MEMORANDUM

TO: Governing Board

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

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

DATE: August 5, 2010

RE: July 2010 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in July was 6.54", which is 84 percent of the District's long-term average of 7.76" (Table 1, Figure 1). Coastal portions of Taylor, Dixie, and Levy Counties received more than twice normal rainfall, with some localized areas seeing over 19". Inland totals were significantly below normal. Figure 2 shows the estimated rainfall accumulation, and Figure 3 shows the rainfall totals as a percent of normal July precipitation.
- Rainfall for the past twelve months was 58.20". The twelve-month surplus was 3.52". However, the upper Santa Fe River Basin showed a deficit of more than 10" since August 2009. 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 at all major gages decreased in July. The New River in the upper Santa Fe Basin fell below the 10th percentile for the month, while the Santa Fe River near Fort White remained below the 25th percentile for the third month in a row (the percentile is the percentage of historic levels or flows for the month that are equal to or below the month's observed values). Middle- and upper-Suwannee River gages fell near or below the 25th percentile. Conditions in coastal rivers remained in a range considered normal for the time of year. Discharge statistics for six river stations are presented in Figure 6 and streamflow conditions for major gages are shown in Figure 7.
- **Lakes**: Levels at monitored lakes changed little since June, falling by an average of less than an inch. Eleven of the 16 monitored lakes remained below their long-term average levels. Lakes Altho, Hampton, and Santa Fe remained slightly above average. Levels at Waters Lake and Governor Hill Lake remained below the minimum measurable stage. Figure 8 shows

levels relative to the long-term average, minimum, and maximum levels for six lakes.

- **Springs:** Average July flow relative to historical flows is shown for four spring systems in Figure 12.

GROUNDWATER

Levels in 69 percent of monitored wells dropped in July, with an average decline of 3" (Figure 9). Wells in coastal areas that received heavy rainfall rose significantly. Conditions averaged across the District remained above the 50th percentile based on records beginning in 1978. Levels in Taylor County were above the 77th percentile, while levels in Gilchrist County averaged near the 25th percentile. Statistics for a representative sample of wells are shown in Figure 10. Figure 11 shows statistics for the 5 wells in or near the District with continuous records that predate the mid-1970's.

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 using precipitation, temperature, and soil moisture data. The PDSI indicated mild drought conditions beginning the last week of July.
- The U.S. Geological Survey categorized streamflow in the Santa Fe and upper Suwannee basins as below normal.

CONSERVATION

Homeowners and others within the District are required to limit landscape irrigation to two days per week, based on a year-round water conservation rule that applies to residential landscaping, public or commercial recreation areas, and public and commercial businesses that aren't regulated by a District-issued permit. 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 (115 wells), surfacewater levels (16 lakes and 11 rivers), river flows (15 stations), spring flows (4 stations), 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/dd

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

Table 1: Estimated Rainfall Totals

County	July-2010	July-2009	Last 12 Months	July Average
Alachua	5.54	7.46	50.61	7.01
Baker	7.77	6.63	50.79	7.06
Bradford	5.72	7.43	46.44	6.92
Columbia	5.42	6.03	53.50	7.01
Dixie	11.31	9.12	59.52	9.14
Gilchrist	6.16	7.68	50.45	8.03
Hamilton	4.14	5.74	55.52	6.79
Jefferson	5.70	4.83	66.43	7.23
Lafayette	6.26	8.59	61.80	8.21
Levy	9.73	9.39	59.72	8.98
Madison	5.14	4.42	62.47	7.29
Suwannee	5.62	6.89	58.87	7.17
Taylor	6.68	6.91	65.23	8.62
Union	5.62	6.87	49.92	7.49

July 2010 Average:	6.54
Historical July Average (since 1932):	7.76
Historical 12-month Average (since 1932):	54.68
Past 12-Month Total:	58.20
12-month Rainfall Surplus:	3.52

