



# Hydrologic Conditions Report

## March 2024

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## Summary

Slightly above normal rainfall throughout most of the panhandle, above normal temperatures, and low but rising evapotranspiration rates resulted in generally normal streamflows, aquifer levels, and lake levels across most of the District. Due to rainfall that occurred regularly throughout the month, all drought conditions were eradicated by the close of March. In southern Washington County, lake levels and aquifer levels continue to decline, following the period of much above average hydrologic conditions that extended through 2022 in this region.

## Rainfall

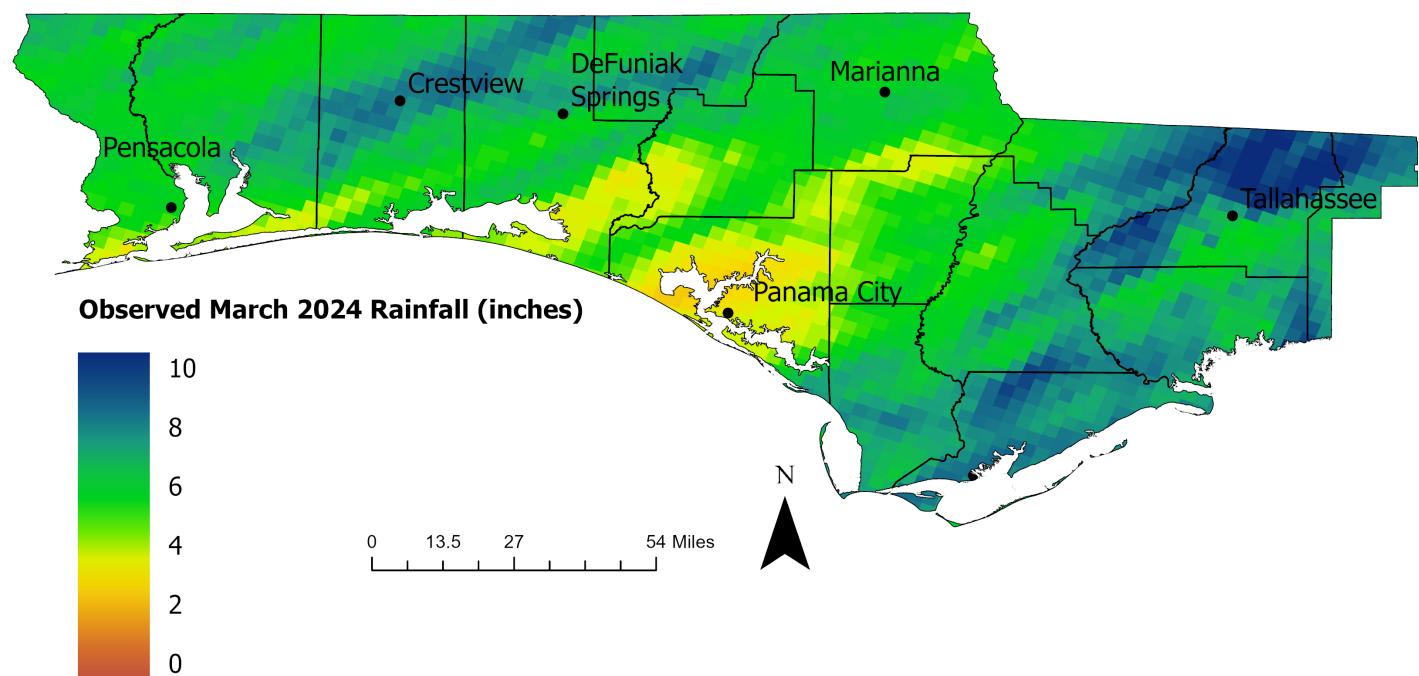
The Districtwide average rainfall for March (6.00 inches) was 11.6% (0.66 inches) above the 30-year normal value for March (5.34 inches). Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. Rainfall varied spatially, with the highest rainfall occurring generally in the eastern and northwest-central portions of the District and the lowest rainfall occurring in Bay County and parts of its surrounding counties. ([Table 1; Figures 1 - 7](#)). There were many rain events throughout March 2024, most caused by frontal passages. A significant rain event occurred on March 10, 2024, that was caused by a strong cold front moving across the panhandle, producing up to 3 inches of rain in some areas. Another significant rain event occurred at the end of the month on March 27, 2024, that was caused by a slow moving, almost stalled cold front that produced 2 to 5 inches of rain in parts of the central and eastern portions of the District.

**Table 1: March 2024 rainfall compared to 30-year normal monthly rainfall for Tallahassee, Marianna, Niceville, and Pensacola, Florida**

Station	March Normals (1991 to 2020)	March 2024 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	5.24	7.67	37.6%
Marianna Regional Airport	5.01	5.15	2.8%
Niceville, FL	5.35	4.63	-14.4%
Pensacola Regional Airport	5.25	5.25	0.0%

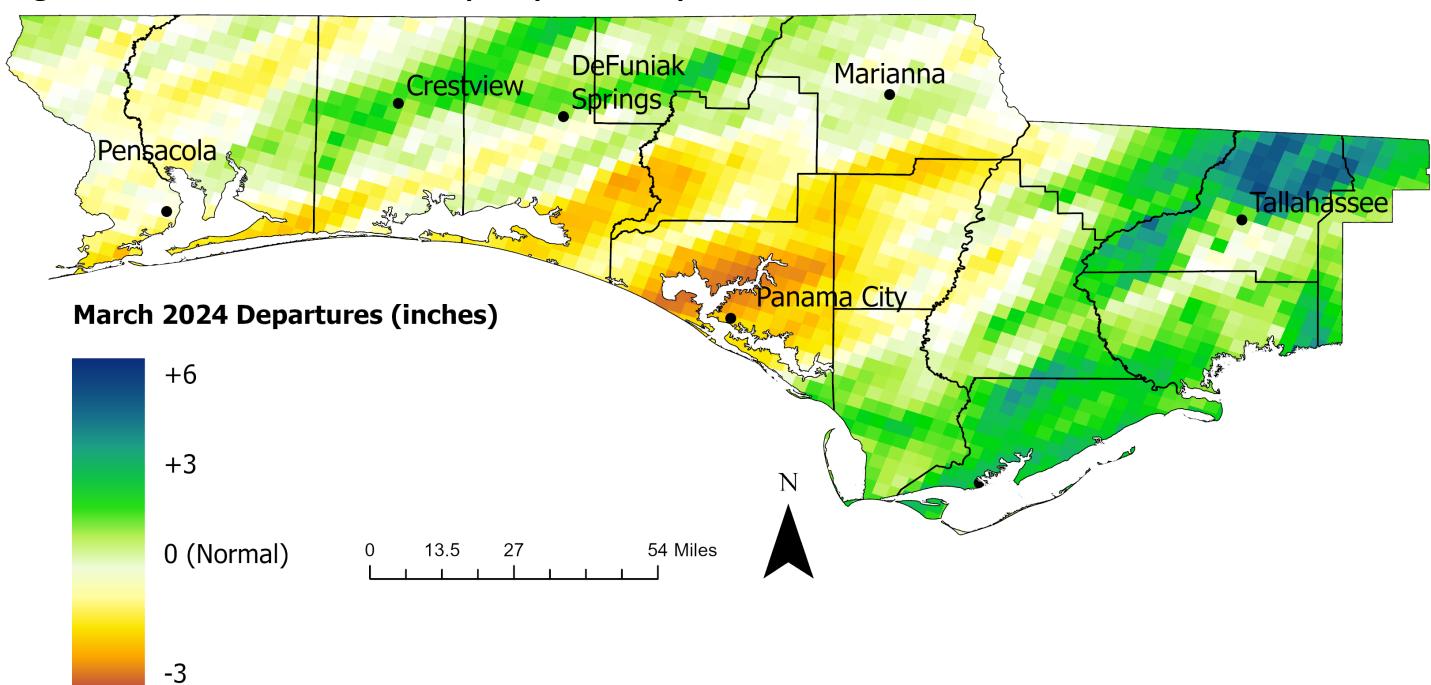
Source: <https://www.weather.gov/wrh/Climate?wfo=tae>

**Figure 1: District-wide March 2024 observed rainfall**



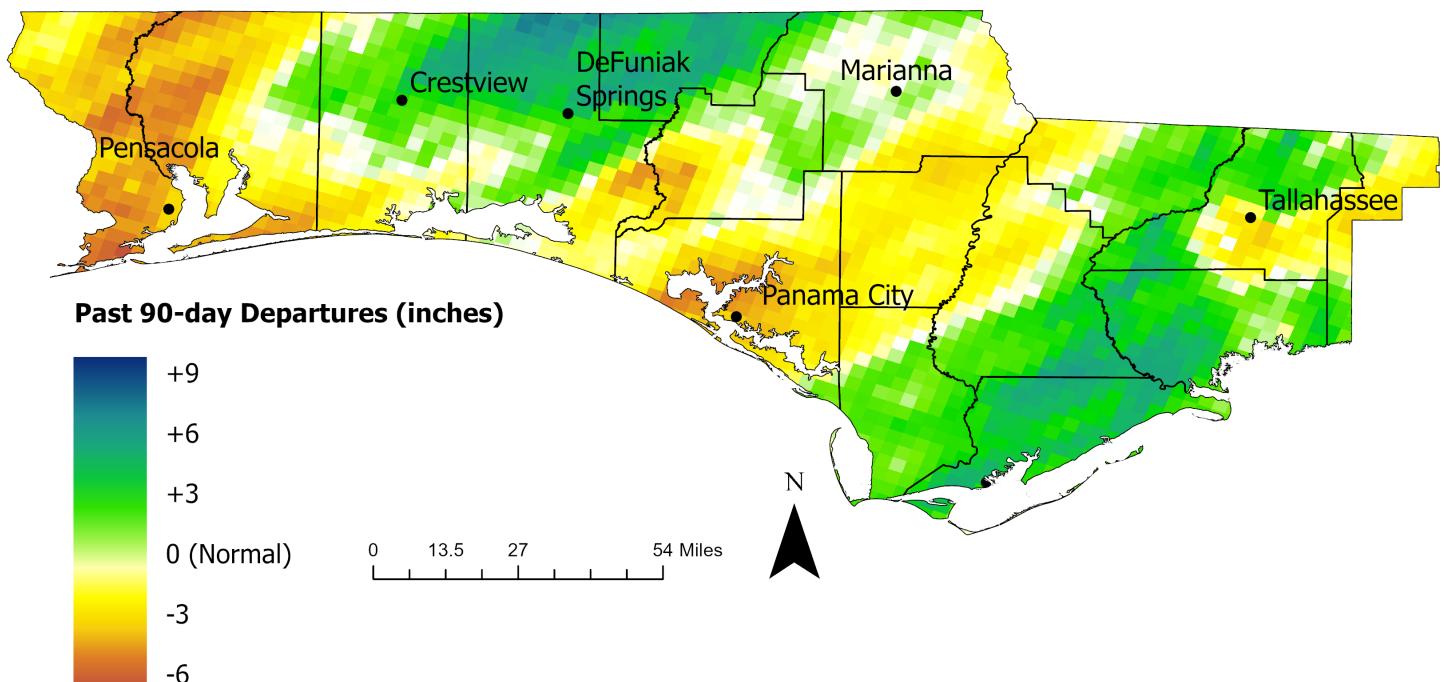
Source: <https://water.weather.gov/precip/download.php>

