

MEMORANDUM

TO: Governing Board

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

THRU: David Still, Executive Director *DS*
Jon Dinges, Department Director *JMD*

DATE: May 6, 2010

RE: April 2010 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in April was 3.54", which is 107% of the long-term monthly average of 3.32" (Table 1, Figure 1). Average rainfall between April 1 and April 29 was 1.30". On the evening of April 30, intense storms caused accumulations of up to 7.9", affecting most of the District, but especially a swath from Taylor to Union Counties. This event accounted for more than 60% of the month's average. At Midway Tower south of Mayo, 6.62" fell in four hours, approaching the 1% (100-year) storm amount of 6.72". Figure 2 shows the estimated rainfall accumulation, and Figure 3 shows the rainfall totals as a percent of normal April precipitation.
- Rainfall for the past twelve months was 58.85". The twelve-month surplus was 4.17". 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 major river gages declined throughout the month. Most gages fell below the April median, but remained in a range considered normal for the month. Flows in the Steinhatchee River and at the Santa Fe River near Fort White fell below the 25th percentile, considered below normal (The percentile is the percentage of historic levels or flows for the month that are equal to or below the month's observed values). 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 all monitored lakes fell for the second month, dropping by an average of almost 6". Eight of the 16 monitored lakes fell or remained below their long-term average levels. Levels at Waters Lake and Governor Hill Lake were still below the minimum measurable stage. Figure 8 shows levels relative to the long-term average, minimum, and maximum levels for six lakes.

- **Springs:** Average April flow relative to historical flows is shown for 5 spring systems in Figure 11. In mid-April, tannic water began flowing out of White Sulphur Springs after more than two months of reverse flow from the Suwannee River.

GROUNDWATER

Groundwater levels dropped by an average of 8", but remained above the 50th percentile for the third month in a row. Conditions fell to the 55th percentile from the 58th percentile observed in March. Levels dropped in 62% of the District's monitored wells (Figure 9). Statistics for a representative sample of wells are shown in Figure 10.

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 near normal conditions during April.
- Long-term forecasts from the National Weather Service predict equal chances of above- or below-normal rainfall through the summer.

CONSERVATION

Homeowners and others within the District are asked 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 (113 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/dd

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

Table 1: Estimated Rainfall Totals

County	Apr-2010	Apr-2009	Last 12 Months	April Average
Alachua	3.46	3.57	55.08	3.35
Baker	2.12	5.85	52.73	3.07
Bradford	2.85	4.01	54.54	3.16
Columbia	3.23	6.46	53.68	3.10
Dixie	2.23	3.94	57.37	3.35
Gilchrist	2.47	3.81	53.63	3.58
Hamilton	2.47	9.10	53.95	3.21
Jefferson	4.44	10.42	65.98	4.04
Lafayette	5.22	6.70	65.34	3.24
Levy	1.95	2.49	61.55	3.11
Madison	3.47	11.02	61.68	3.23
Suwannee	4.61	7.39	58.52	3.24
Taylor	5.26	7.32	64.34	3.35
Union	3.37	4.64	51.76	3.65

April 2010 Average: 3.54
 Historical April Average (since 1932): 3.32
 Historical 12-month Average (since 1932): 54.68
 Past 12-Month Total: 58.85
 12-month Rainfall Surplus: 4.17

