



Hydrologic Conditions Report

June 2024

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Summary

June 2024 was characterized by below normal precipitation and above normal temperatures (averaging around 81.7 degrees Fahrenheit) that contributed to generally normal aquifer levels, streamflow, and spring flow across most of the Panhandle. Drought conditions were present in the eastern portion of the District this month but are forecast to end by the end of July 2024.

Rainfall

The District in June 2024 recorded an average of 5.80 inches of rain across the Panhandle. This was 0.66 inches (10.8%) below the District normal rainfall amount for the month of June, 6.46 inches. Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. Though the overall average observed rainfall across the District was classified as below normal, precipitation amounts varied spatially. The highest rainfall amounts of around 12 inches occurred towards the west in parts of Escambia, Santa Rosa, Okaloosa, and Holmes Counties while the lowest rainfall amounts of around 1.5 inches occurred towards the east in parts of Leon, Wakulla, and Jefferson Counties (**Table 1; Figures 1 through 7**). Many of the rain events that occurred in June 2024 in the District were smaller, localized convection or sea breeze-based systems rather than larger scale systems. The most significant rain event in the District occurred on June 1, 2024, when a larger scale system moved into the Panhandle from the west. During this storm, Pensacola received 3.99 inches of rain, nearly half of the city’s total observed rainfall for the month.



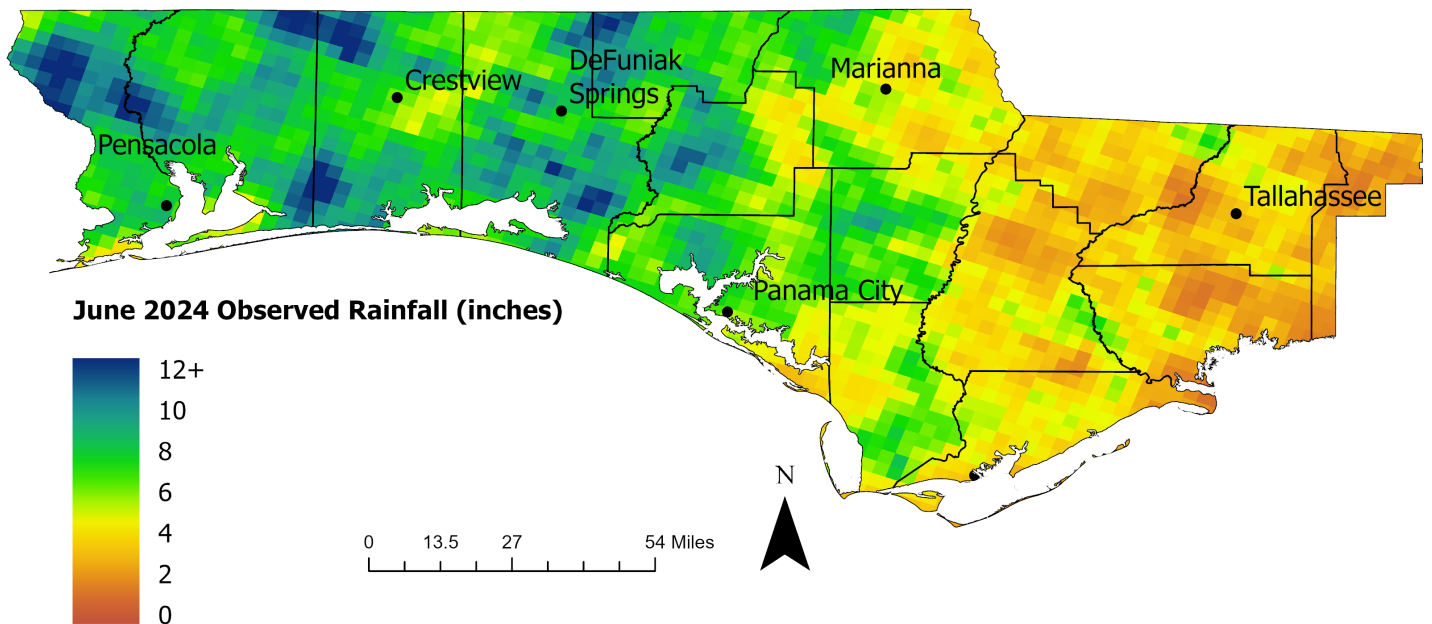
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Northwest Florida Water Management District
81 Water Management Drive
Havana, FL 32333-4712
(850) 539-5999
www.nwfwater.com

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

Station	June Normal Rainfall (1991 to 2020)	June 2024 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	7.76	3.91	-66.0%
Marianna Regional Airport	5.07	3.29	-42.6%
Niceville, FL	6.79	6.24	-8.4%
Pensacola Regional Airport	7.32	8.45	14.3%

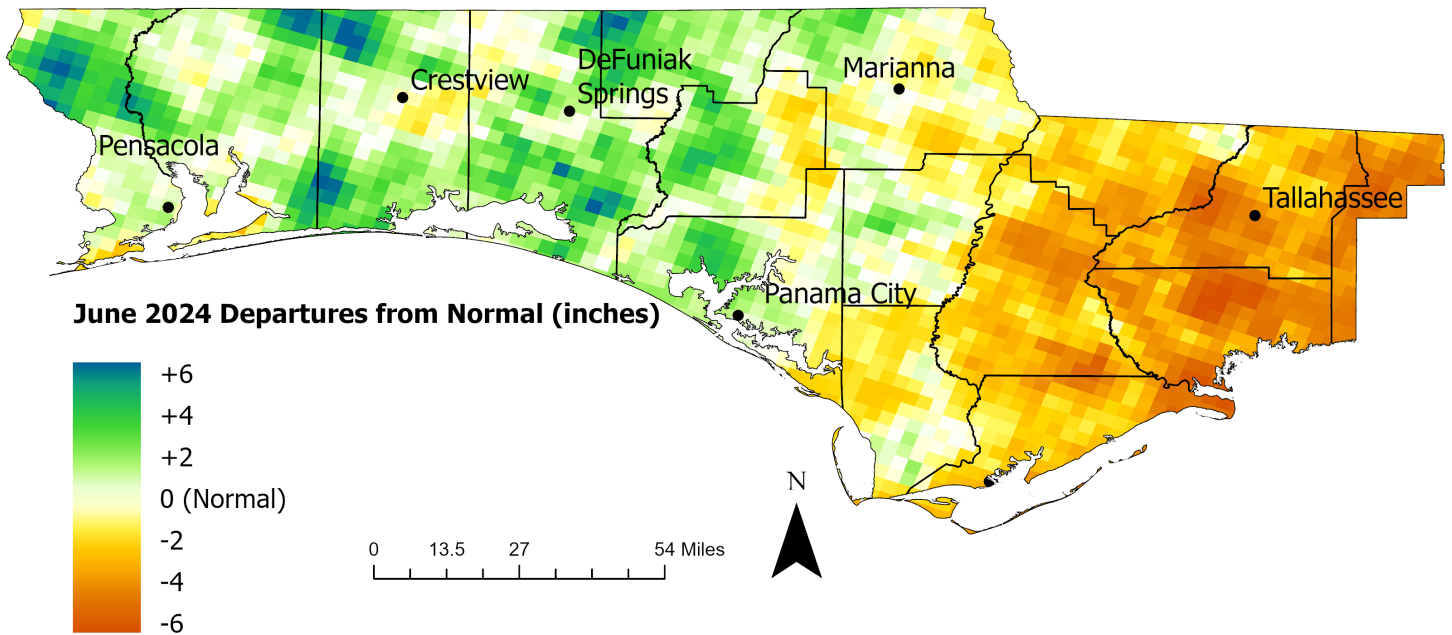
Source: <https://www.weather.gov/wrh/Climate?wfo=tae>
<https://www.weather.gov/wrh/Climate?wfo=mob>

