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: December 3, 2009

RE: November 2009 Hydrologic Conditions Report for the District

RAINFALL

- Average District rainfall in October was 2.00", which is 85% of the long-term monthly average of 2.36" (Table 1, Figure 1). November is historically the driest month of the year. Rainfall was above average in Levy County, while most of Union County saw less than half of its average rainfall. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal November precipitation.
- Rainfall for the past twelve months was 50.03", 91% of the long-term average of 54.68". The twelve-month deficit was 4.65". The deficit increased for the third month in a row. 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. Conditions in the middle and lower Suwannee Basin remained below normal throughout the month, but stations in the upper basin were normal. Flows were stable and normal in the upper Santa Fe Basin, but the Santa Fe near Fort White in the lower Santa Fe Basin remained 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 Waccasassa River, which had near-average flows, coastal rivers deteriorated to below-normal or extremely low conditions.
- **Lakes**: Levels at all monitored lakes fell in November, dropping by an average of 0.2 feet. Only 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.
- **Springs:** Average November flow relative to historical flows is shown for 5 spring systems in Figure 11.

GROUNDWATER

Groundwater levels decreased in 91% of the District's monitored wells, but 68% remained above the 25th percentile, in a range normal for November (Figure 9). Average groundwater levels dropped to the 33rd percentile from the 35th percentile in October. 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, with Hamilton and Suwannee Counties characterized as moderately dry.
- The U.S. Geological Survey categorized streamflow in the middle and lower Suwannee Basin as below normal.
- Long-term forecasts from the National Weather Service predict above-average precipitation through April due to ongoing 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 (114 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.

/dd

Table 1: Estimated Rainfall Totals

County	Nov-2009	Nov-2008	Last 12 Months	Nov Average
Alachua	1.98	1.66	48.87	2.35
Baker	1.14	1.83	49.79	2.22
Bradford	1.67	1.59	48.82	2.32
Columbia	1.53	1.59	47.44	2.44
Dixie	2.28	1.98	52.13	2.50
Gilchrist	2.11	1.77	49.10	2.72
Hamilton	1.33	2.31	46.48	2.72
Jefferson	2.77	4.06	54.30	3.44
Lafayette	1.70	1.84	52.58	2.78
Levy	3.39	1.83	51.62	2.55
Madison	2.14	3.49	52.96	3.12
Suwannee	1.59	1.99	47.58	2.53
Taylor	1.94	2.56	51.21	2.85
Union	0.98	1.57	44.94	2.55

November 2009 Average:	2.00
Historical November Average (since 1932):	2.36
Historical 12-month Average (since 1932):	54.68
Past 12-Month Total:	50.03
12-month Rainfall Deficit:	-4.65

