

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: January 7, 2009

RE: December 2008 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 (94 wells), surfacewater levels (16 lakes and 11 rivers), river flows (6 stations on 4 rivers), spring flows (6 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 December was 0.94", which is below the long-term monthly average of 3.17" (Table 1, Figure 1). Western counties received up to 2" locally, but the District as a whole received less than half of normal rainfall for December. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal December rainfall.
- The average 12-month departure from normal rainfall was a deficit of 0.80". Figure 4 depicts the 12-month surplus/deficit across the District. Figure 5 shows the change in annual deficits beginning in 1998. The District's 24-month deficit was 17.3".

SURFACEWATER

- **Rivers:** Flow at most stations on the Suwannee River remained above average, although the Suwannee River at White Springs fell to below normal by the end of the month (Figure 6). Above-average flows were the result of excess rain in southern Georgia in November and early December, causing both the Withlacoochee and Alapaha rivers to rise to

their highest levels since March. With the exception of the Econfina River, the coastal rivers remained below normal. The Santa Fe River near Fort White, in the lower Santa Fe River, remained below record monthly low flows for the third month in a row, while the upper Santa Fe dropped to below normal. Discharge statistics for six river stations are presented in Figure 8.

- **Lakes:** Levels in 16 monitored lakes remained static, dropping by an average of only 0.5". These lakes remained below their long-term average levels, but no record low levels were observed. Figure 7 shows lake levels relative to the long-term average, minimum, and maximum levels for six lakes.
- **Springs:** Spring flows in 4 systems (Figure 9) declined slightly since last month.

GROUNDWATER

- Groundwater levels decreased in 54% of the District's monitored wells, but the average change in level was an increase of 0.18 feet (Figure 10). Many wells in the middle and upper Suwannee River basin increased as river levels rose. Sixty-five percent of the levels were above the 25th percentile (normal range), compared to 55% last month. (The percentile is the percentage of levels that are equal to or below the observed value.) No record lows were observed. Monthly statistics for a representative sample of wells are shown in Figure 11.

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 dry conditions.
- As characterized by the US Geological Survey based on seven-day average streamflow, the Coastal Rivers basins (Aucilla, Econfina, Steinhatchee, and Waccasassa rivers) are in moderate hydrologic drought. The Suwannee River basin is normal.
- Long-range outlooks from the National Weather Service Climate Prediction Center show drought development is likely through March, and that below-normal precipitation is likely through April.