Figure 1: District-wide June 2024 observed rainfall



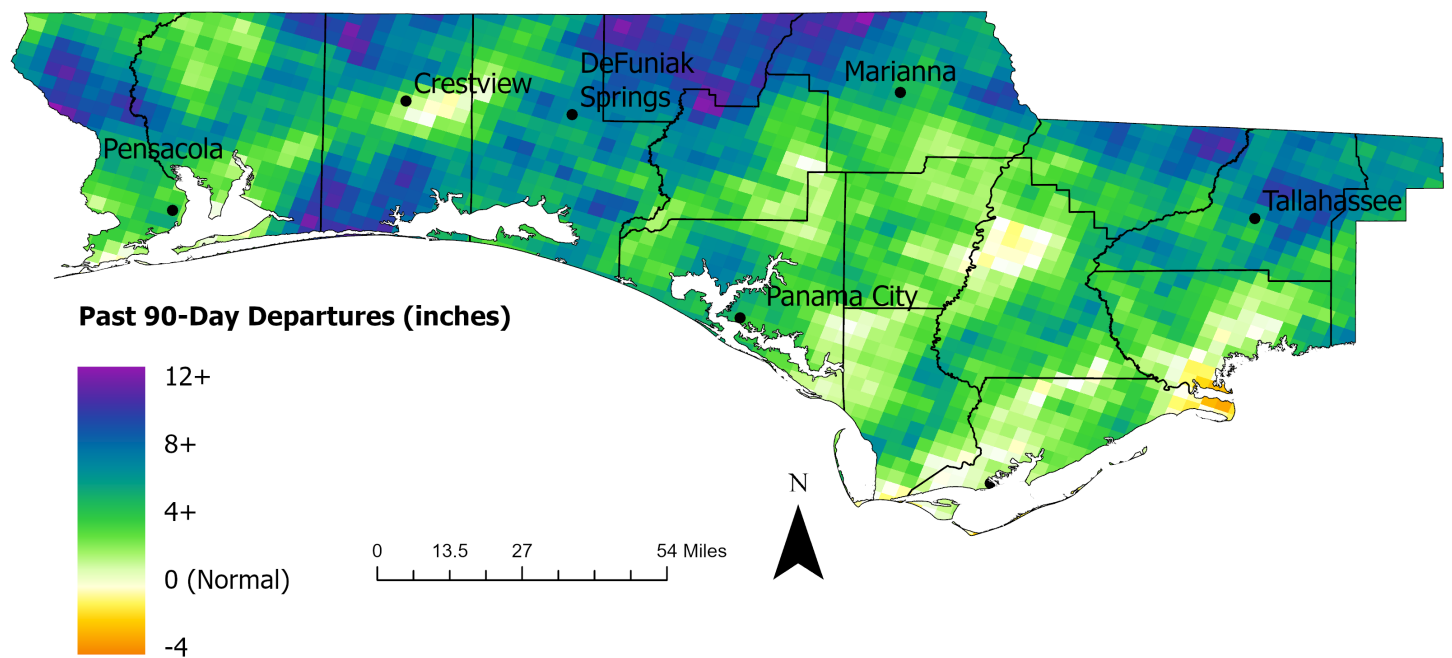
Source: <https://water.weather.gov/precip/download.php>

Figure 2: District-wide June 2024 precipitation departure from normal



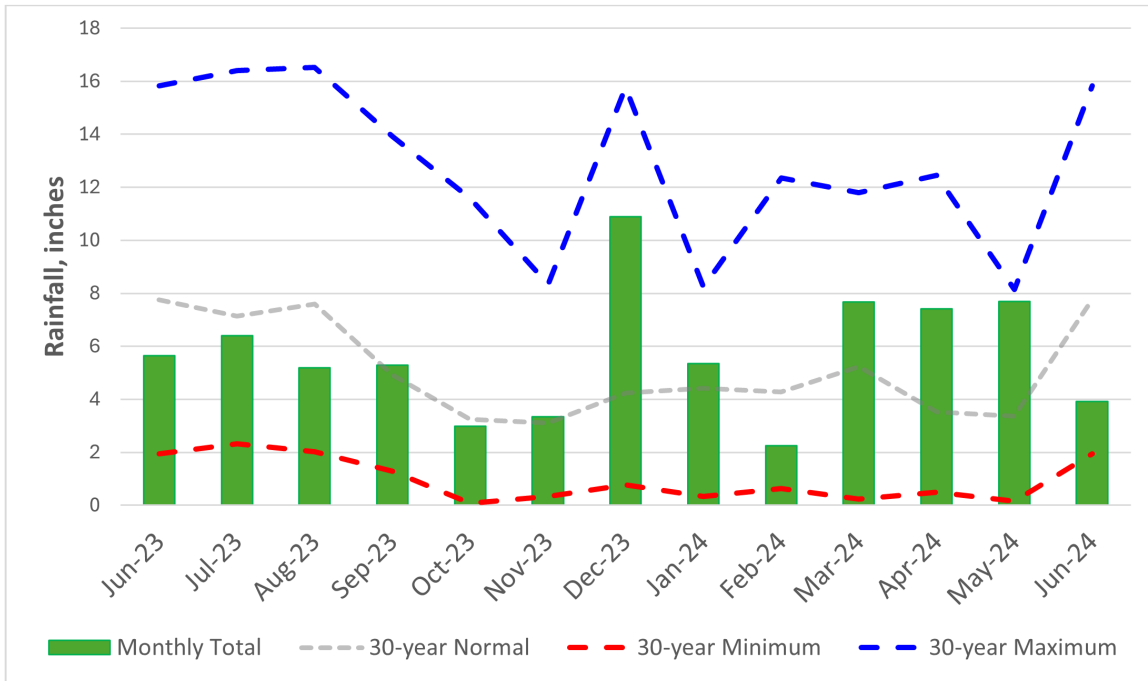
Source: <https://water.weather.gov/precip/download.php>

