

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: August 6, 2009

RE: July 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 (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.

RAINFALL

- Average District rainfall in July was 7.23", which is below the long-term monthly average of 7.76" (Table 1, Figure 1). Distribution was similar to June, with above-average rainfall in Lafayette, Dixie, Levy, and Bradford counties, and near normal accumulations in most other counties. Madison County, however, received significantly below-average rainfall. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal July precipitation.
- Twelve-month rainfall was 0.91" 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:** Conditions at most river stations were near average in July. Mid-month, the Santa Fe River at Worthington Springs saw near-record high seasonal flows, but fell to average conditions by the end of the month (Figure 6). The Fenholloway River near Foley was below normal throughout July, and the Waccasassa River near Gulf Hammock was significantly below normal. Discharge statistics for six river stations are presented in Figure 8.

- **Lakes:** At the end of the month, Santa Fe Lake was at its highest level since 1997. Levels at other monitored lakes generally showed little change since June. Ten of sixteen lakes remained below their long-term average levels. Figure 7 shows levels relative to the long-term average, minimum, and maximum levels for six lakes.
- **Springs:** Average July springflow relative to historical flows is shown for 5 systems in Figure 11.

GROUNDWATER

- Groundwater levels increased in 56% of the District's monitored wells (Figure 9). Eighty-five percent of the levels were above the 25th percentile (The percentile is the percentage of historic levels that are equal to or below the observed value.) Groundwater conditions in Bradford County, in the upper Santa Fe Basin, continued to improve, with levels the highest since 2006. 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, also indicated normal conditions.
- Long-range outlooks from the National Weather Service Climate Prediction Center show probable above-normal precipitation through October.