**Figure 2: District-wide March 2024 precipitation departure from normal**



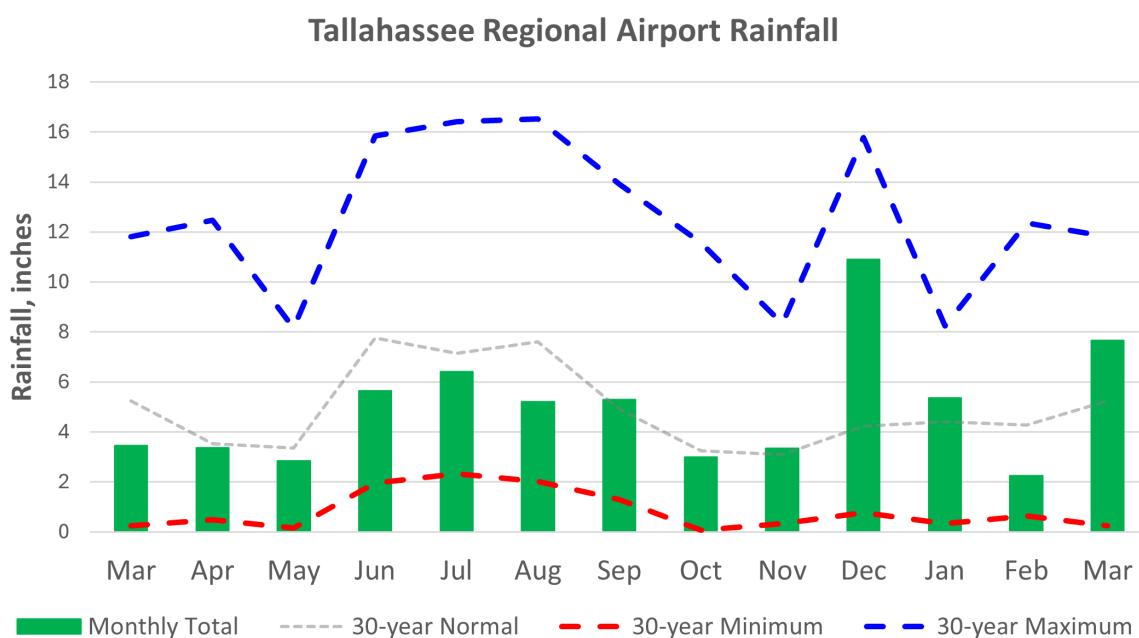
Source: <https://water.weather.gov/precip/download.php>

**Figure 3: District-wide precipitation departure from normal precipitation for the previous 90 days**



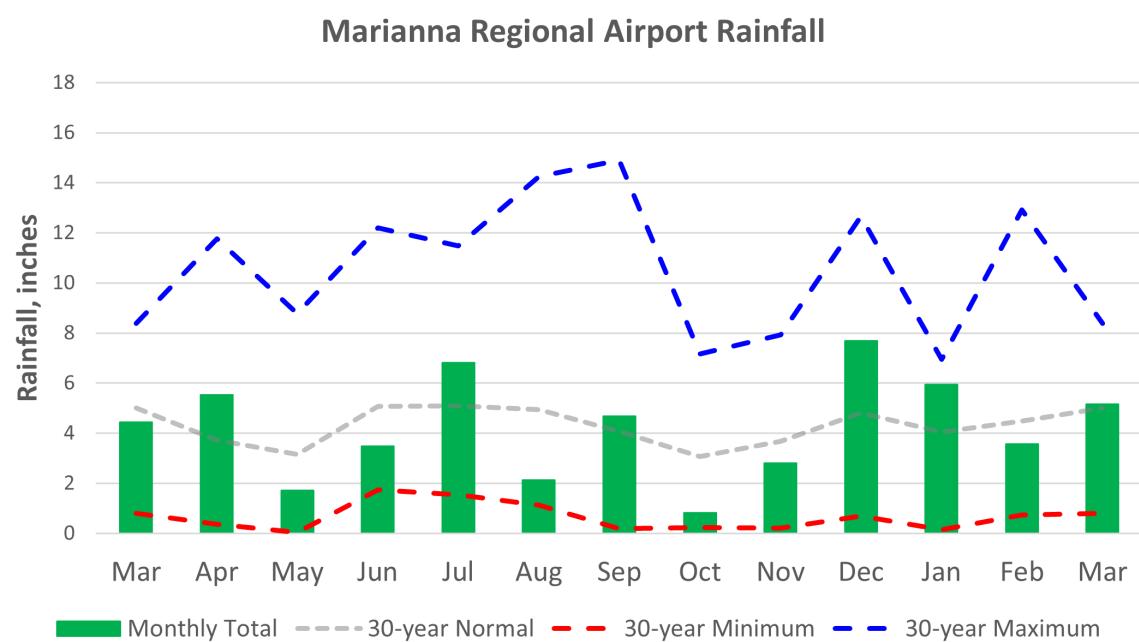
Source: <https://water.weather.gov/precip/download.php>

**Figure 4: Observed rainfall for March 2023 to March 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Tallahassee Regional Airport**



Source: <https://www.weather.gov/wrh/Climate?wfo=tae>

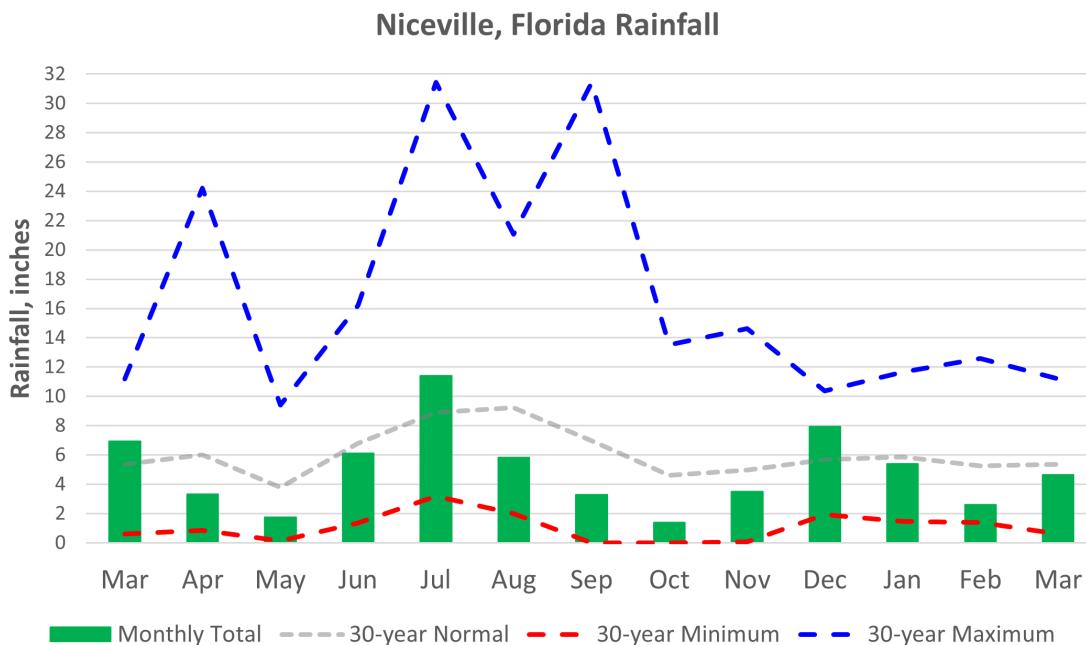
**Figure 5: Observed rainfall for March 2023 to March 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Marianna Regional Airport**