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall

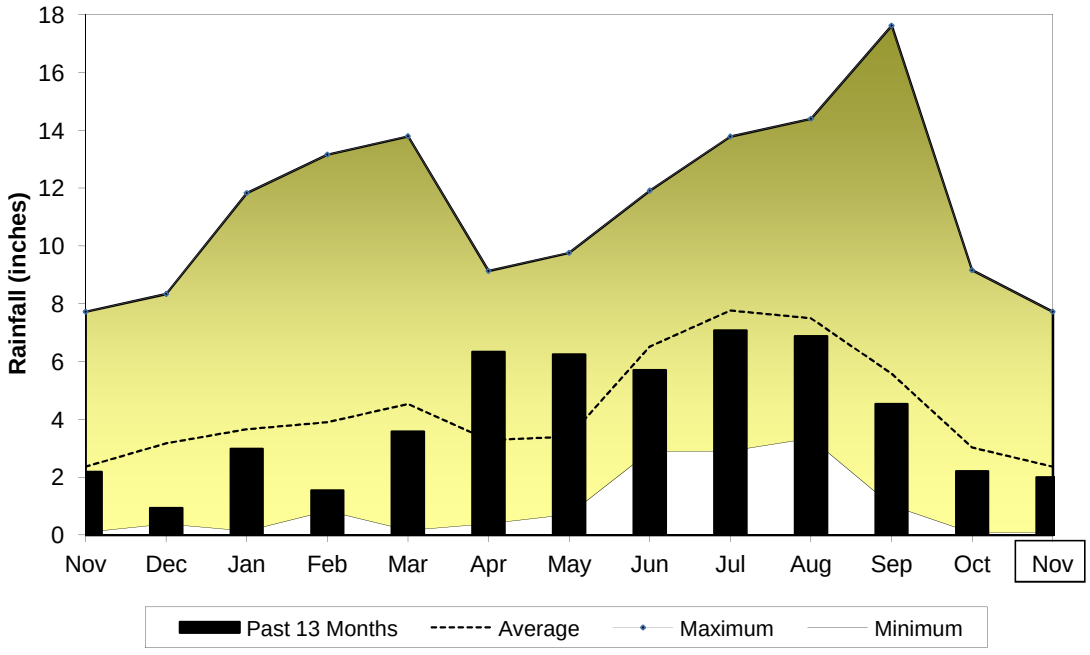


Figure 2: November 2009 Rainfall Estimate

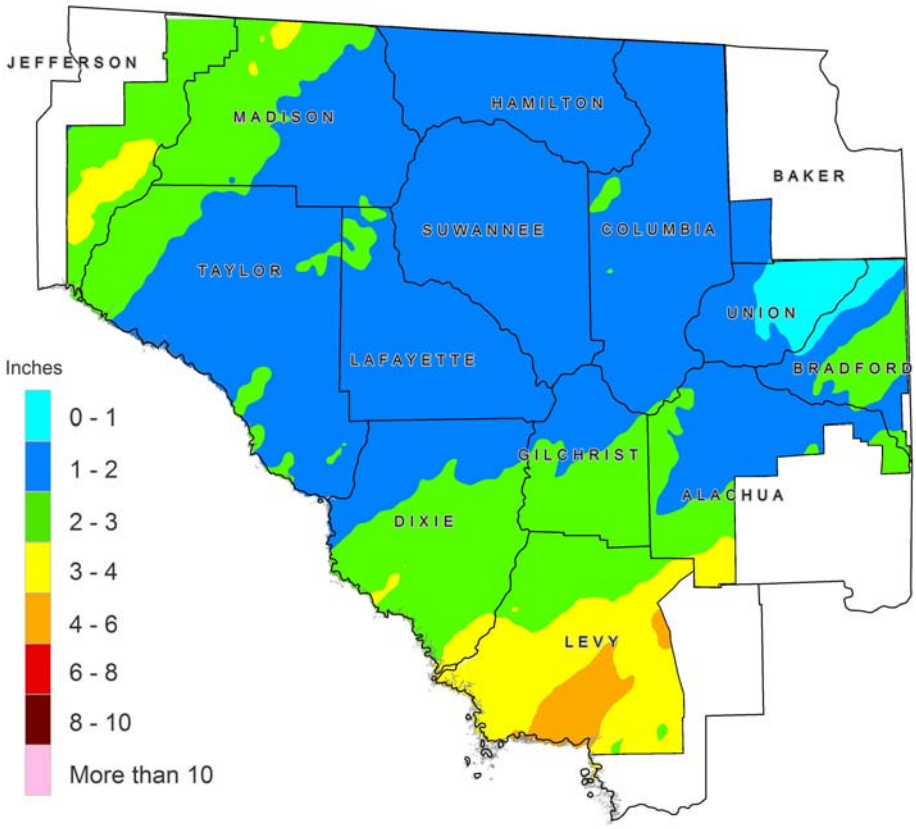


Figure 3: November 2009 Percent of Normal Rainfall

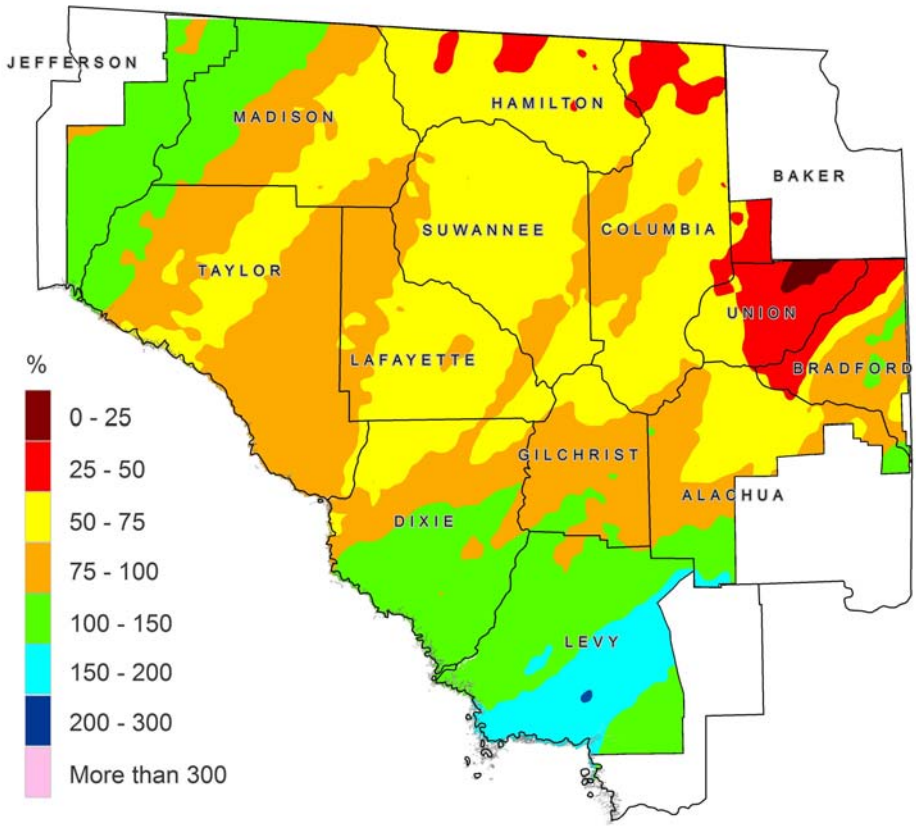