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

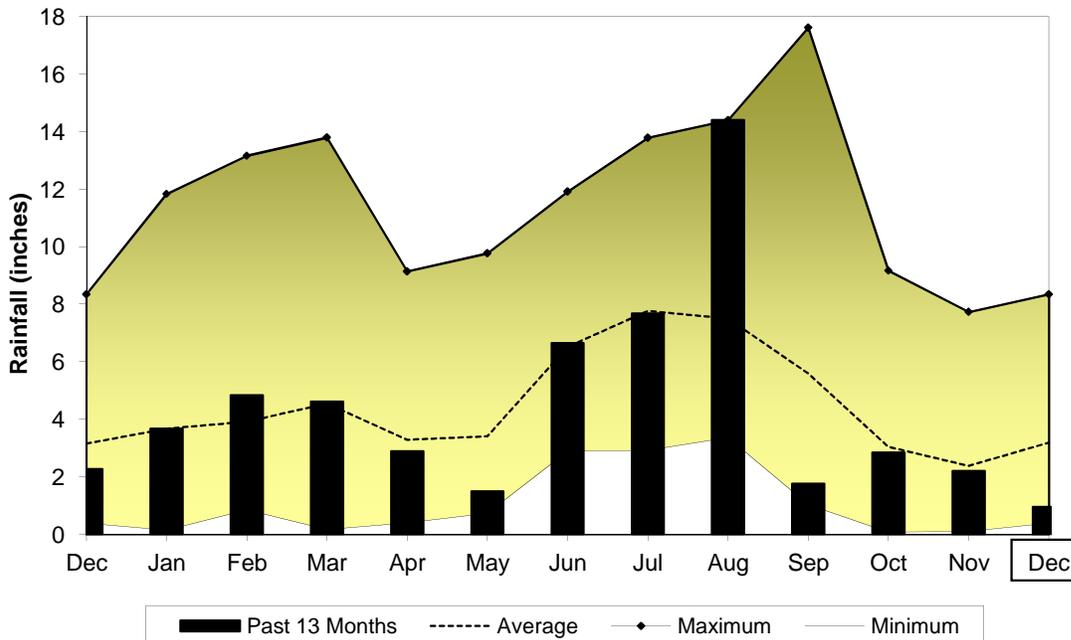
Table 1. Estimated Rainfall Totals

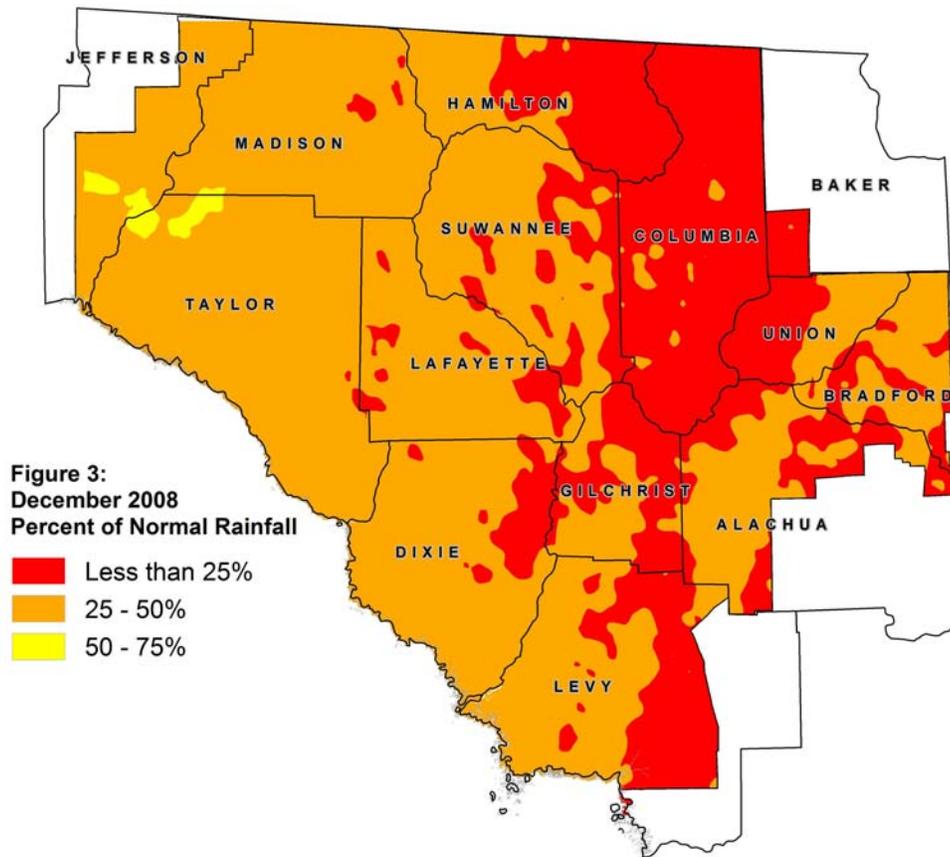
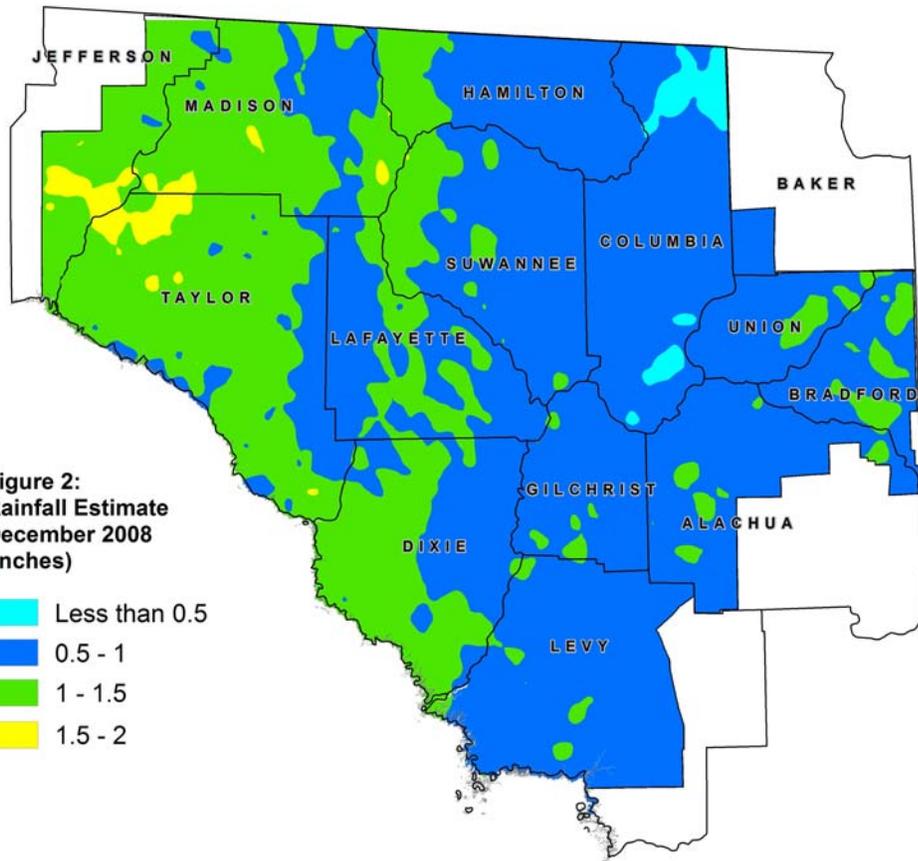
County	Dec-2008	Dec-2007	Last 12 Months	December Average
Alachua	0.84	2.18	49.51	2.77
Baker	0.71	3.47	55.89	2.77
Bradford	0.91	1.88	50.02	2.95
Columbia	0.63	2.21	52.31	3.08
Dixie	1.03	2.91	55.85	3.17
Gilchrist	0.81	2.75	51.53	3.07
Hamilton	0.81	1.58	52.36	2.98
Jefferson	1.29	2.23	56.65	4.25
Lafayette	0.93	2.20	57.10	3.33
Levy	0.83	2.46	55.83	3.18
Madison	1.14	2.29	60.34	3.79
Suwannee	0.91	1.89	57.20	2.79
Taylor	1.15	1.97	55.50	3.39
Union	0.80	2.90	47.94	2.86

December 2008 Average: 0.94
 Historical December Average: 3.17
 Historical 12-month Average: 54.68
 Past 12-Month Total: 53.88
 12-month Rainfall Deficit: -0.80

(Rainfall reported in inches)