Source: <https://www.weather.gov/wrh/Climate?wfo=tae>

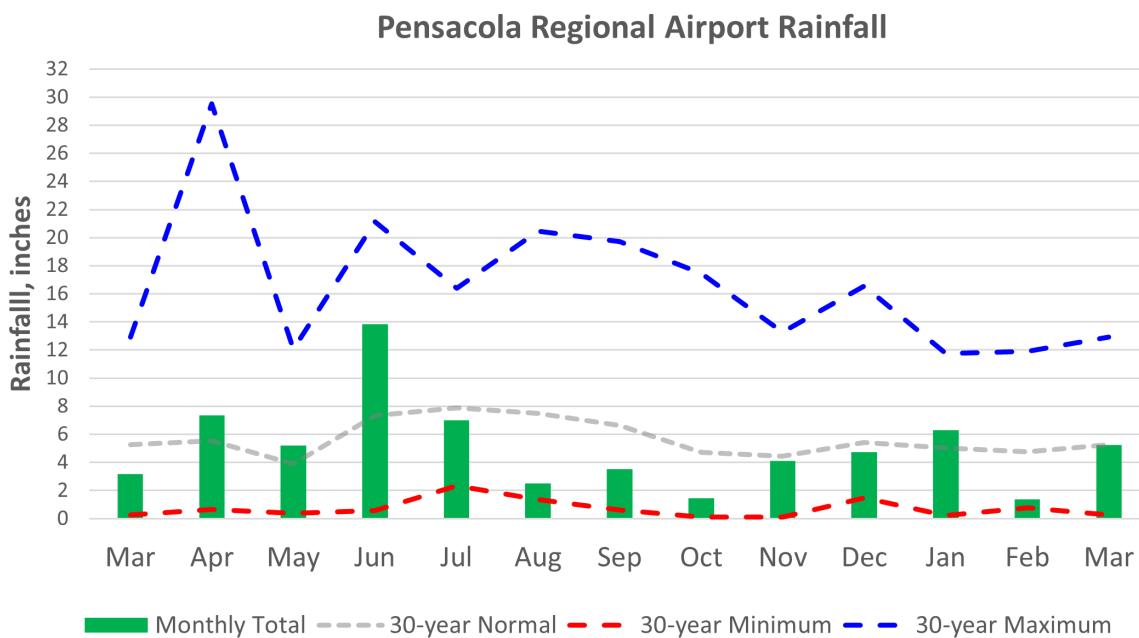


**Figure 6: Observed rainfall for March 2023 to March 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Niceville, Florida**



Source: <https://www.weather.gov/wrh/Climate?wfo=mob>

**Figure 7: Observed rainfall for March 2023 to March 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Pensacola Regional Airport**



Source: <https://www.weather.gov/wrh/Climate?wfo=mob>



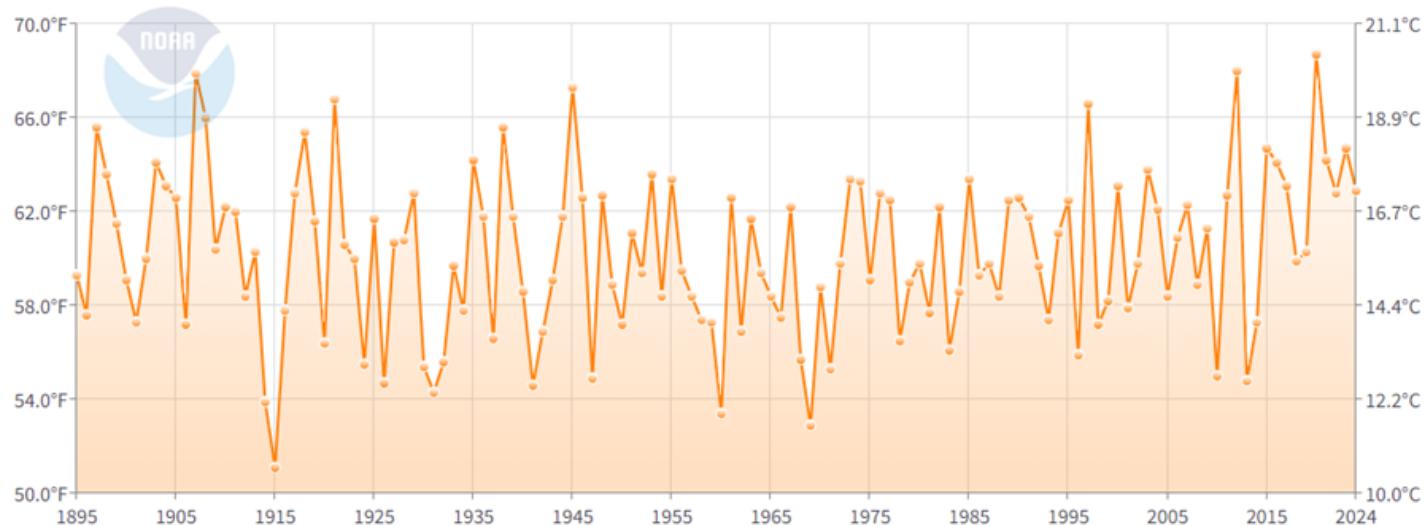
## Temperature

The average March temperature in Northwest Florida was above normal at 62.9 degrees Fahrenheit (**Figure 8**). This was 2.0 degrees Fahrenheit warmer than the 30-year (1991-2020) normal for the District for February of 60.9 degrees Fahrenheit. Out of 130 years on record (1895-2024), March 2024 ranked 104/130, making it the 26th warmest March on record.

**Figure 8: March average temperatures for the NOAA Florida Northwest Division, 1895-2024**

### Florida, Climate Division 1 Average Temperature

March



Source: <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/divisional/time-series>

## Climate Outlook

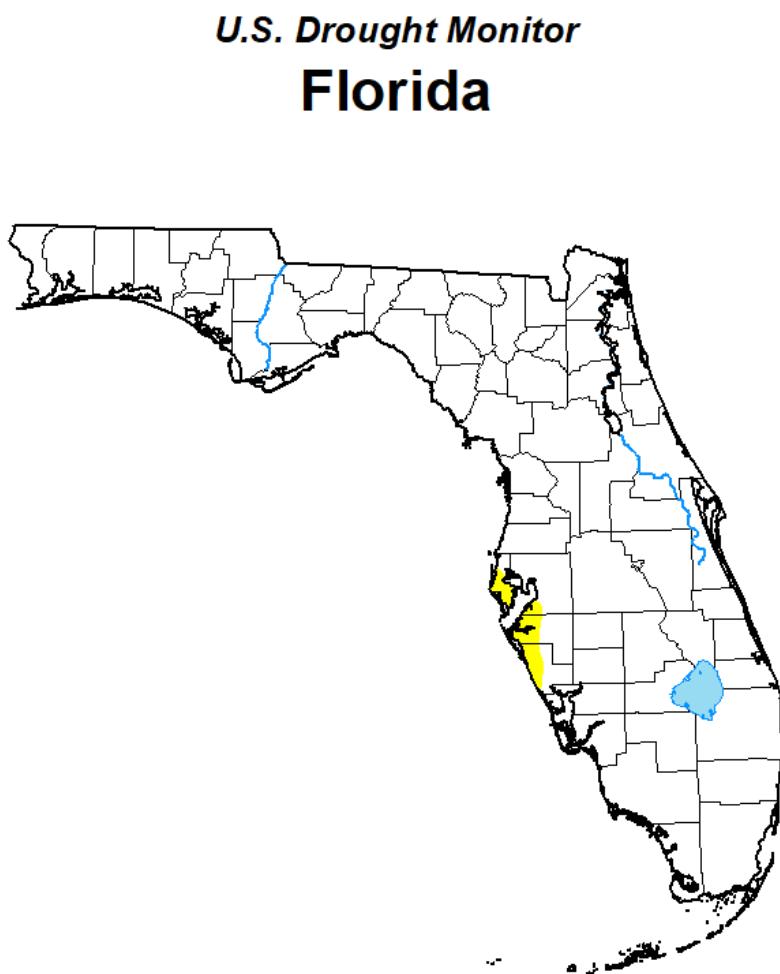
According to NOAA's climate prediction center, the forecast issued March 31, 2024, for April 2024 is for equal chances for above, below, and near normal temperatures and a slight probability of above average rainfall across the District. During March 2024, El Niño conditions weakened slightly and a transition from El Niño to ENSO-neutral is highly likely by April-June 2024. Though weakened, El Niño conditions are still present and are typically associated with above normal precipitation during the spring in the southeastern U.S.

Source: <https://www.climate.gov/news-features/understanding-climate/us-climate-outlook-march-2024>

## Drought Conditions

Slightly above normal rainfall in March across the panhandle eliminated the abnormally dry conditions present in the western portion of the District at the end of February 2023. The U.S. Drought Monitor report released on March 26, 2024, showed that no drought conditions were present in the District by the end of March (Figure 9).

**Figure 9. Florida Drought Conditions on March 26, 2024**



**March 26, 2024**

(Released Thursday, Mar. 28, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	98.61	1.39	0.00	0.00	0.00	0.00
Last Week 03-19-2024	98.61	1.39	0.00	0.00	0.00	0.00
3 Months Ago 12-26-2023	91.94	8.06	3.70	2.55	1.27	0.00
Start of Calendar Year 01-02-2024	86.25	13.75	3.86	2.55	1.27	0.00
Start of Water Year 09-26-2023	69.09	30.91	17.59	9.00	0.81	0.00
One Year Ago 03-28-2023	11.61	88.39	69.17	43.42	4.51	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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Brad Rippey  
U.S. Department of Agriculture



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Source: <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?FL>

