

## 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: February 4, 2009

RE: January 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 (91 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 January was 2.70", which is below the long-term monthly average of 3.66" (Table 1, Figure 1). The Santa Fe River basin received near-average precipitation for the first time since August. Northern and western areas received less than half of average January rainfall. Figure 2 shows the estimated rainfall accumulation across the District, and Figure 3 shows the rainfall totals as a percent of normal January rainfall.
- The average 12-month deficit was 1.76". 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 16.95".

### SURFACEWATER

- **Rivers:** Streamflow conditions on the upper Suwannee River remained below normal, but did not deteriorate since December. Stations on the middle Suwannee dropped steadily, and by the end of the month were near the 25<sup>th</sup> percentile, but still within normal range for this time of year (Figure 6). The Econfina River also fell to near the 25<sup>th</sup> percentile, while other coastal rivers remained below normal to well below normal. (The percentile is the percentage of levels that are equal to or below the observed value.) The level at the Santa Fe River near Fort White, in the

lower Santa Fe River, rose an inch at the end of the month, but flow still remained near record lows. The upper Santa Fe River recovered to normal conditions as a result of the end-of-month storm. Discharge statistics for six river stations are presented in Figure 8.

- **Lakes:** Levels in 16 monitored lakes fell slightly, dropping by an average of 0.15 feet. 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 flow rates in 4 systems (Figure 9) increased slightly since last month, influenced by falling river levels.

## GROUNDWATER

- Groundwater levels decreased in 68% of the District's monitored wells, dropping by an average of 0.2 feet (Figure 10). Fifty-four percent of the levels were above the 25<sup>th</sup> percentile (normal range), compared to 65% last month. Sixteen percent were below the 10<sup>th</sup> percentile, considered extremely low. Three record monthly lows were observed. 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 April, and that below-normal precipitation is likely through May.