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

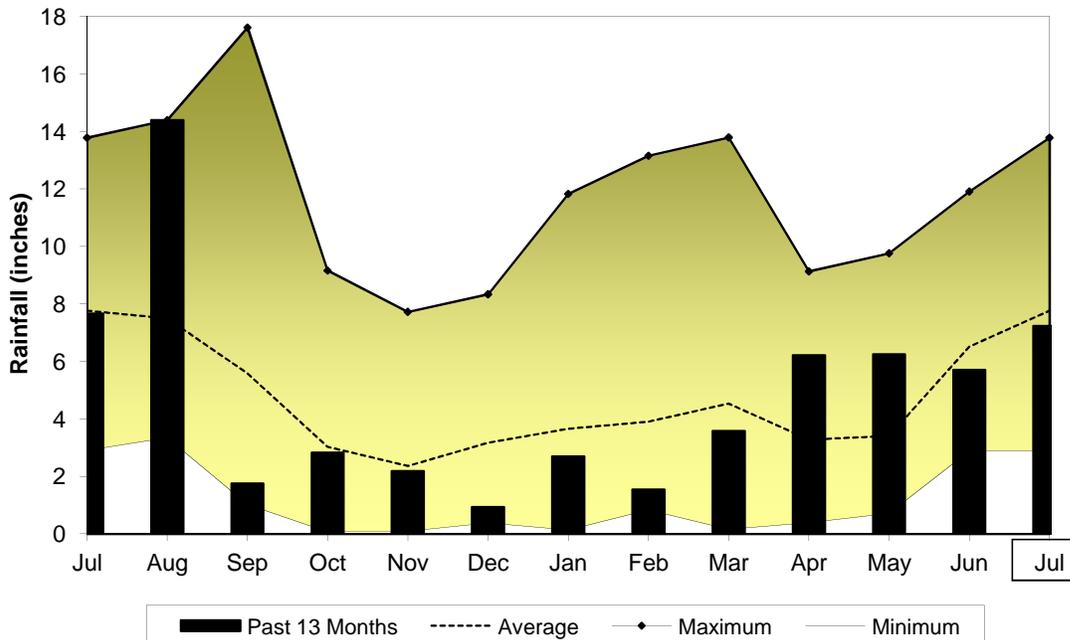
Table 1. Estimated Rainfall Totals

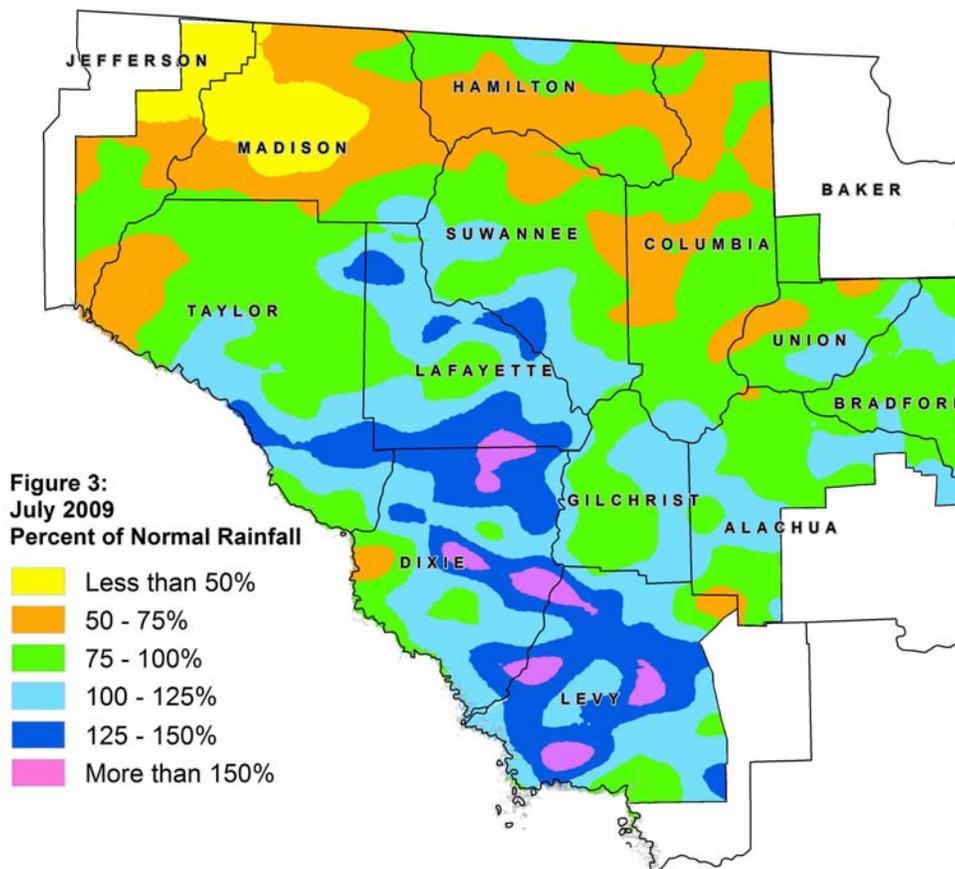
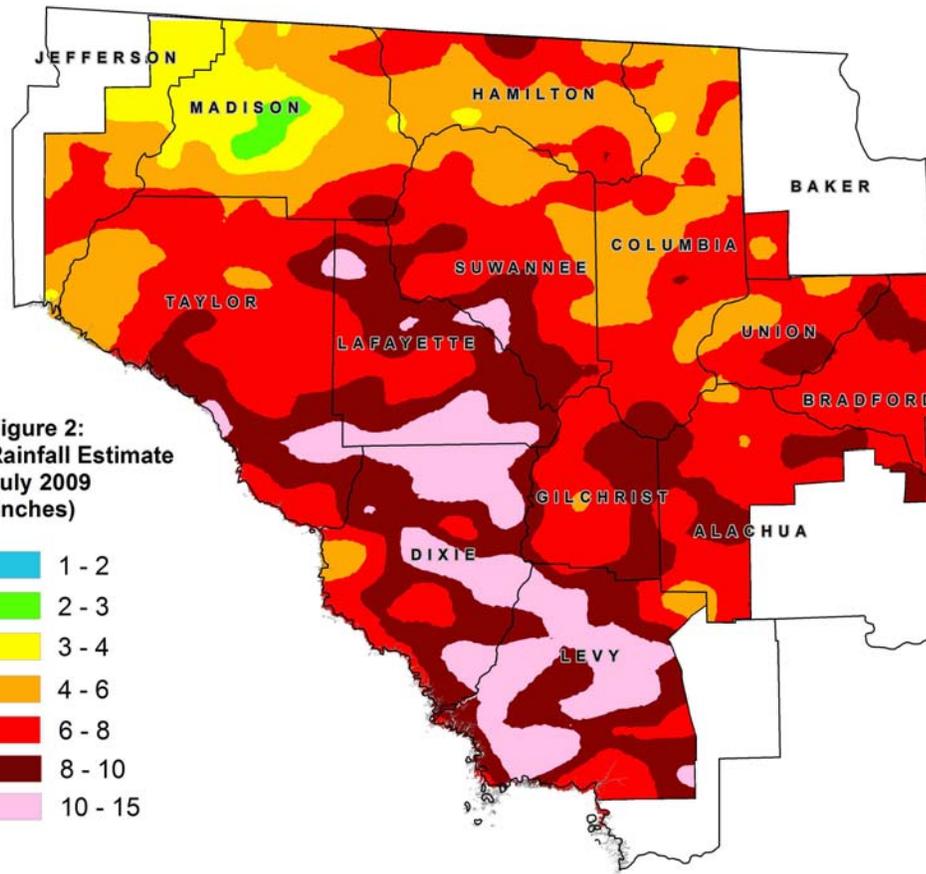
County	July-2009	July-2008	Last 12 Months	July Average
Alachua	7.46	7.90	53.21	7.01
Baker	6.58	8.82	59.56	7.06
Bradford	7.40	11.06	58.88	6.92
Columbia	6.09	7.03	53.09	7.01
Dixie	9.30	9.88	61.34	9.14
Gilchrist	7.76	8.09	54.68	8.03
Hamilton	5.87	5.76	51.52	6.79
Jefferson	4.90	4.67	60.84	7.23
Lafayette	8.99	6.86	58.47	8.21
Levy	9.52	11.51	55.64	8.98
Madison	4.59	6.15	60.96	7.29
Suwannee	7.14	5.97	52.78	7.17
Taylor	7.17	6.16	57.11	8.62
Union	6.85	9.89	50.81	7.49

July 2009 Average: 7.23
 Historical July Average (since 1932): 7.76
 Historical 12-month Average (since 1932): 54.68
 Past 12-Month Total: 55.59
 12-month Rainfall Surplus: 0.91