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



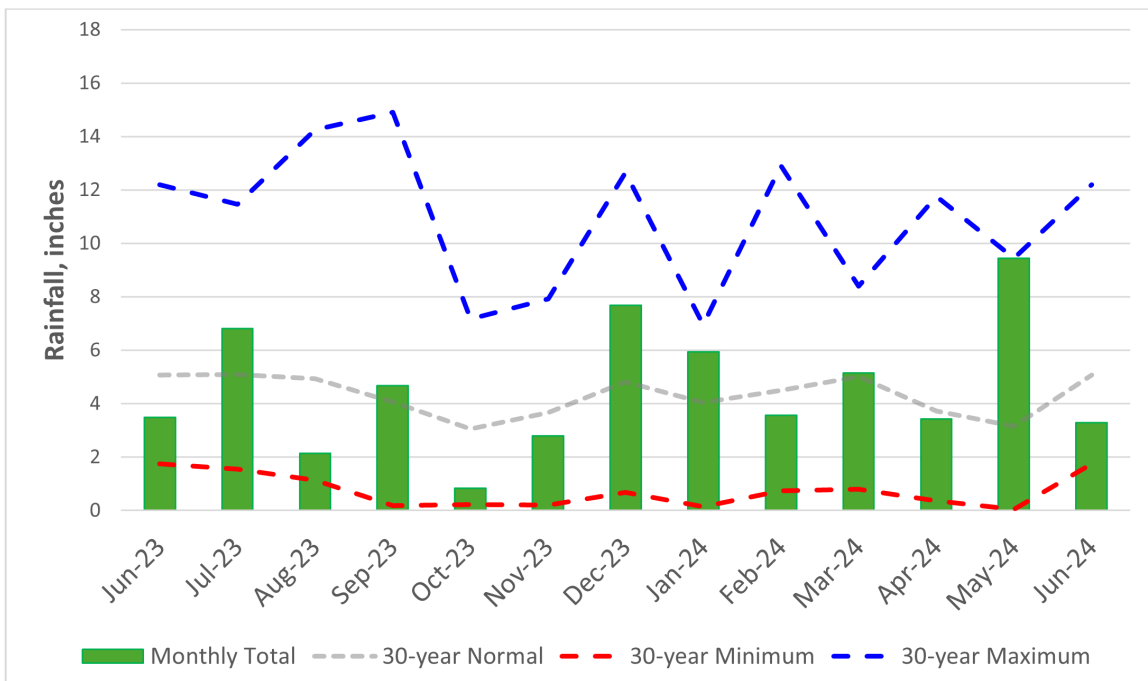
Source: <https://water.weather.gov/precip/download.php>

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



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

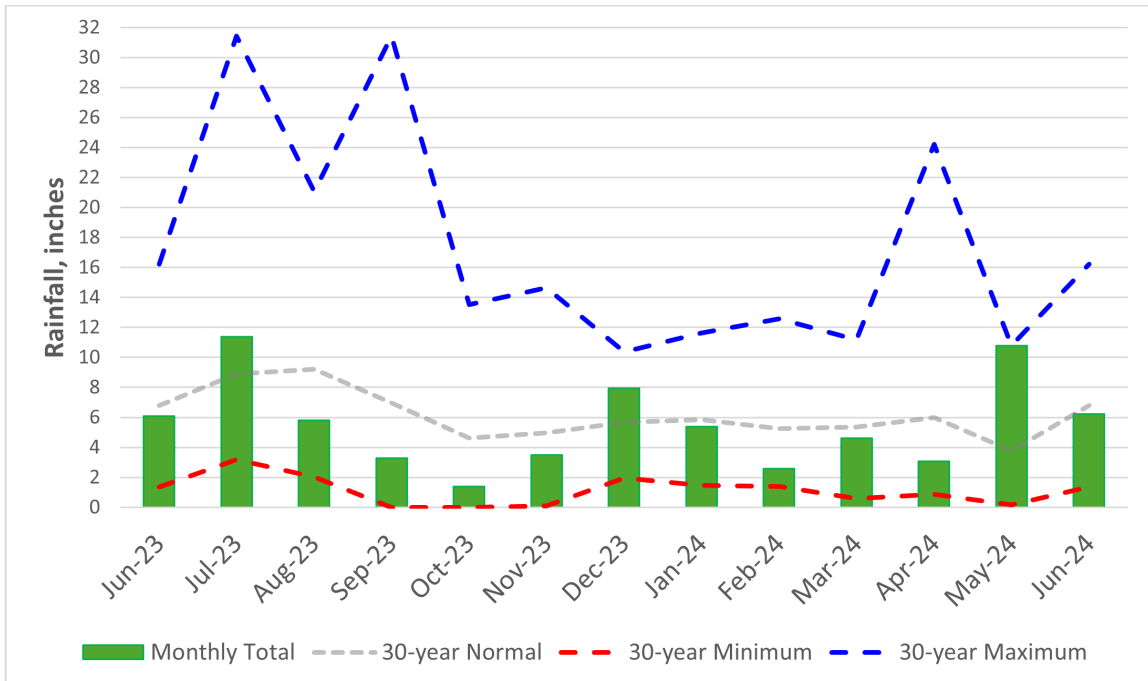
Figure 5: Observed rainfall at Marianna Regional Airport for June 2023 to June 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



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

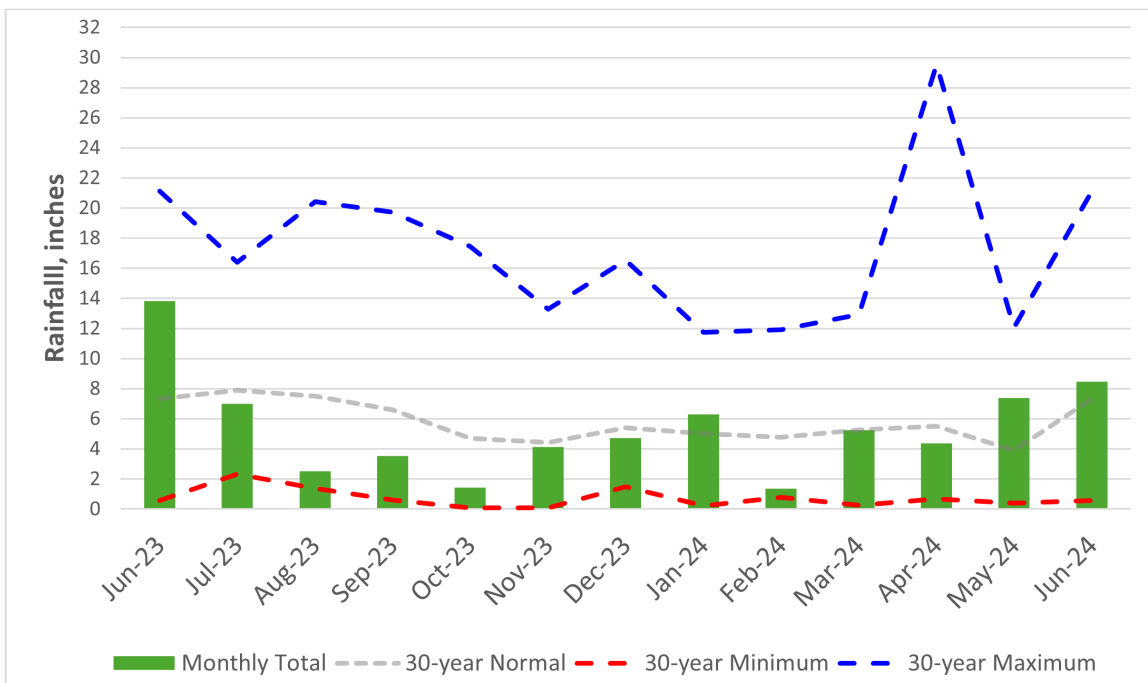


Figure 6: Observed rainfall in Niceville for June 2023 to June 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