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

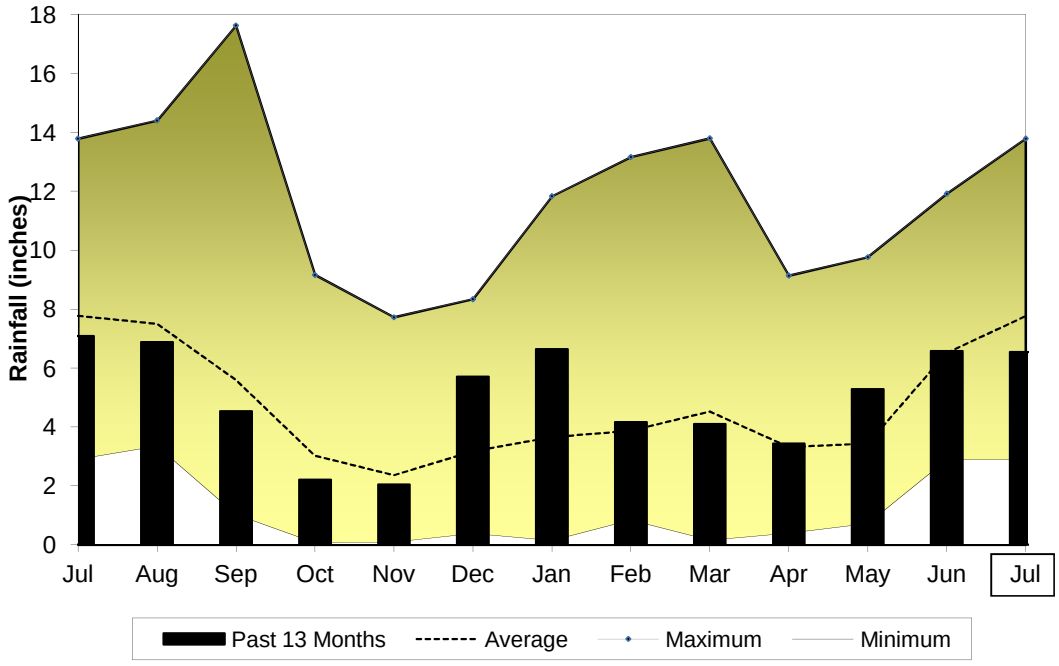


Figure 2: July 2010 Rainfall Estimate

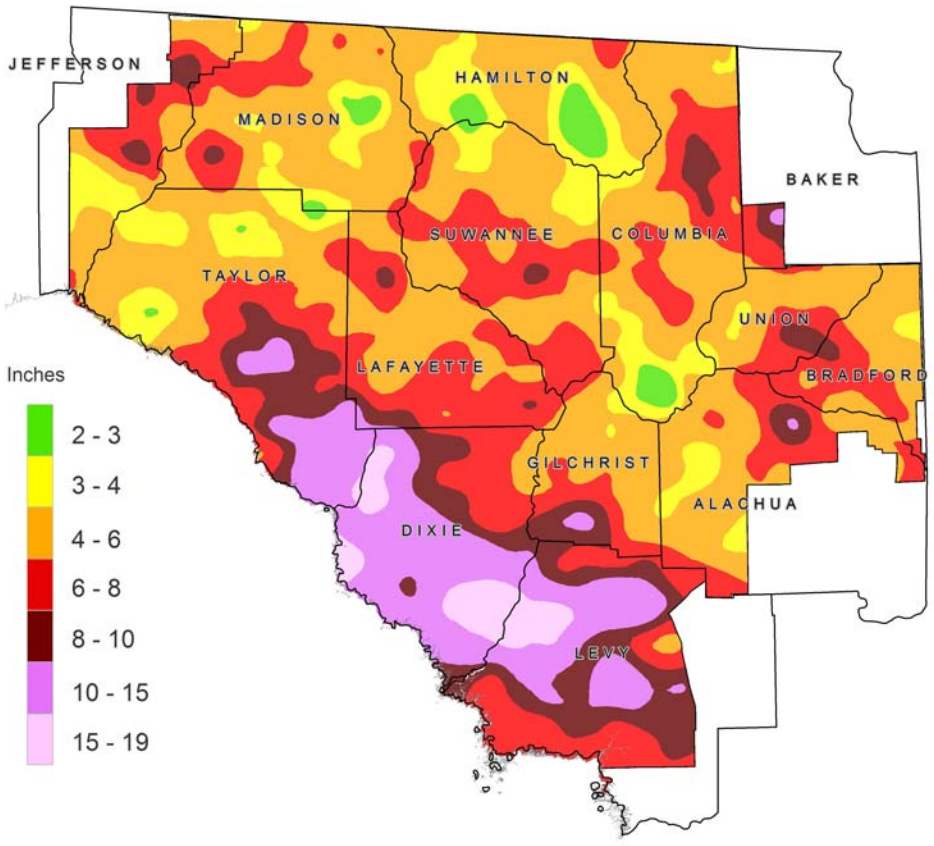


Figure 3: July 2010 Percent of Normal Rainfall

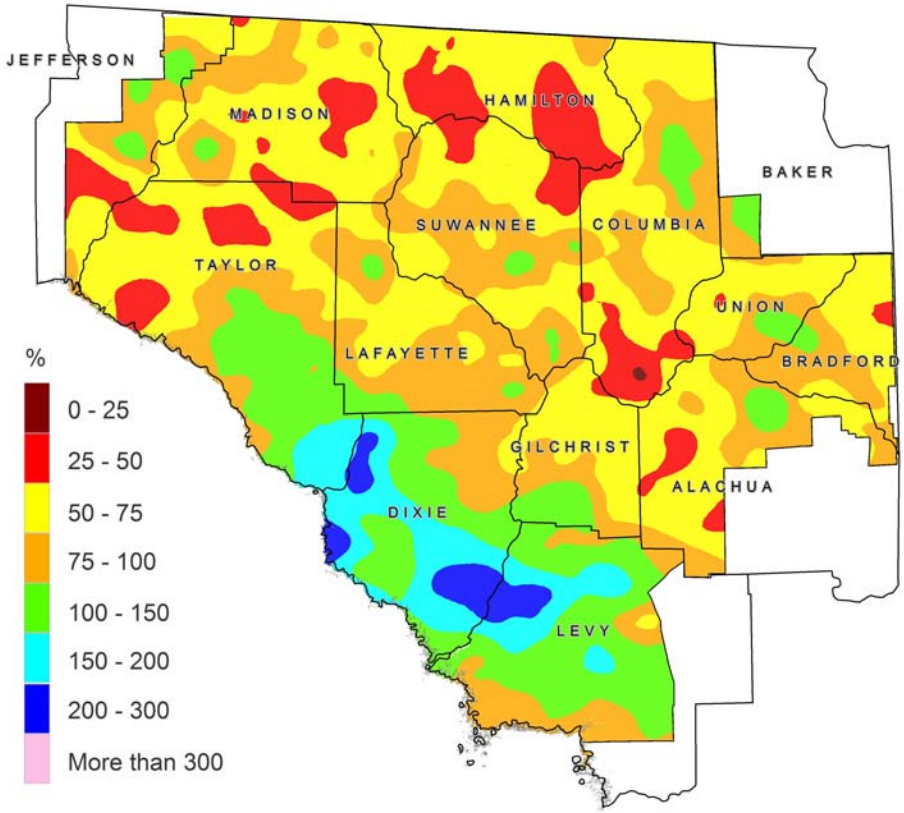


Figure 4: July 2010 Rainfall Surplus/Deficit