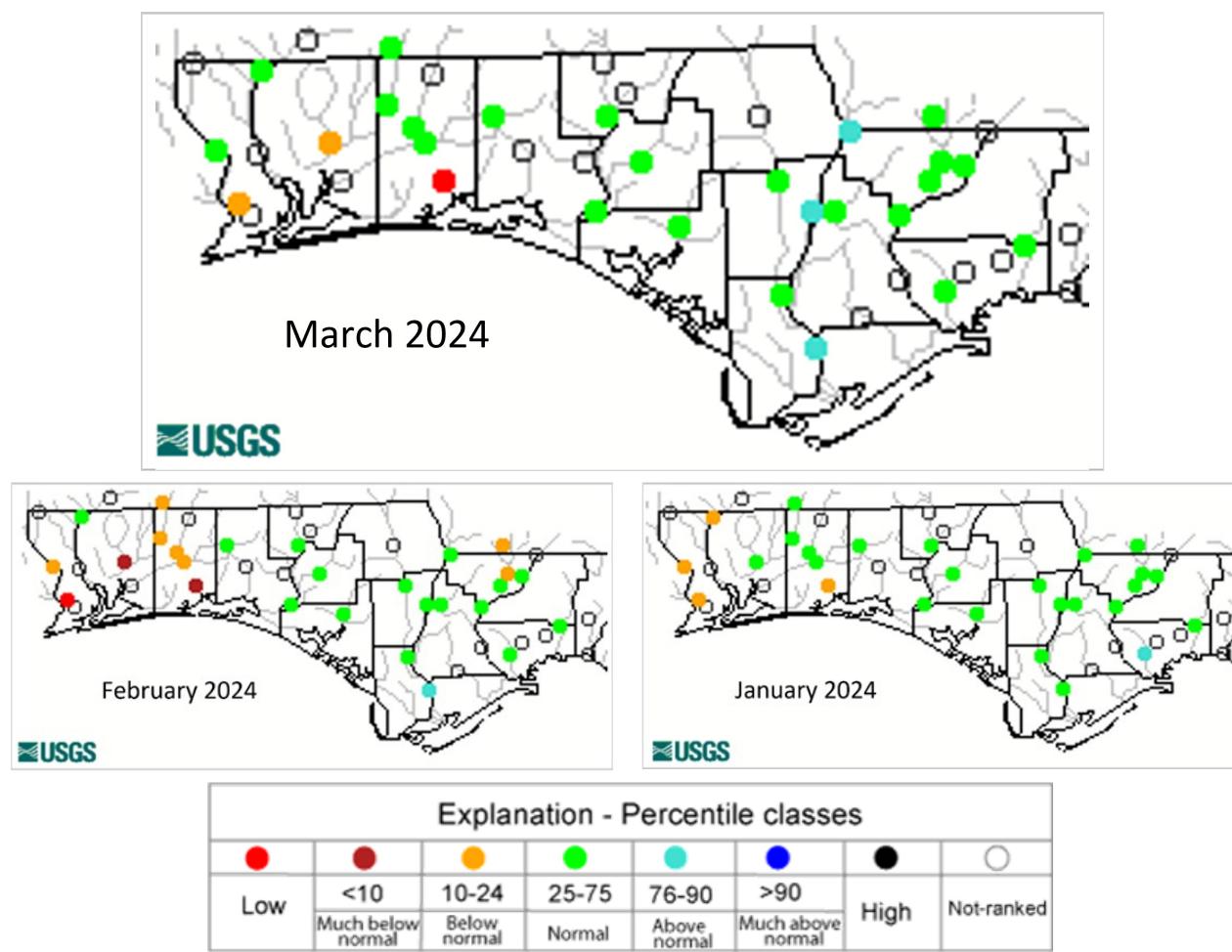


## Surface Water

**Streamflows.** Regularly occurring rainfall throughout the month of March across most of the panhandle contributed generally to a stabilization to normal ranges or an increase into above normal ranges in streamflow in the central and eastern portions of the District (Figures 10 - 16). Near normal rainfall in the western portion of the District helped to increase this area's streamflows into normal or below normal levels, but the region is still responding to the effects of the rainfall deficit over the past 90 days (Figure 3), with streamflows that remain below normal along the coast and one station being classified as Low flow (Figure 10).

The USGS streamflow stations indicated a variety of patterns across the District that generally correlate to the March 2024 observed rainfall patterns. Generally, streamflows in the eastern portion of the District increased, with the St. Marks River near Newport, Florida and the Ochlockonee River near Havana, Florida climbing into above normal flows (Figures 11 & 12) while streamflows to the west decreased with Blackwater River near Baker, Florida dipping into below normal ranges (Figure 15).

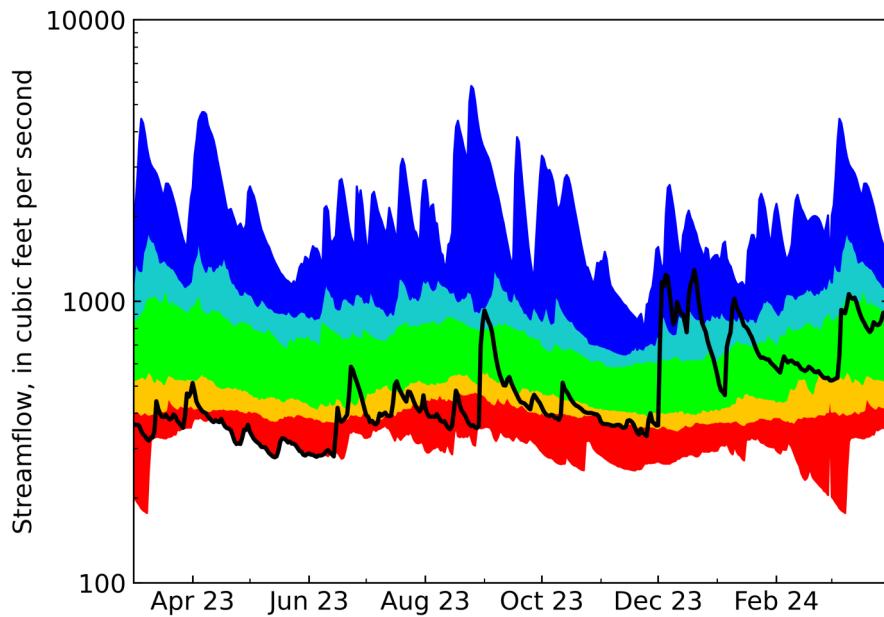
**Figure 10: Northwest Florida January 2024 to March 2024 monthly streamflow percentiles**



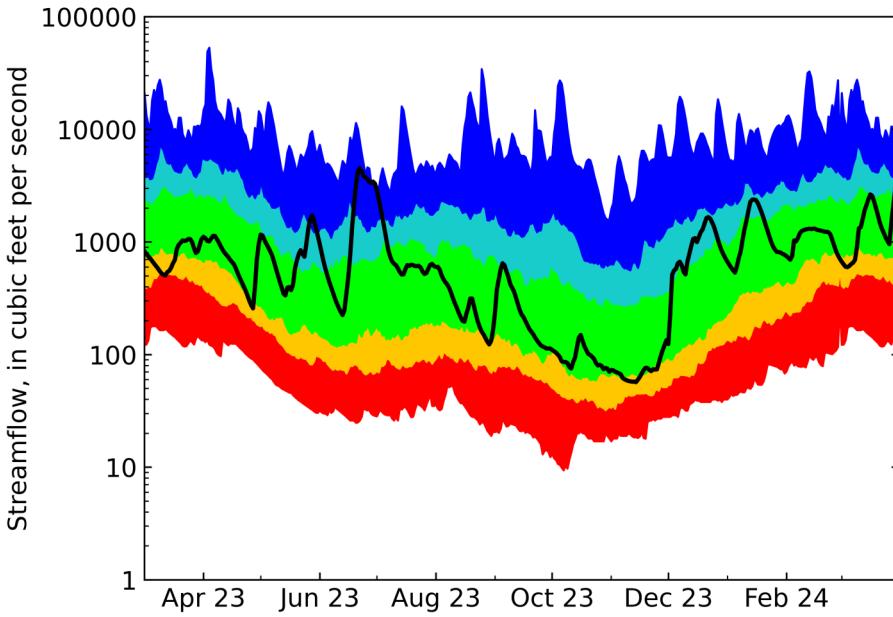
Source: <http://waterwatch.usgs.gov/index.php>



**Figure 11: Daily streamflows and percentile ranges for USGS station 02326900 St. Marks River Near Newport, Florida**



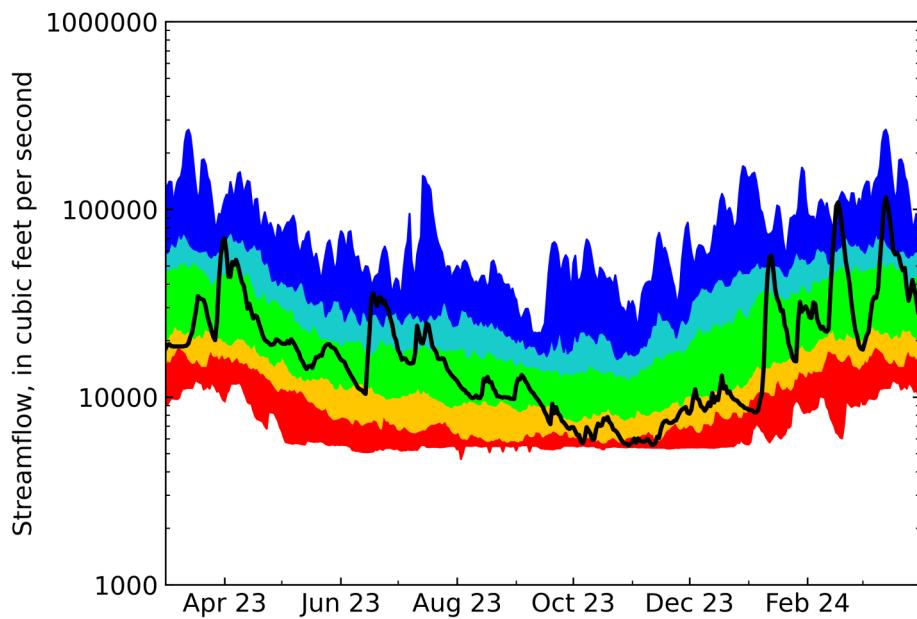
**Figure 12: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida**



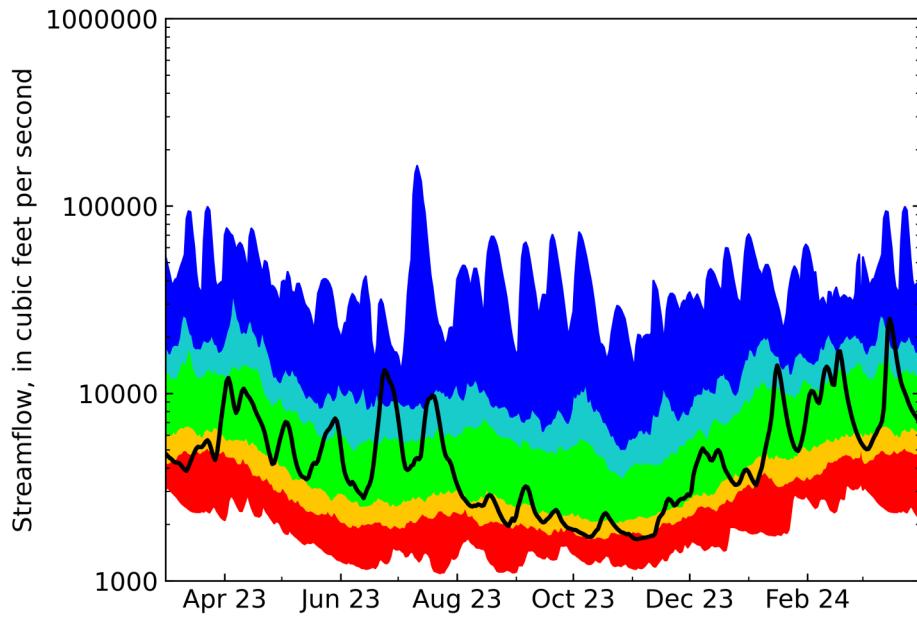
Explanation - Percentile classes				
< 10	10-24	25-75	76-90	> 90
Much below normal	Below normal	Normal	Above normal	Much above normal