Figure 1: Comparison of District Monthly Rainfall





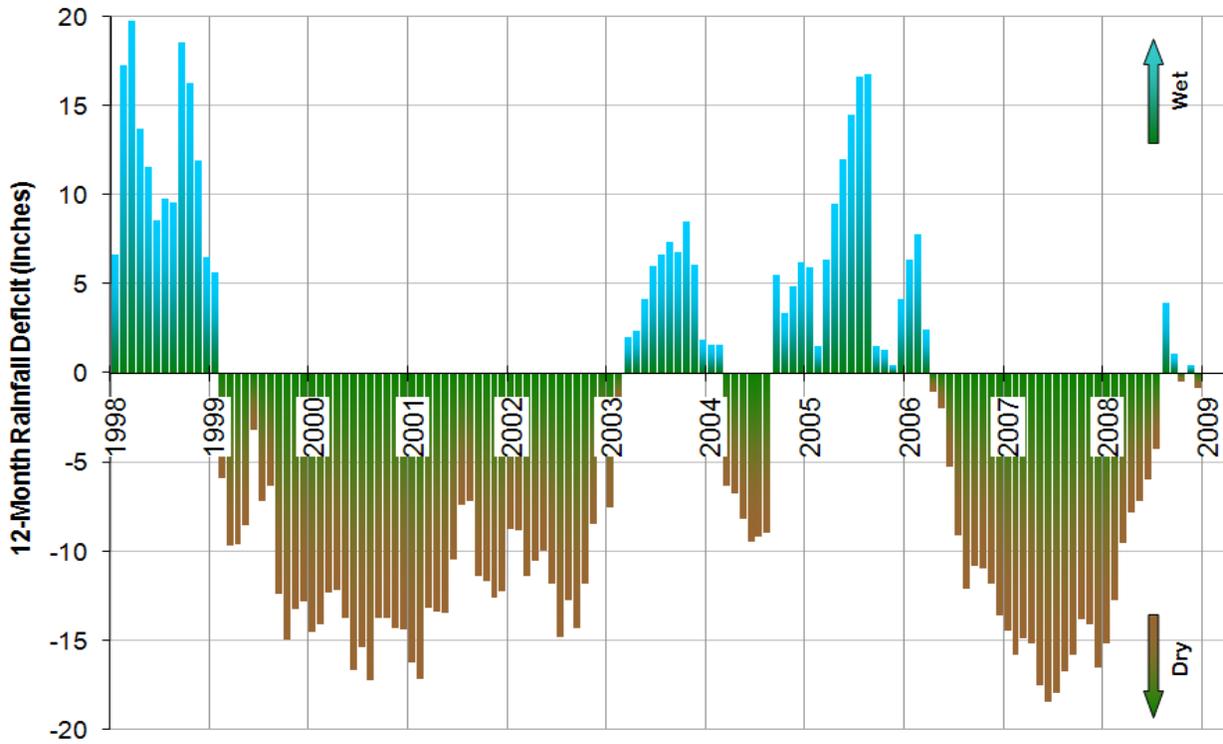
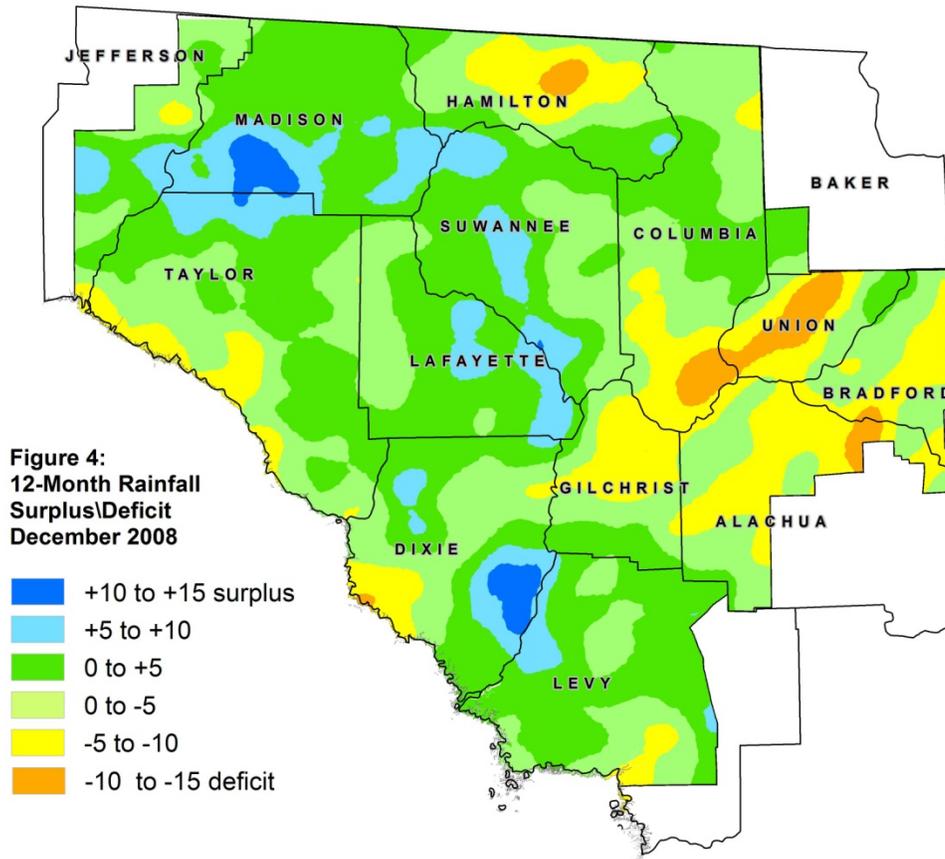


Figure 5: 12-month rolling rainfall deficit (difference between the rainfall that fell during any 12-month period and the long-term average expected over the same period, January 1998-December 2008)