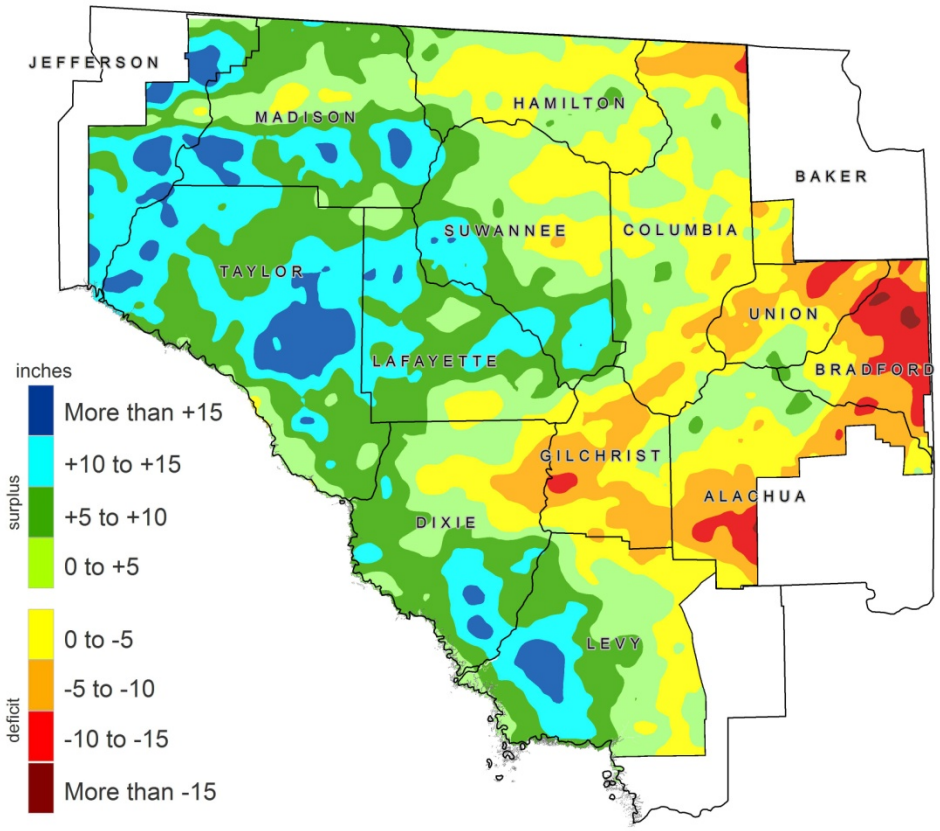


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

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

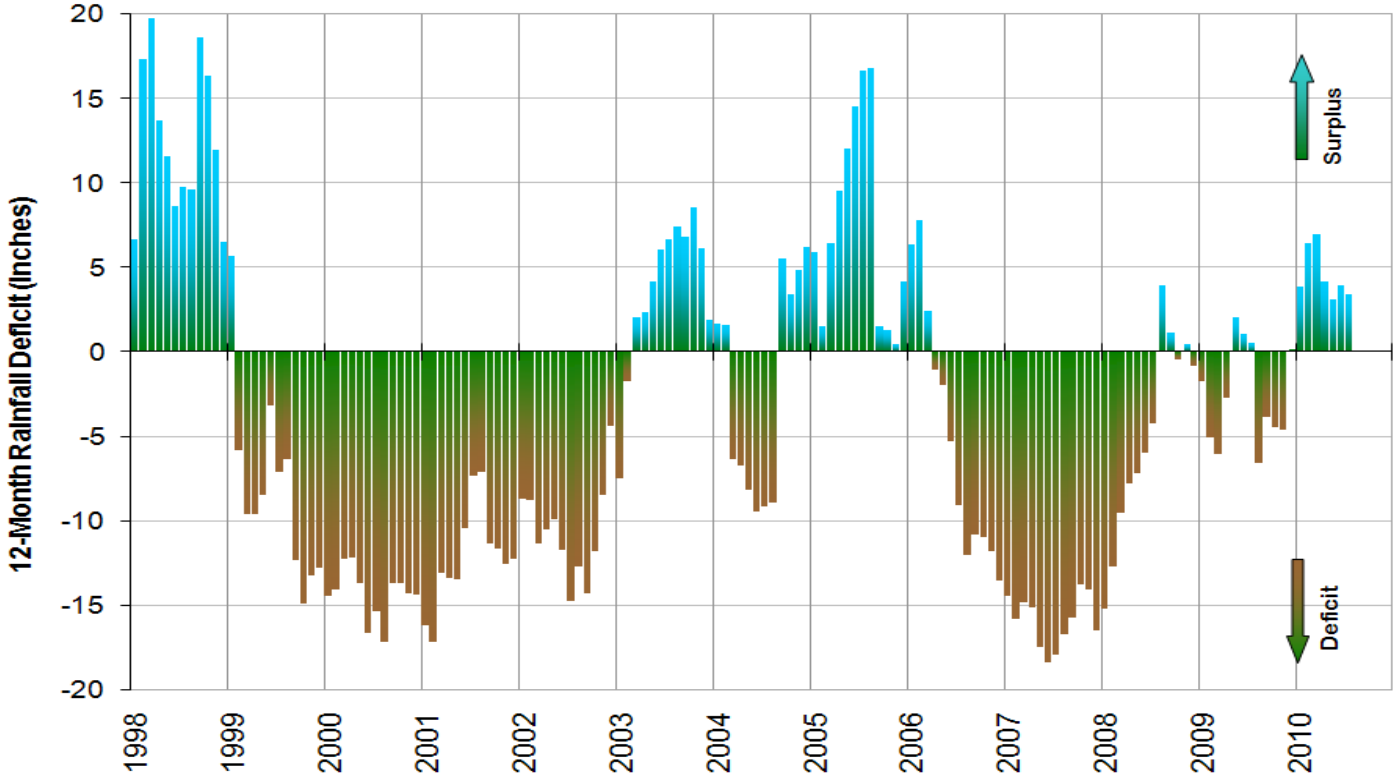
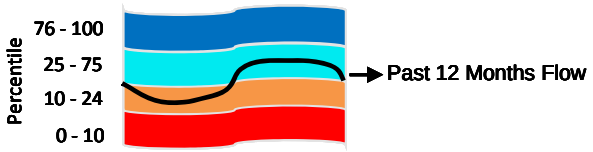
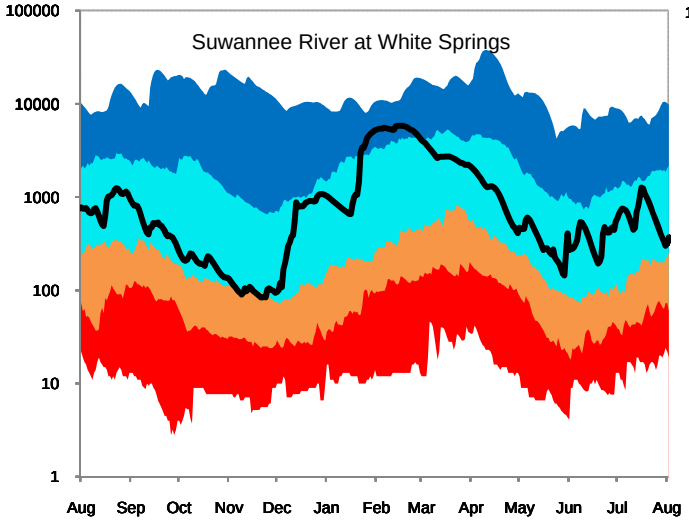