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall





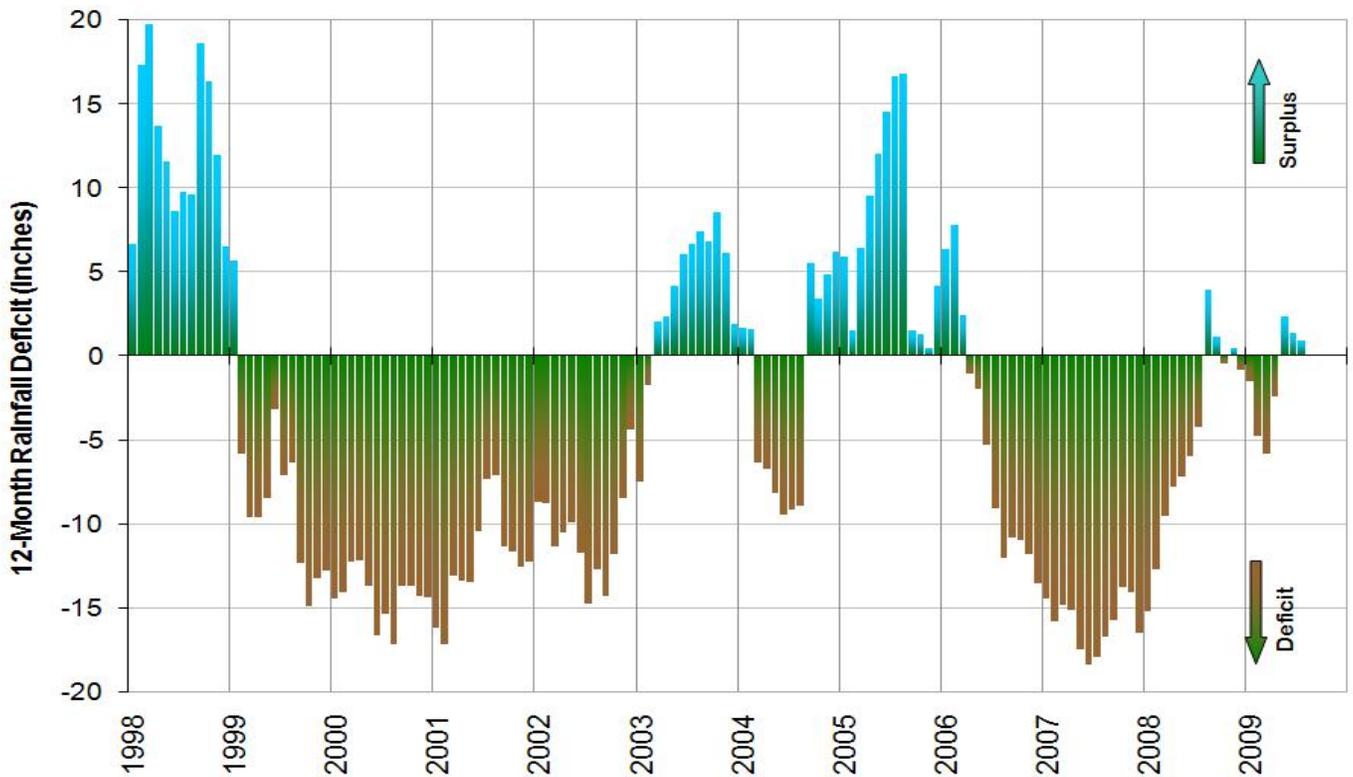
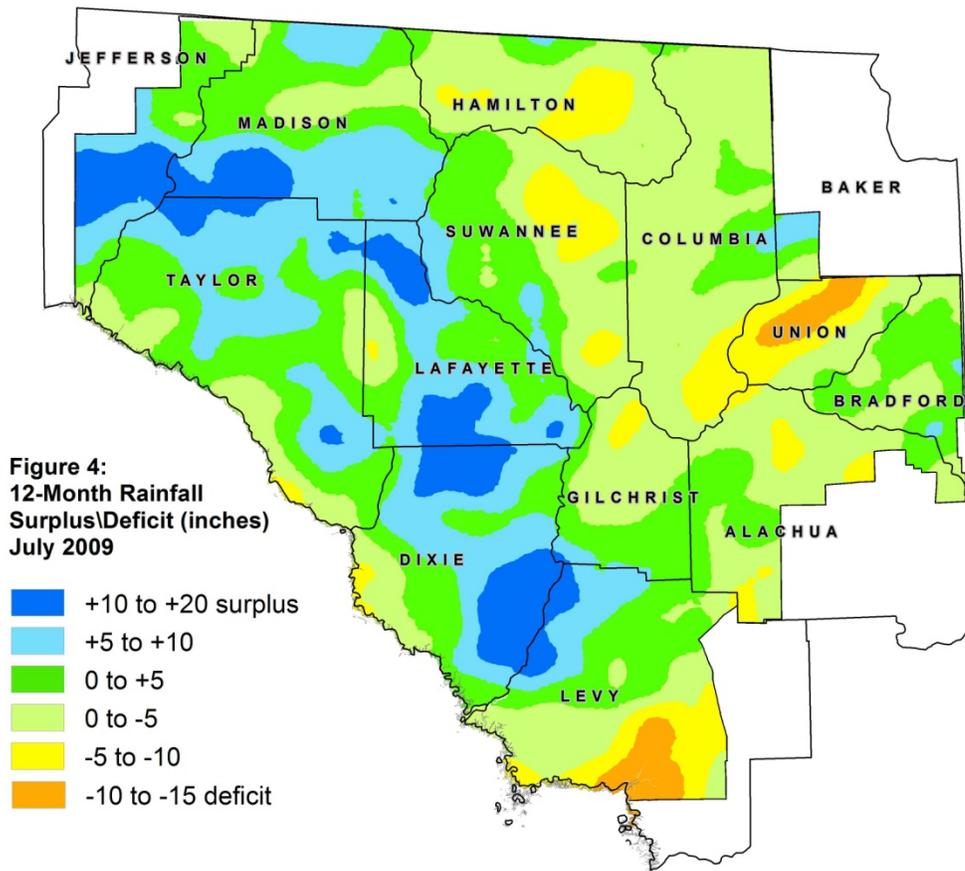