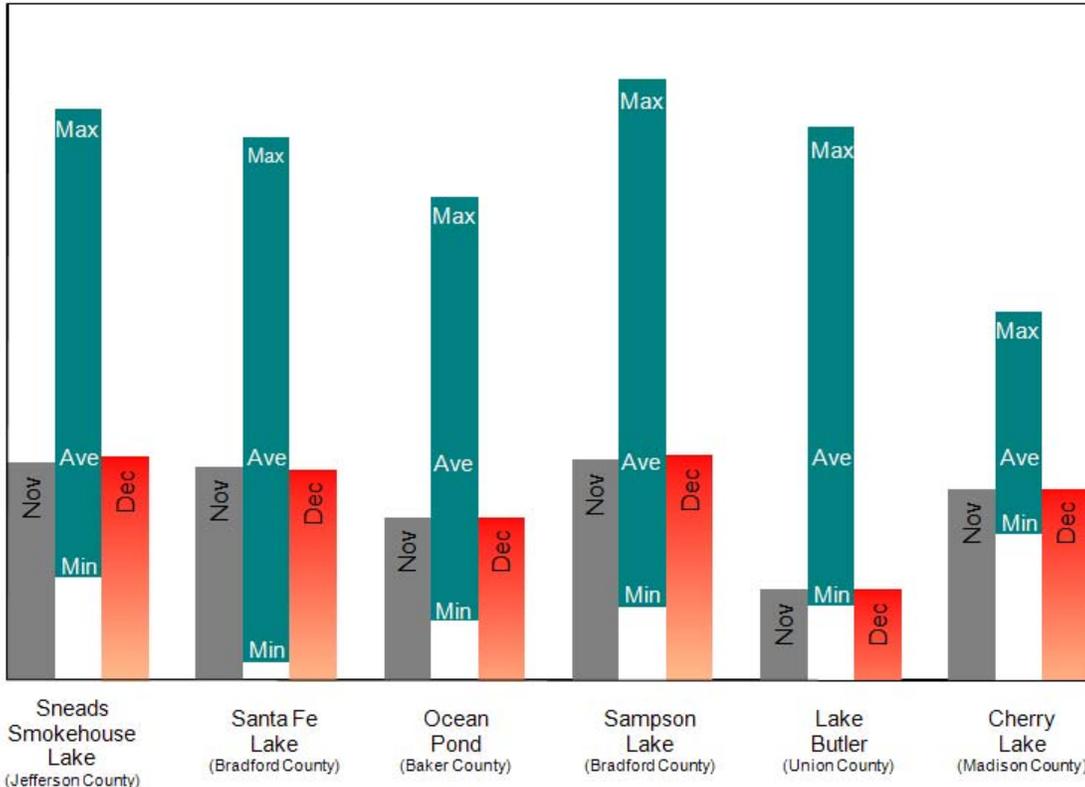
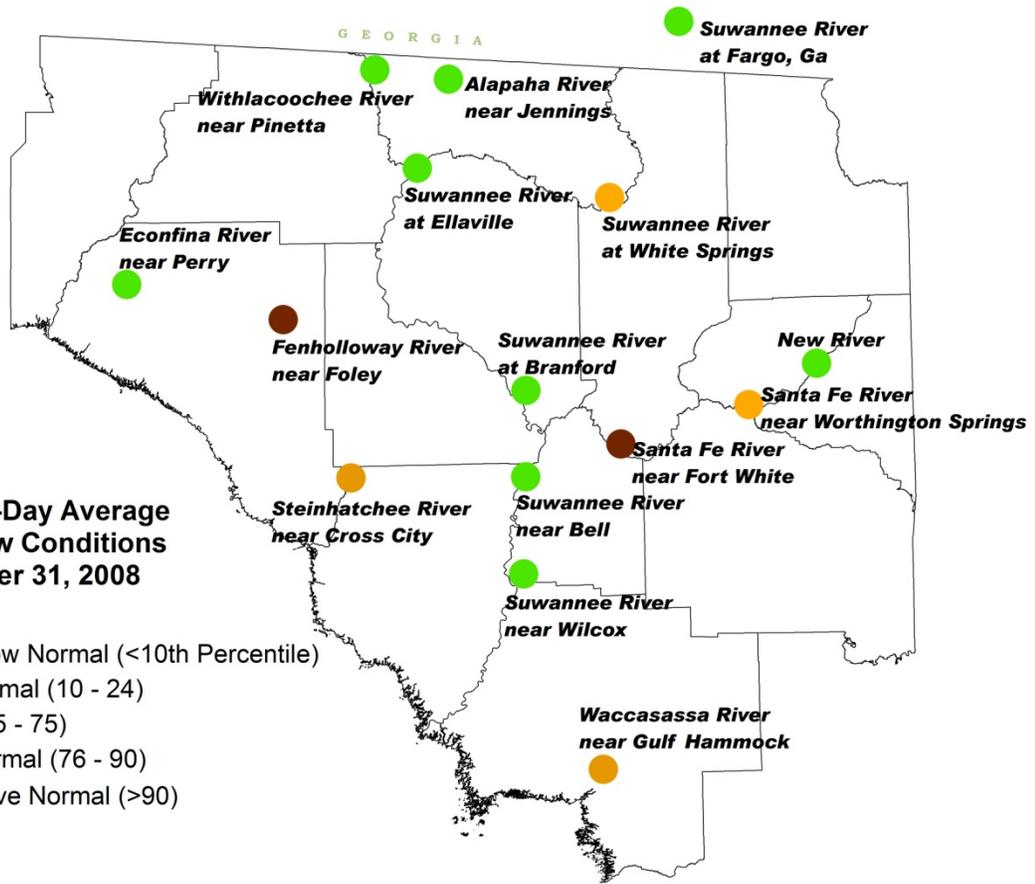
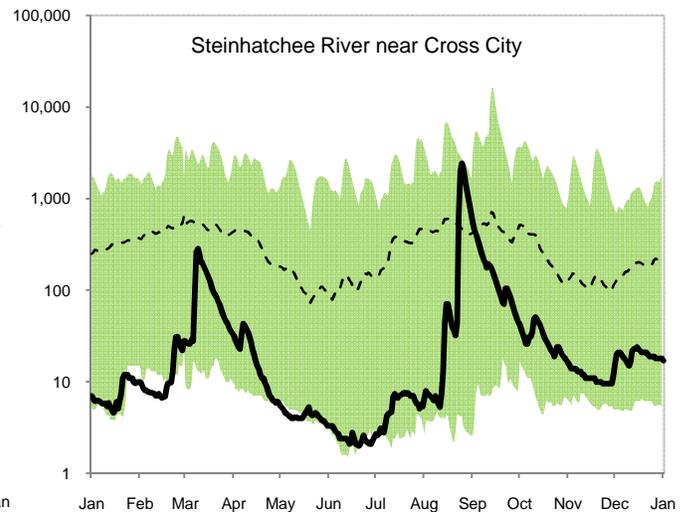
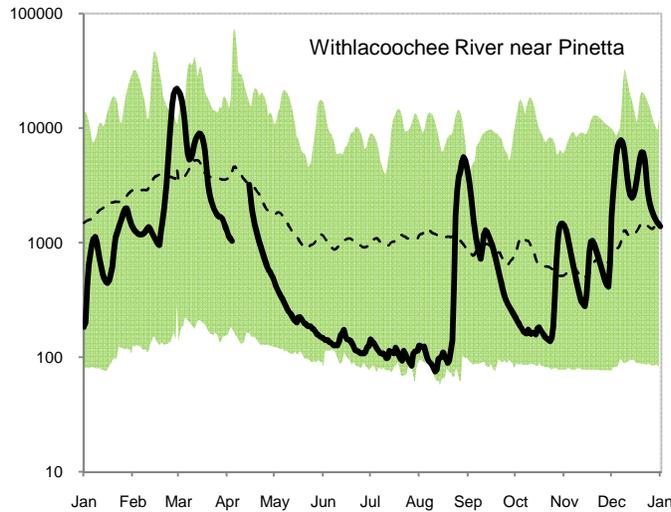
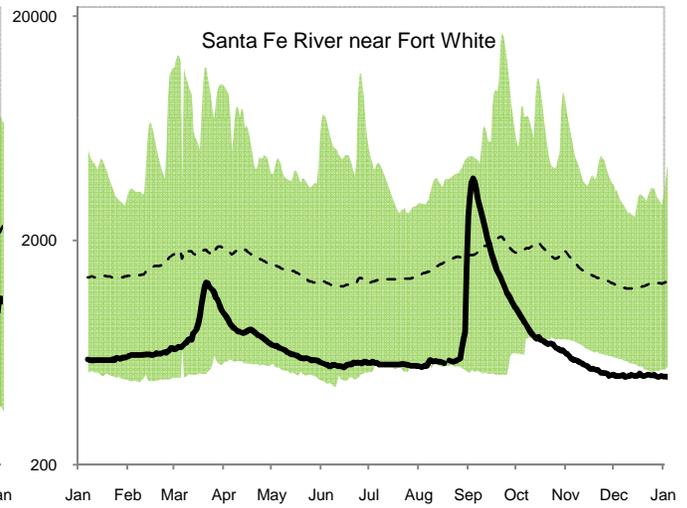