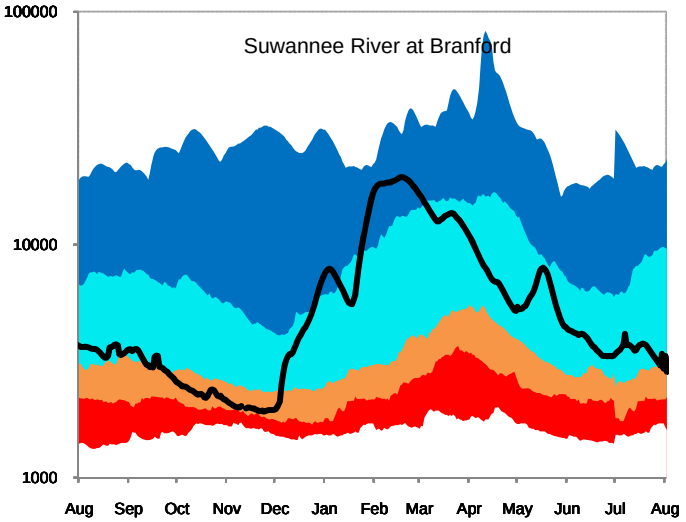
Figure 6: Daily River Flow Statistics

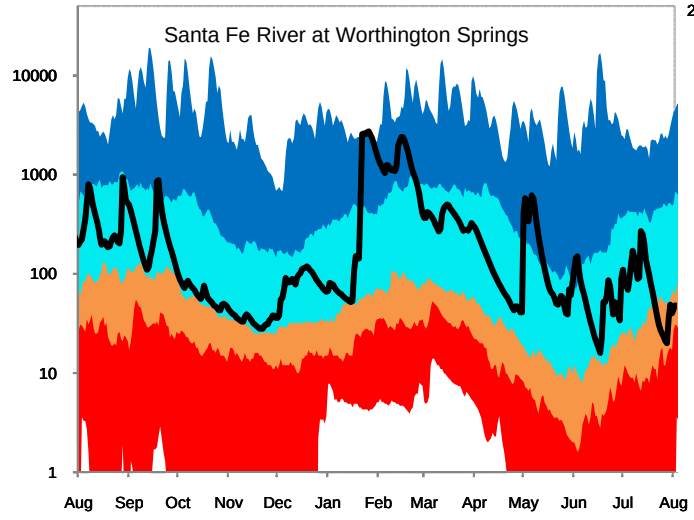
August 1, 2009 through July 31, 2010

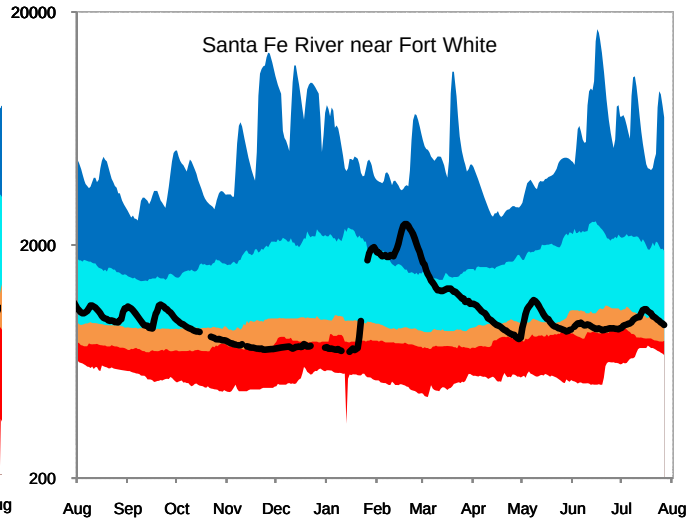


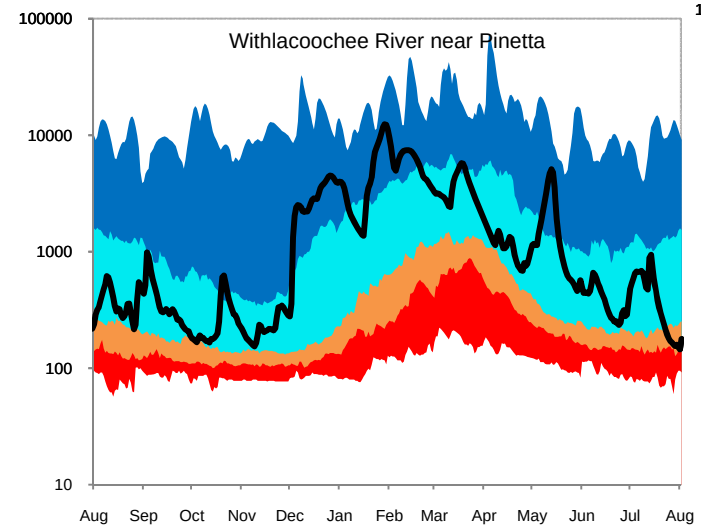
RIVER FLOW, CUBIC FEET PER SECOND











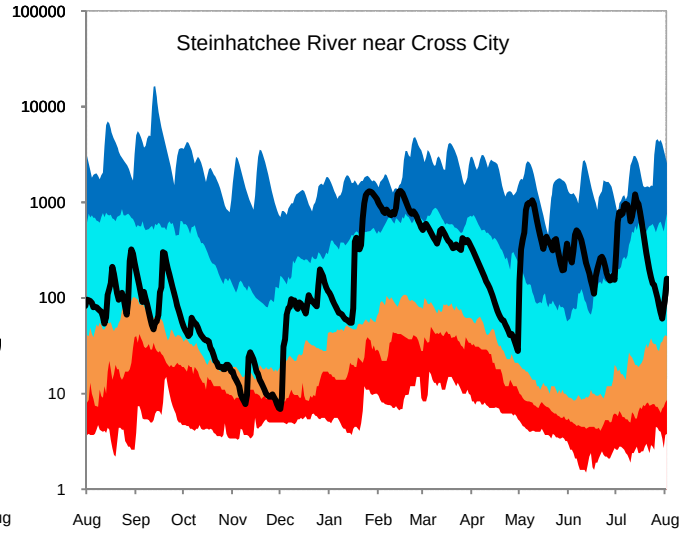


Figure 7: June 2010 Streamflow Conditions

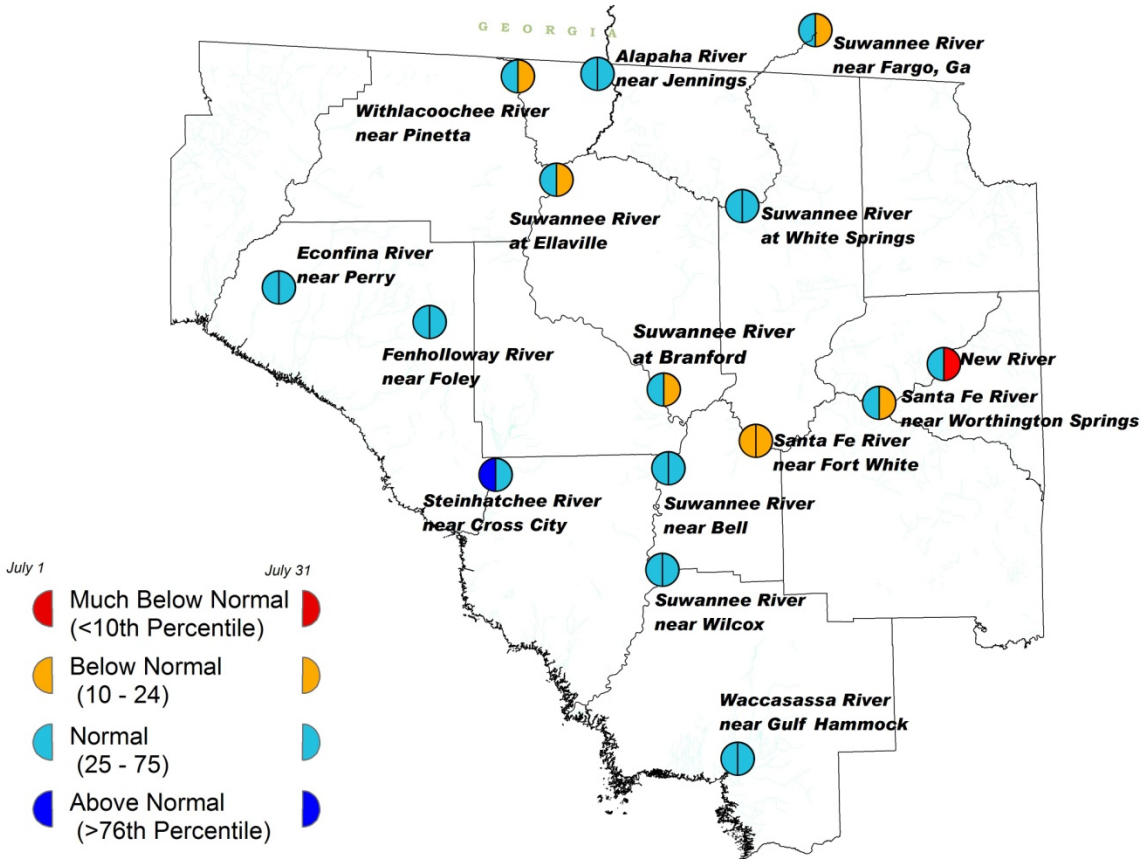
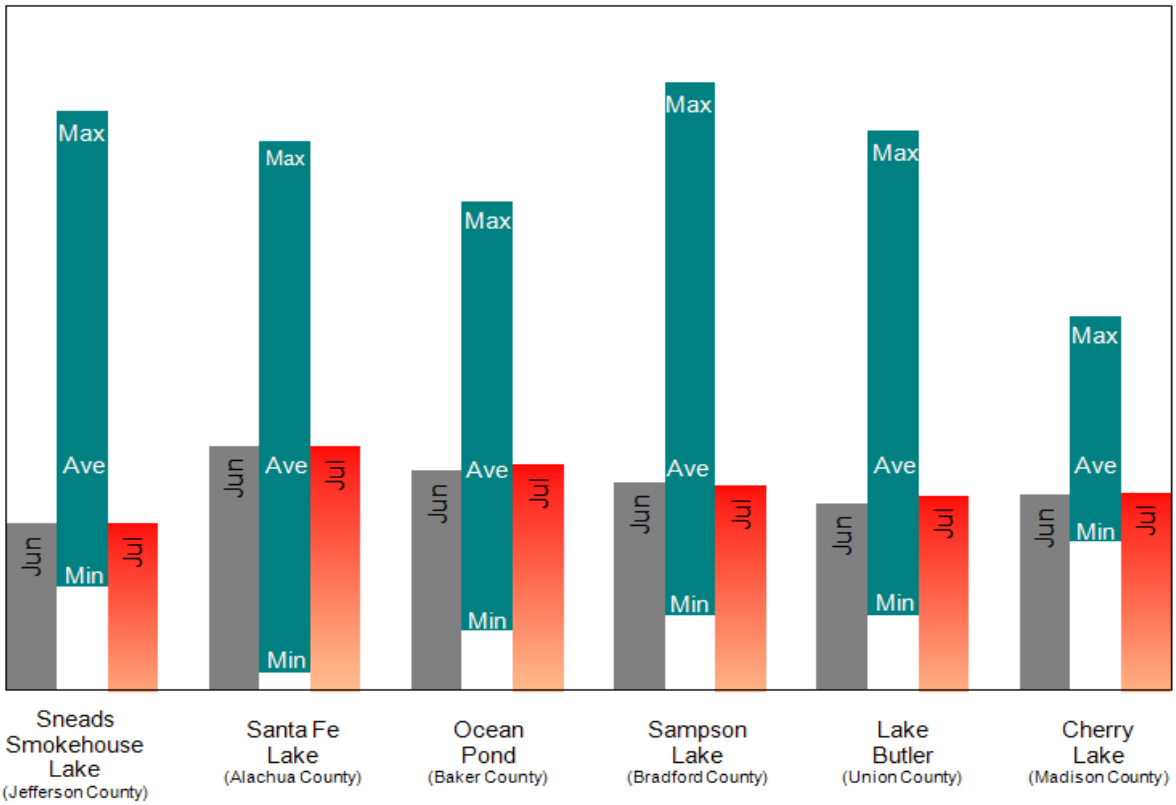


Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.