**Figure 13: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida**

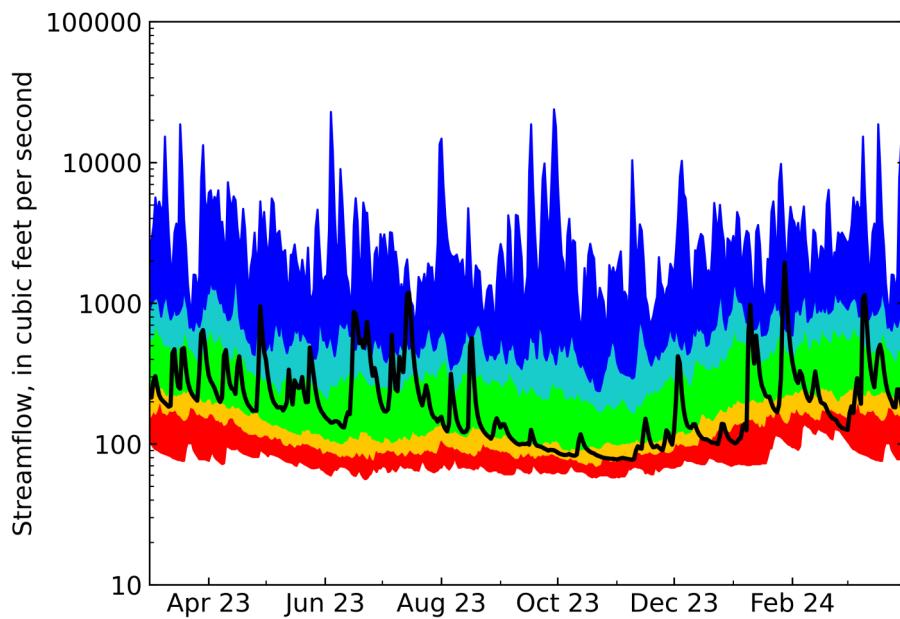


**Figure 14: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida**

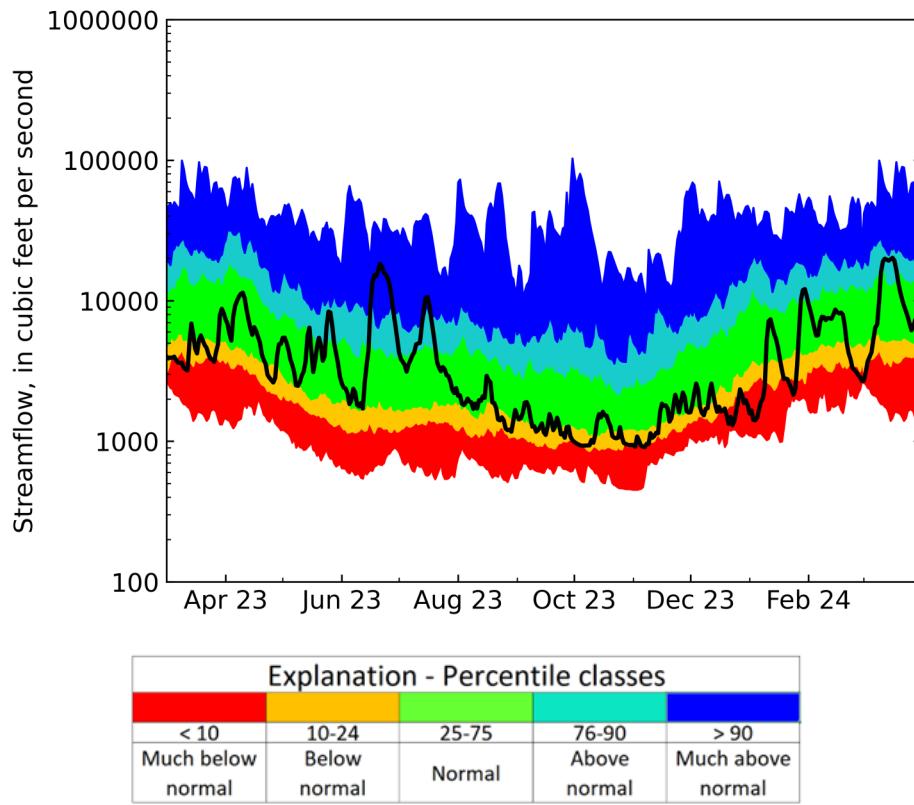


Explanation - Percentile classes				
< 10	10-24	25-75	76-90	> 90
Much below normal	Below normal	Normal	Above normal	Much above normal

**Figure 15: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida**

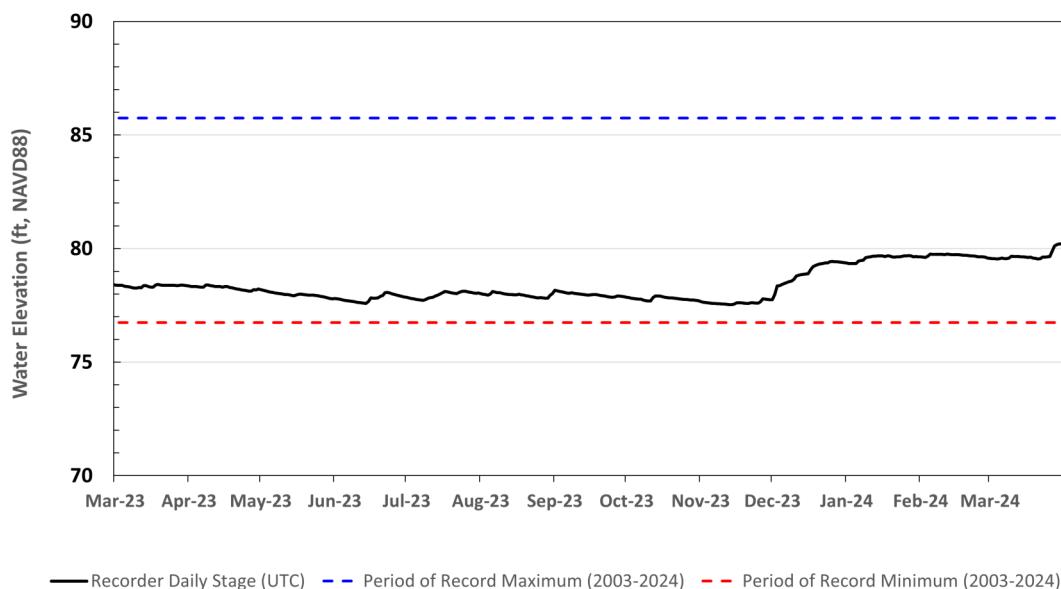


**Figure 16: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida**

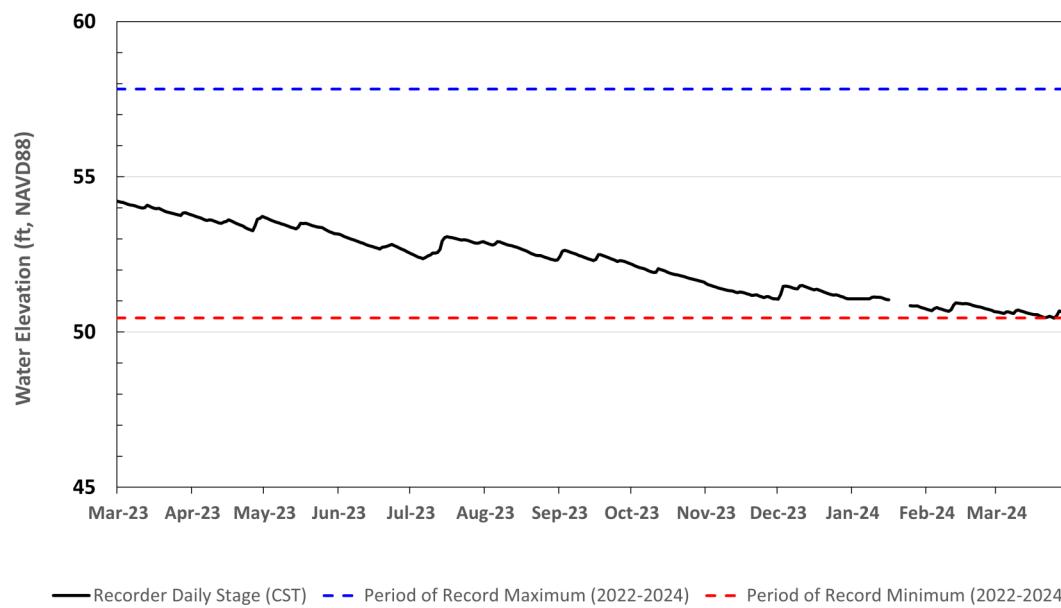


**Lake Levels.** Water levels at Lake Jackson in Leon County have been relatively stable from January 2024 through late March 2024, near 80 ft NAVD 88. At the end of March, the lake levels increased about 0.5 feet in response to rain events in the later part of the month. Lake Jackson levels remain below the full pool level of 86 ft, NAVD 88 ([Figure 17](#)). In southern Washington County, water levels at Piney Lake continued to decrease during February, reaching the lowest level since monitoring began during the 2022 flooding event ([Figure 18](#)).

