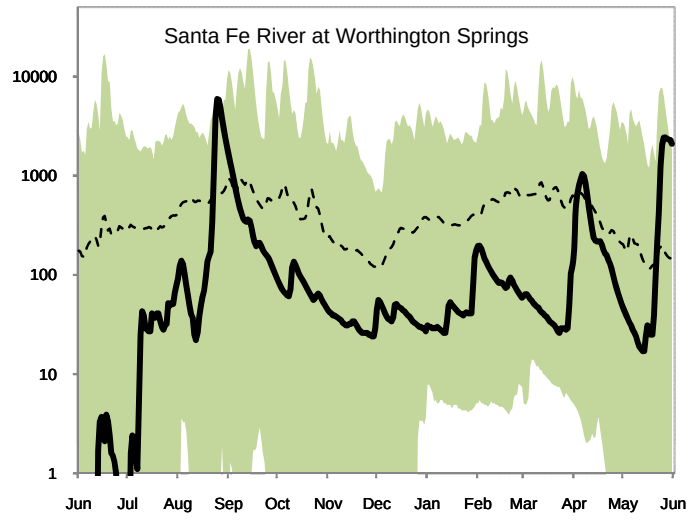
Figure 8: Daily River Flow Statistics
June 1, 2008 through May 31, 2009