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

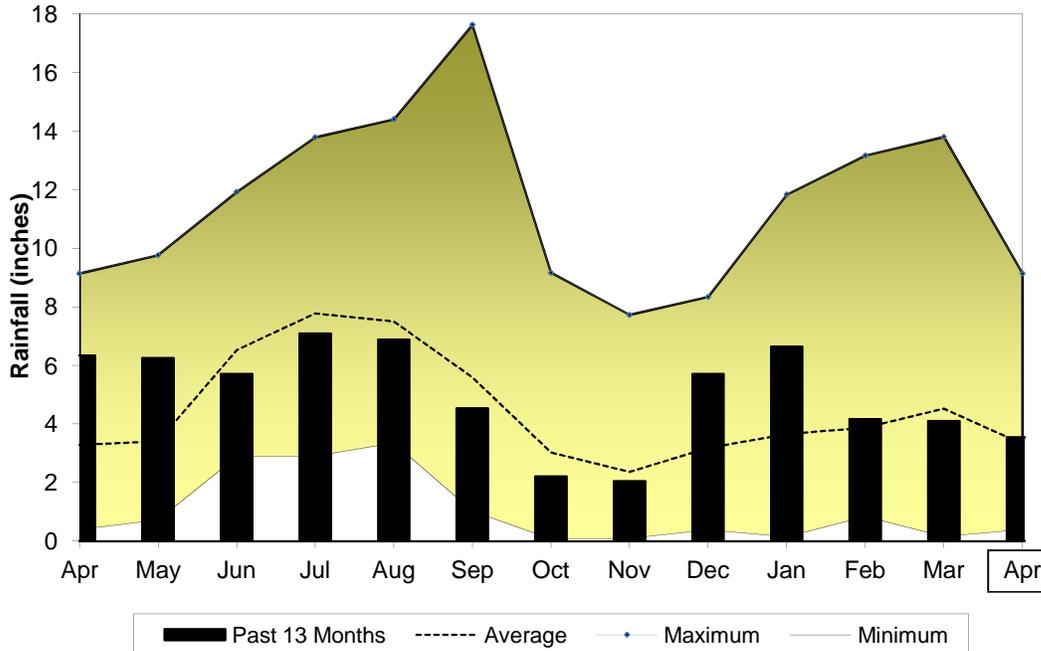


Figure 2: April 2010 Rainfall Estimate

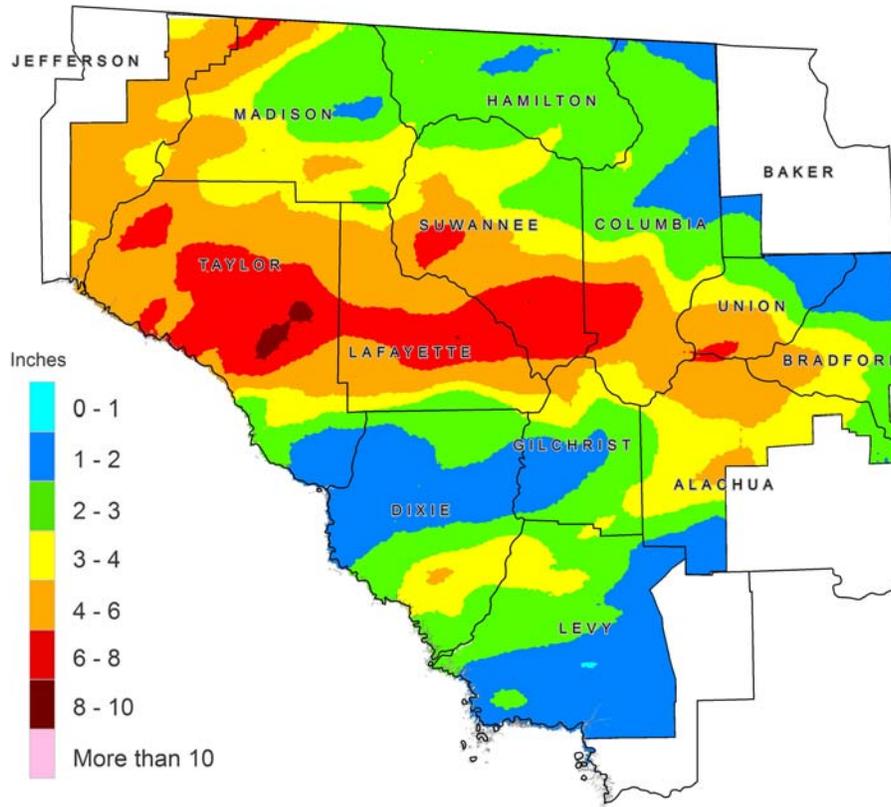


Figure 3: April 2010 Percent of Normal Rainfall

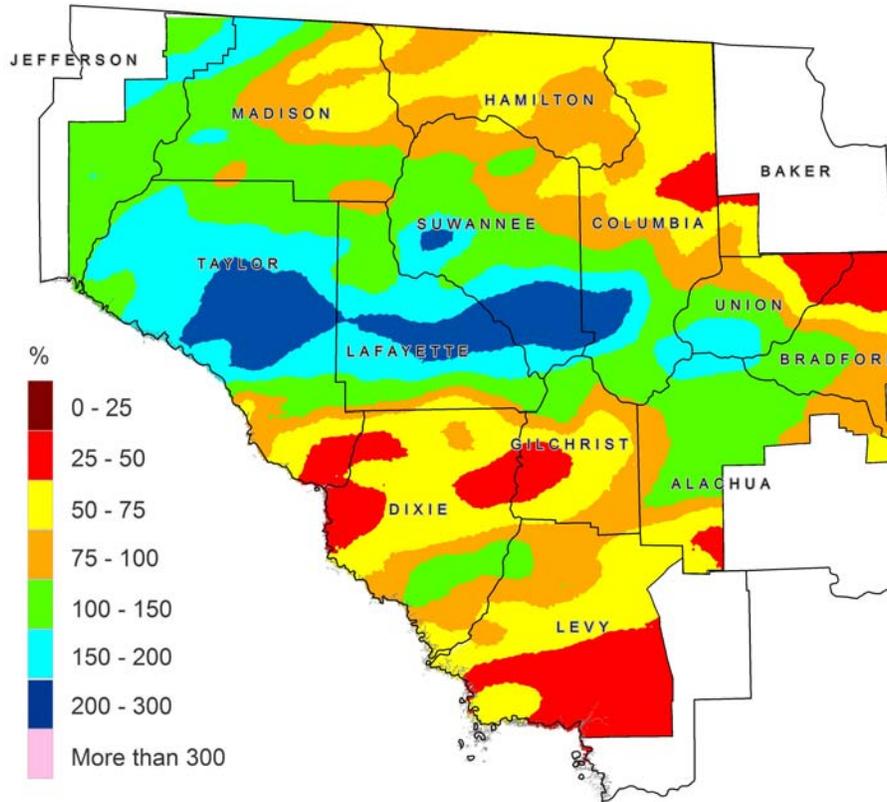