**Figure 17: Daily water levels at Lake Jackson at Miller Landing, Leon County**



**Figure 18: Daily water levels at Piney Lake, Washington County**



## Spring Flows

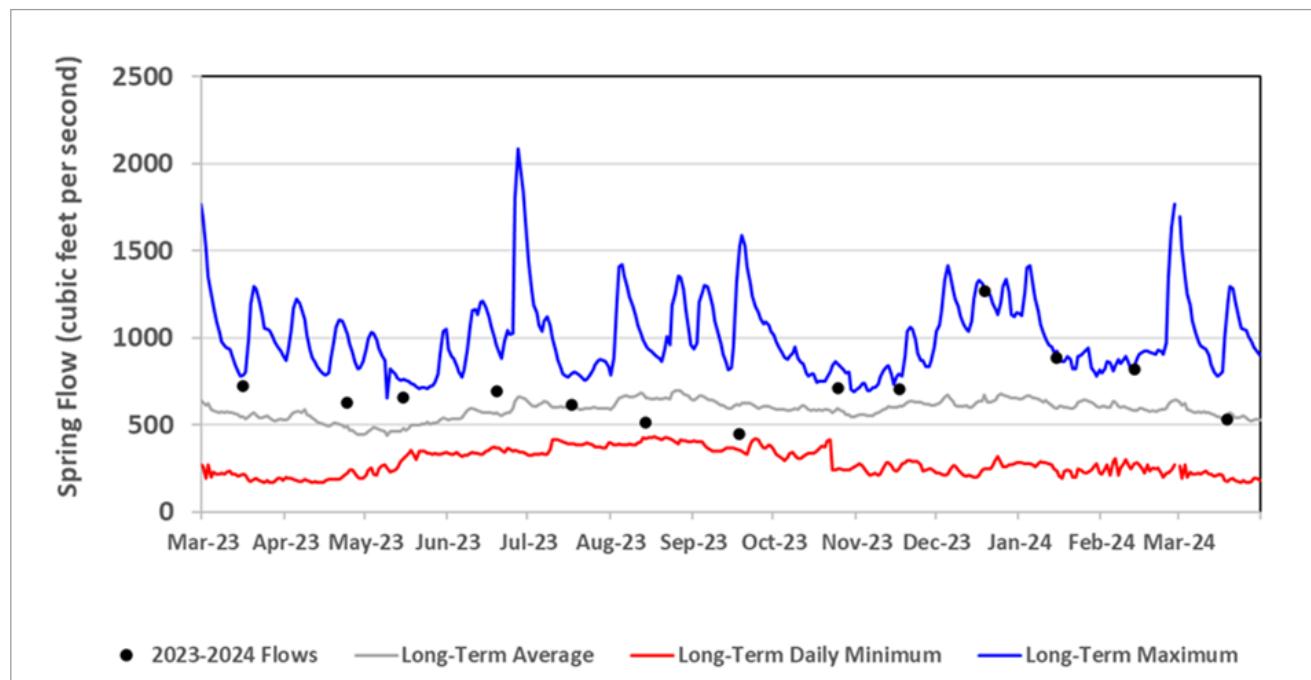
**Wakulla and Sally Ward Spring System.** Flow at Wakulla Spring was lower during March 2024 than in prior months. The most recent flow measurement for Wakulla Spring was 533 cubic feet per second (cfs), which was collected on March 19, 2024 (Figure 19). The long-term (2004 to present) average flow for the month of March is 626 cfs.

Flow at Sally Ward Spring declined to 22.8 cfs which is the lowest value measured during the month of March. The March average and maximum Sally Ward Spring flow, based on the November 1, 2004 to present period of record were 31.4 and 65.8 cfs, respectively.

The Minimum Flow established for the combined Wakulla and Sally Ward Spring System under Florida Administrative Code chapter 40A-8.041 continues to be met. The long-term (October 22, 2004 to present) average flows for Wakulla and Sally Ward Springs through March 2024 are 588 cfs and 24 cfs, respectively. The combined long-term spring flow for both systems is 612 cfs, which exceeds the established Minimum Flow of 539 cfs by 73 cfs.

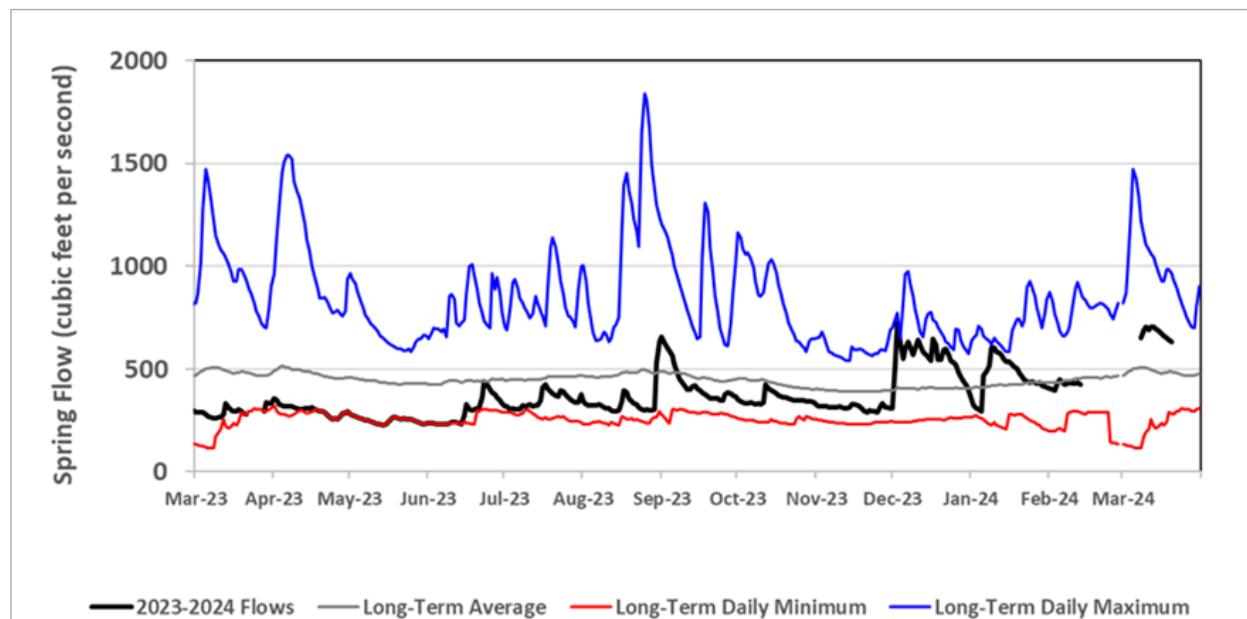
**Figure 19: Daily Wakulla Spring flows**

Data from March 2023 through March 2024 represent discrete measurements. Daily statistics are based on the October 22, 2004, through December 31, 2023, period of record.



**St. Marks River Rise.** The mean daily spring flow for March 2024 (March 8 through March 20, 2024) at the St. Marks River Rise is 677 cfs, based on the available USGS provisional data which extends through March 20, 2024 ([Figure 20](#)). The current 30-year moving average spring flow for the St. Marks River Rise based on the most recent approved USGS data (October 14, 1992 through October 13, 2022) is 434 cfs. If the provisional data from October 14, 2022 through February 13, 2024 are included, the 30-year moving average spring flow for the St. Marks River Rise is 427 cfs. The established Minimum Flow for the St. Marks River Rise is 419 cfs, indicating that the Minimum Flow is exceeded the 30-year moving average using both the approved and provisional data.

**Figure 20: Daily spring flows for the St. Marks River Rise**

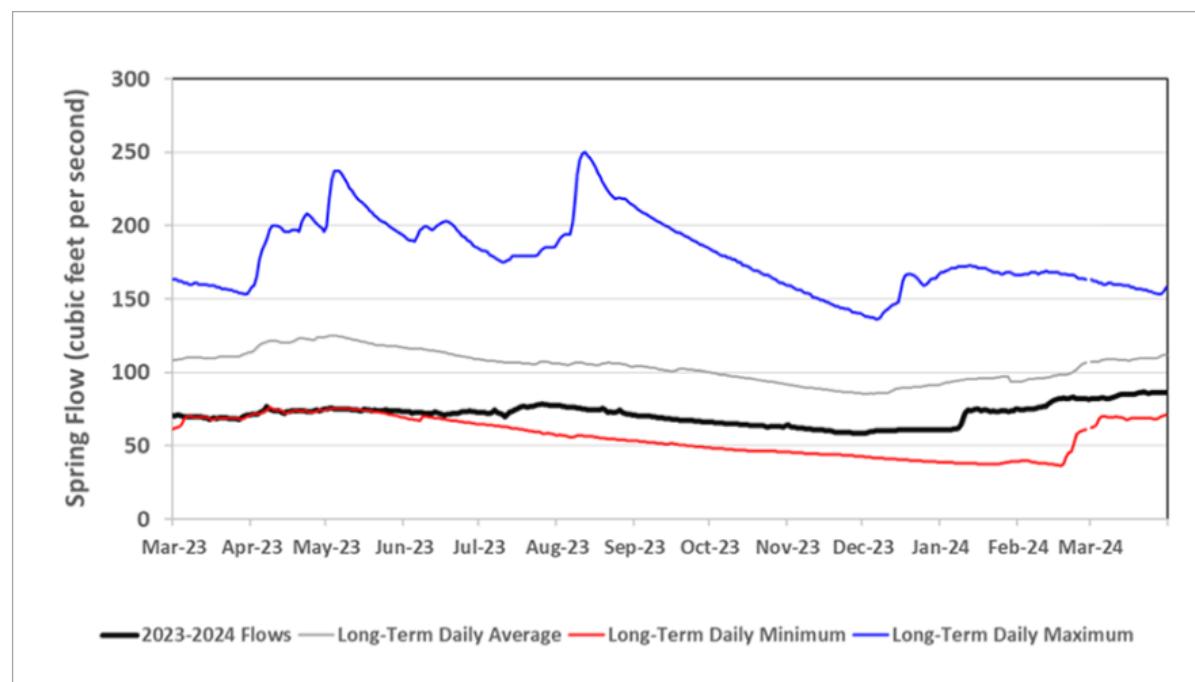


**Jackson Blue Spring.** Daily average flows at Jackson Blue Spring for the month of March 2024 averaged 84.6 cfs, which is below the March monthly average of 109 cfs ([Figure 21](#)).