## 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

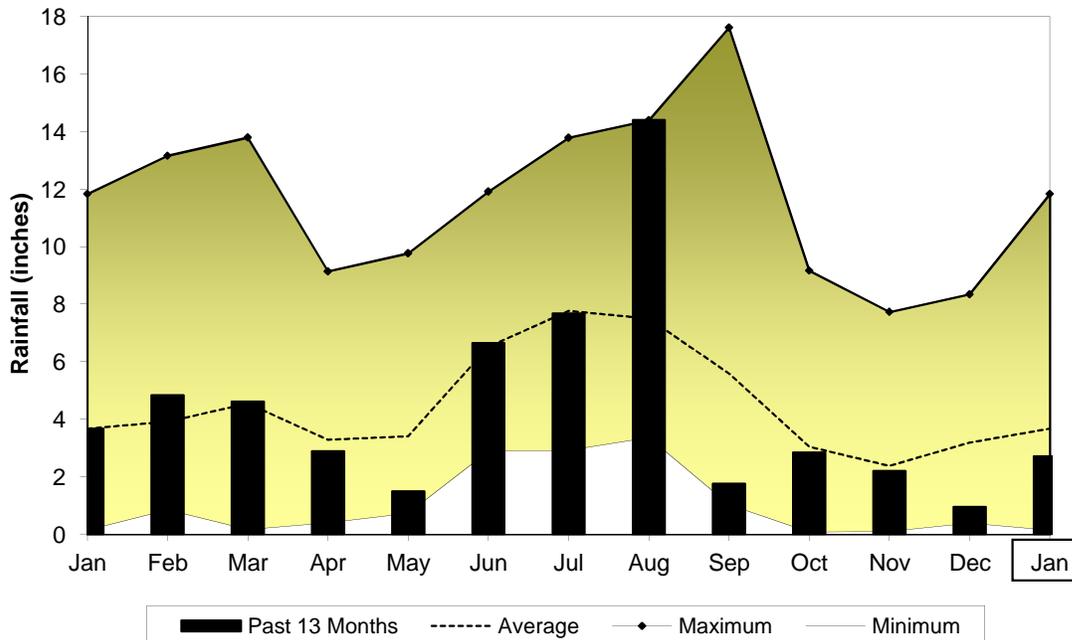
**Table 1. Estimated Rainfall Totals**

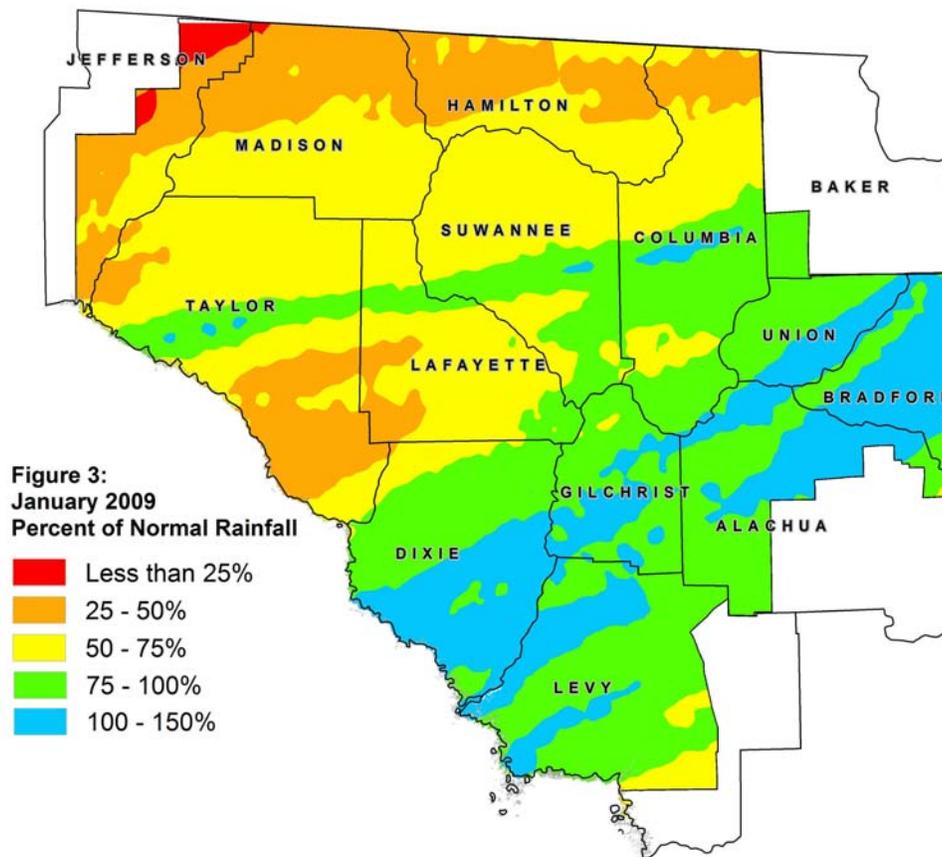
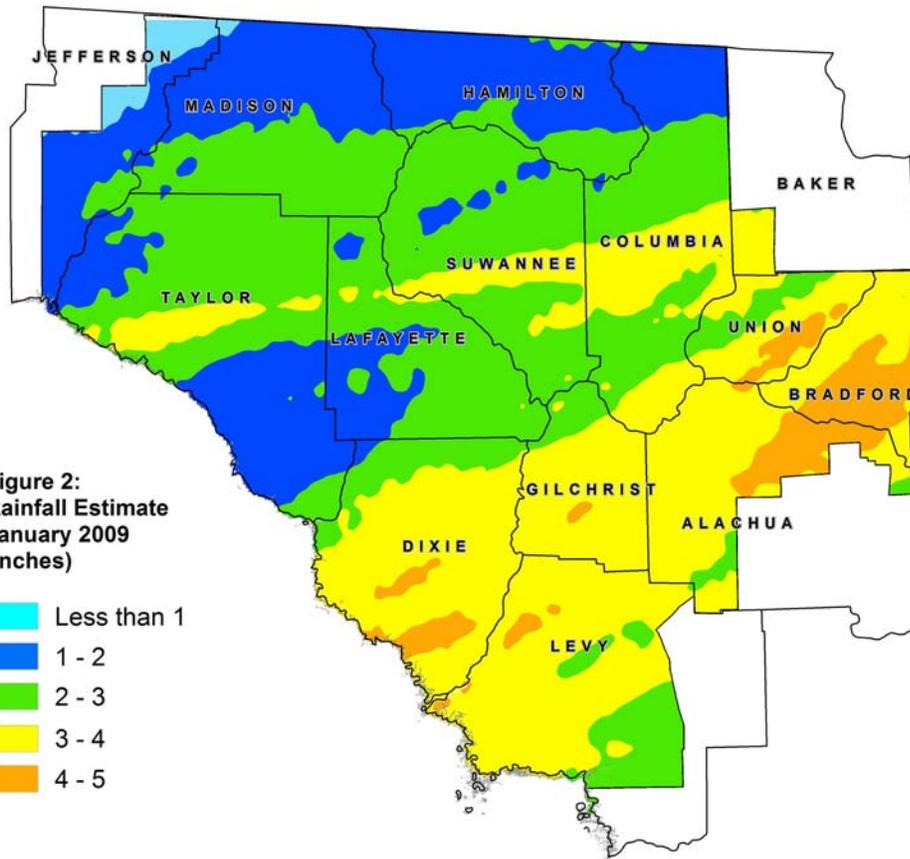
County	Jan-2009	Jan-2008	Last 12 Months	January Average
Alachua	3.62	3.56	49.57	3.39
Baker	3.17	3.64	55.42	3.48
Bradford	3.92	3.15	50.79	2.90
Columbia	2.68	3.79	51.21	3.43
Dixie	3.43	3.25	56.03	3.54
Gilchrist	3.51	3.33	51.71	4.58
Hamilton	1.85	3.72	50.49	4.31
Jefferson	1.41	3.46	54.61	4.35
Lafayette	2.26	3.67	55.69	4.09
Levy	3.34	4.67	54.49	3.99
Madison	1.90	4.17	58.07	3.93
Suwannee	2.54	3.98	55.76	4.20
Taylor	2.18	3.75	53.94	4.10
Union	3.42	3.15	48.21	4.00