Figure 4: April 2010 Rainfall Surplus/Deficit

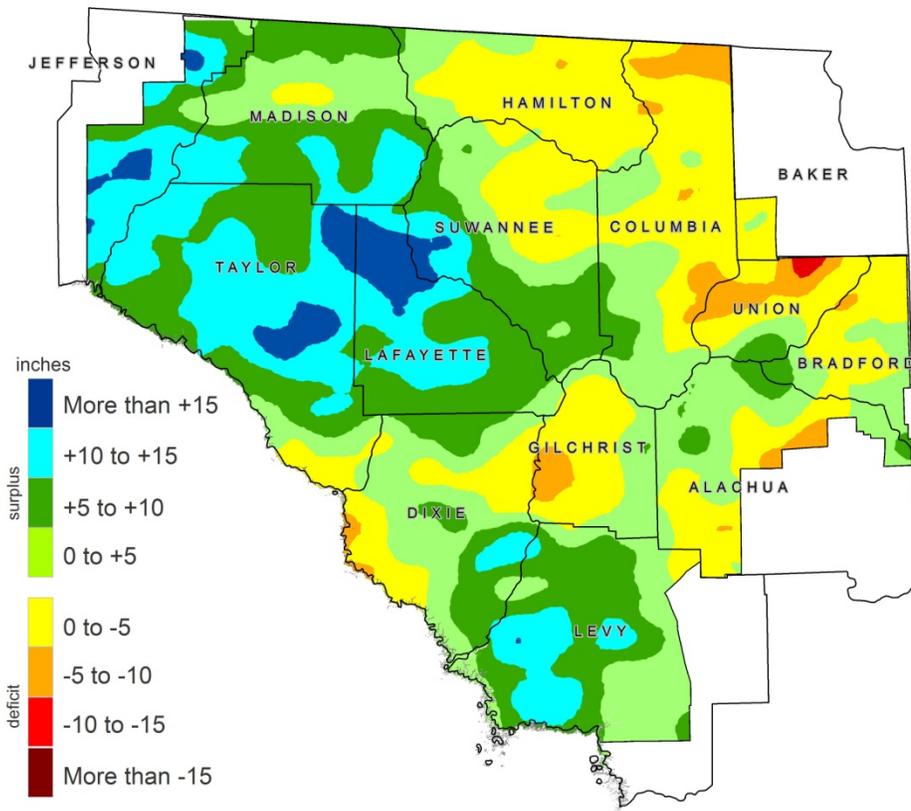


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

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

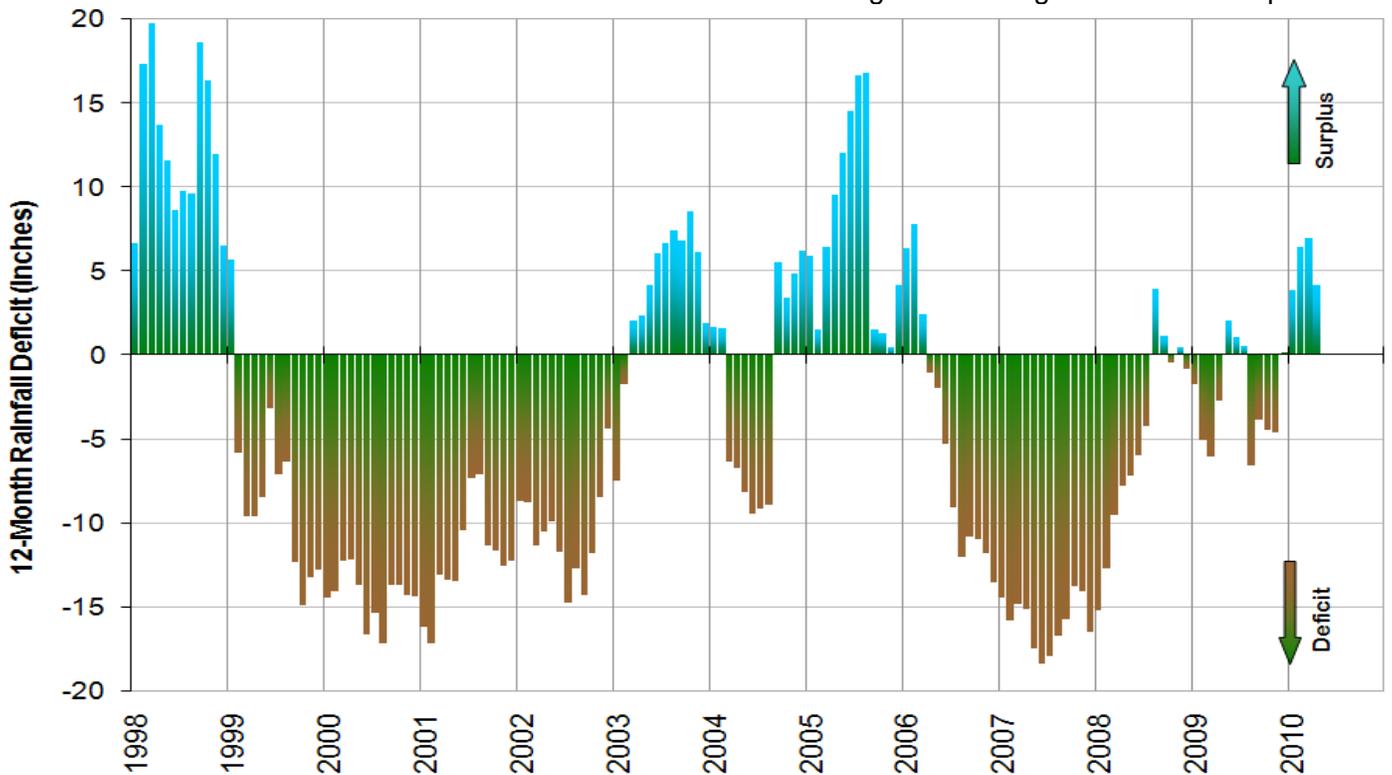
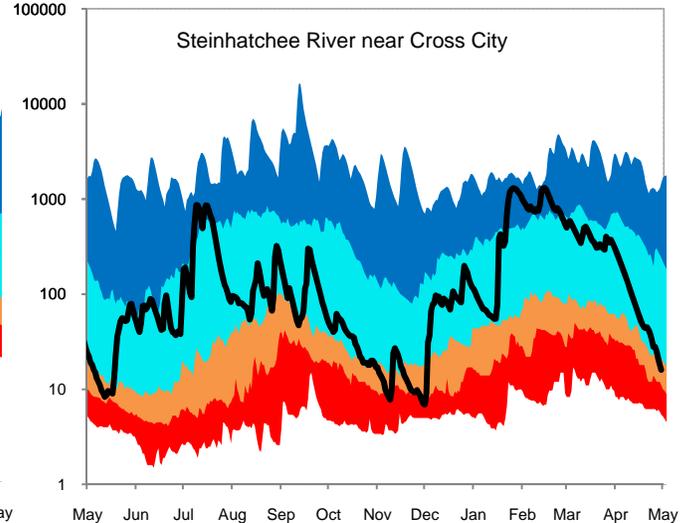