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

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



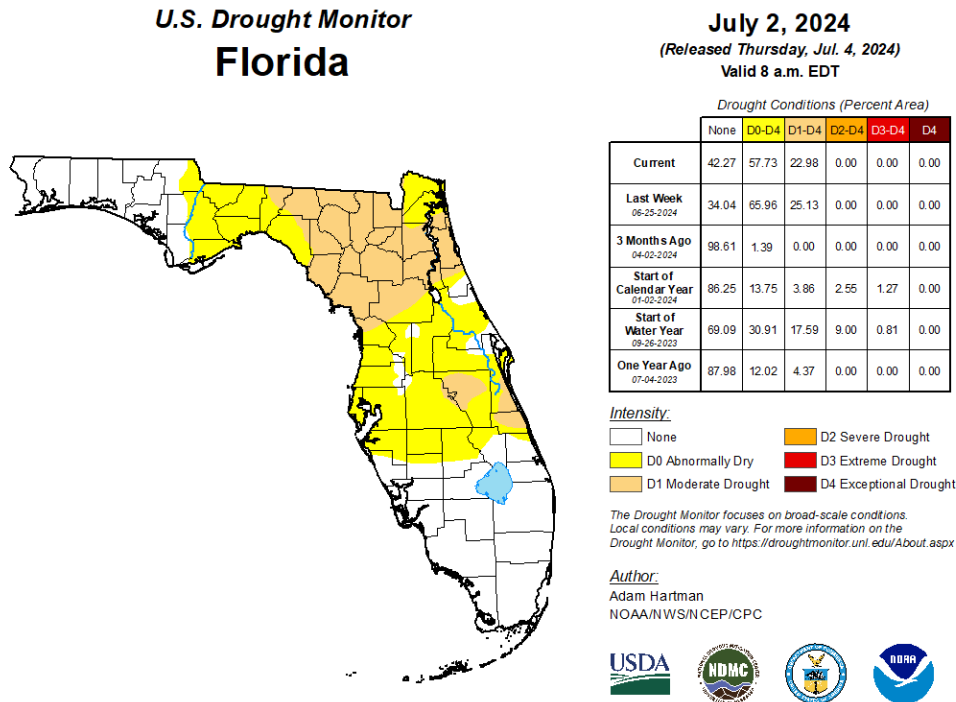
Source: <https://www.weather.gov/wrh/Climate?wfo=mob>



Drought Conditions

The U.S. Drought Monitor report released on July 4, 2024, showed abnormally dry conditions in the eastern portion of the District with northern Jefferson County experiencing moderate drought (Figure 8). This is likely a result of the rainfall deficit throughout June in the District’s eastern counties (Figure 2). According to the U.S. Monthly Drought Outlook valid for July 2024, the drought conditions in the District are anticipated to cease by the end of July 2024.

Figure 8. Florida Drought Conditions on July 2, 2024



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

Climate Outlook

According to NOAA’s climate prediction center, the forecast issued July 1, 2024, for July 2024 shows a likely probability for above normal temperatures and a slight probability of above normal rainfall amounts across the District.

As of June 24, 2024, El Nino conditions have ended, and ENSO-neutral conditions are present. Following the transition to ENSO-neutral, La Niña conditions are favored to develop during July through September (65% chance) and are forecast to persist into the upcoming winter season . A La Niña pattern during hurricane season creates ideal conditions for the development of tropical cyclones in the Atlantic basin. In the winter, La Niña is associated with warmer and drier conditions than usual for the southern United States.

Source: <https://www.climate.gov/news-features/understanding-climate/us-climate-outlook-june-2024>
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

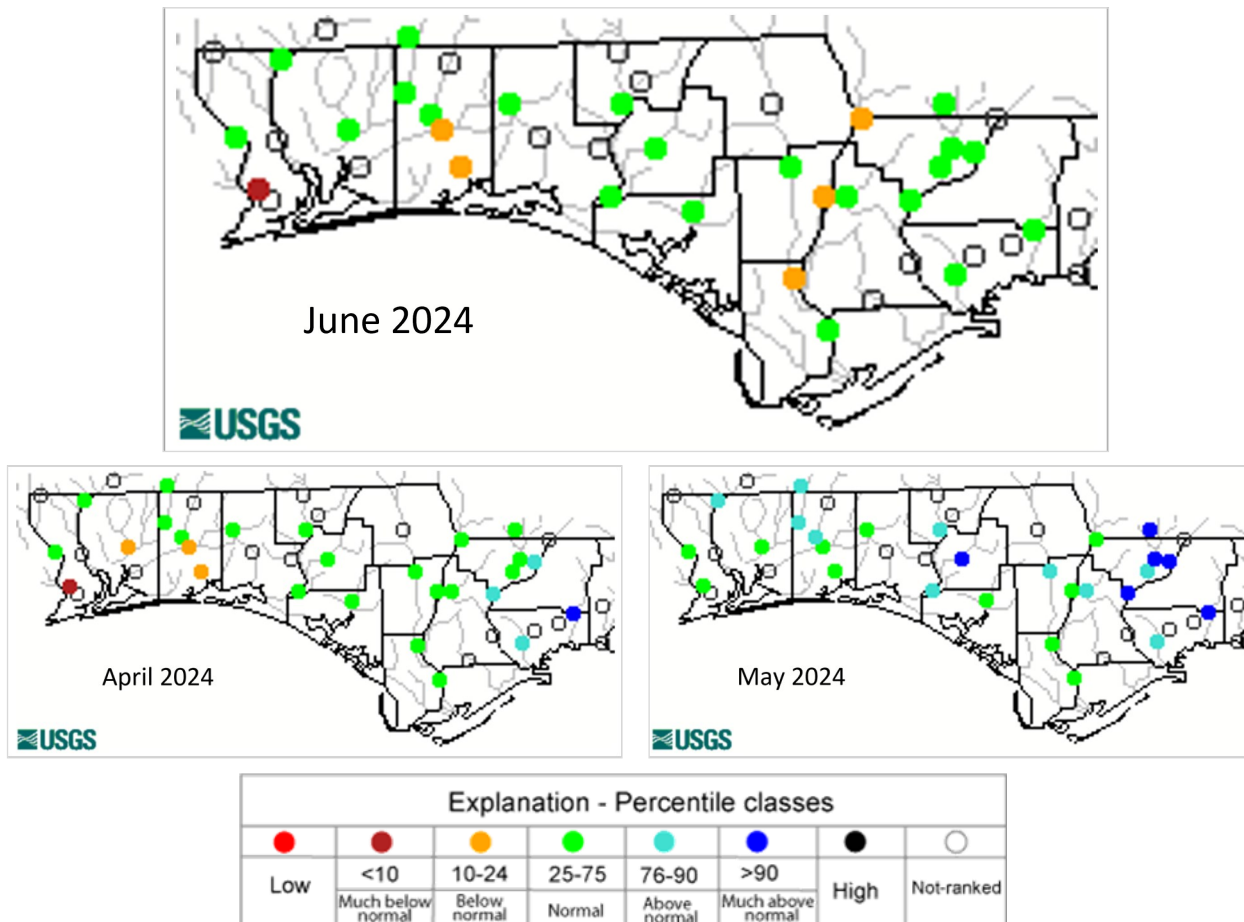


Surface Water

Streamflows. The District in June 2024 saw a significant pattern change in streamflow classifications since the end of May 2024 (Figure 9). During May, there was an excess of precipitation that contributed to many stations recording above normal or much above normal flows. In June, the District generally received less rain than normal (Figure 2), enabling streamflows to decrease from elevated ranges to normal or below normal ranges. A majority of stations in the Panhandle recorded normal ranges except for along the central and northern Apalachicola River and in southern Escambia and Okaloosa Counties where streamflows were classified as below normal or much below normal.