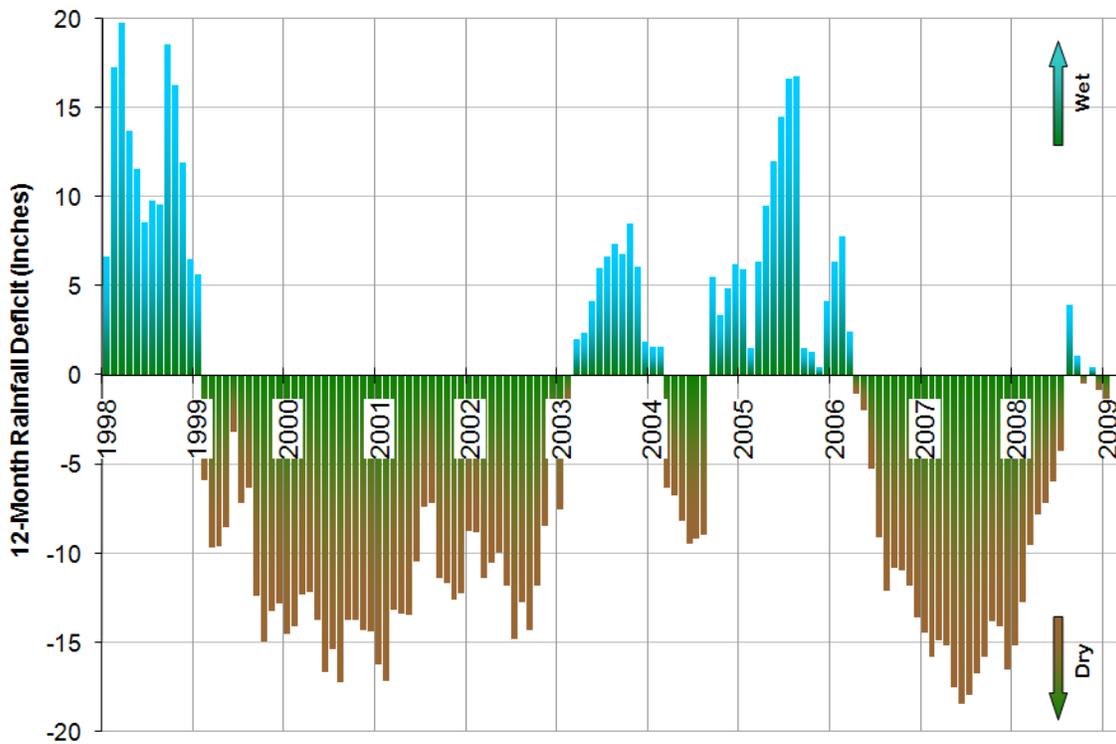
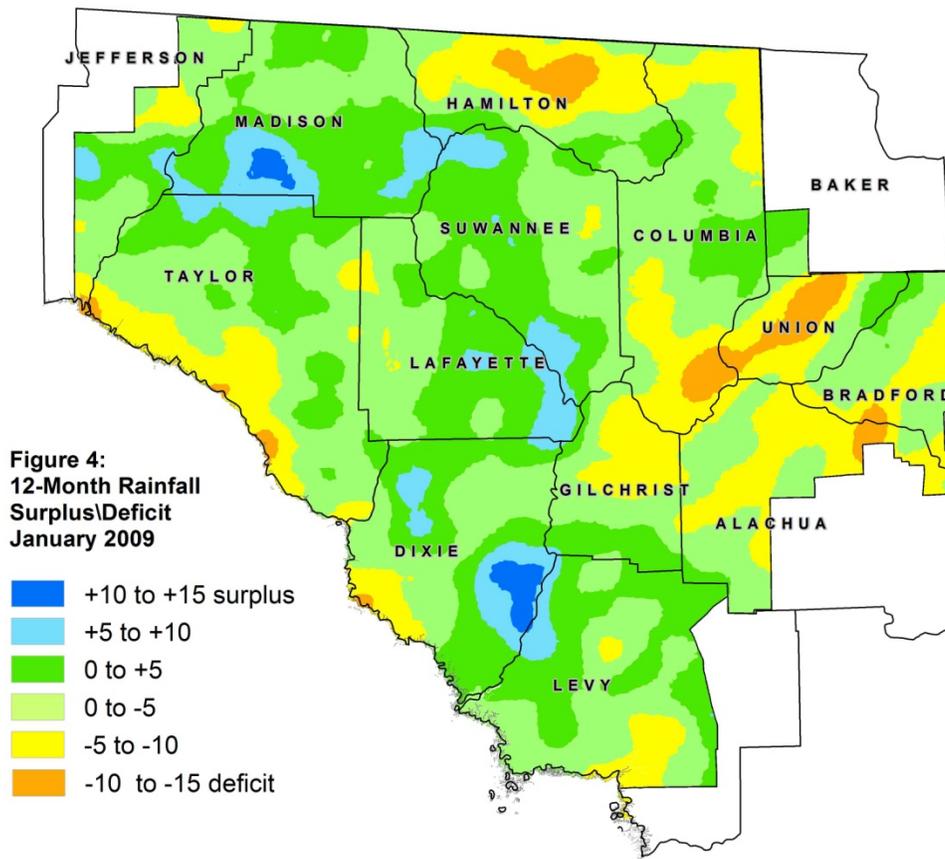
January 2009 Average: 2.70  
 Historical January Average: 3.66  
 Historical 12-month Average: 54.68  
 Past 12-Month Total: 52.92  
 12-month Rainfall Deficit: -1.76

(Rainfall reported in inches)