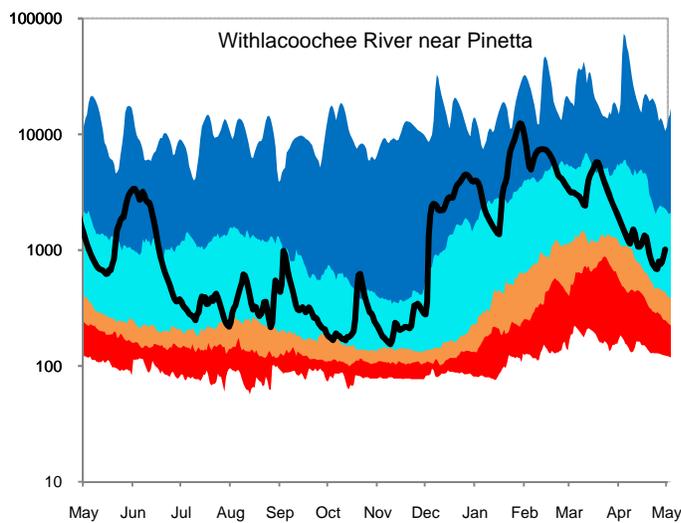
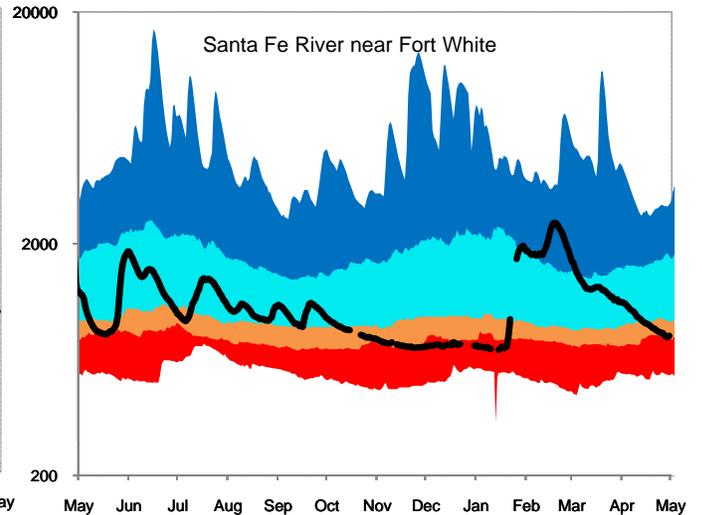
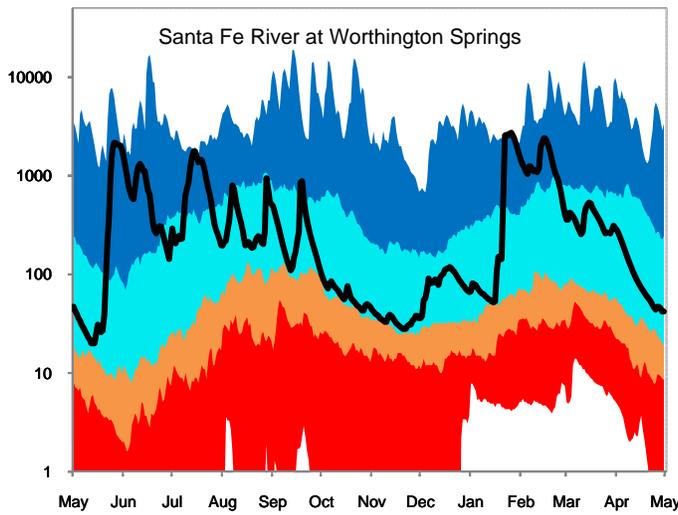
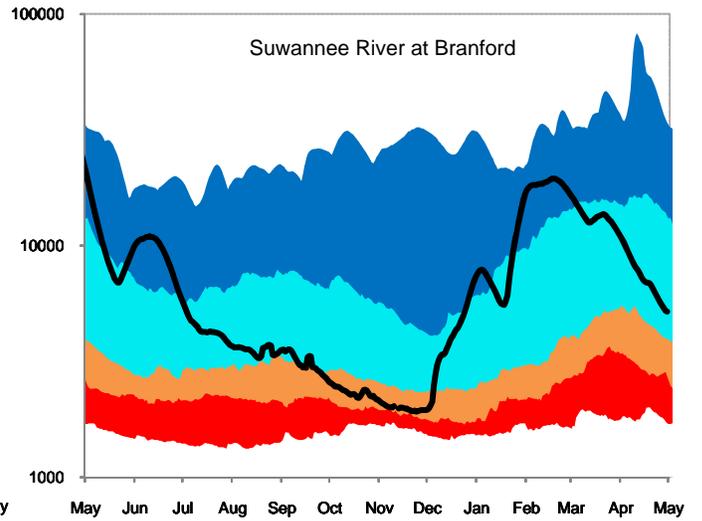
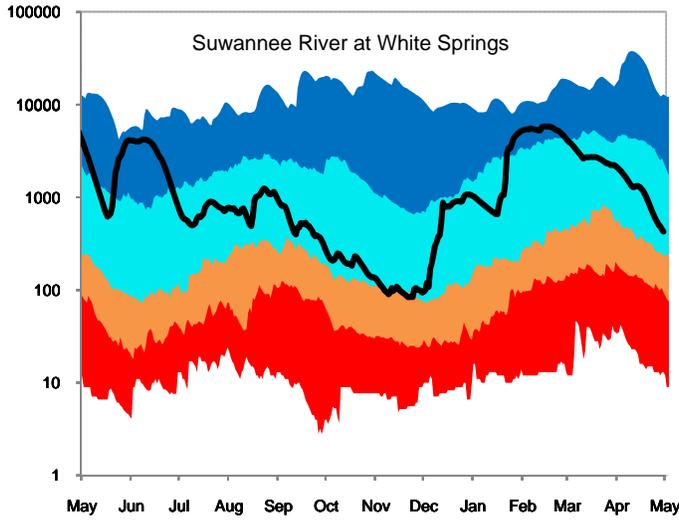
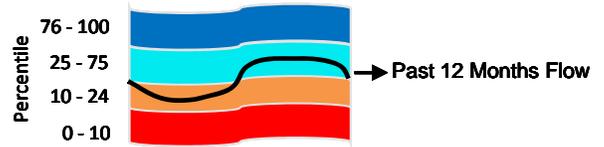