Figure 4: November 2009 Rainfall Surplus/Deficit

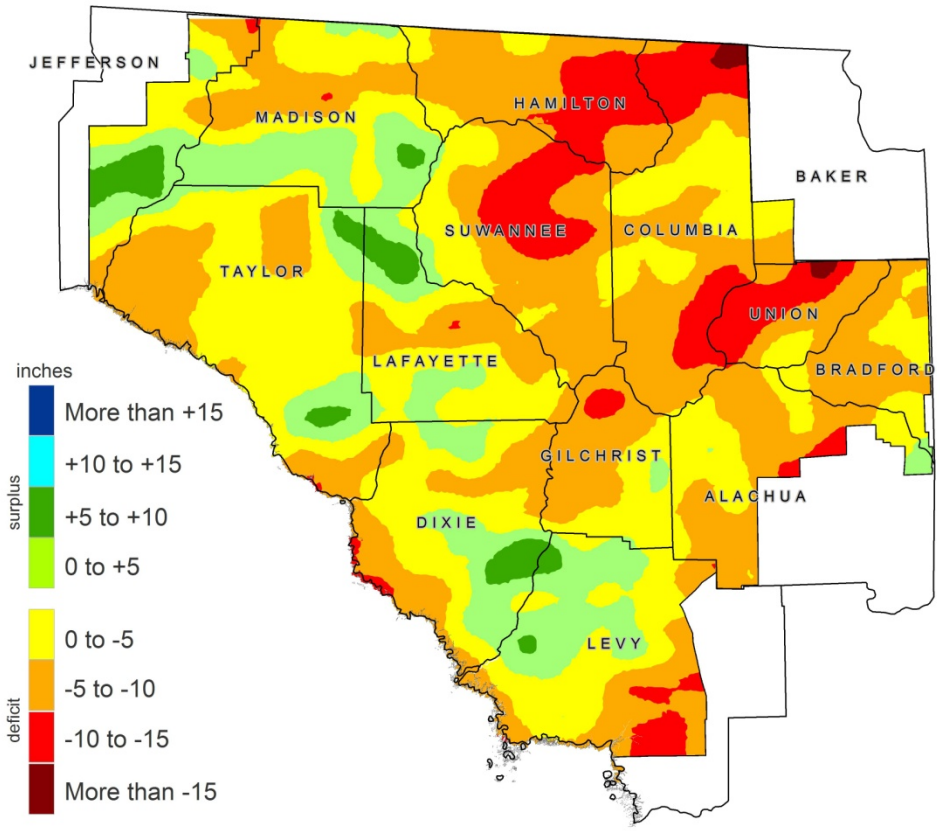


Figure 5: 12-month Rolling Rainfall Deficit Since 1998

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

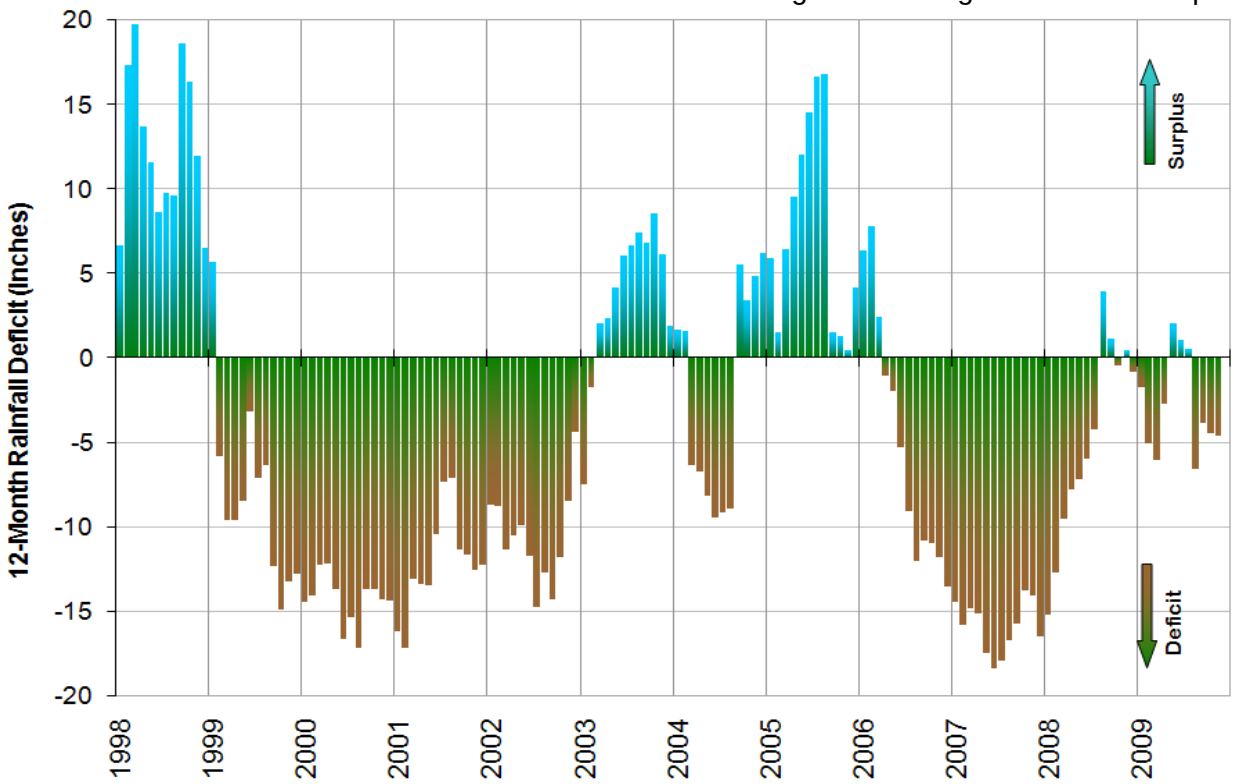
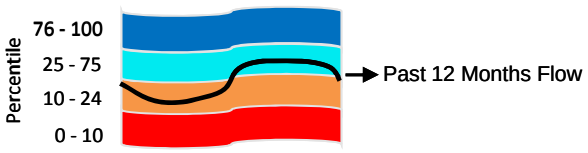
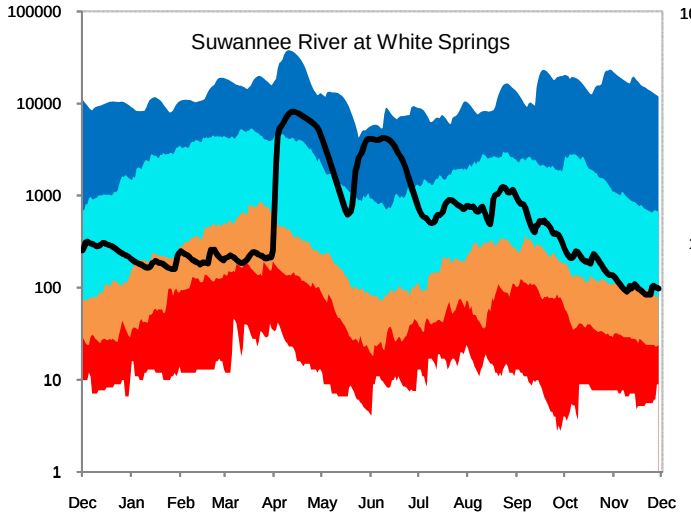