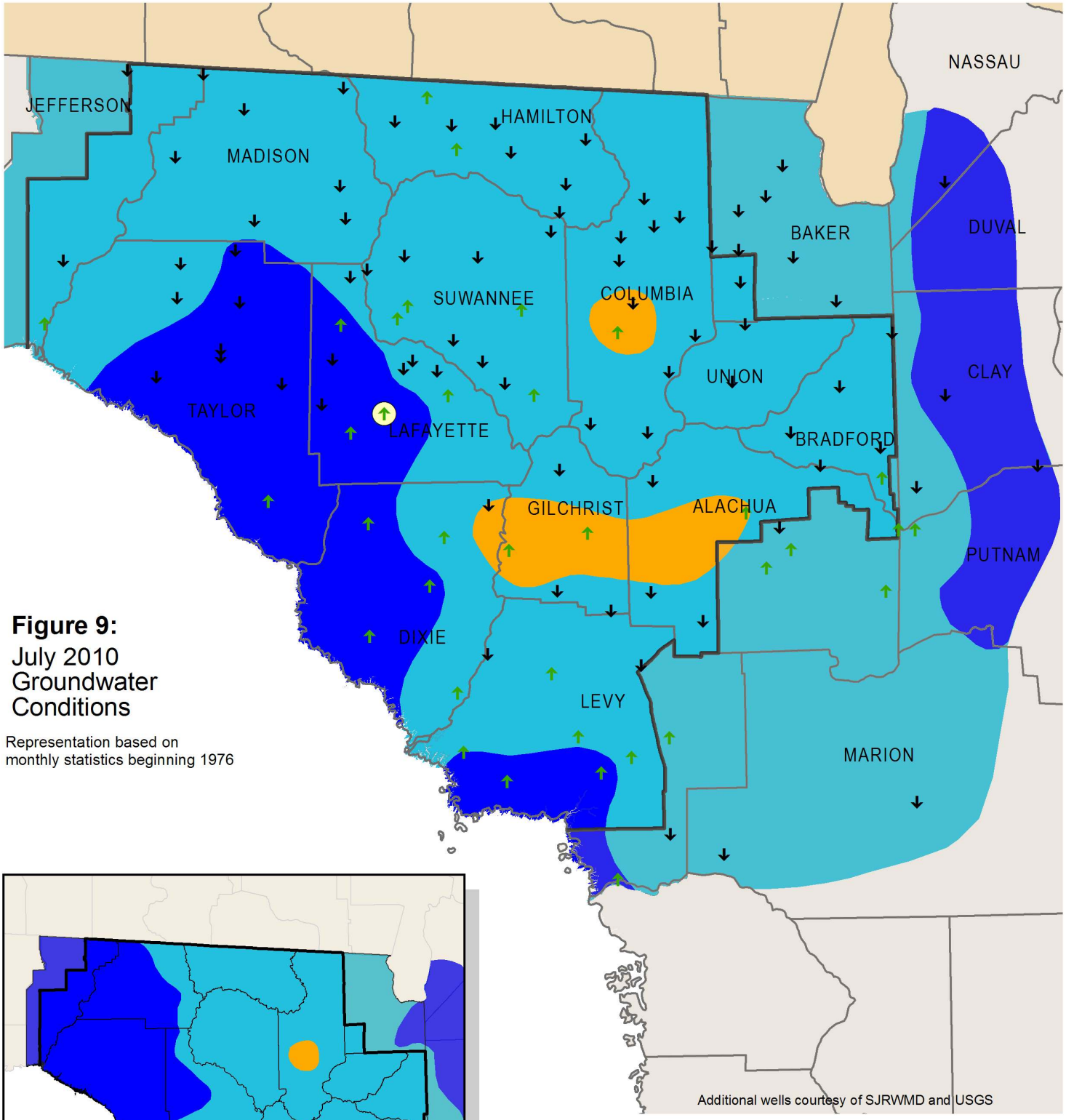
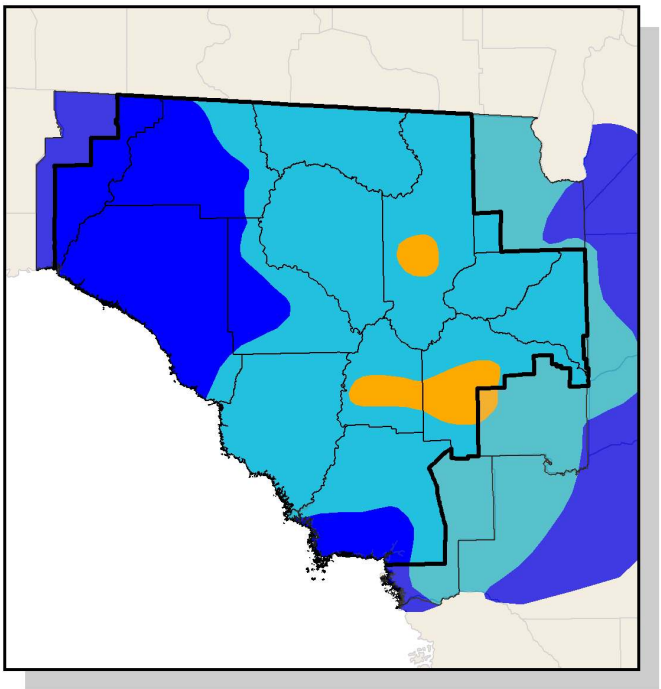