Figure 6: Daily River Flow Statistics

May 1, 2009 through April 30, 2010



RIVER FLOW, CUBIC FEET PER SECOND

Figure 7: April 2010 Streamflow Conditions

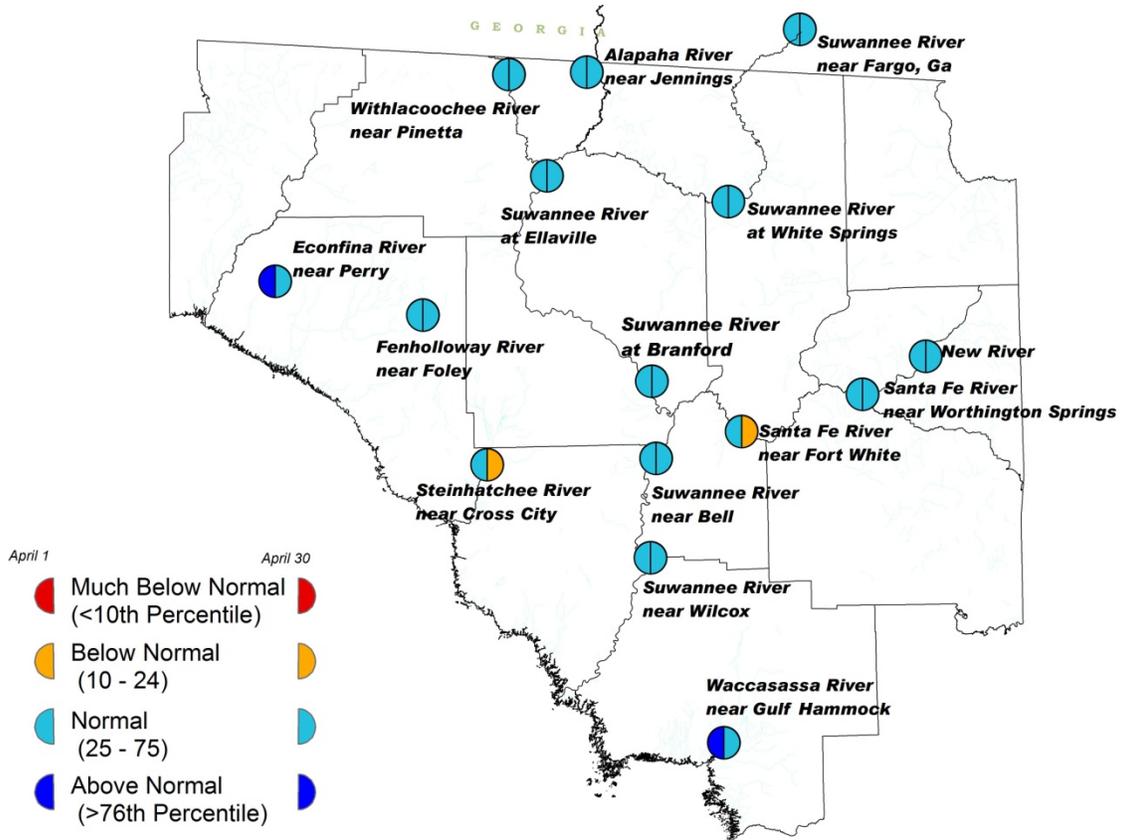
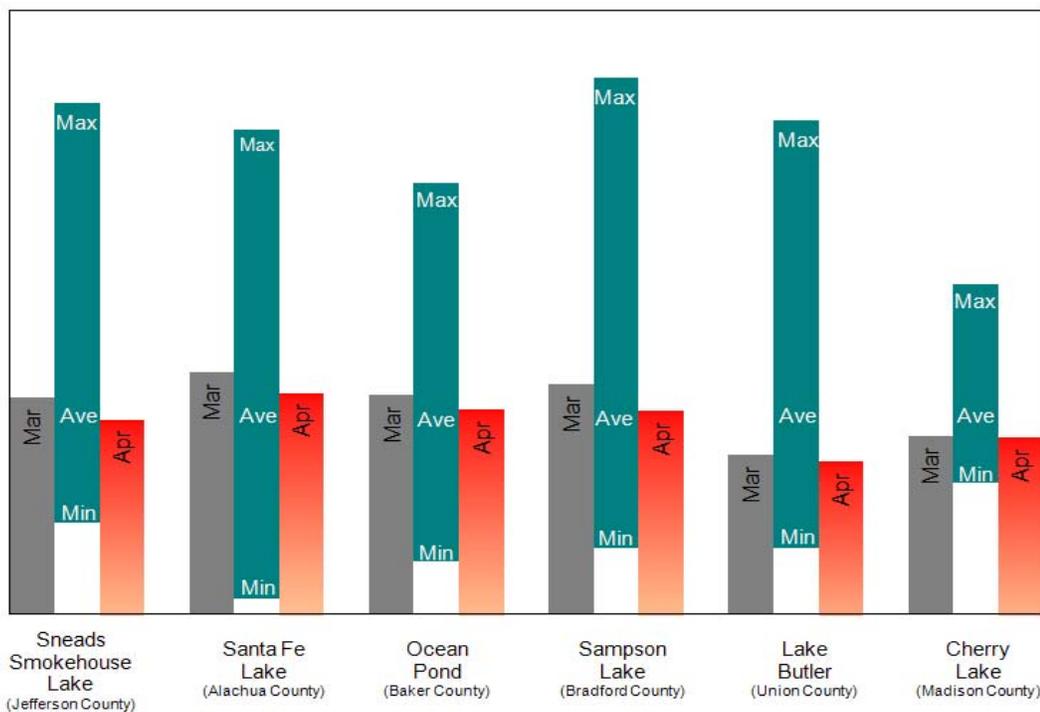


Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.