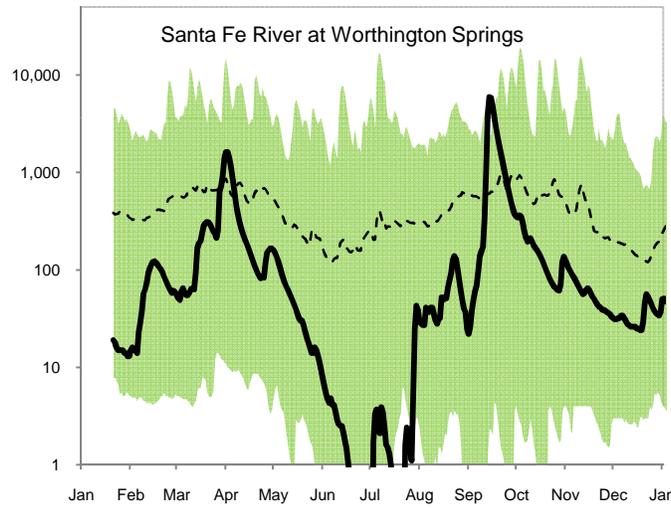
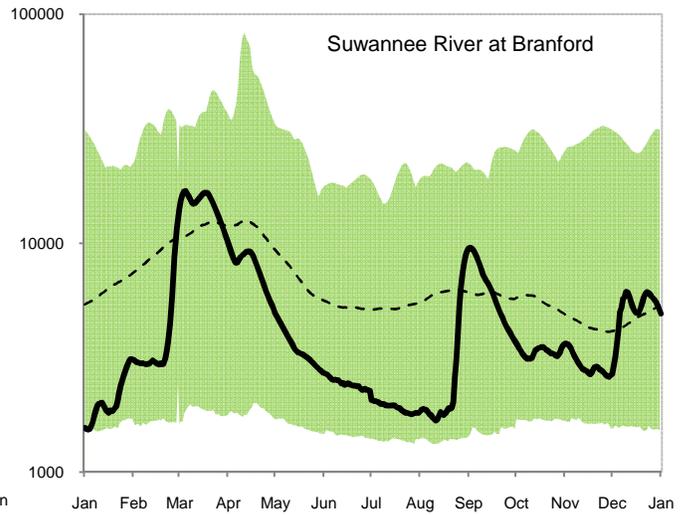
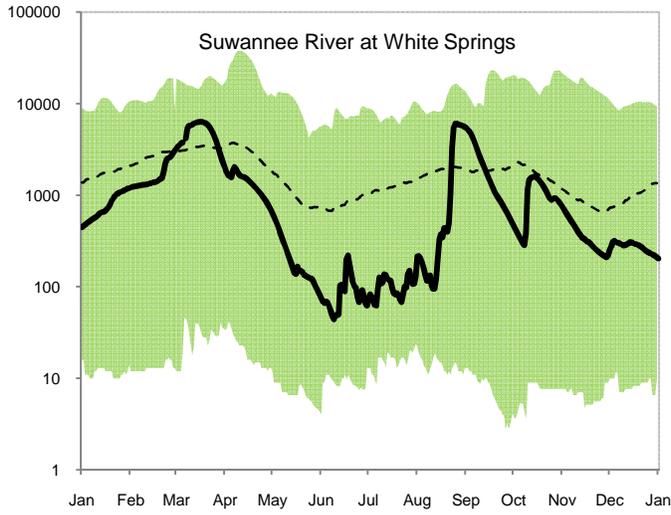
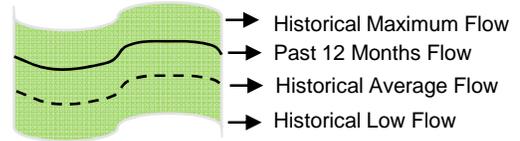