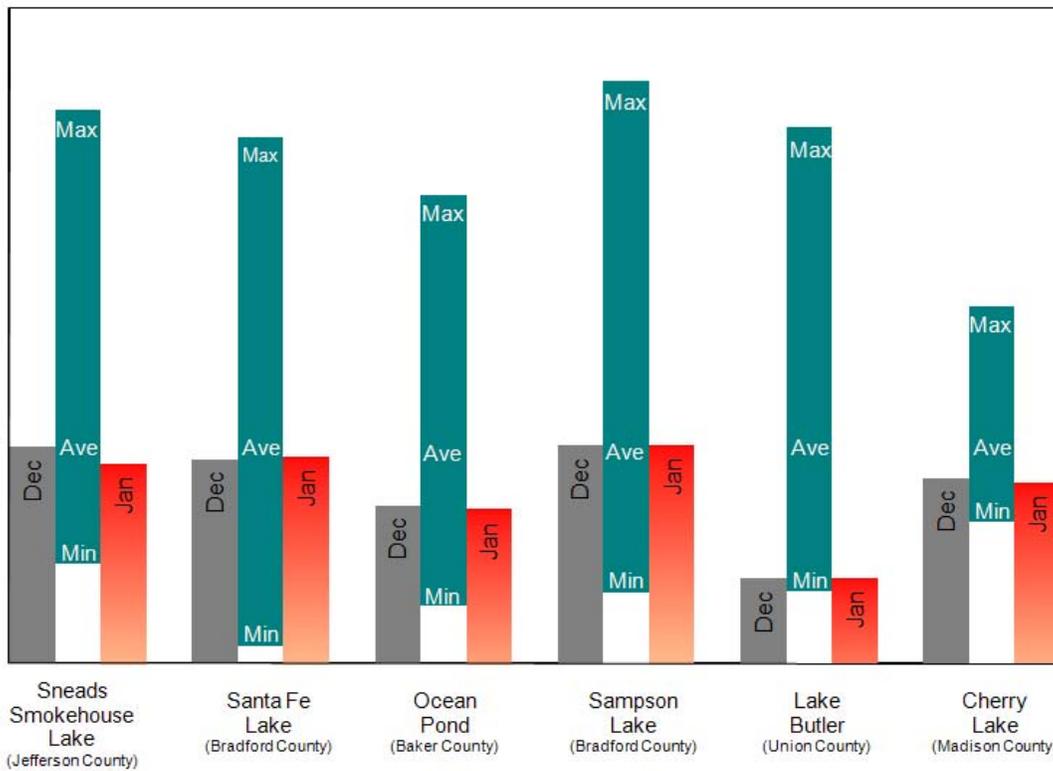
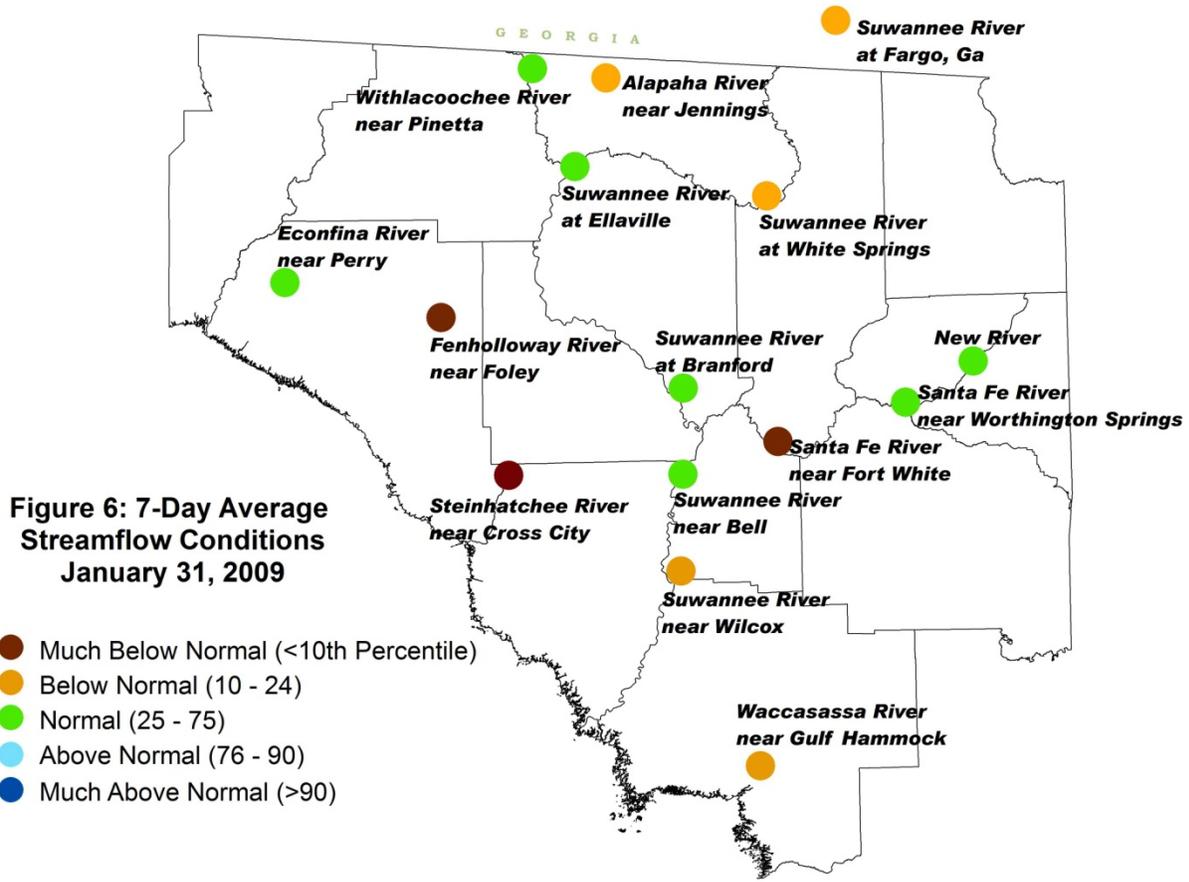
**Figure 1: Comparison of District Monthly Rainfall**