Looking at the time-series plots for the USGS streamflow stations, most recorded flows that were within normal ranges through the duration of June 2024 with a few exceptions (Figures 10 through 15). The Apalachicola River station near Blountstown recorded below normal flows for much of the month and continued to decrease until the end of June (Figure 12). In contrast, the Blackwater River station near Baker recorded three instances of flows classified as either above normal or much above normal (Figure 14).

Figure 9: Northwest Florida April 2024 to June 2024 monthly streamflow percentiles



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



Figure 10: Daily streamflows and percentile ranges for USGS station 02326900 St. Marks River Near Newport, Florida

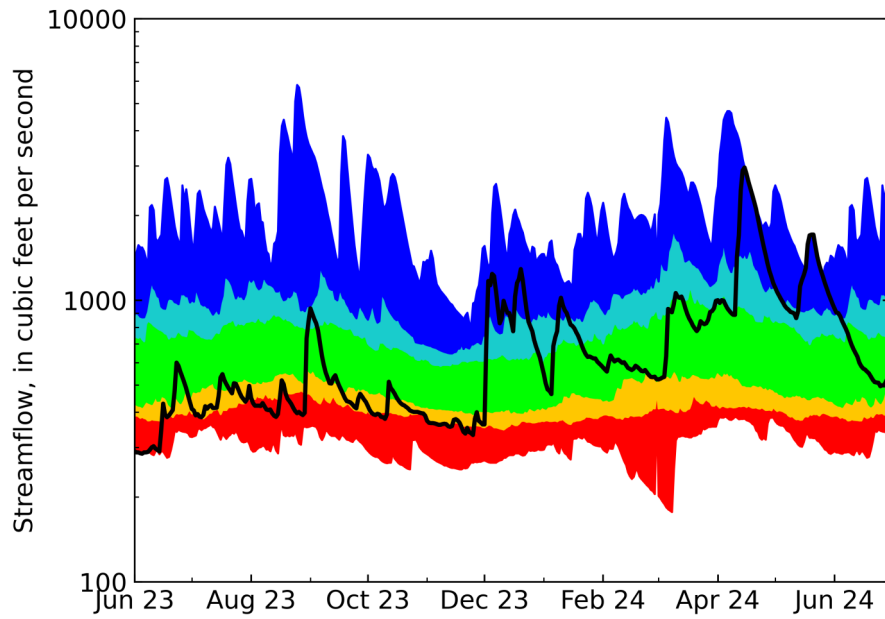
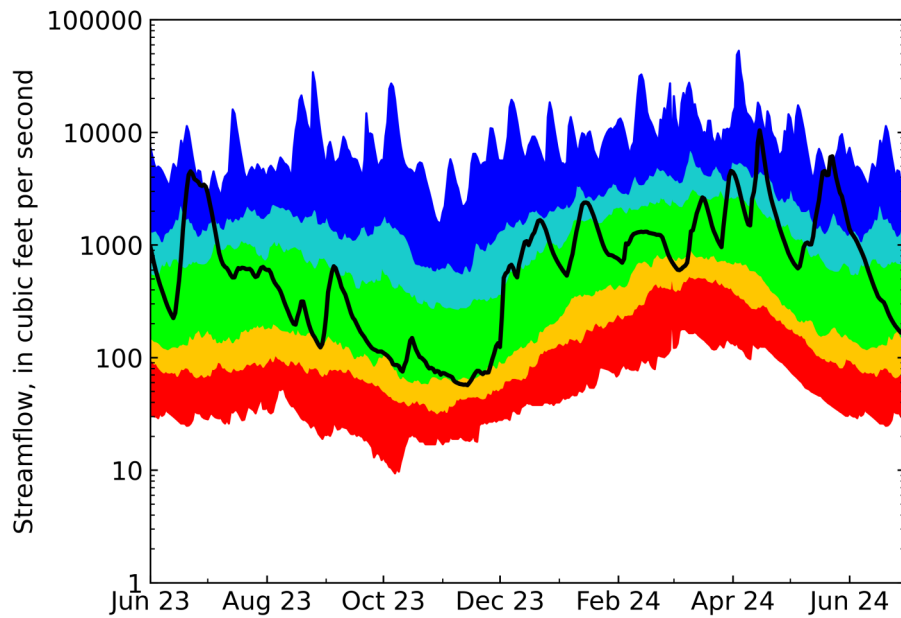


Figure 11: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida



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



Figure 12: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida

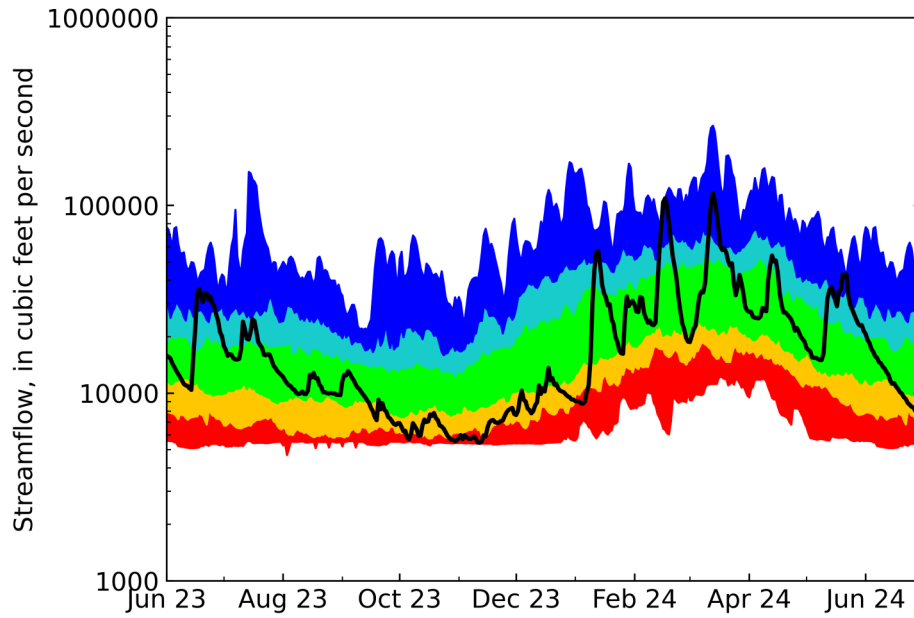
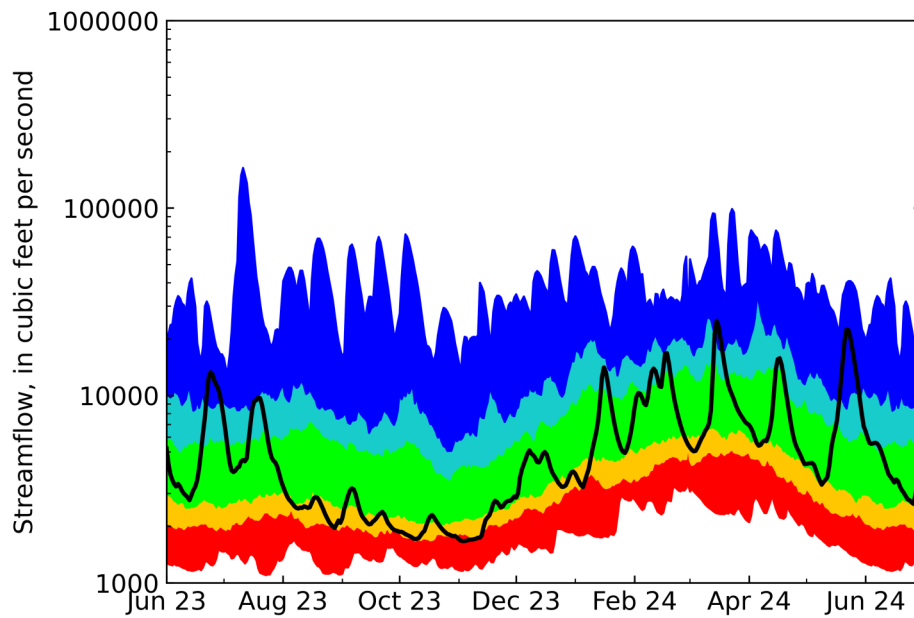