Figure 7: Lake levels, relative to historic maximum, minimum, and average levels.

Figure 8: Daily River Flow Statistics

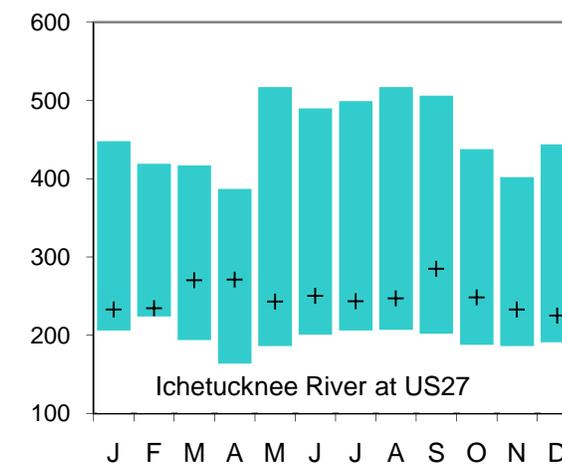
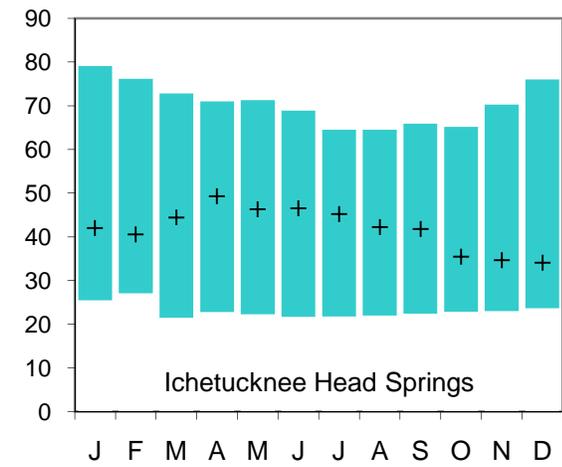
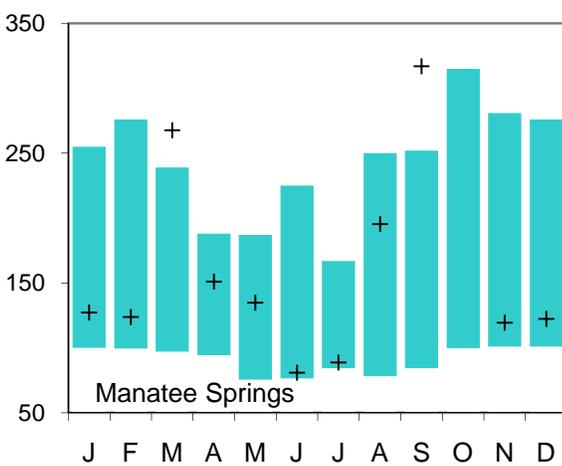
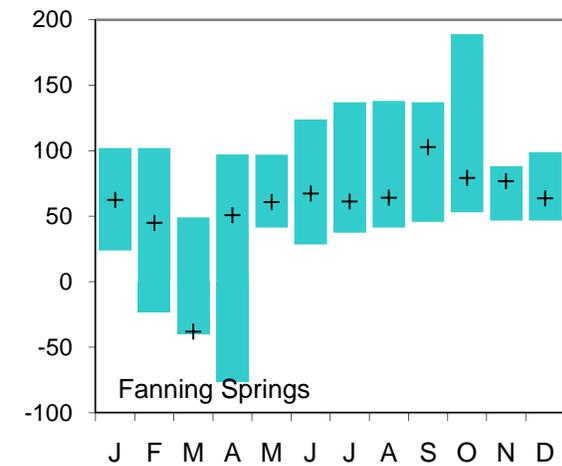
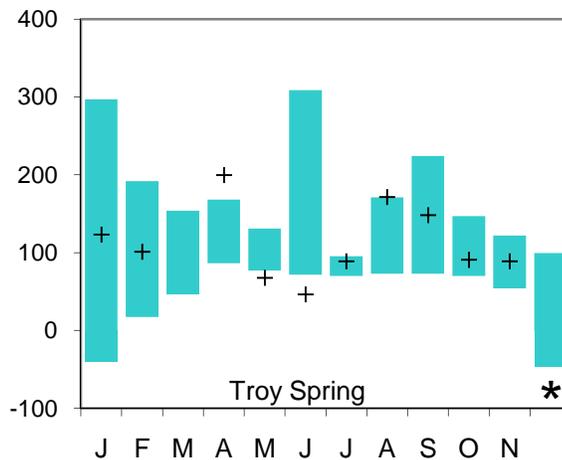
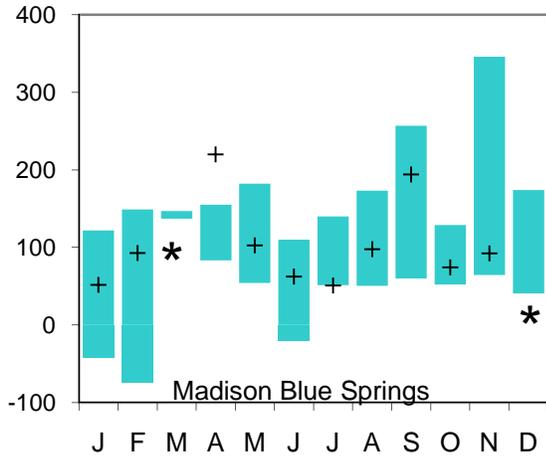
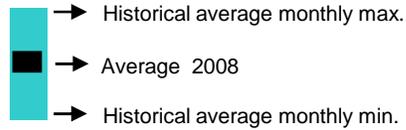
January 1, 2008 through December 31, 2008