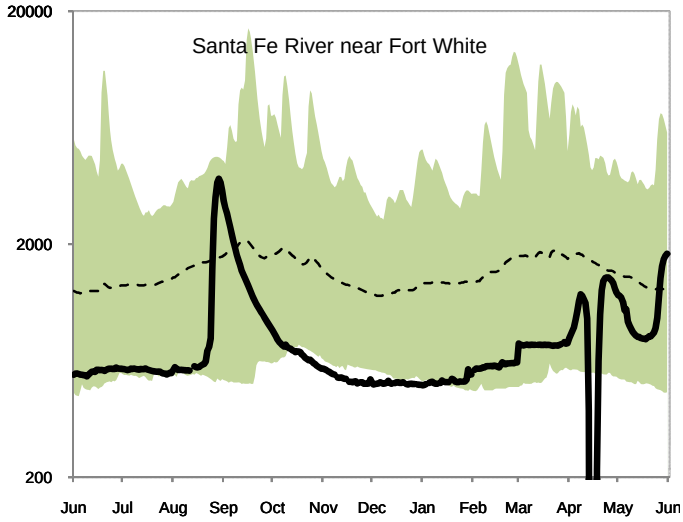


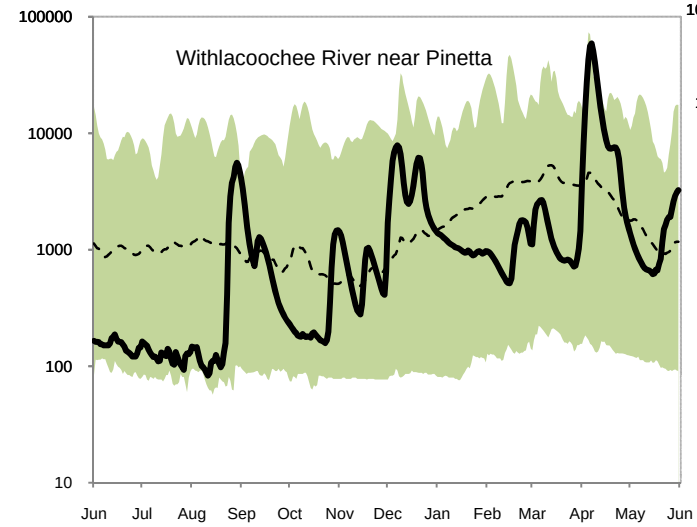
RIVER FLOW, CUBIC FEET PER SECOND

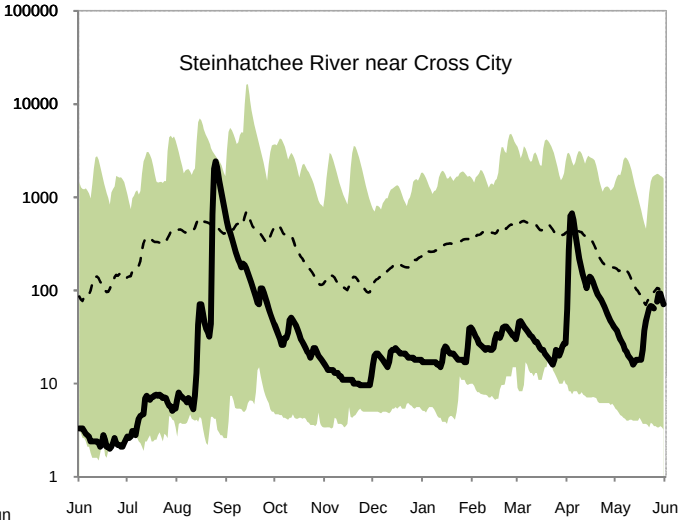












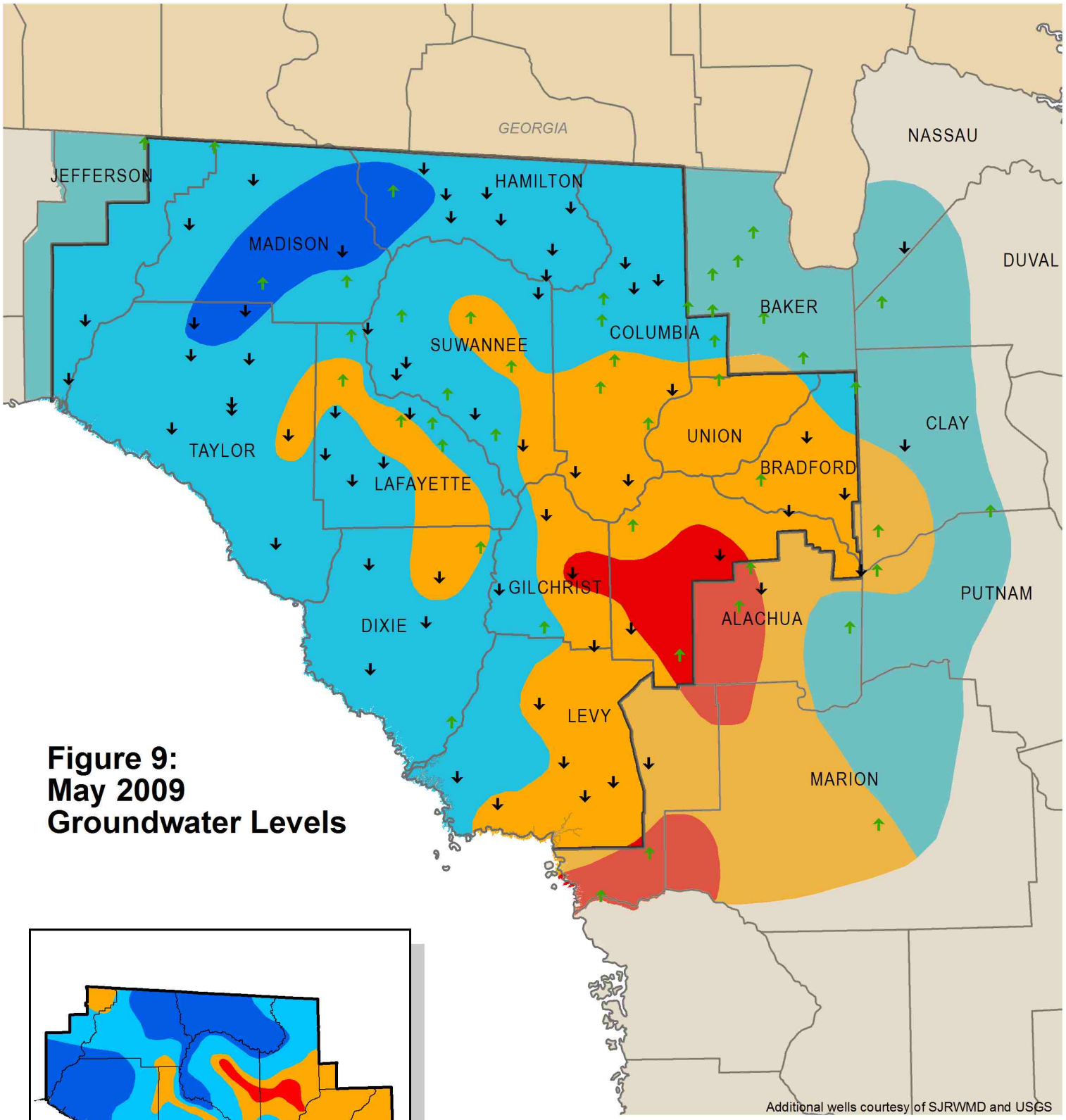
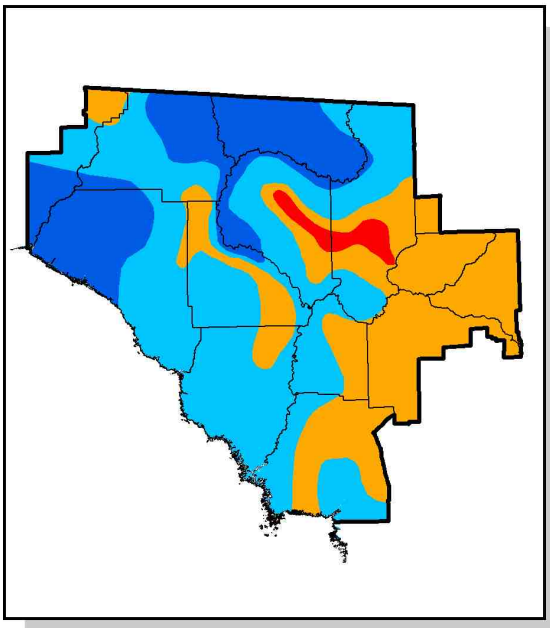