Figure 9:
July 2010
Groundwater
Conditions

Representation based on
monthly statistics beginning 1976



Inset: June 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

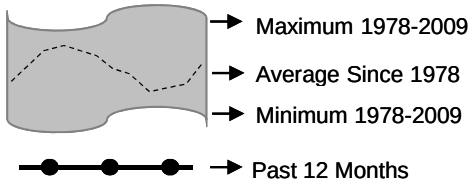
District Boundary

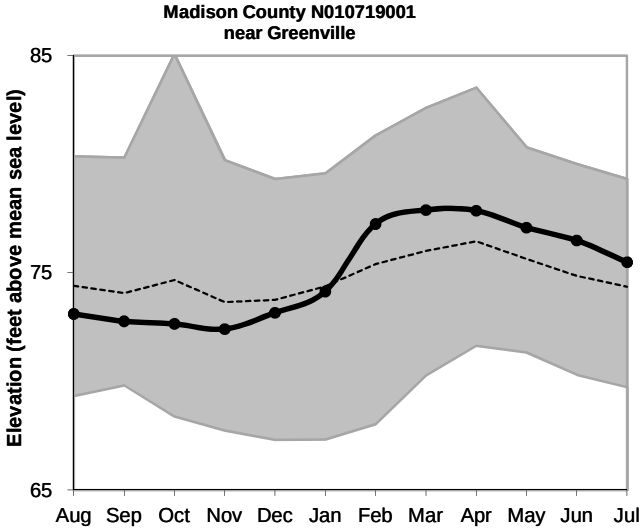
Record high level for month

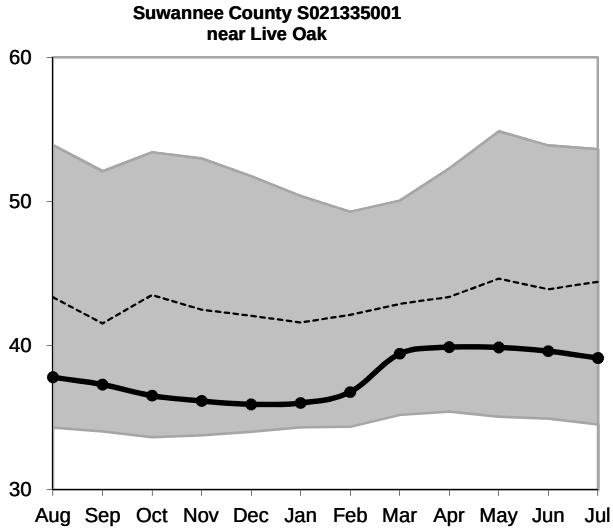
Figure 10: Monthly Groundwater Level Statistics

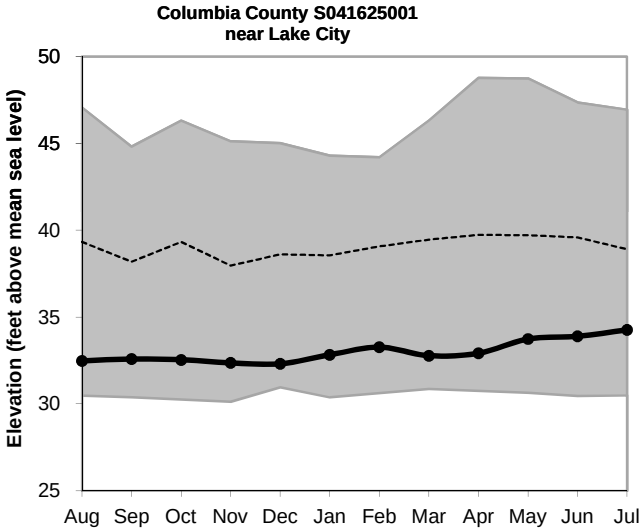
Levels August 1, 2009 through July 31, 2010

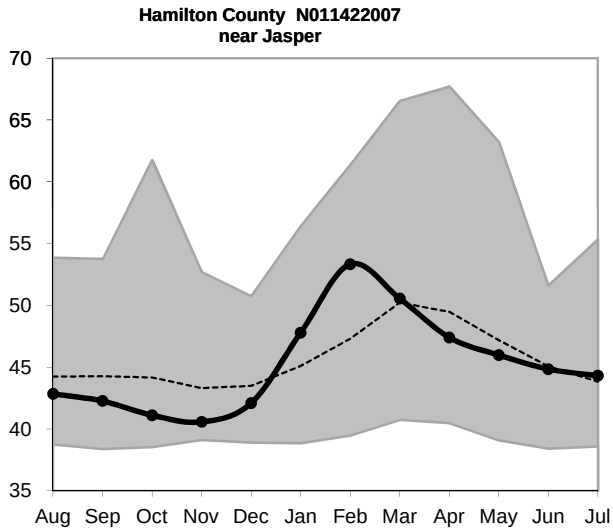
Period of Record Beginning 1978

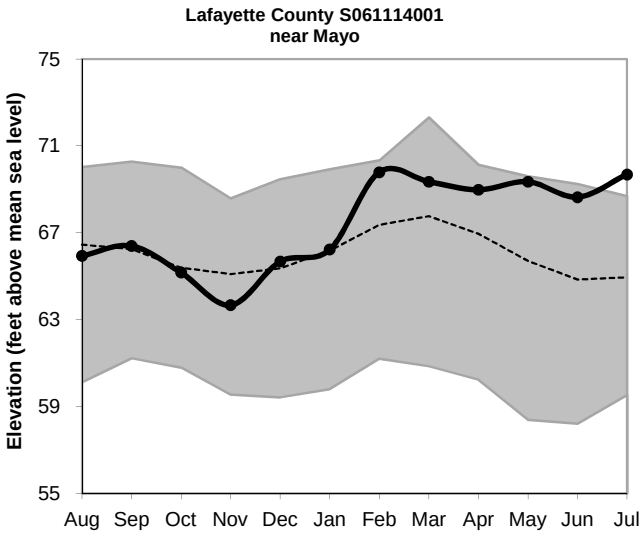












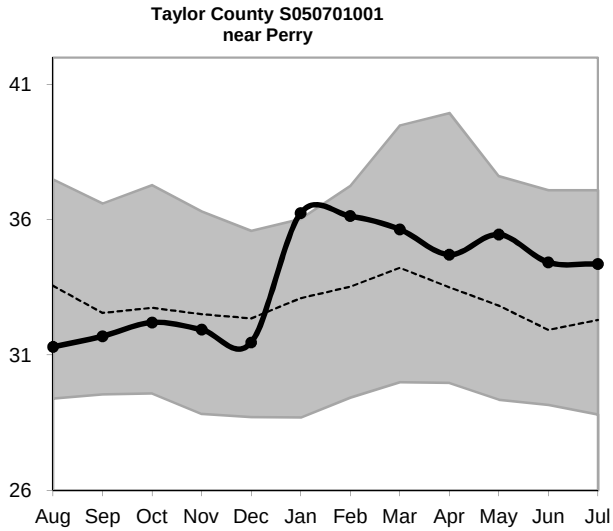
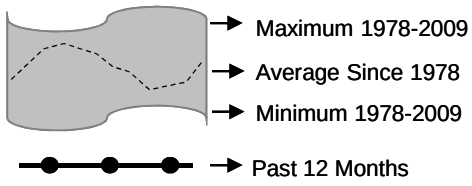
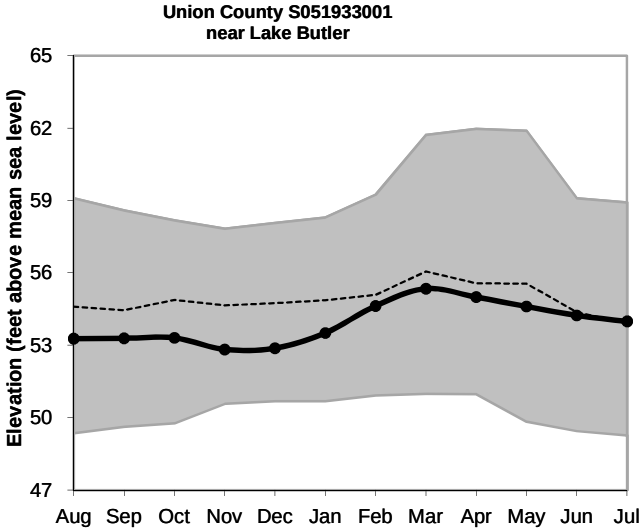
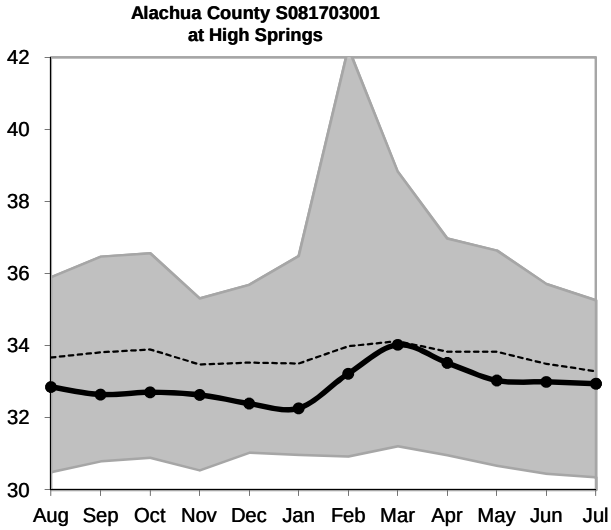
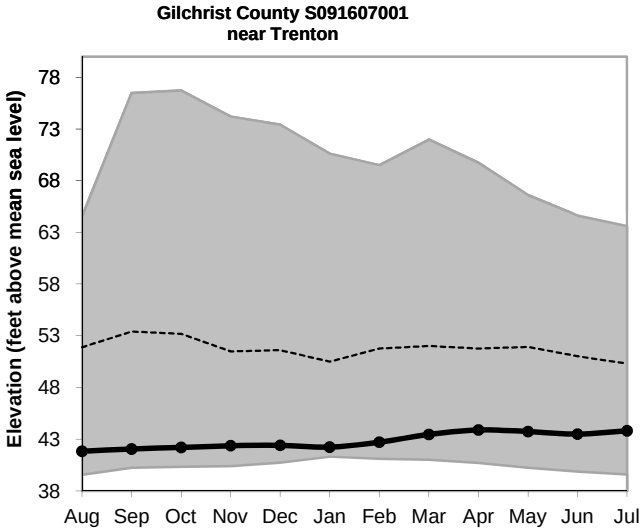