RIVER FLOW, CUBIC FEET PER SECOND

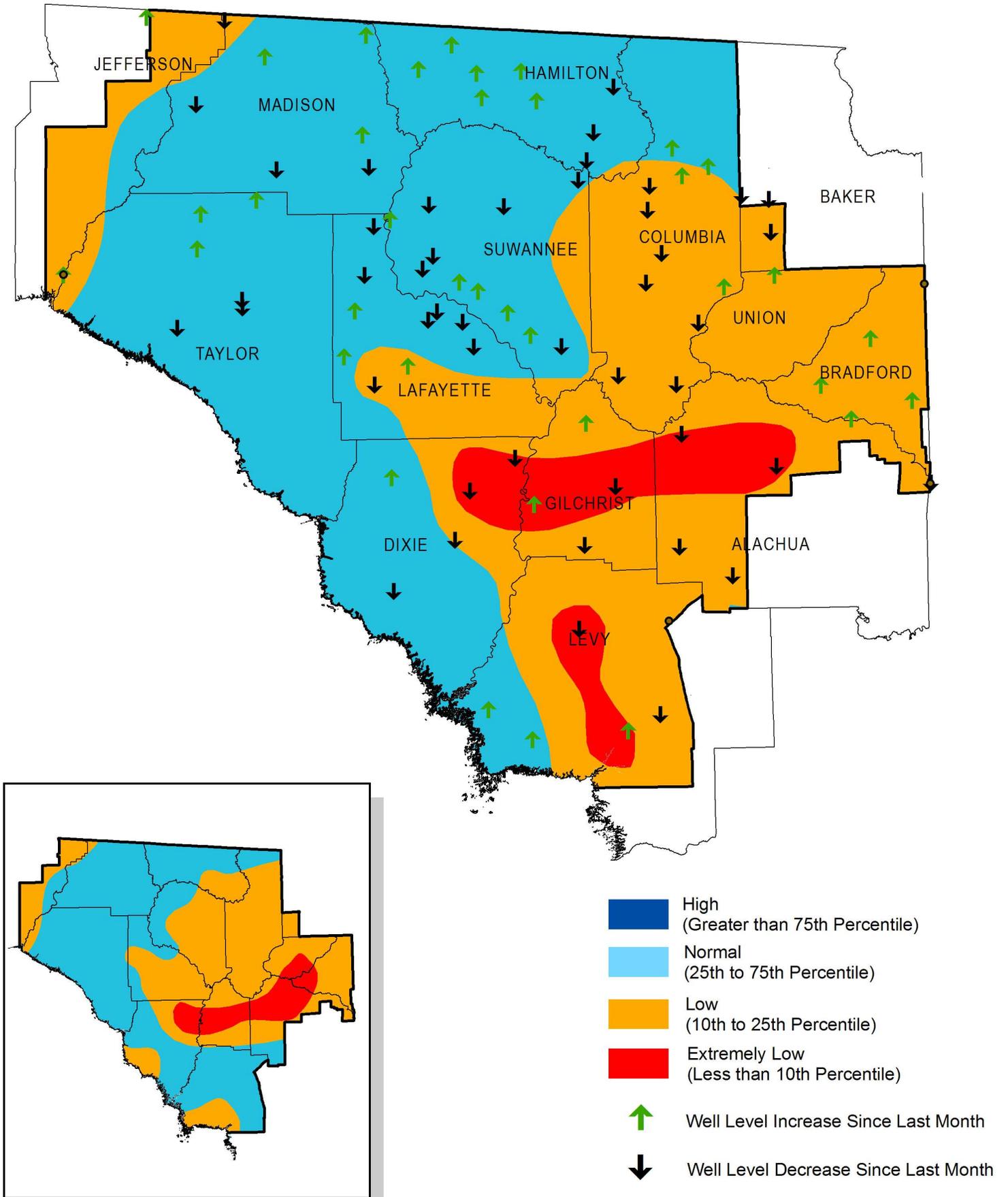
Figure 9: Monthly Springflow Statistics

Flows January 1, 2008 through December 31, 2008
 Springflow data are given in cubic feet per second.
 Period of record beginning 2002. Data are provisional.



Note: River flooding can cause springflow to slow or even reverse. Springflow for months marked by an asterisk (*) was strongly affected by river conditions. Data for these months will be included once approved and published by the U.S. Geological Survey.