**Gainer Spring Group.** The average daily flow at the Gainer Spring Group was 159 cfs during March 2024 (March 1 through March 19, 2024) and represents the lowest monthly average for the period of continuous flow data, which extends from October 28, 2019, through present ([Figure 22](#)). The long-term average monthly spring flow for March is 179 cfs. It should be noted that there is a relatively brief period of record for this system, and spring flows among the highest and lowest on record are to be expected.

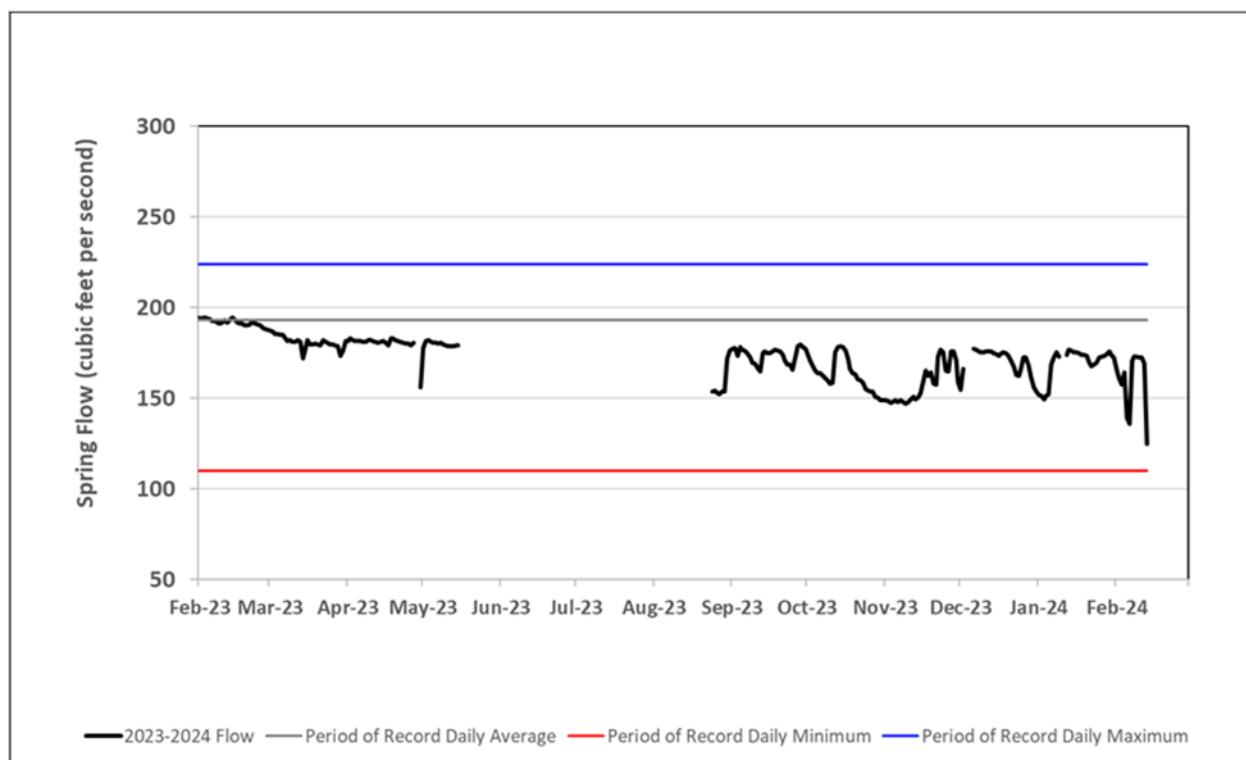
**Figure 21: Daily spring flows for Jackson Blue Spring**

Data represents daily averages. Long-term flows represent the daily average between December 21, 2004, and March 31, 2024.



**Figure 22: Gainer Spring Group flows**

Data represents daily averages. Streamflow statistics are not shown due to the relatively short period of daily data.



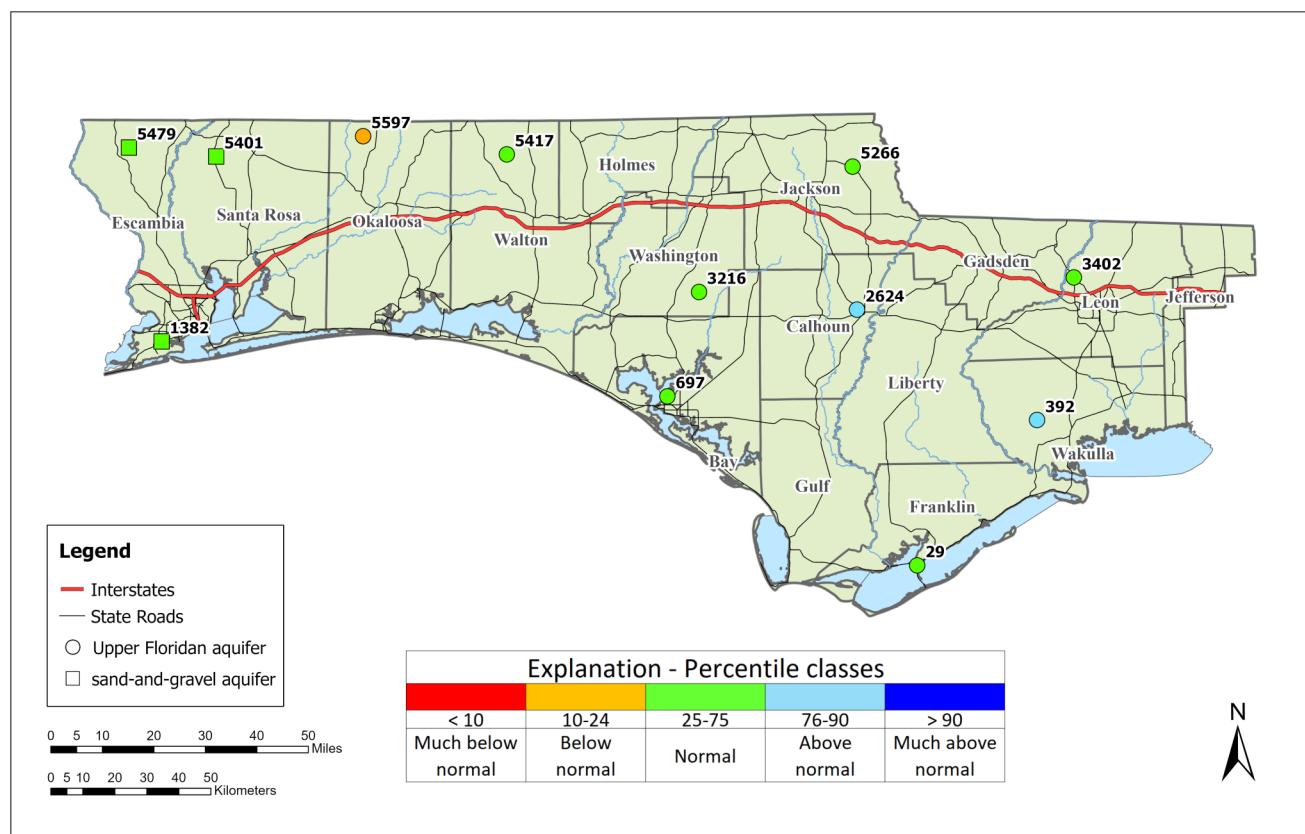
## Aquifer Levels

Most Floridan aquifer levels across the District were classified as normal or above normal by the end of March ([Figure 23](#)). The only Floridan monitor well classified as below normal was NFWFMD-Sand Hill Upper Floridan monitor well in northern Okaloosa County (NWFID 5597), a result of a deficit of rainfall in the area ([Figures 2 & 16](#)). All sand-and-gravel aquifer levels monitored were within normal range ([Figure 23](#)).

At most monitor wells depicted in the hydrographs, aquifer levels remained stable during March 2024 with a few exceptions ([Figures 24 - 29](#)). Groundwater levels at the USGS-Benchmark monitor well (NWFID 392) in central Wakulla County increased once again into above normal levels, following a short period of normal levels that were documented during February 2024 ([Figure 25](#)). Groundwater levels at Weller Ave monitor well (NWFID 1382) in southern Escambia County decreased to normal levels after a period above normal levels from December 2023 into the beginning of March 2024 ([Figure 29](#)).

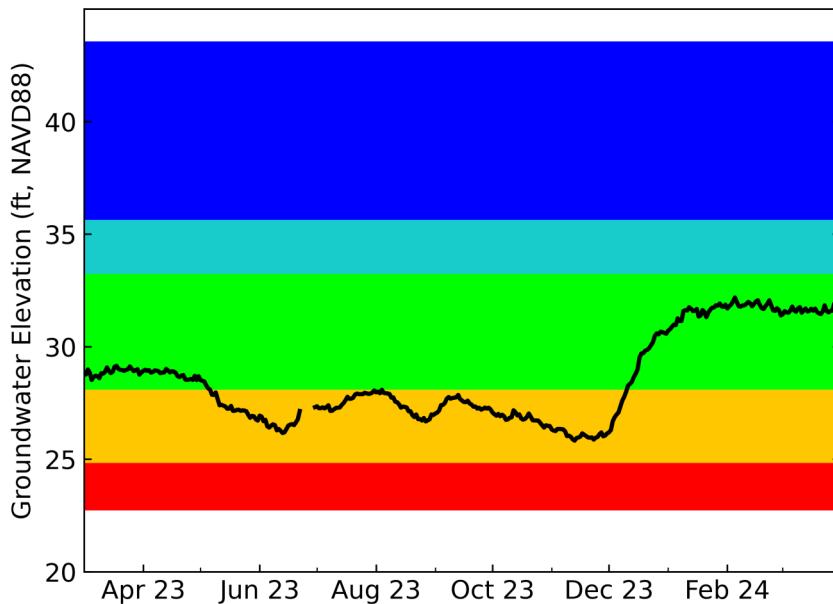
**Figure 23: Floridan aquifer monitor wells and aquifer level percentiles for March 2024**

Percentile class rankings are based on each well's period of record. All wells have a minimum of 20 years of data.