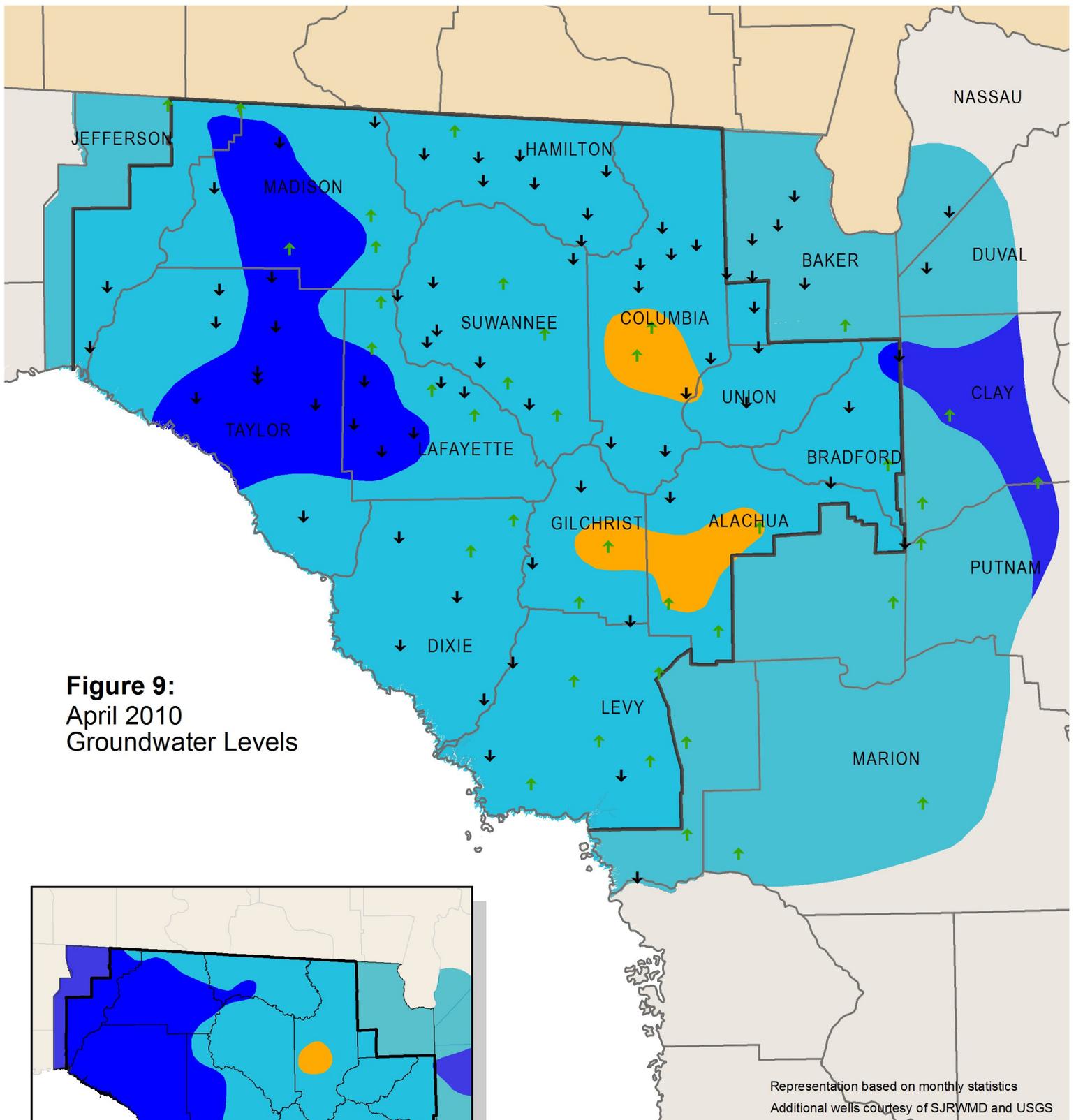


Figure 9:
 April 2010
 Groundwater Levels

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

Inset: March 2010 Groundwater Levels

Figure 10: Monthly Groundwater Level Statistics

Levels May 1, 2009 through April 30, 2010

Period of Record Beginning 1978

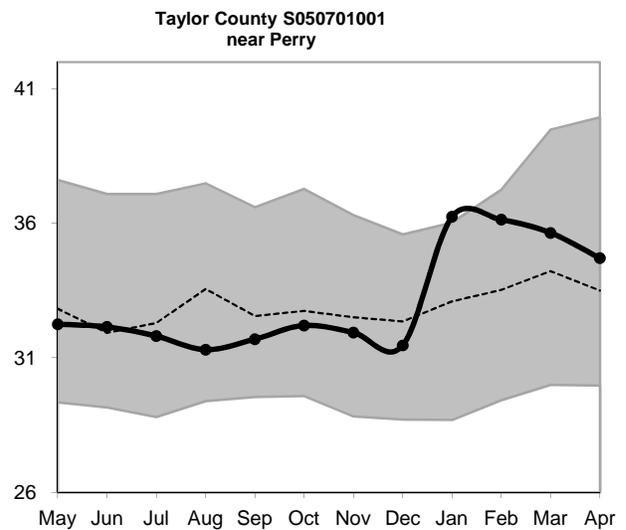