Figure 10: December 2008 Groundwater Levels

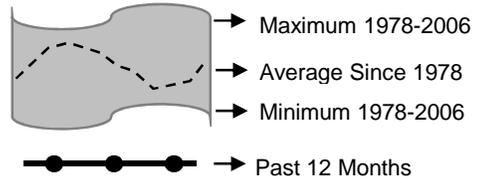


Inset: November 2008 Groundwater Levels

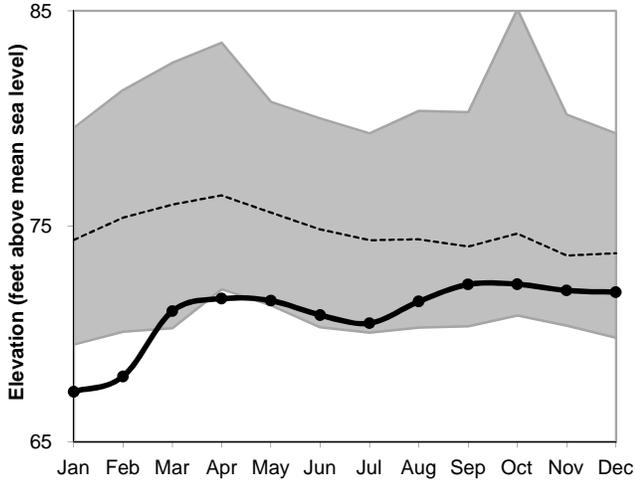
Figure 11: Monthly Groundwater Level Statistics

Levels January 1, 2008 through December 31, 2008

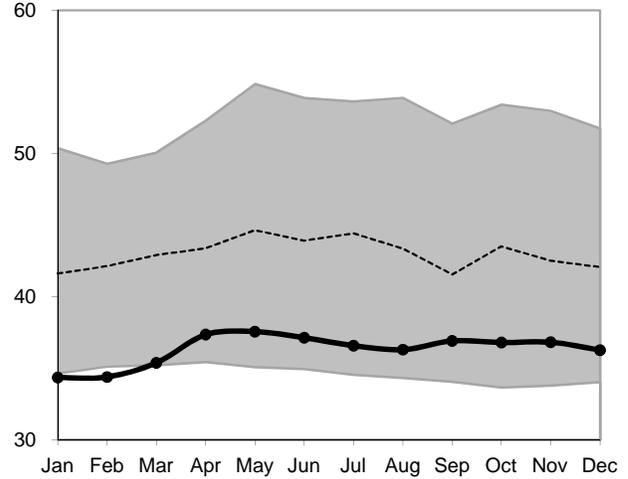
Period of Record Beginning 1978



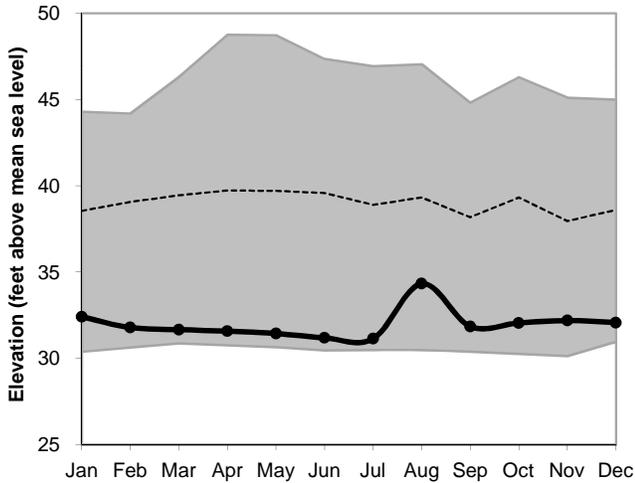
Madison County N010719001



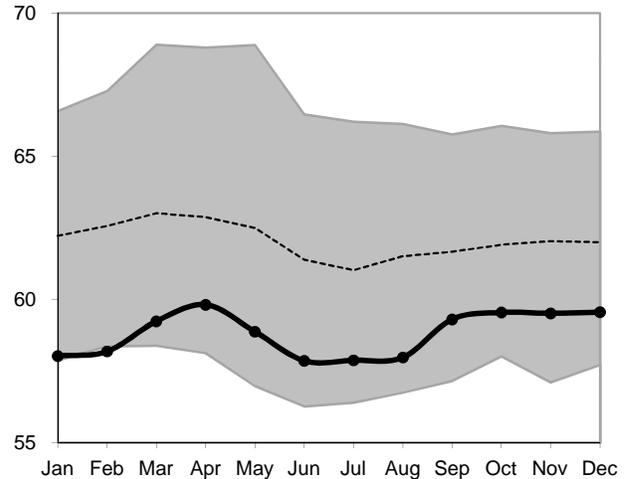
Suwannee County S021335001



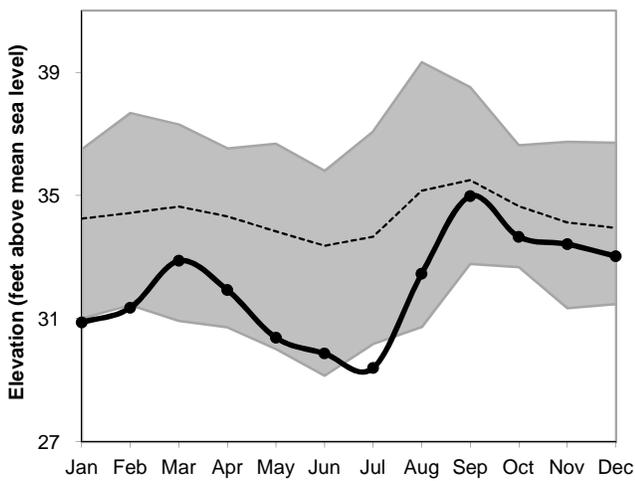
Columbia County S041625001



Bradford County S072132001



Dixie County S101210001



Taylor County S050701001