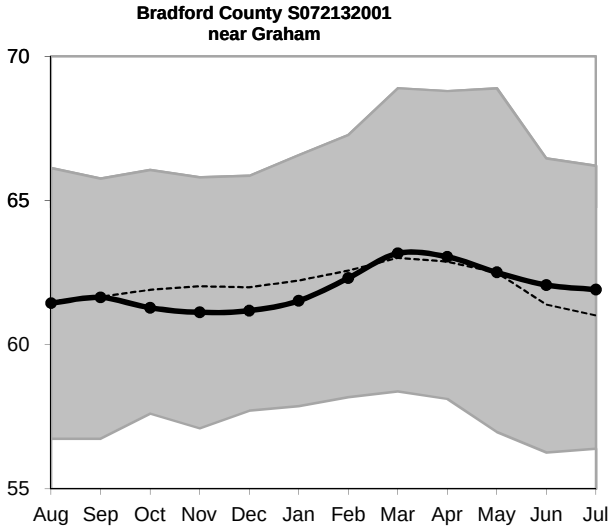
Figure 10, cont.: Monthly Groundwater Level Statistics
Levels August 1, 2009 through July 31, 2010
Period of Record Beginning 1978

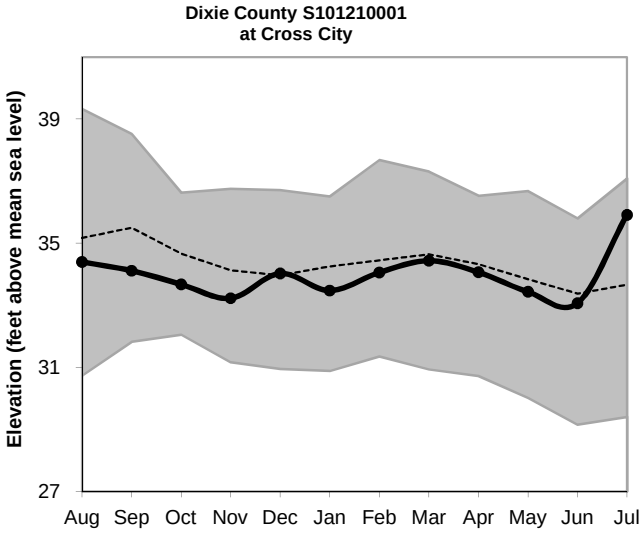












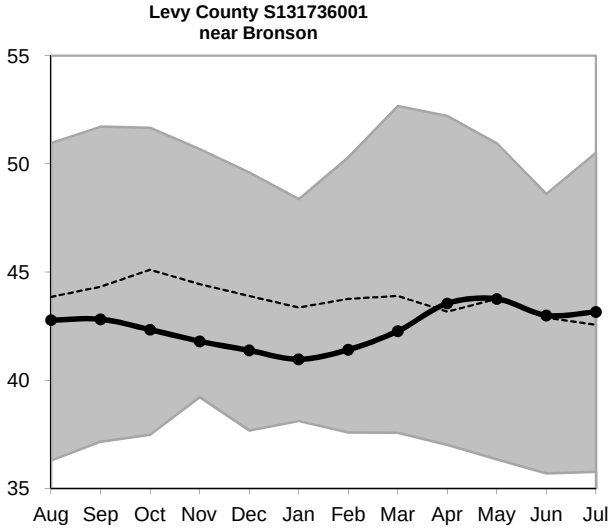
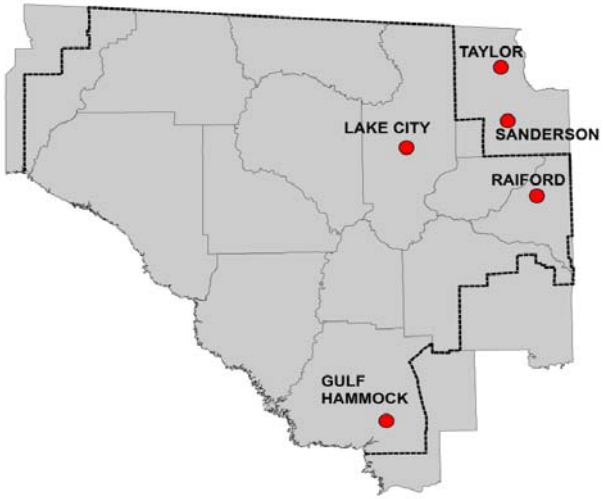
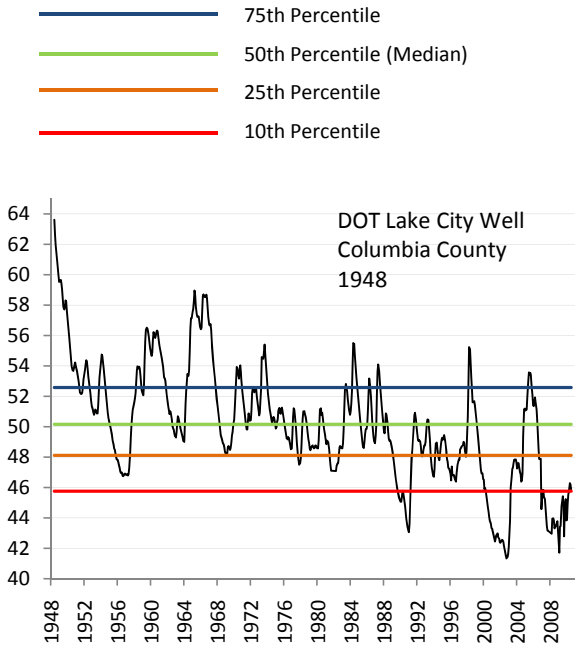
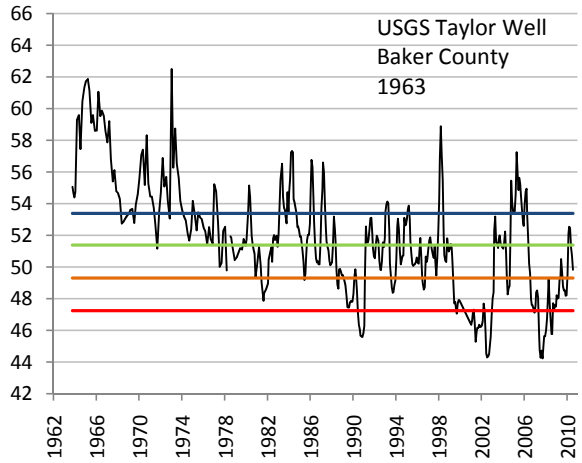
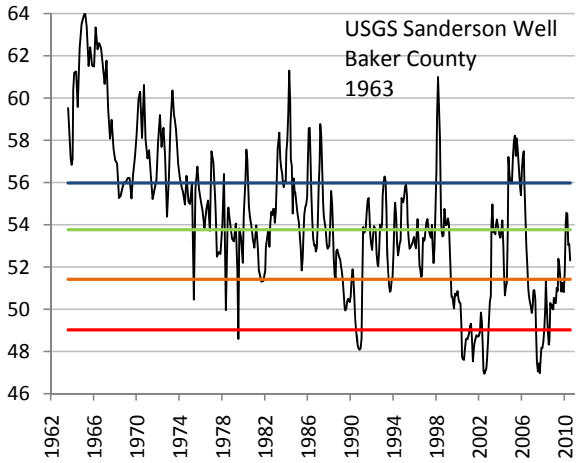