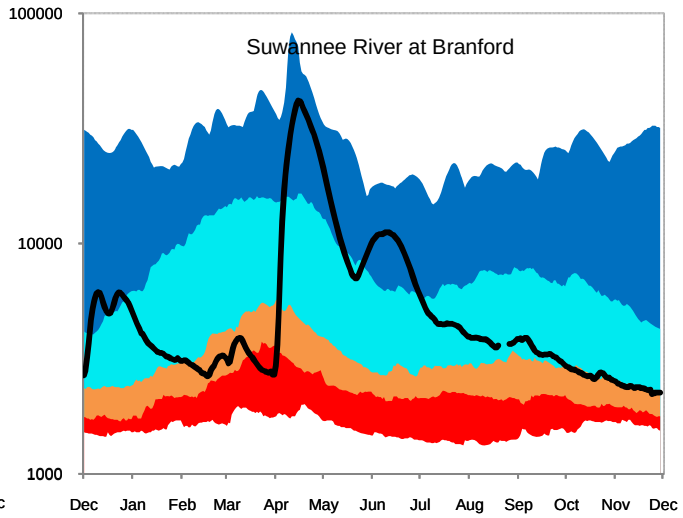
Figure 6: Daily River Flow Statistics

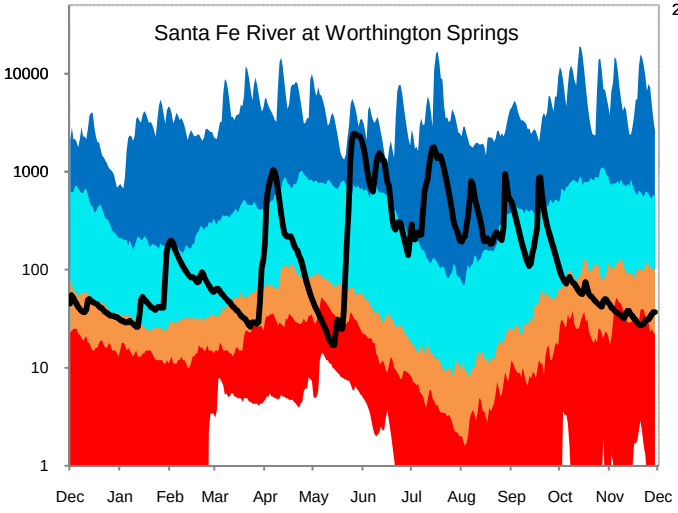
December 1, 2008 through November 30, 2009