Figure 5: 12-month rolling rainfall deficit (difference between the rainfall that fell during any 12-month period and the long-term average expected over the same period, January 1998-July 2009)

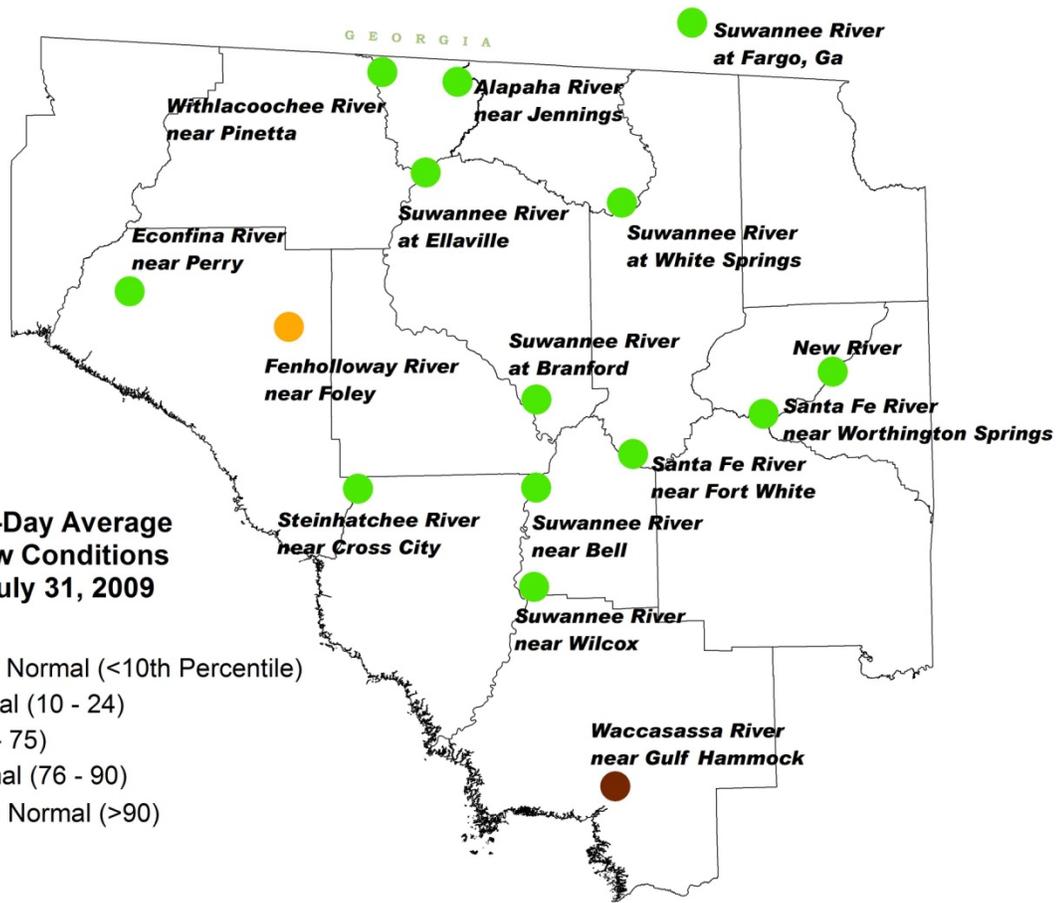


Figure 6: 7-Day Average Streamflow Conditions Ending July 31, 2009

- Much Below Normal (<10th Percentile)
- Below Normal (10 - 24)
- Normal (25 - 75)
- Above Normal (76 - 90)
- Much Above Normal (>90)