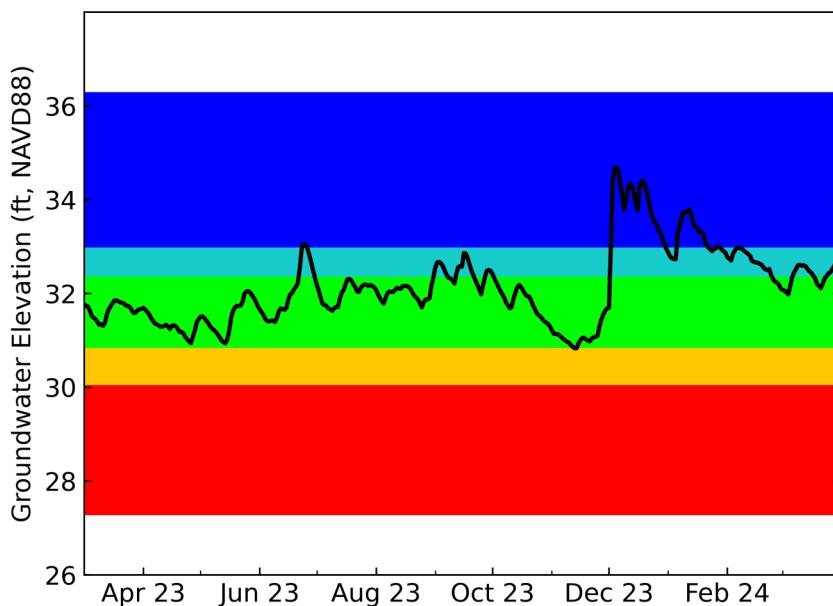
**Figure 24: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County**

Land surface elevation is 121.40 ft, NAVD 88



**Figure 25: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County**

Land surface elevation is 46.27 ft, NAVD 88

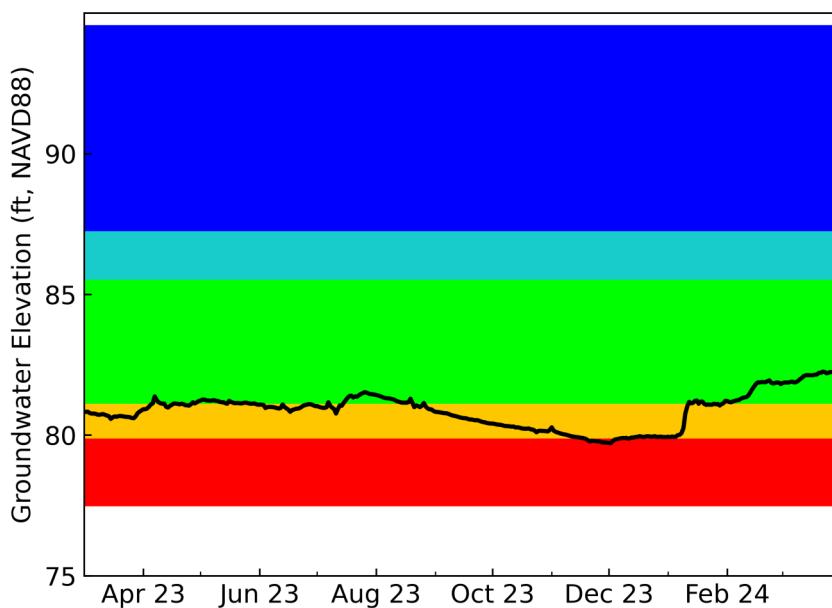


Explanation - Percentile classes				
< 10	10-24	25-75	76-90	> 90
Much below normal	Below normal	Normal	Above normal	Much above normal



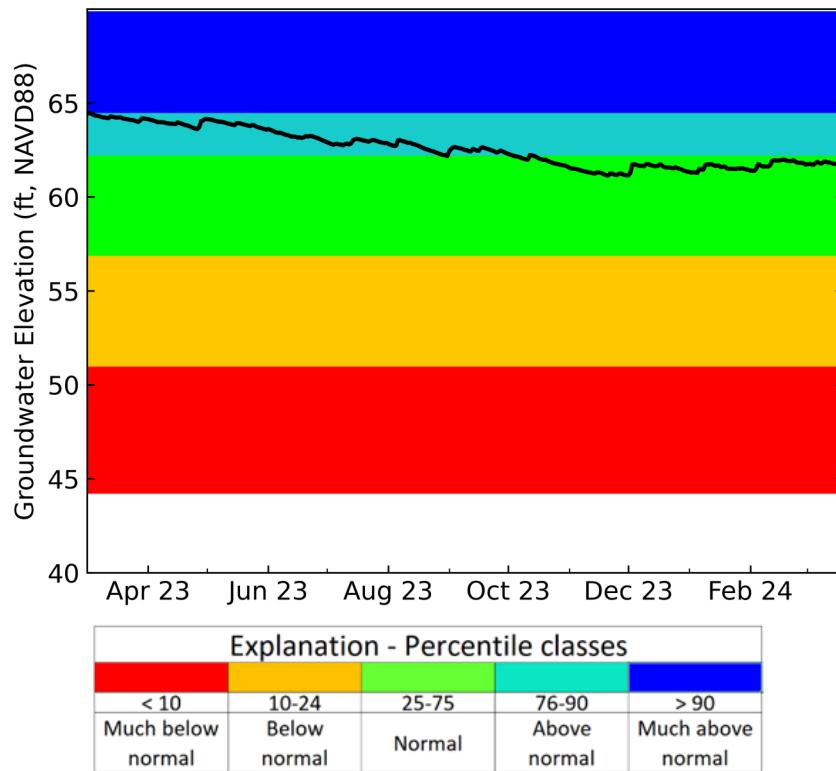
**Figure 26: Daily Upper Floridan aquifer levels at NFWFMD Pittman Visa well (NWFID 5266), Jackson County**

Land surface elevation is 127.31 ft, NAVD 88



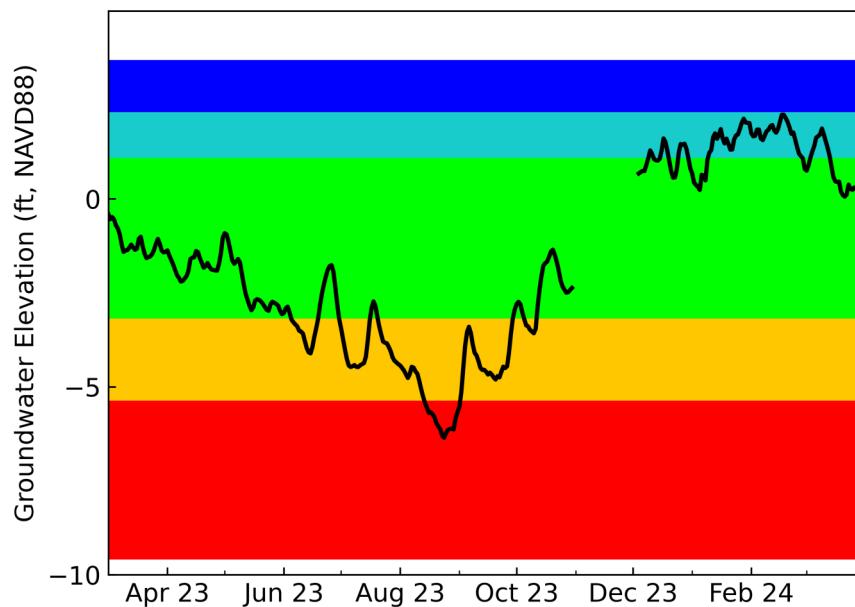
**Figure 27: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County**

Land surface elevation is 66.75 ft, NAVD 88



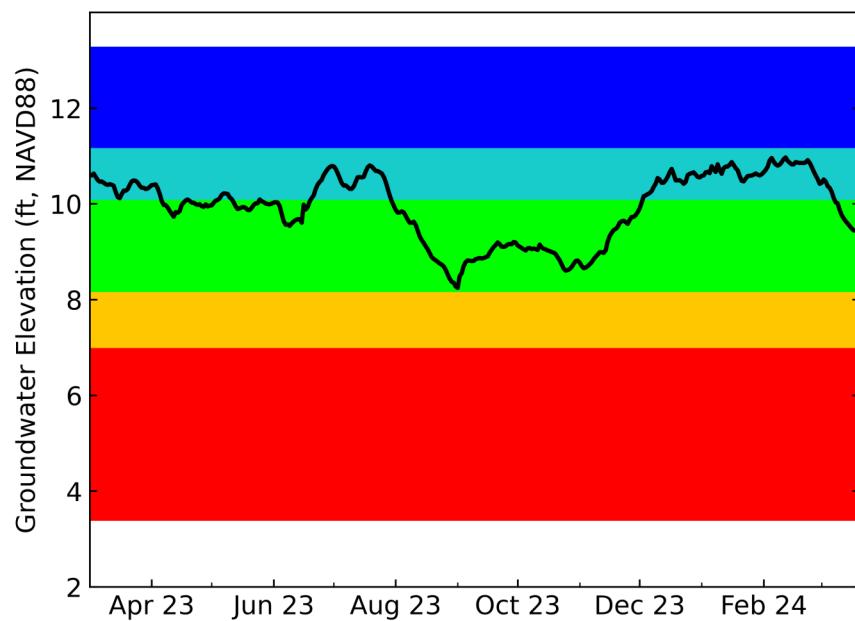
**Figure 28: Daily Upper Floridan aquifer levels at Fannin Airport well (NWFID 697), Washington County**

Land surface elevation is 4.05 ft, NAVD 88



**Figure 29: Daily sand-and-gravel aquifer levels at Weller Ave Deep well (NWFID 1382), Escambia County**

Land surface elevation is 25.09 ft, NAVD 88



Explanation - Percentile classes				
< 10	10-24	25-75	76-90	> 90
Much below normal	Below normal	Normal	Above normal	Much above normal