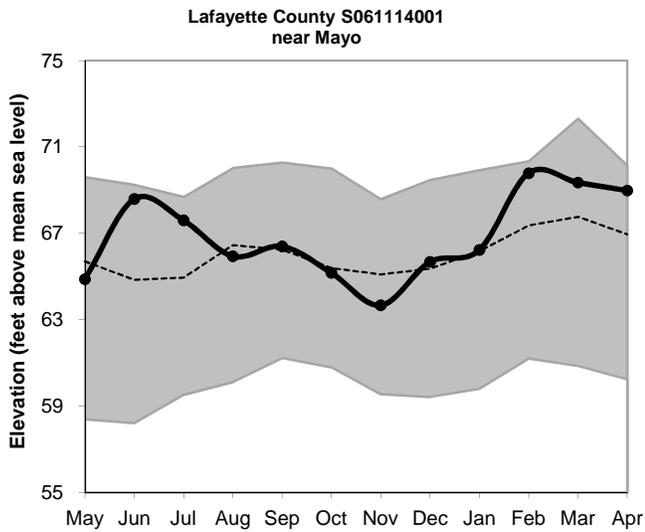
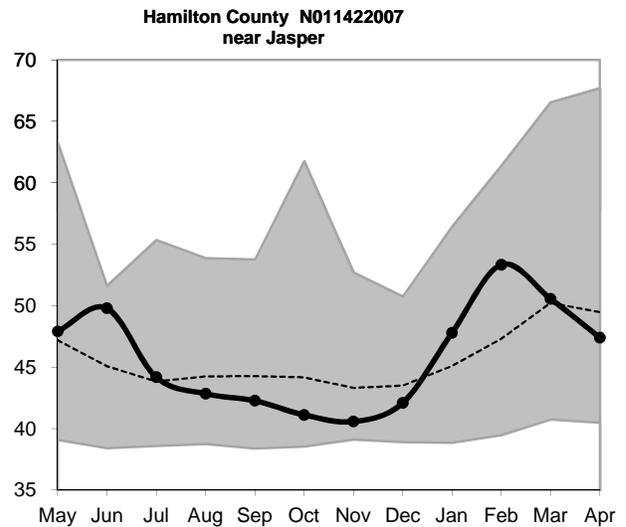
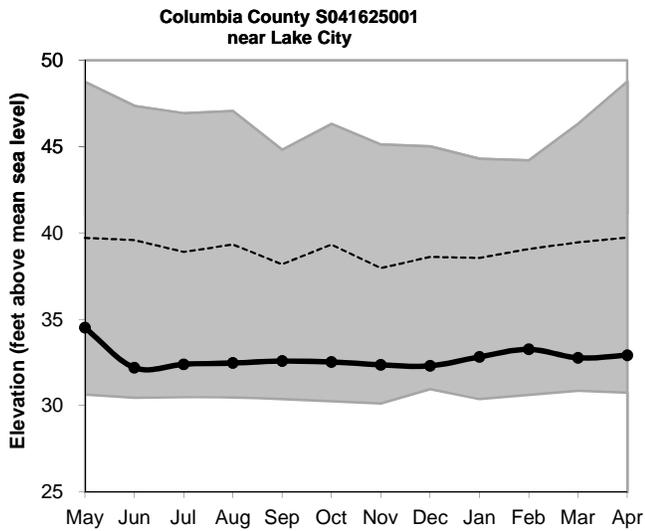
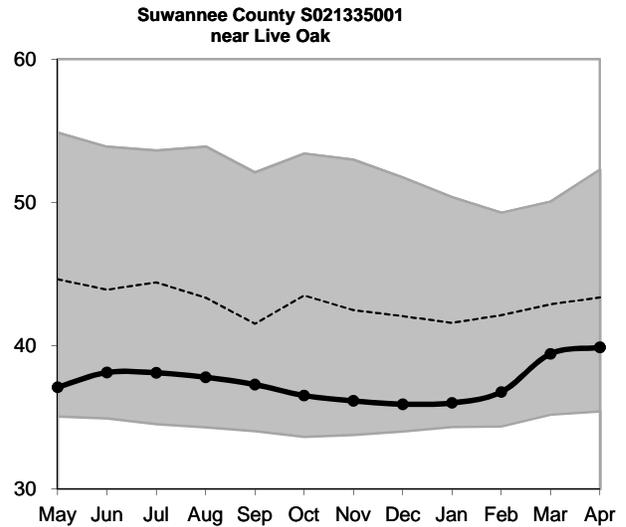
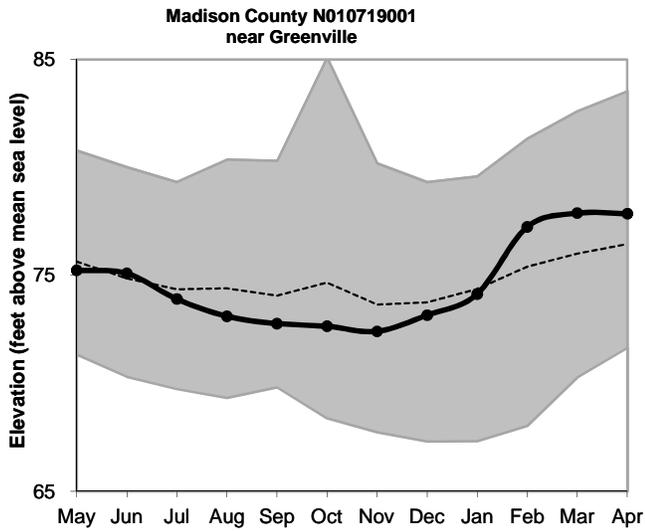


Figure 10, cont.: Monthly Groundwater Level Statistics
 Levels May 1, 2009 through April 30, 2010
 Period of Record Beginning 1978