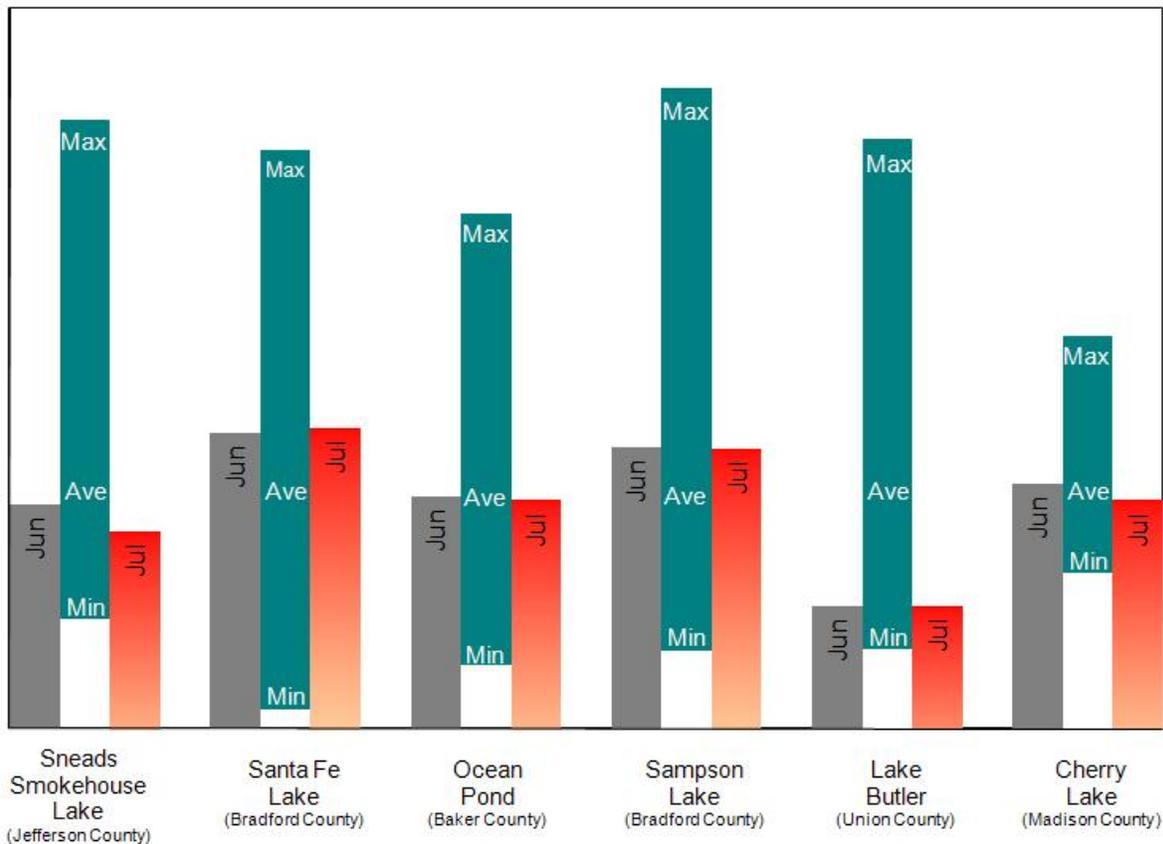
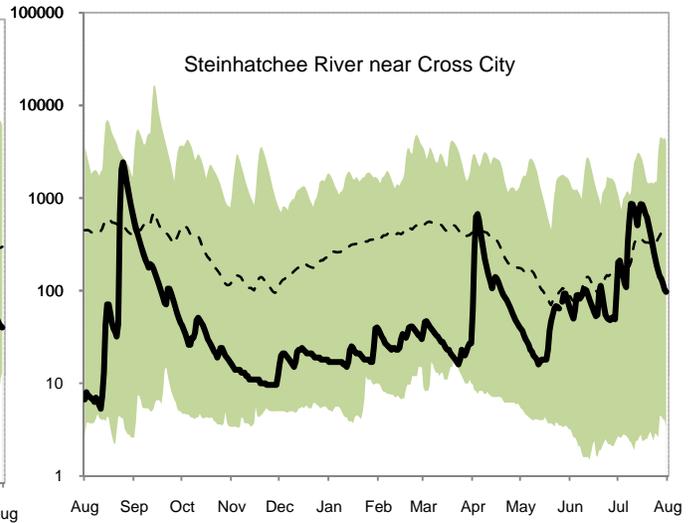
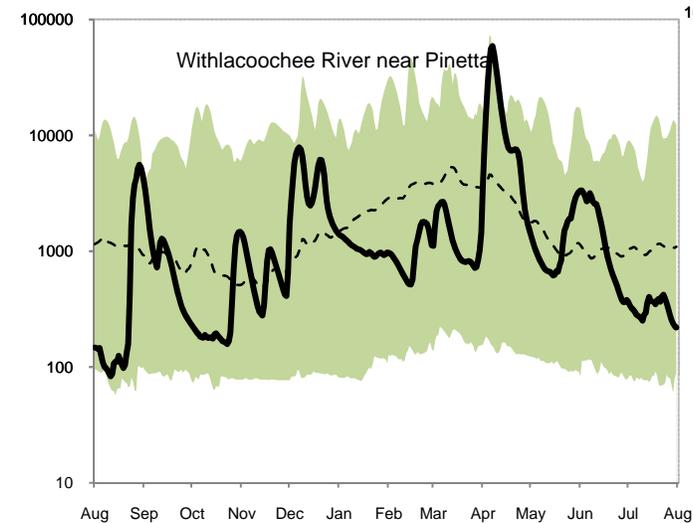
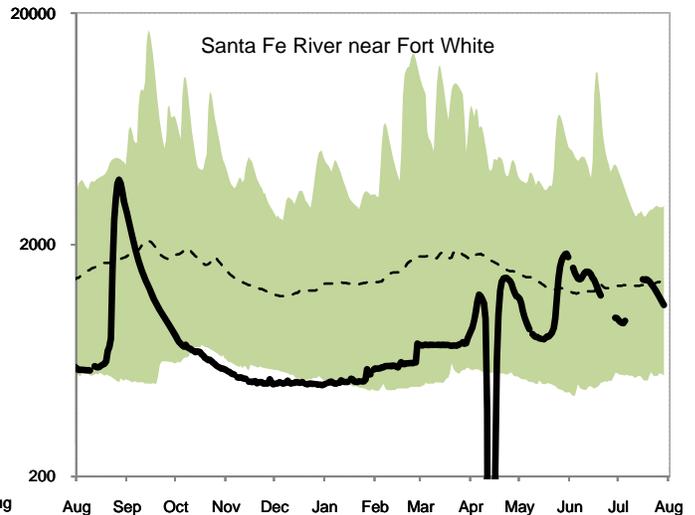
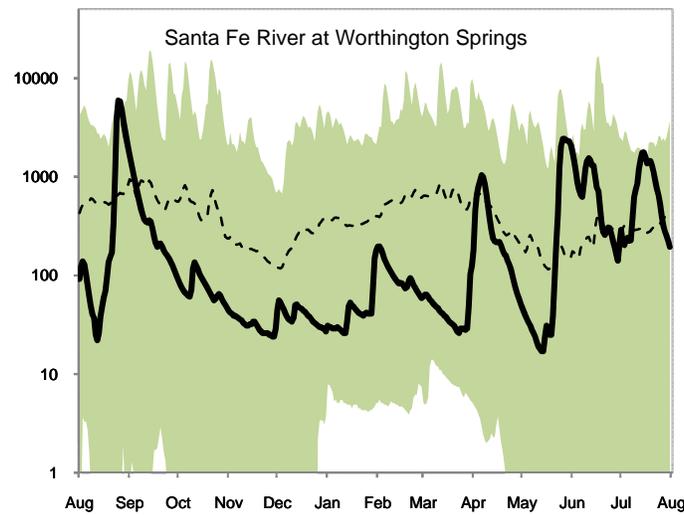
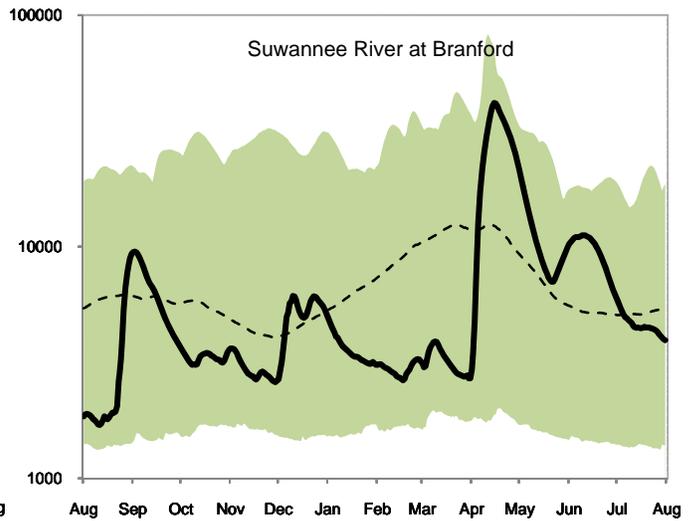
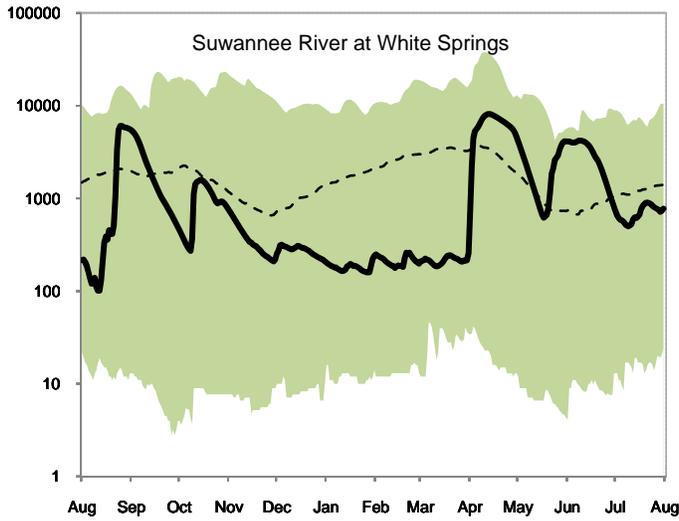
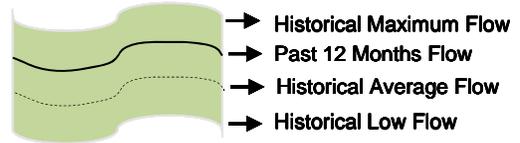