Figure 13: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida



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



Figure 14: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida

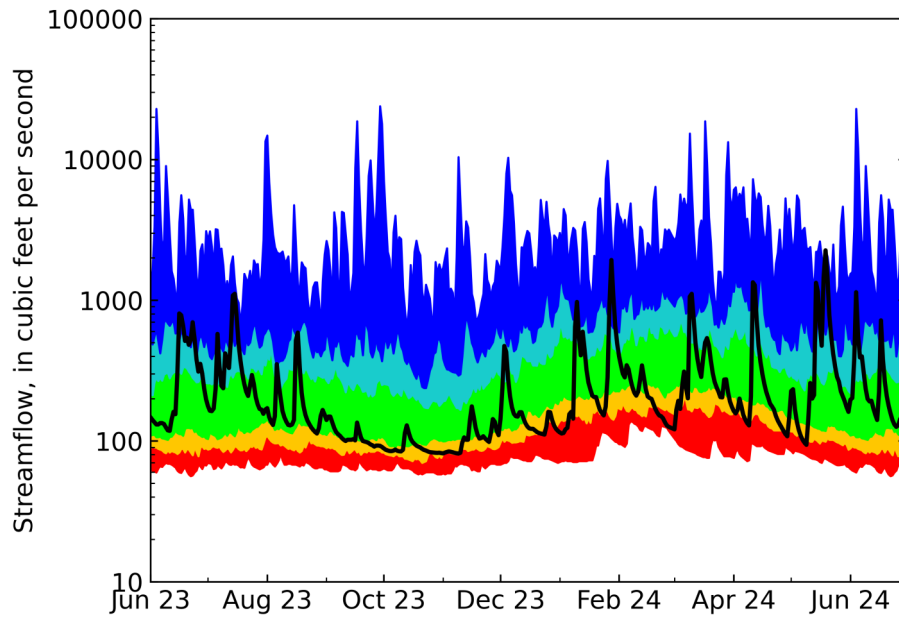
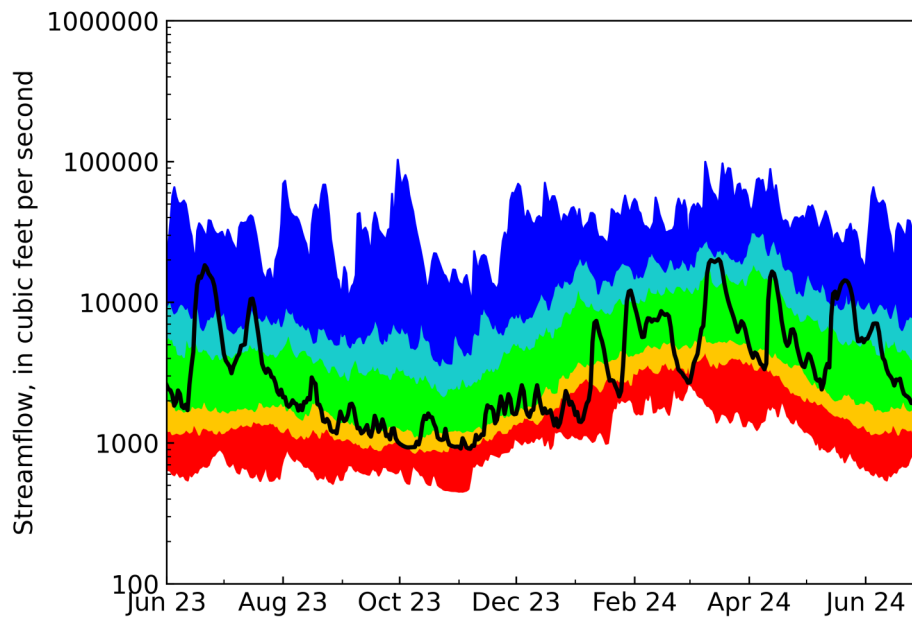


Figure 15: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida



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



Lake Levels. After the 1-foot increase following two significant rain events in mid-May, water levels at Lake Jackson in Leon County generally decreased throughout June 2024, reducing by 0.51 feet by the end of the month (Figure 16). The long-term (January 29, 2003 to June 26, 2024) average stage level for Lake Jackson is 80.87 feet, NAVD 1988, and the full pool level is 86 feet, NAVD 1988 .

Water levels at Piney Lake in southern Washington County decreased throughout June 2024, reducing by 0.39 feet by the end of the month, reaching the lowest level since monitoring began during the 2022 flooding event (Figure 17). Piney Lake ended the month with a stage level of 49.55 ft, NAVD 1988.