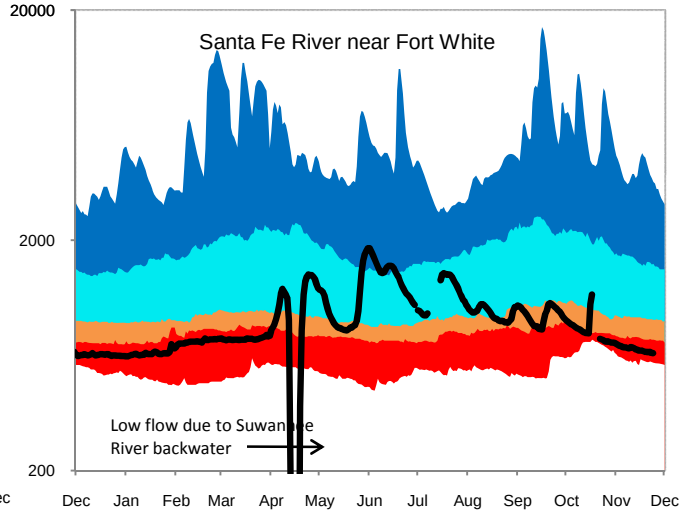


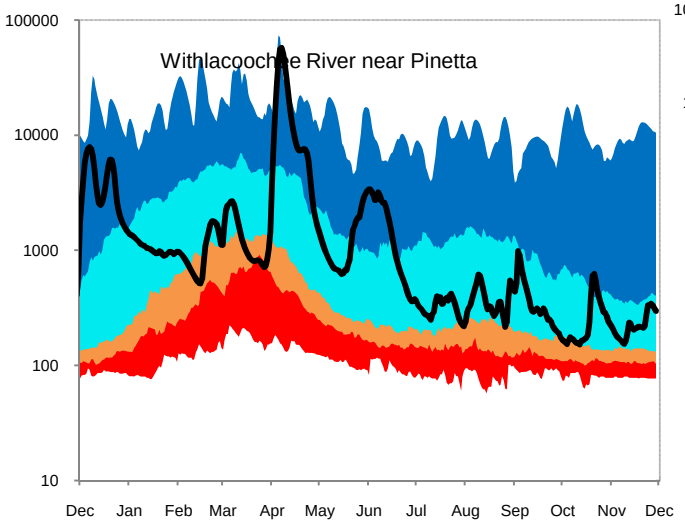
RIVER FLOW, CUBIC FEET PER SECOND











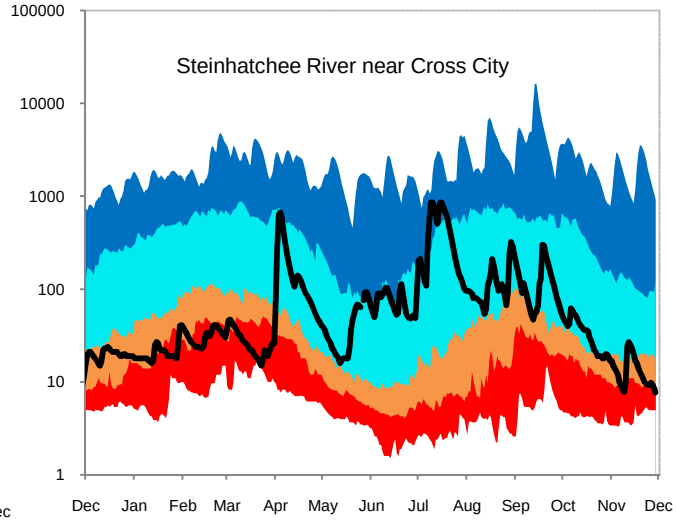


Figure 7: November Streamflow Conditions

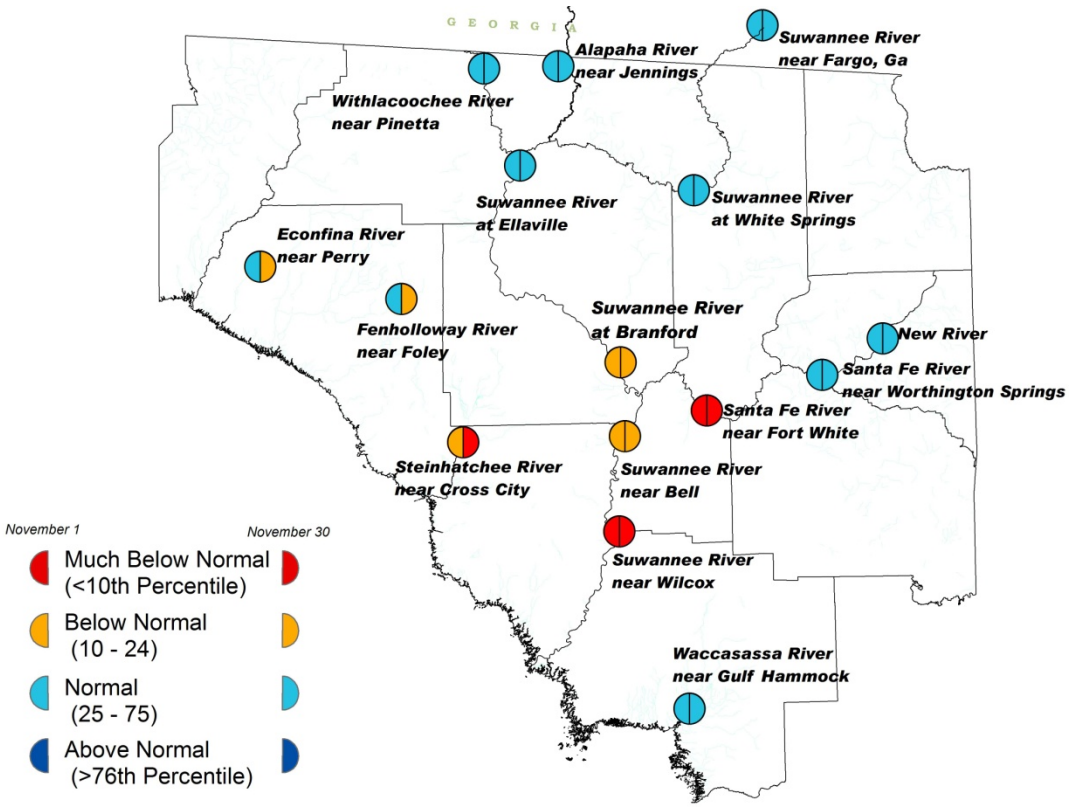
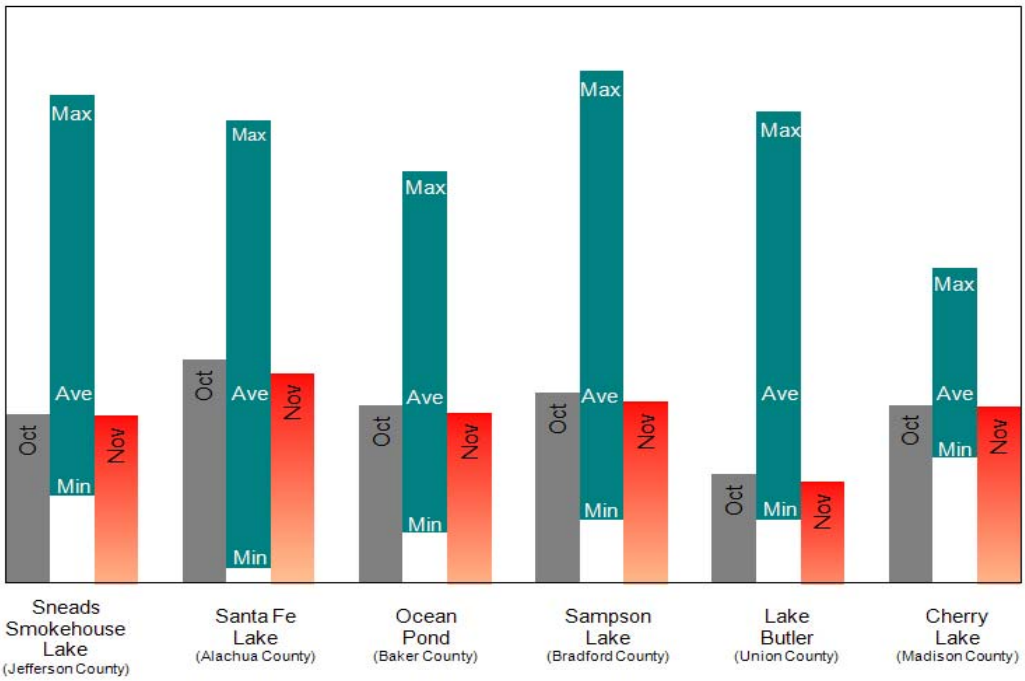


Figure 8: Lake levels, relative to historic maximum, minimum, and average levels.