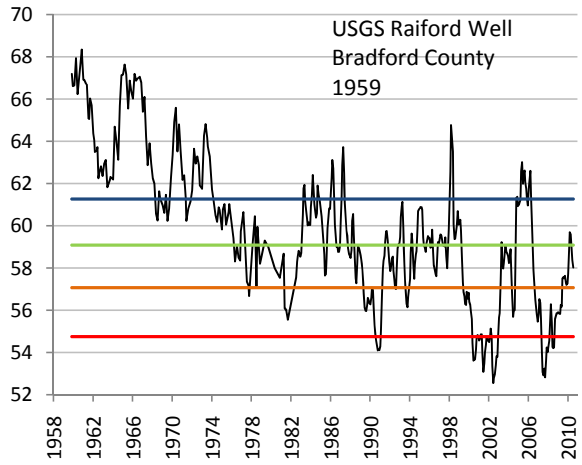
Figure 11: Long-Term Groundwater Levels
Ending July 2010
Levels in feet above mean sea level











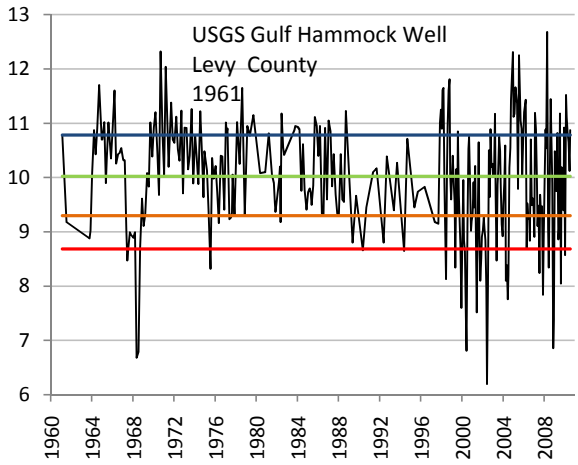
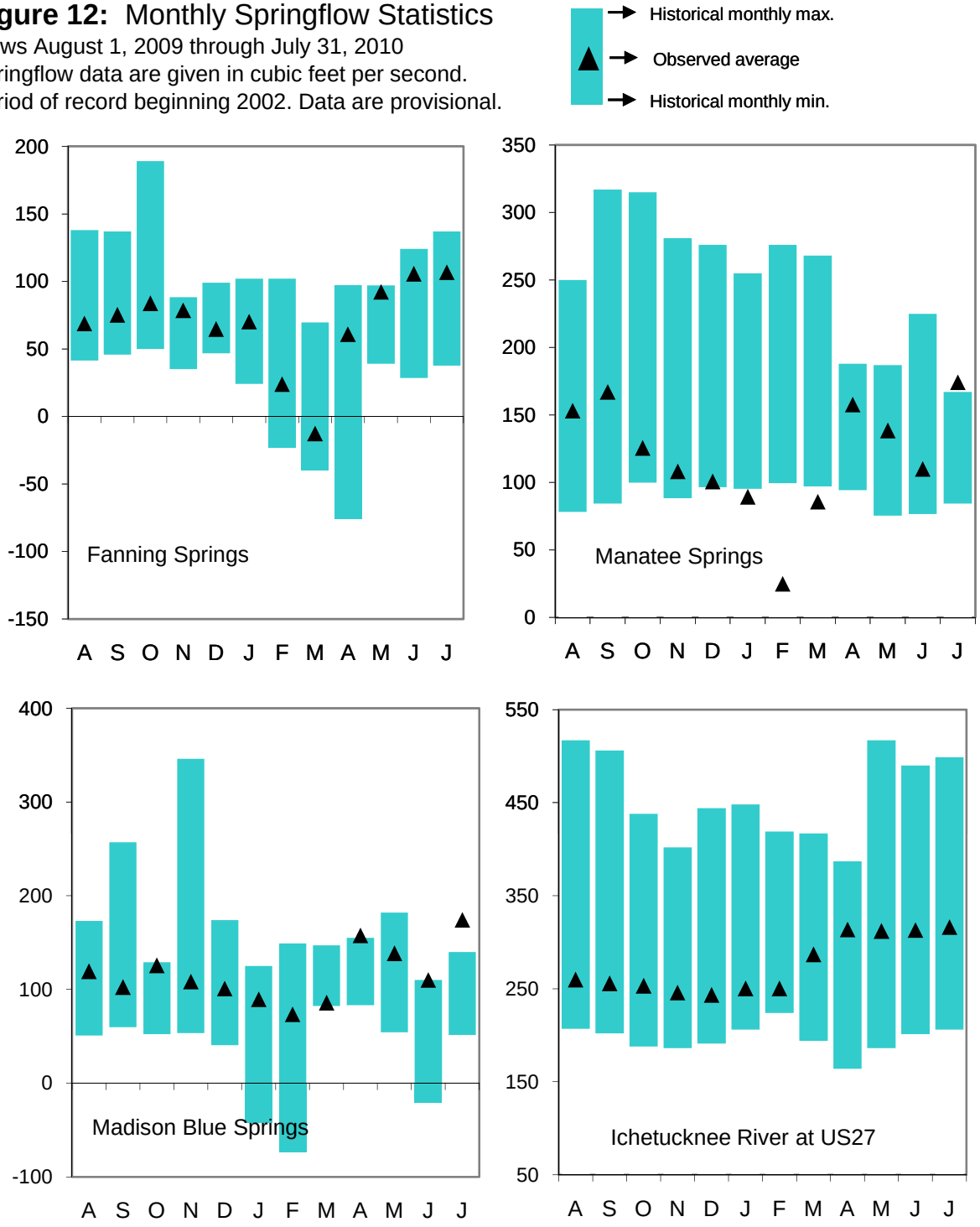


Figure 12: Monthly Springflow Statistics

Flows August 1, 2009 through July 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.