Figure 16: Daily water levels at Lake Jackson at Miller Landing, Leon County

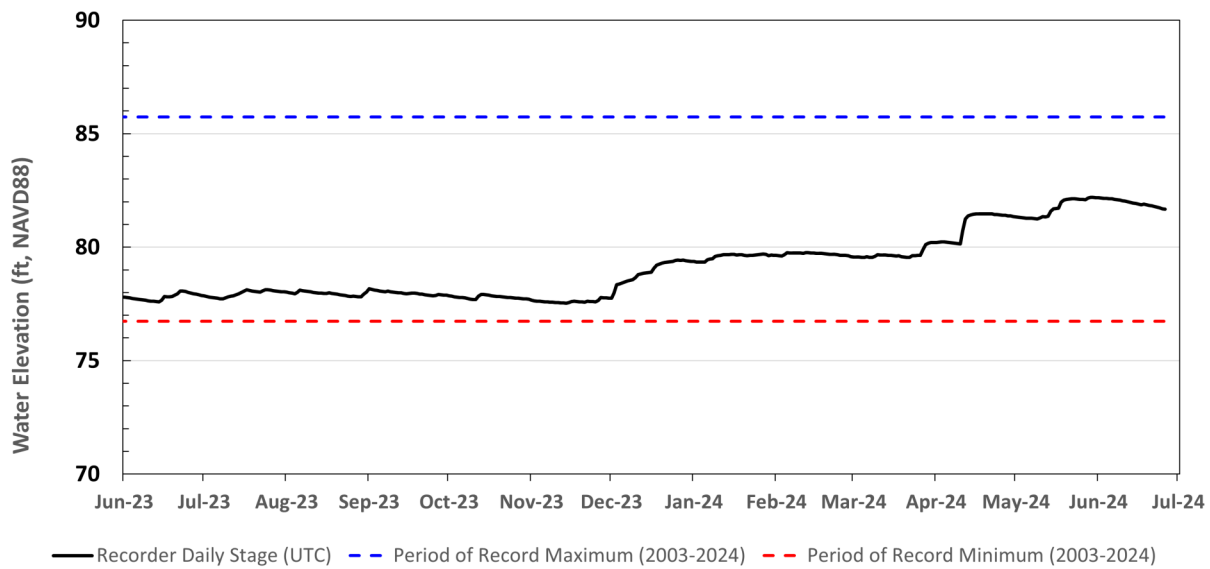
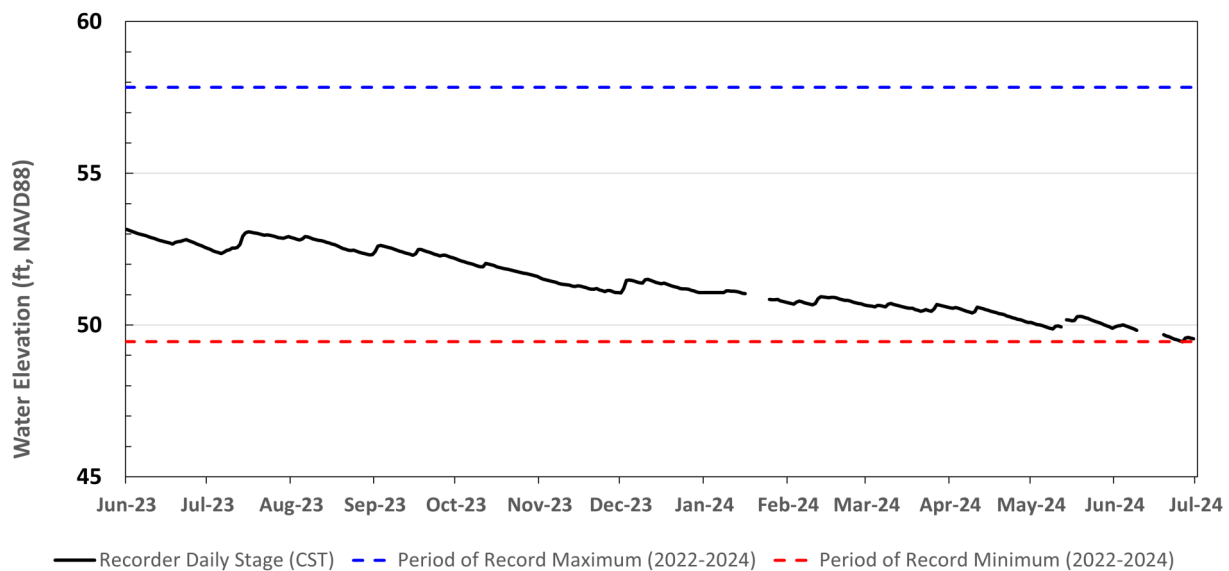


Figure 17: Daily water levels at Piney Lake, Washington County



Spring Flows

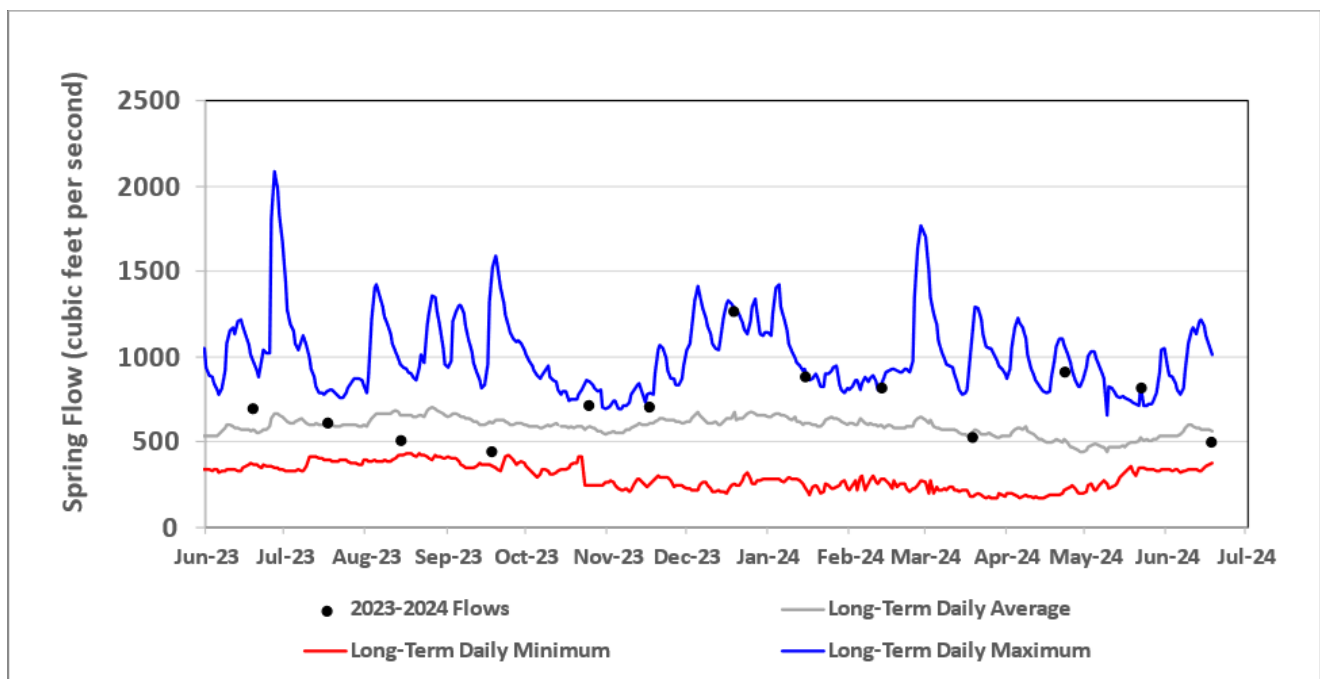
Wakulla and Sally Ward Spring System. After being elevated near the long-term maximum flow during April and May 2024, flow at Wakulla Spring has decreased below the long-term average flow during June 2024. The most recent flow measurement for Wakulla Spring was 505 cubic feet per second (cfs), which was collected on June 18, 2024 (**Figure 18**). The long-term (November 2004 to June 2024) average flow for the month of June is 578 cfs.