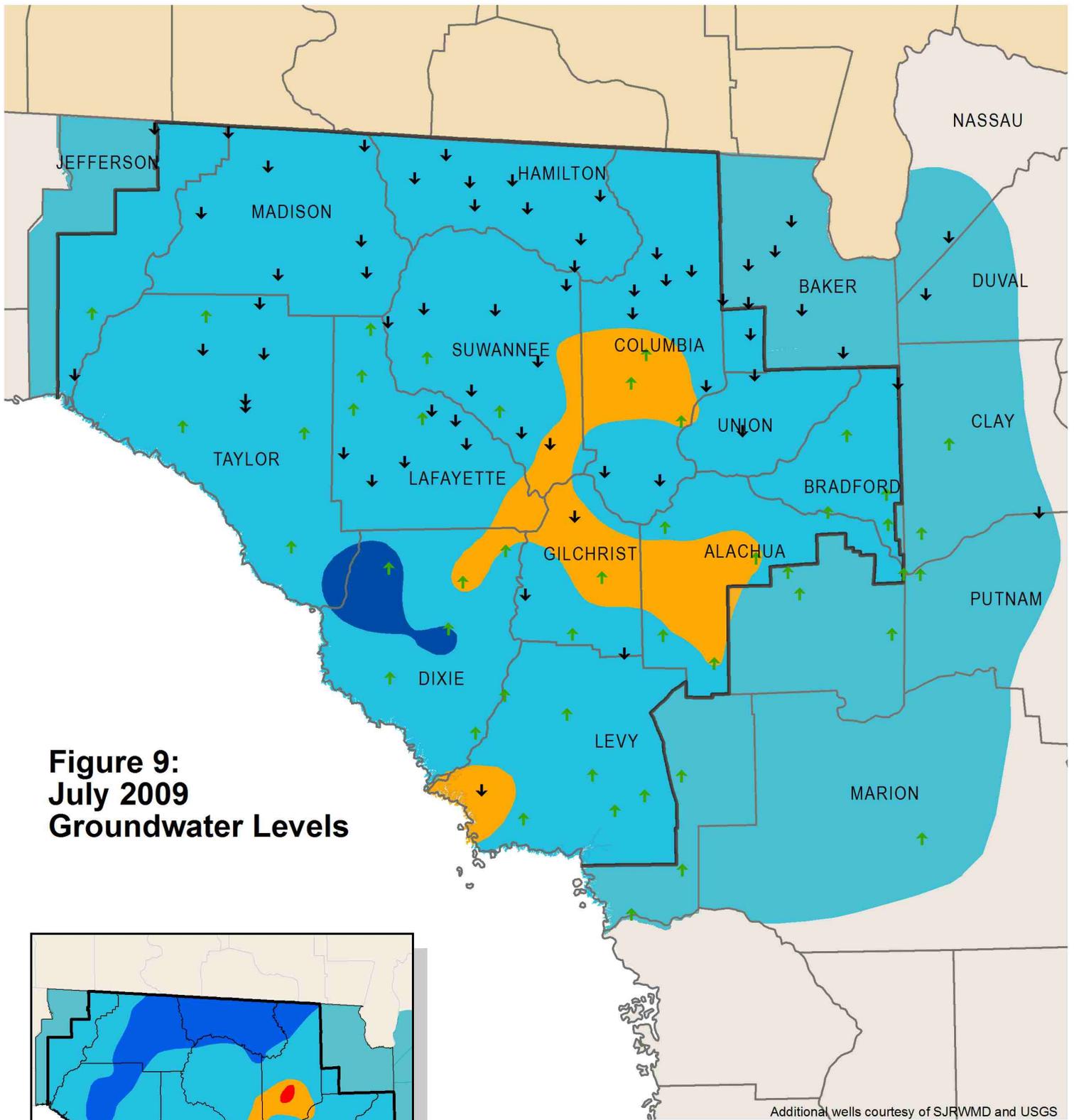
Figure 7: Lake levels, relative to historic maximum, minimum, and average levels.