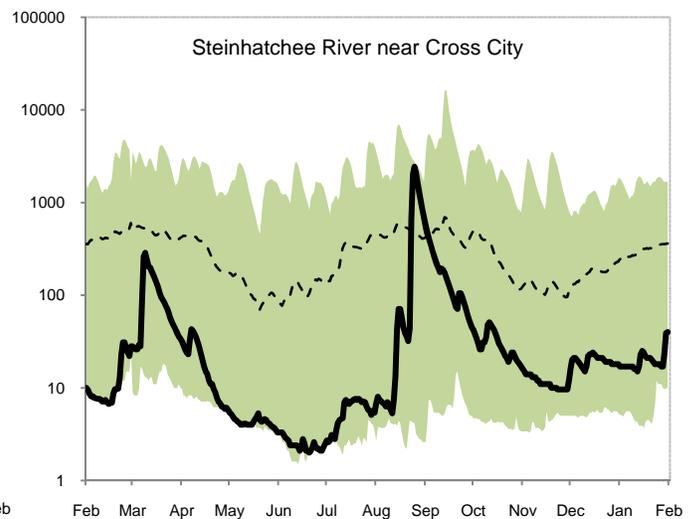
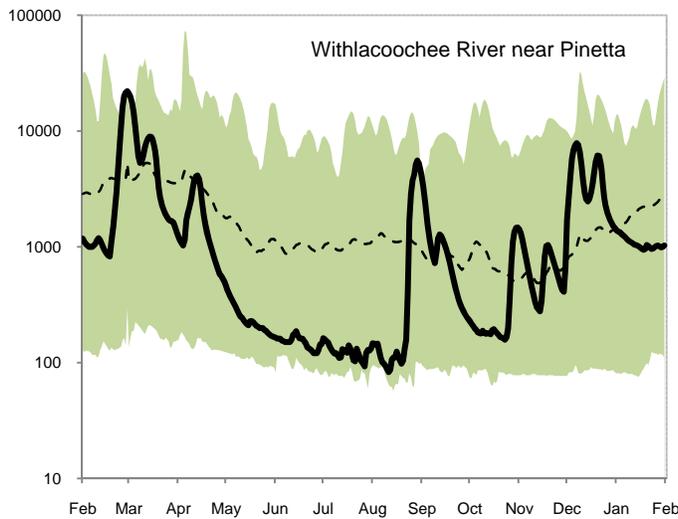
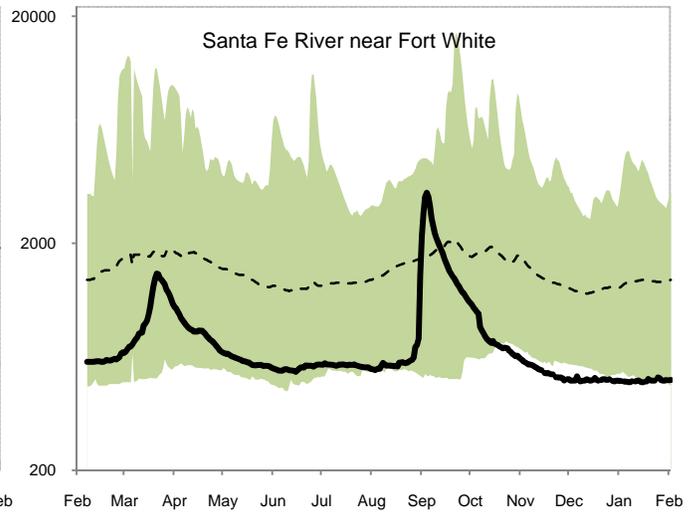
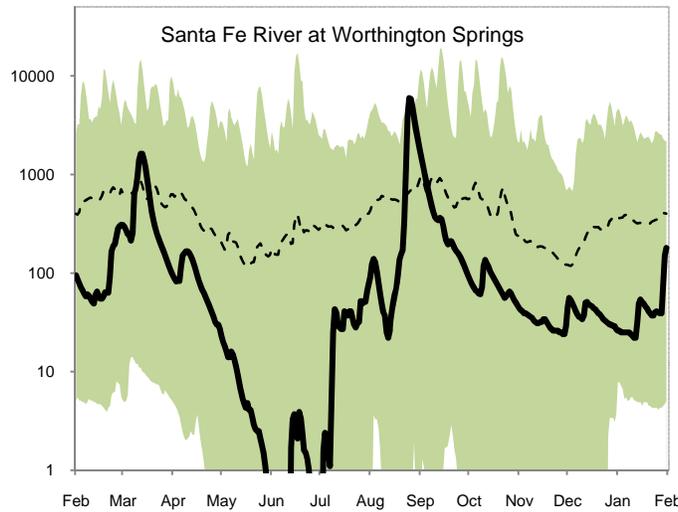
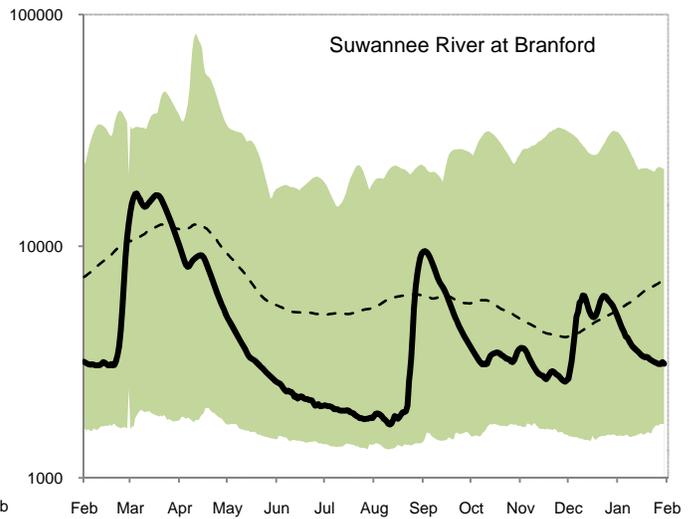
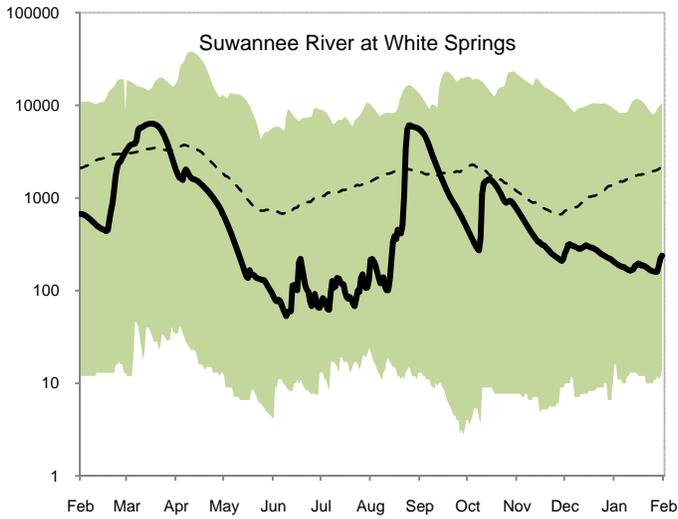
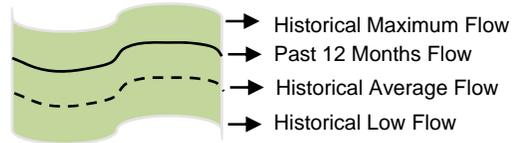
**Figure 5: 12-month rolling rainfall deficit (difference between the rainfall that fell during any 12-month period and the long-term average expected over the same period, January 1998-January 2009)**