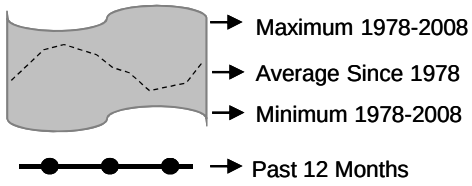
Figure 9:
May 2009
Groundwater Levels



Inset: April 2009 Groundwater Levels

Figure 10: Monthly Groundwater Level Statistics

Levels June 1, 2008 through May 31, 2009
Period of Record Beginning 1978



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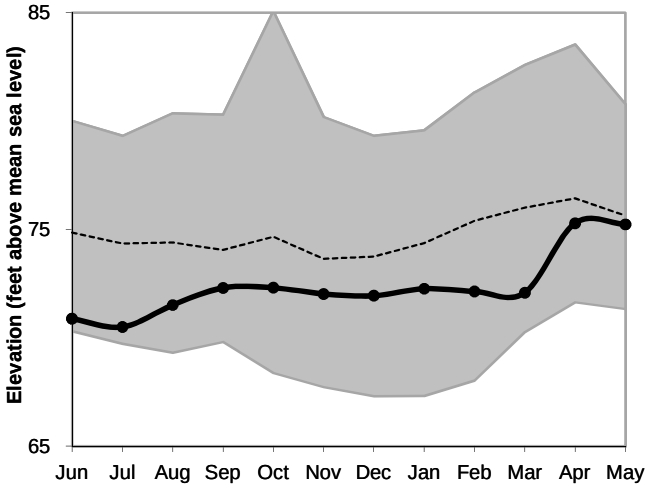
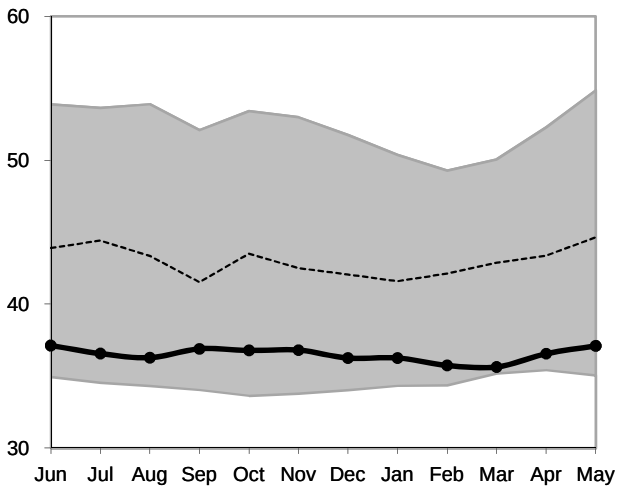