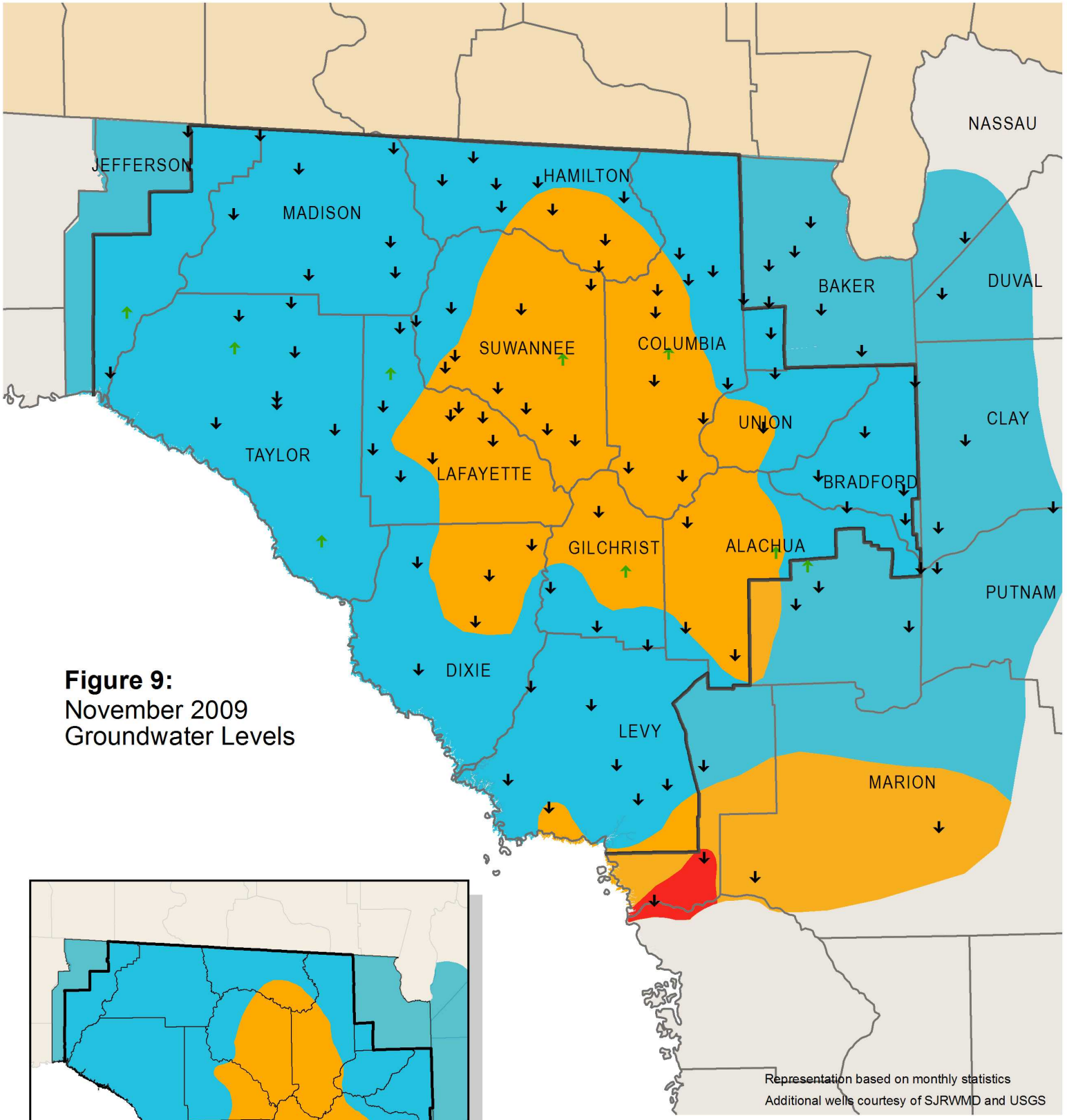
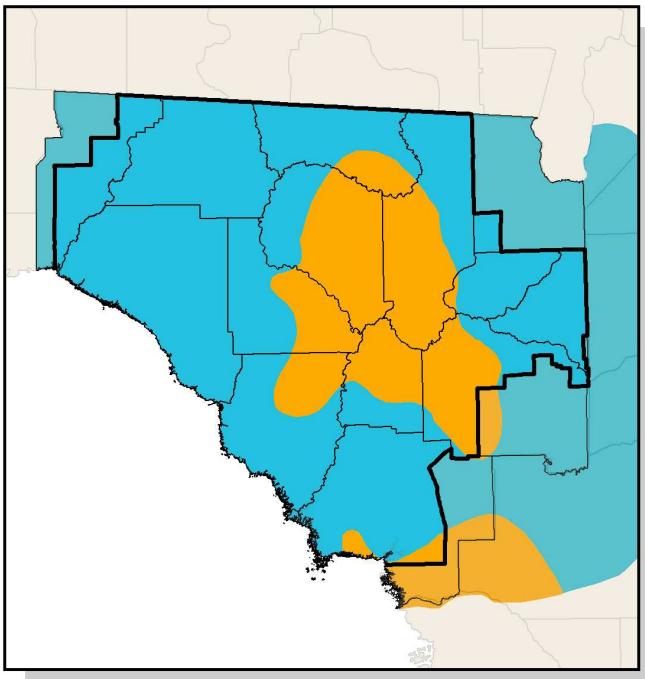