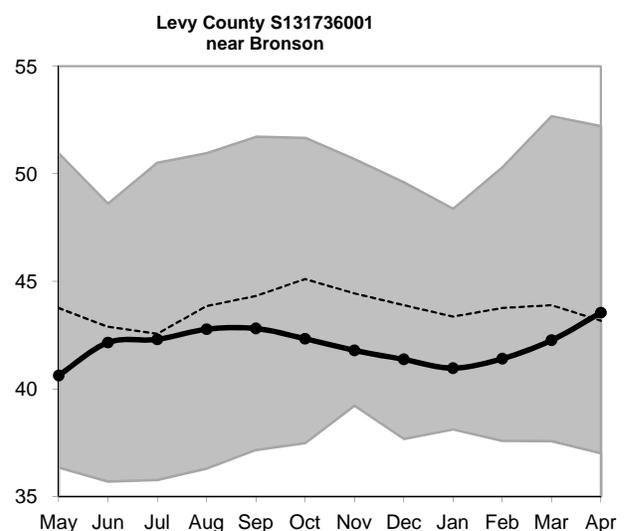
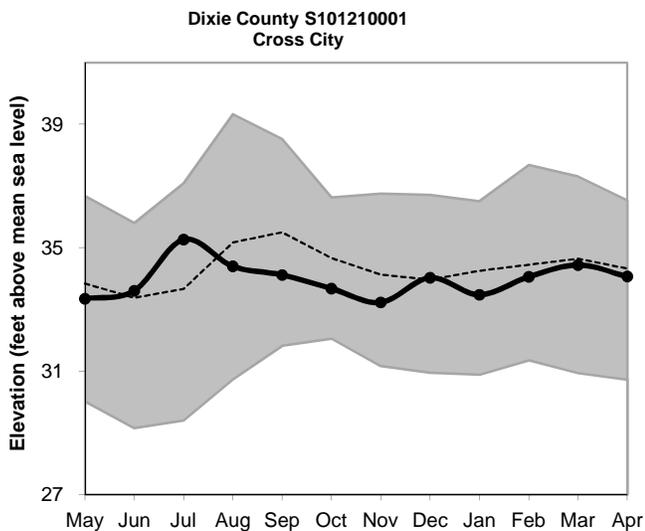
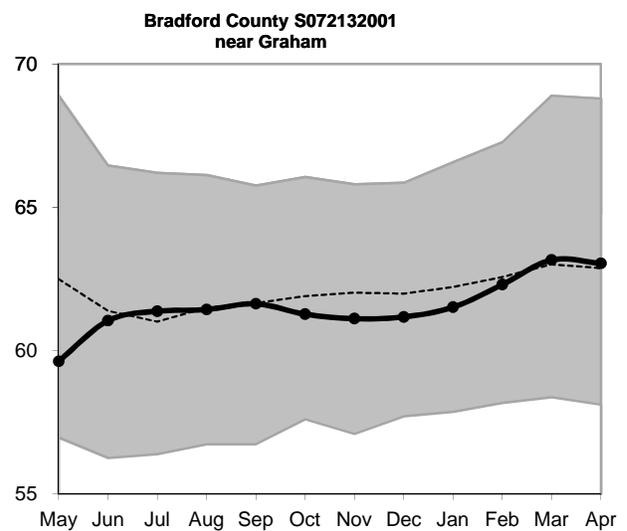
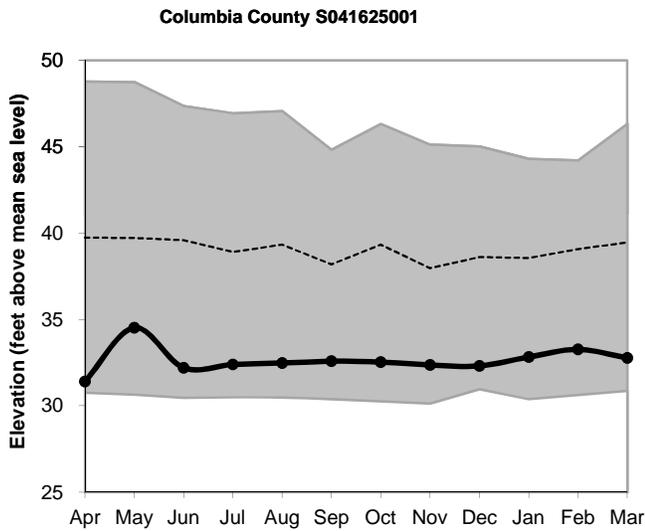
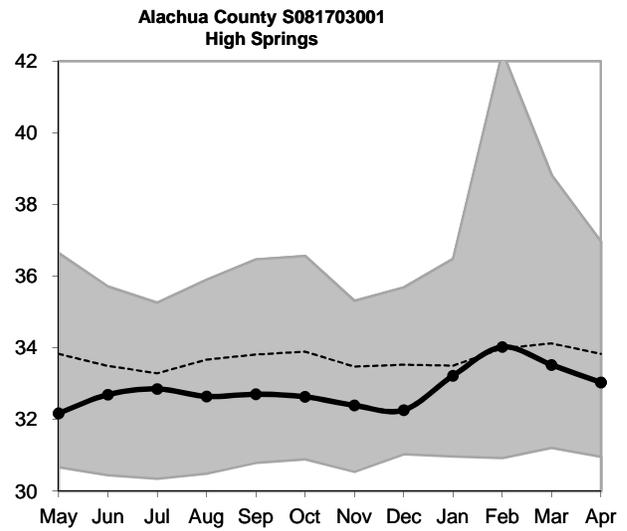
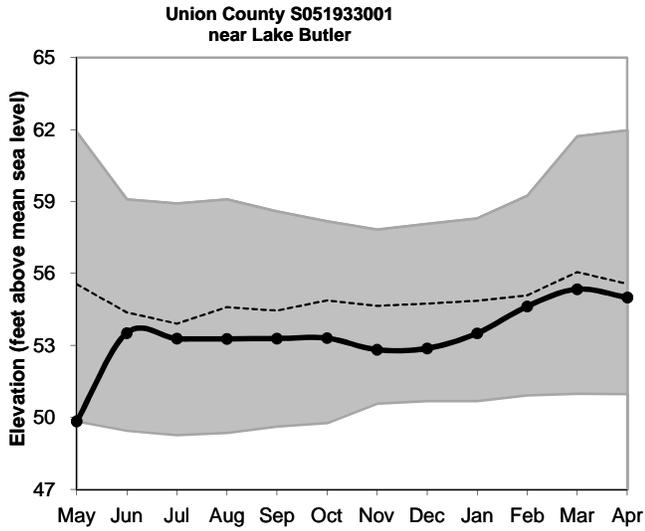
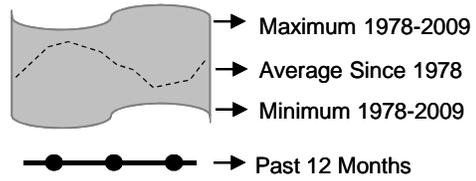
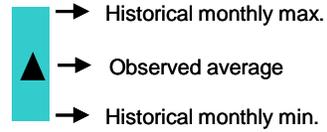


Figure 11: Monthly Springflow Statistics

Flows May 1, 2009 through April 30, 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.