Figure 8: Daily River Flow Statistics

August 1, 2008 through July 31, 2009

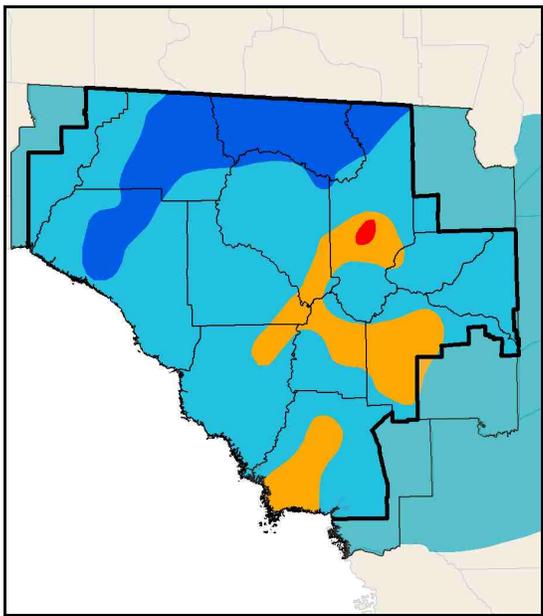


RIVER FLOW, CUBIC FEET PER SECOND



Additional wells courtesy of SJRWMD and USGS

**Figure 9:
July 2009
Groundwater Levels**



Inset: June 2009 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 August 1, 2008 through July 31, 2009
 Period of Record Beginning 1978