Figure 9:
November 2009
Groundwater Levels

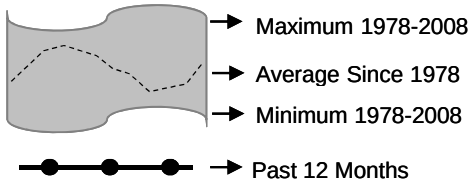


Inset: October 2009 Groundwater Levels

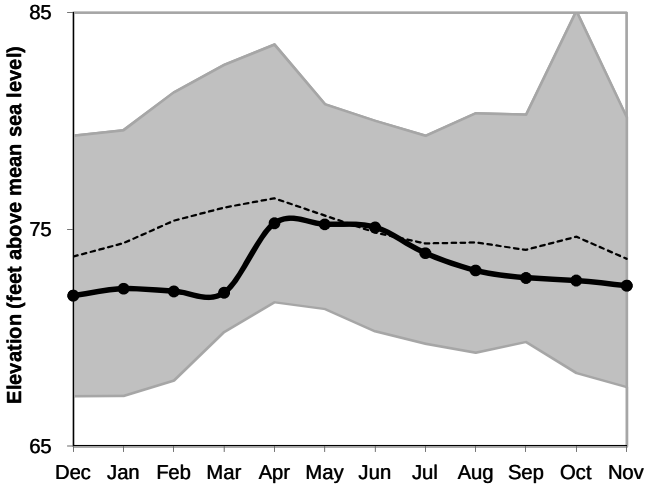
Figure 10: Monthly Groundwater Level Statistics

Levels December 1, 2008 through November 30, 2009

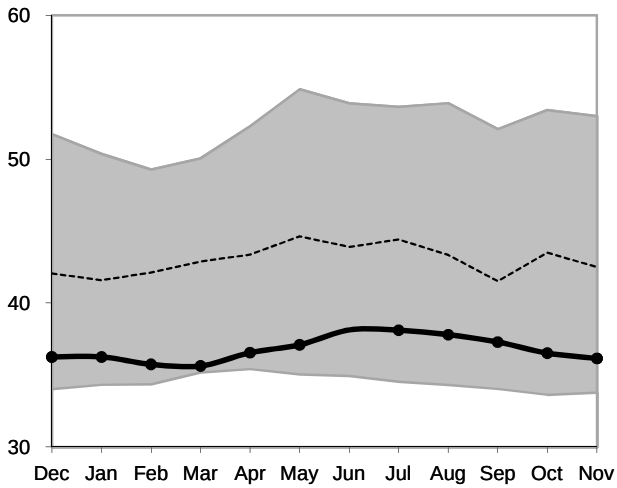
Period of Record Beginning 1978



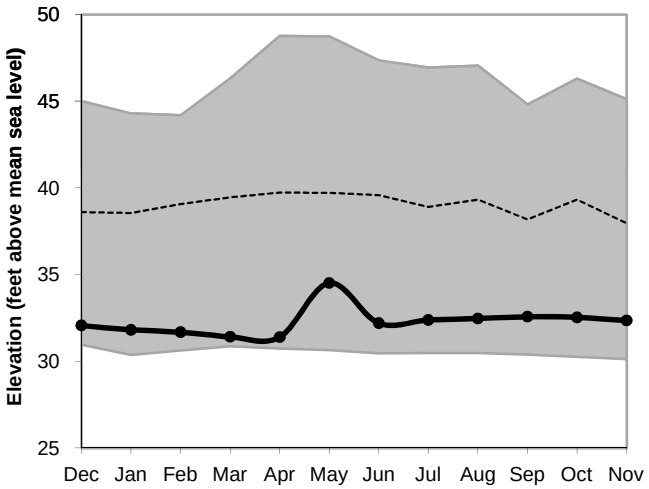
Madison County N010719001



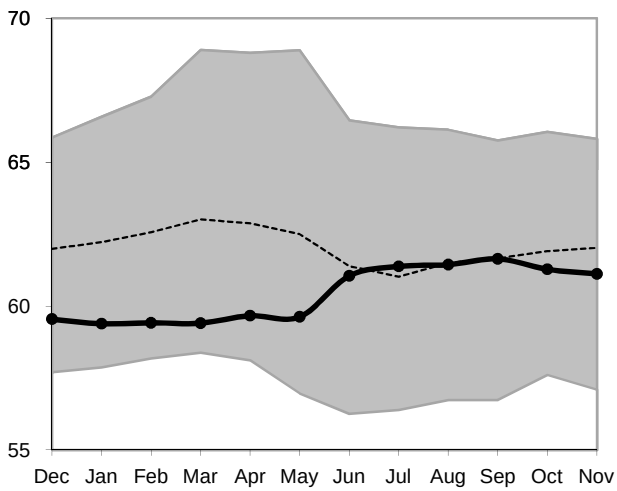
Suwannee County S021335001



Columbia County S041625001



Bradford County S072132001



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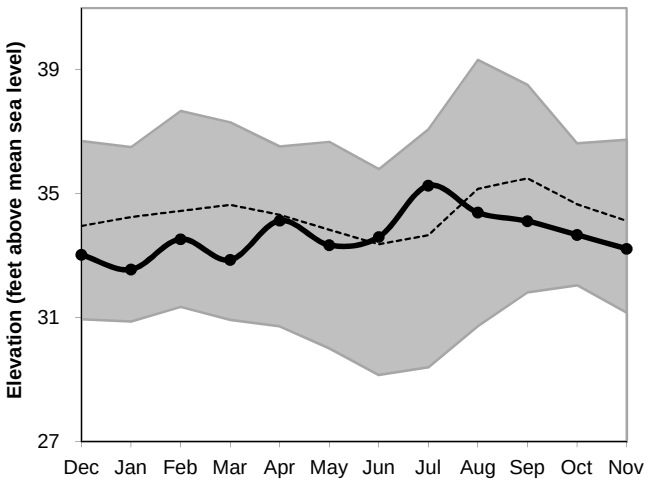