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

# Figure 8: Daily River Flow Statistics

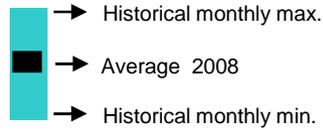
February 1, 2008 through January 31, 2009



RIVER FLOW, CUBIC FEET PER SECOND

### Figure 9: Monthly Springflow Statistics

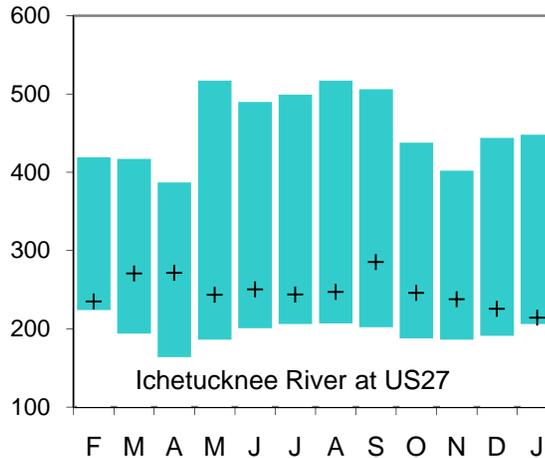
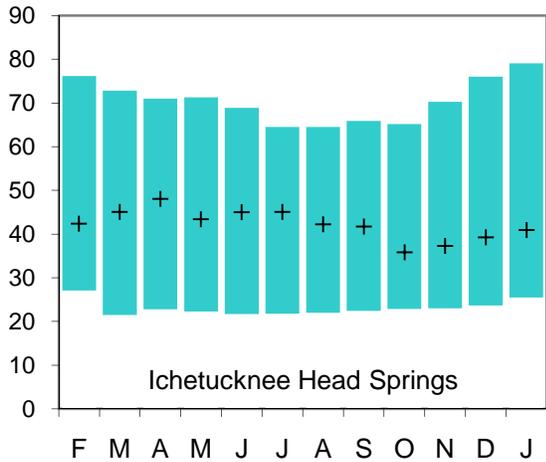
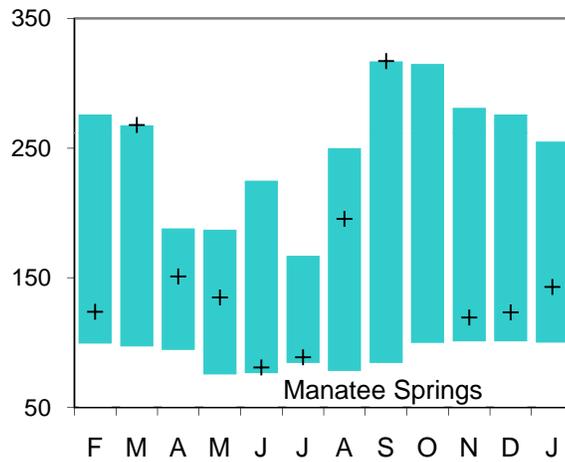
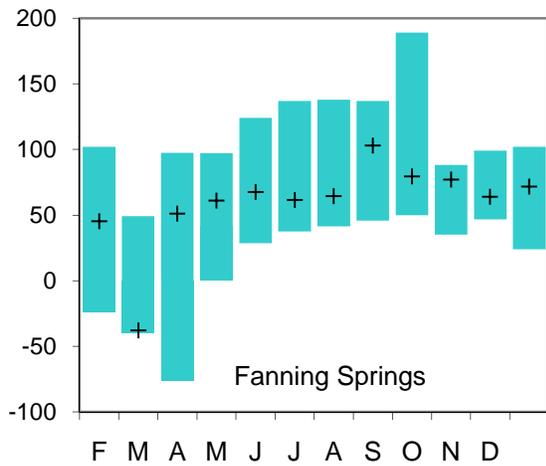
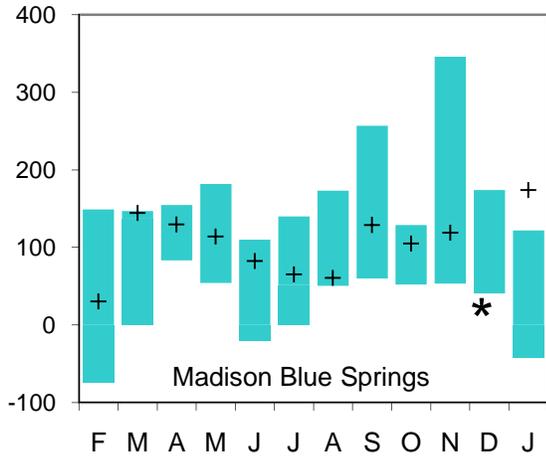
Flows February 1, 2008 through January 31, 2009  
 Springflow data are given in cubic feet per second.  
 Period of record beginning 2002. Data are provisional.