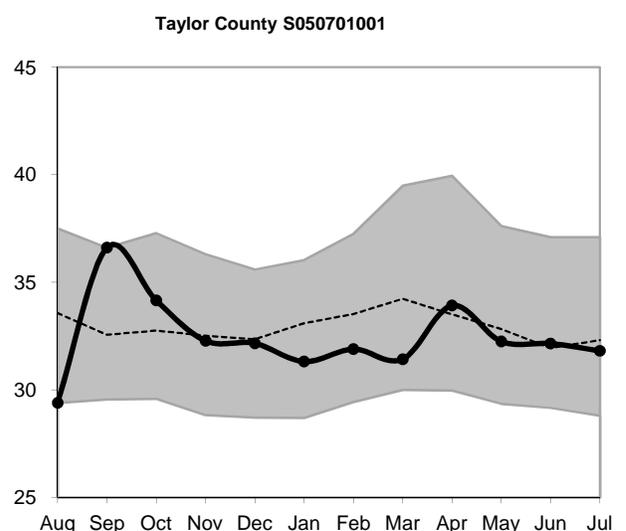
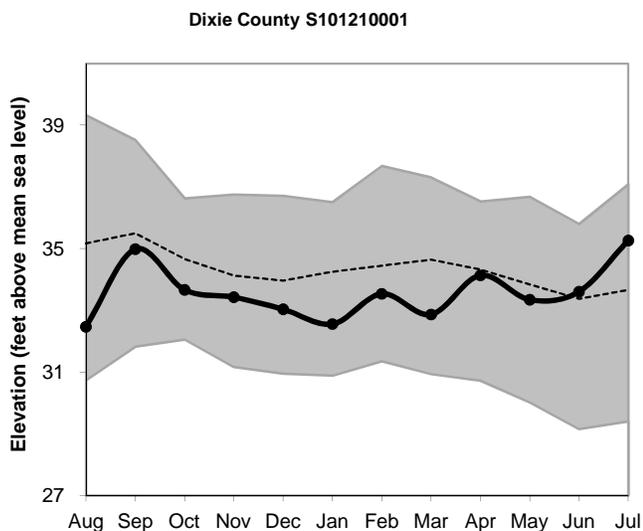
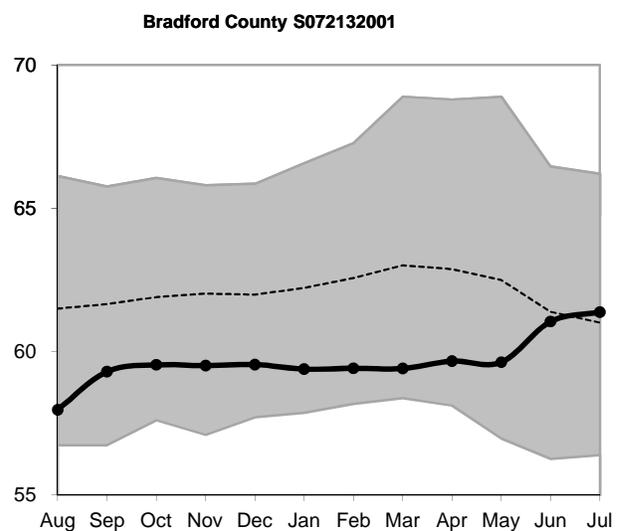
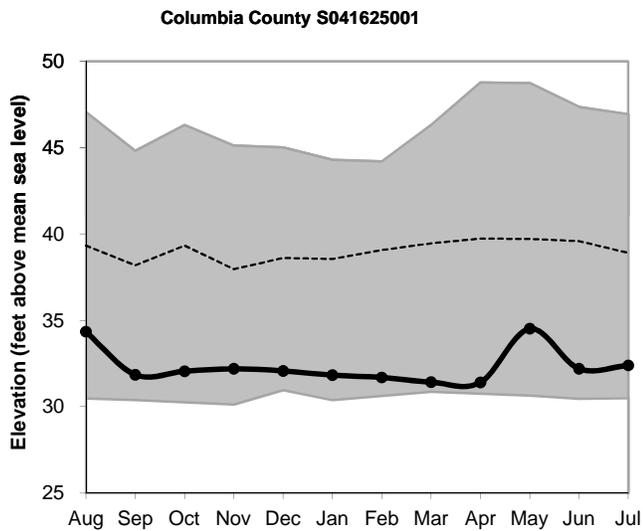
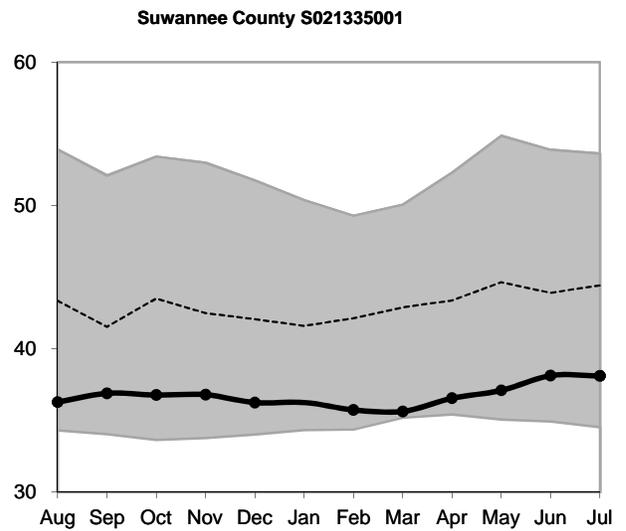
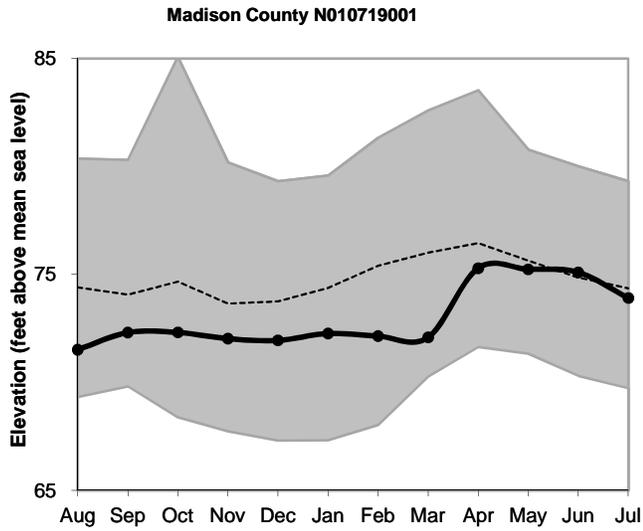
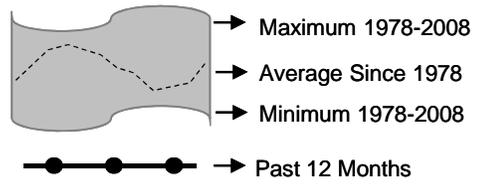
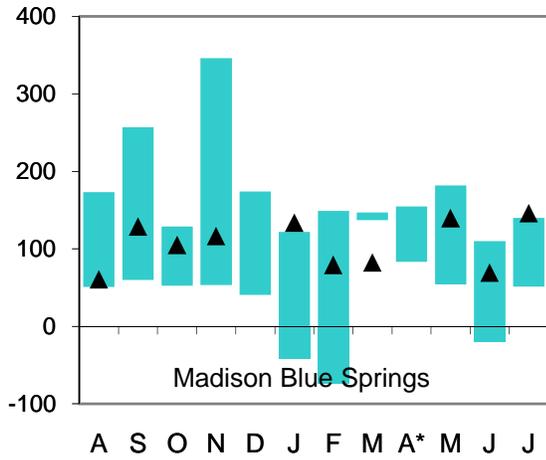
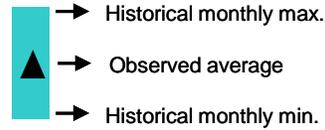


Figure 11: Monthly Springflow Statistics

Flows August 1, 2008 through July 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 for these months will be revised once approved and published by the U.S. Geological Survey.