Taylor County S050701001

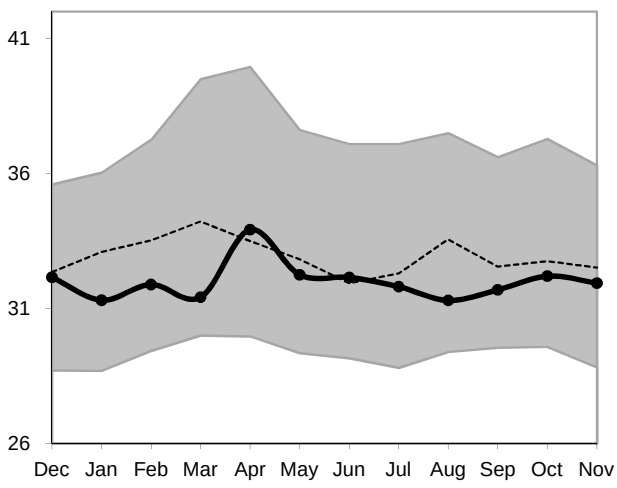
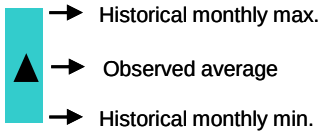
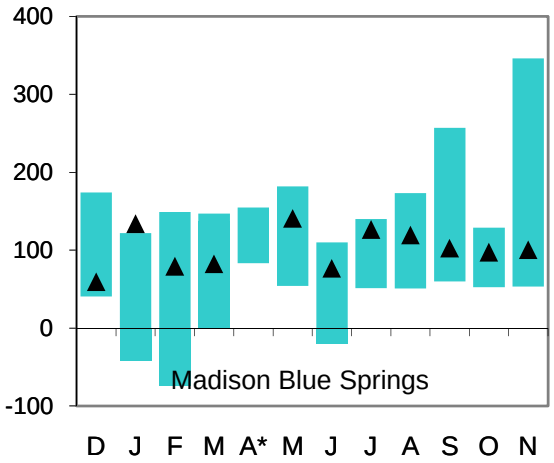


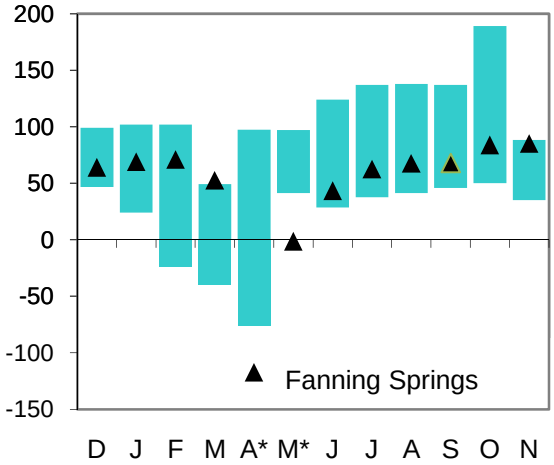
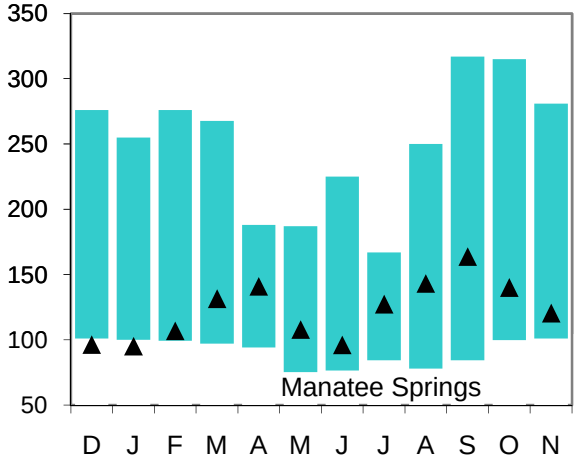
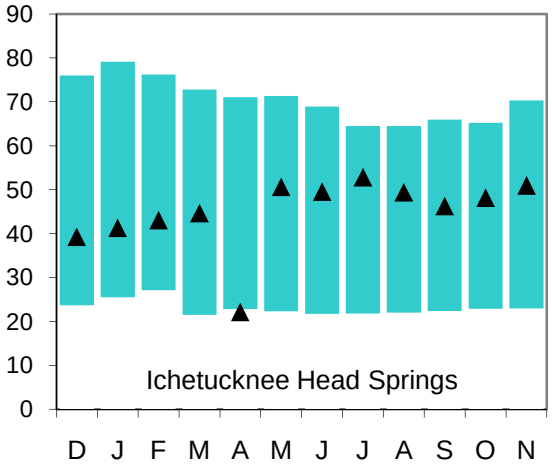
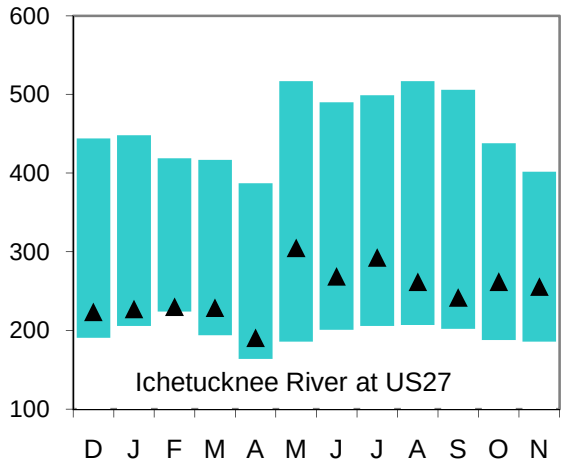
Figure 11: Monthly Springflow Statistics

Flows December 1, 2008 through November 30, 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.