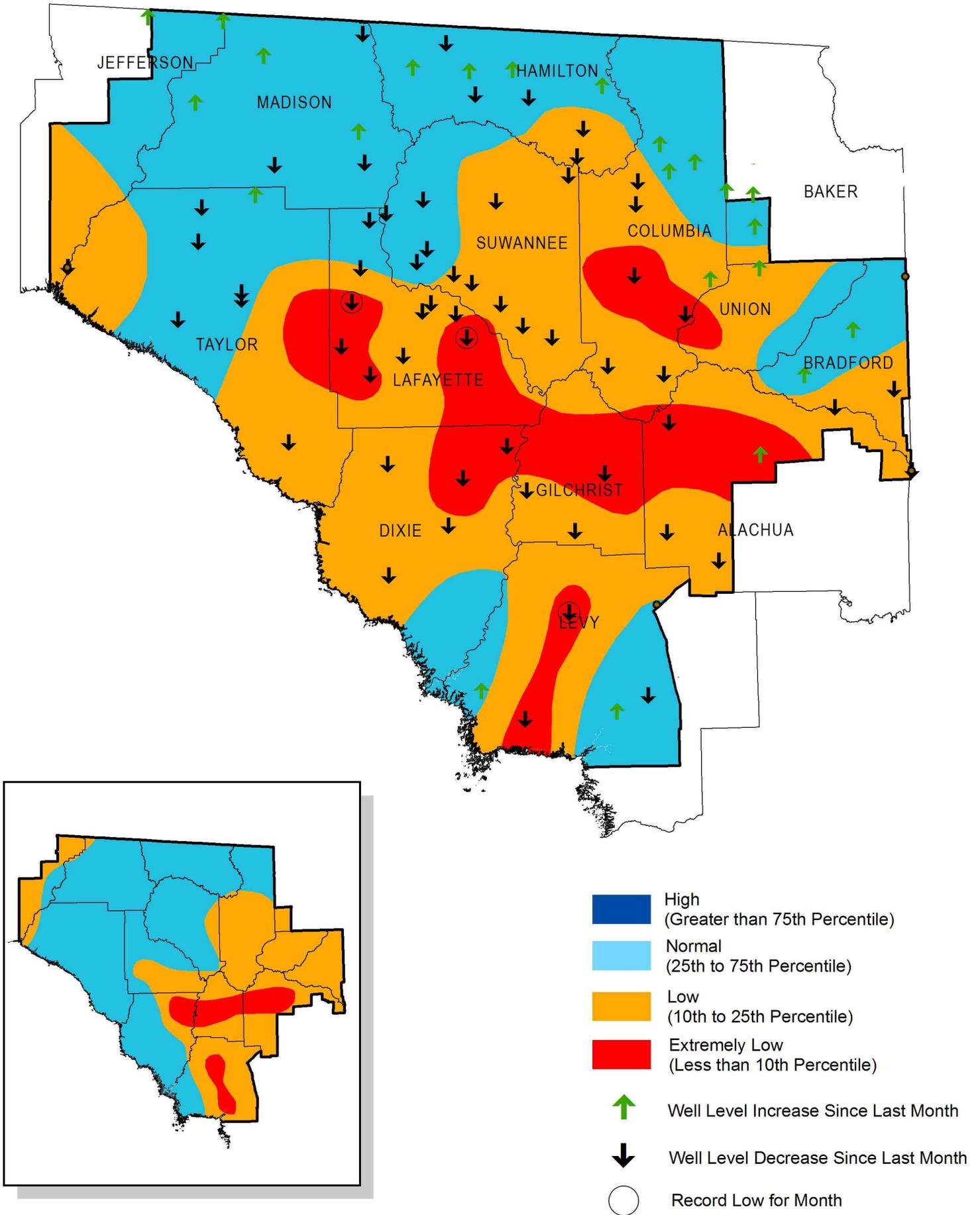
Note: Rising river levels and flooding can cause springflow to slow or reverse.

Springflow for months marked by an asterisk (\*) was strongly affected by river conditions.

Data for these months will be included once approved and published by the U.S. Geological Survey.