Suwannee County S021335001



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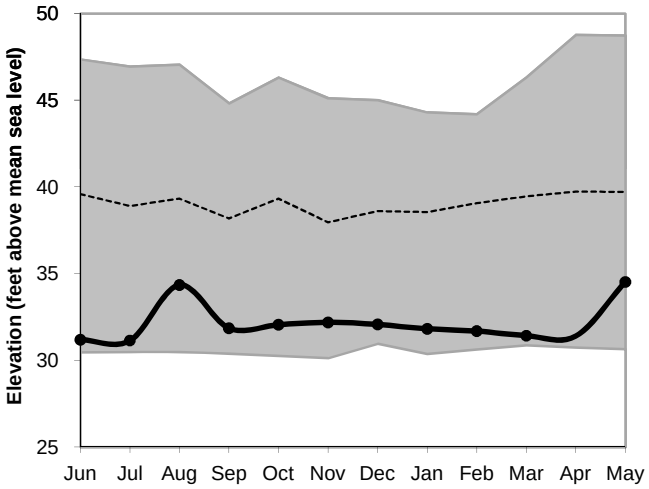

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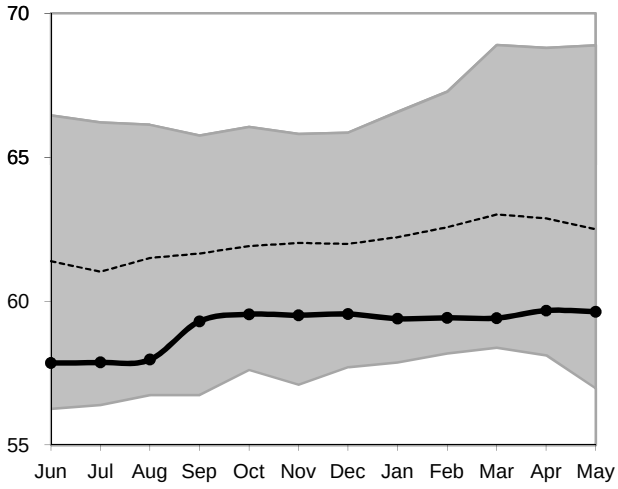
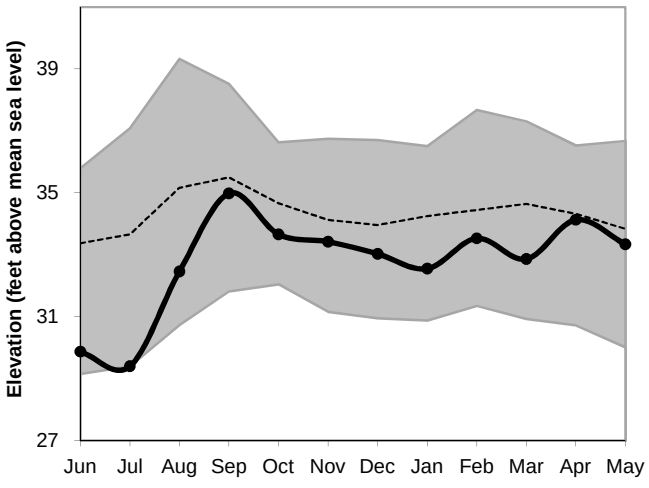


Dixie County S101210001



Taylor County S050701001