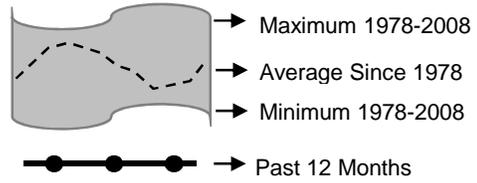
**Figure 10: January 2009 Groundwater Levels**



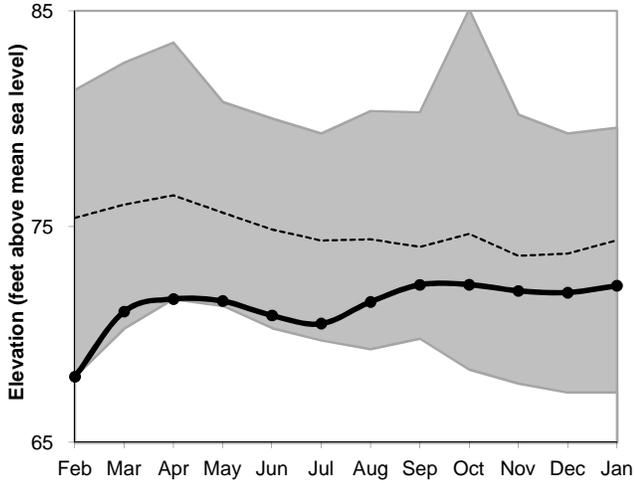
Inset: December 2008 Groundwater Levels

# Figure 11: Monthly Groundwater Level Statistics

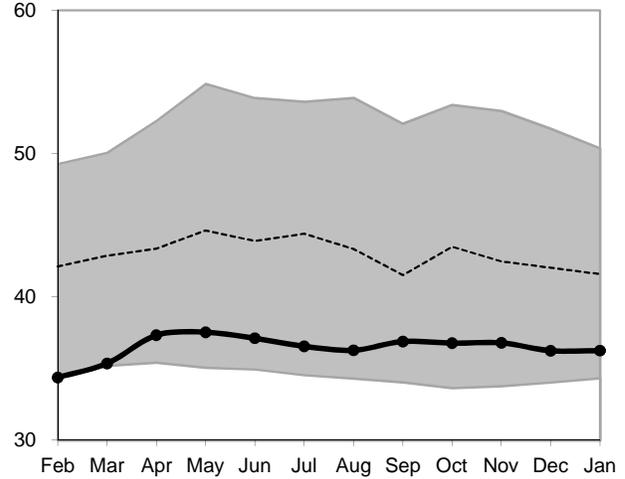
Levels February 1, 2008 through January 31, 2008  
 Period of Record Beginning 1978



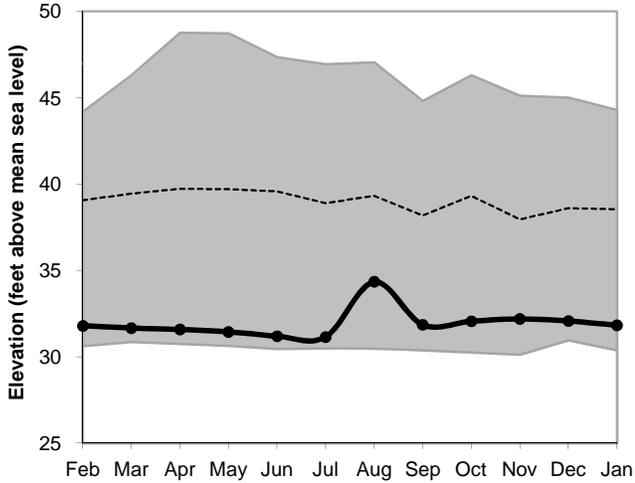
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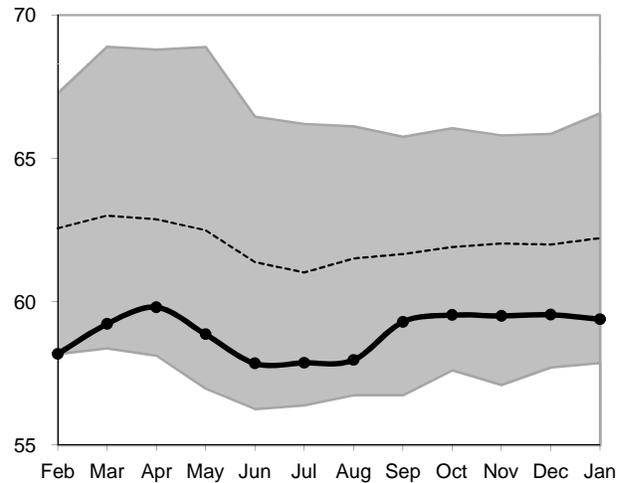
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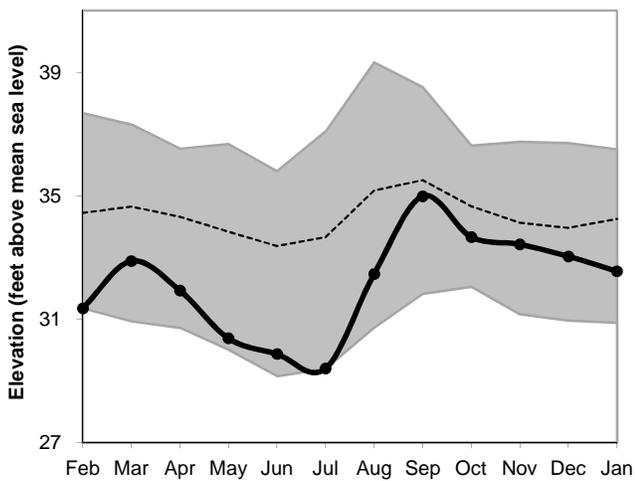
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**Bradford County S072132001**



**Dixie County S101210001**



**Taylor County S050701001**