Flow at Sally Ward Spring decreased between the measurements taken in May and June. The most recent flow measurement for Sally Ward was 22.4 cfs on June 18, 2024. The June average and minimum Sally Ward Spring flow, based on the November 1, 2004, to present period of record are 30.6 cfs and 17.2 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 23, 2004, through June 2024) average flows for Wakulla and Sally Ward Springs 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.

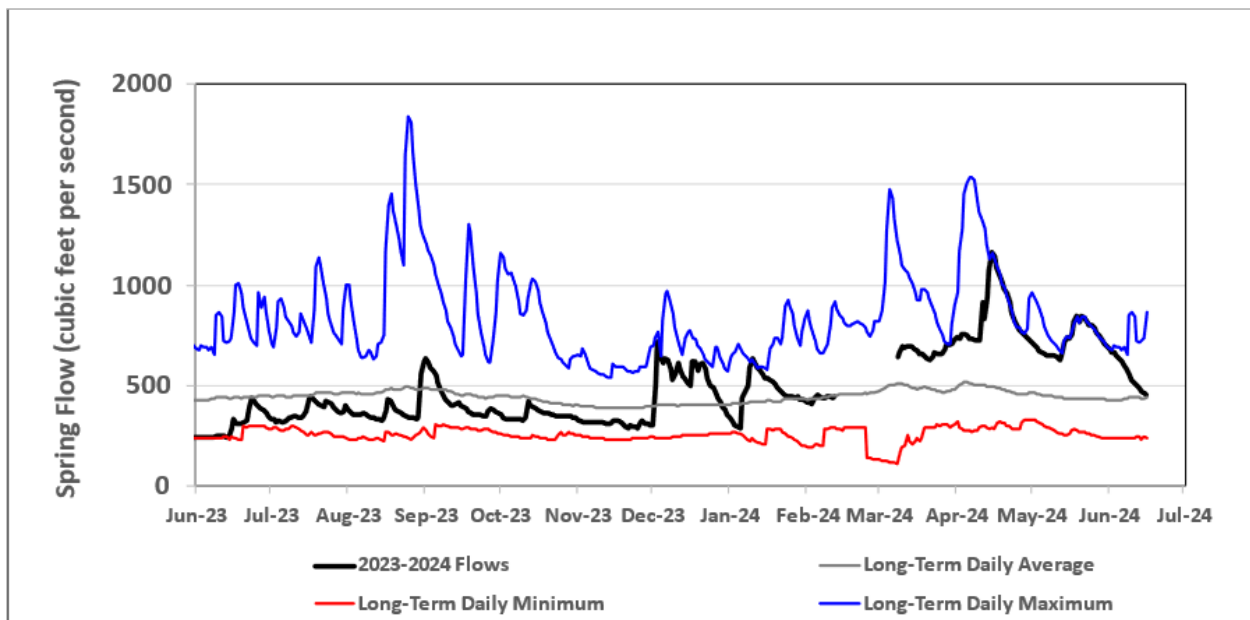
Figure 18: Daily Wakulla Spring flows

Data from June 2023 through June 2024 represent discrete measurements. Daily statistics are based on the October 23, 2004, through June 18, 2024, period of record.



St. Marks River Rise. The mean daily spring flow for June 2024 (June 1 through 16, 2024) at the St. Marks River Rise was 568 cfs, based on the available USGS provisional data which extends through June 16, 2024 (Figure 19). The current 30-year moving average spring flow for the St. Marks River Rise based on the most recent approved USGS data (November 15, 1993, through November 14, 2023) is 429 cfs. If the provisional data from November 15, 2023, through June 16, 2024, are included, the 30-year moving average spring flow for the St. Marks River Rise is 429 cfs. The established Minimum Flow for the St. Marks River Rise is 419 cfs, indicating that the Minimum Flow exceeds the 30-year moving average using both the approved and provisional data.

Figure 19: Daily spring flows for the St. Marks River Rise



Jackson Blue Spring. Daily average flows at Jackson Blue Spring for the month of June 2024 averaged 109 cfs, which is below the June monthly average of 113 cfs (Figure 20).

Gainer Spring Group. The average daily flow at the Gainer Spring Group was 162 cfs during June 2024 (June 1 through June 18, 2024) and represents the lowest recorded monthly average for June for the period of continuous flow data, which extends from October 28, 2019, through June 18, 2024 (Figure 21). The long-term average monthly spring flow for June is 190 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 20: Daily spring flows for Jackson Blue Spring

Data represents daily averages. Long-term flows represent the daily average between December 21, 2004, and June 30, 2024.

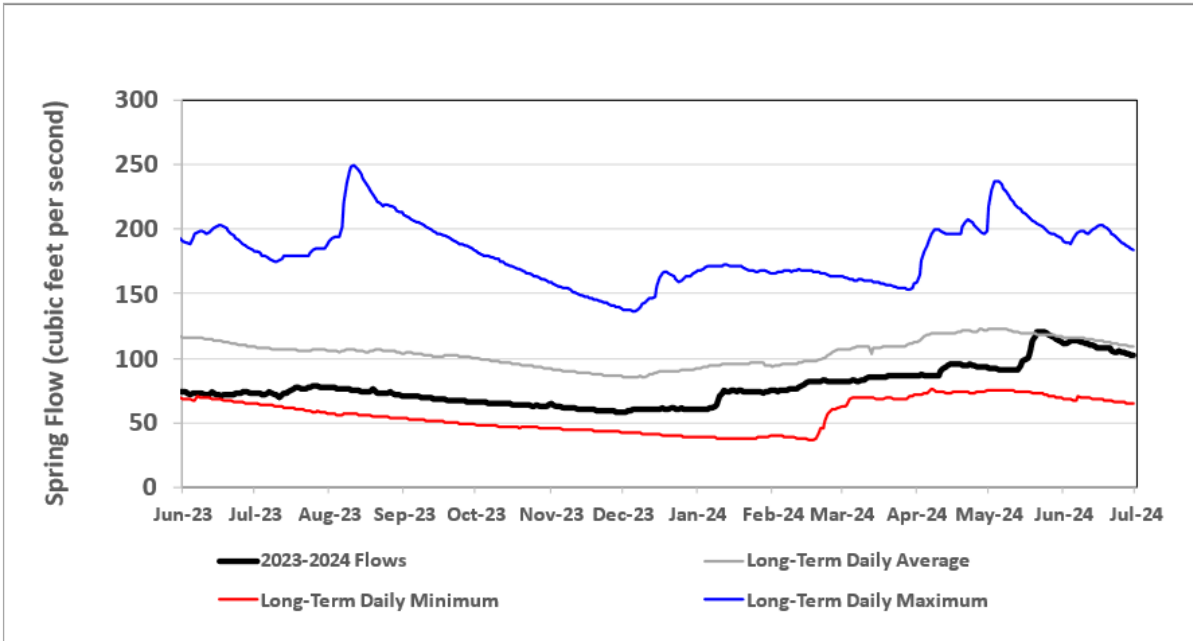
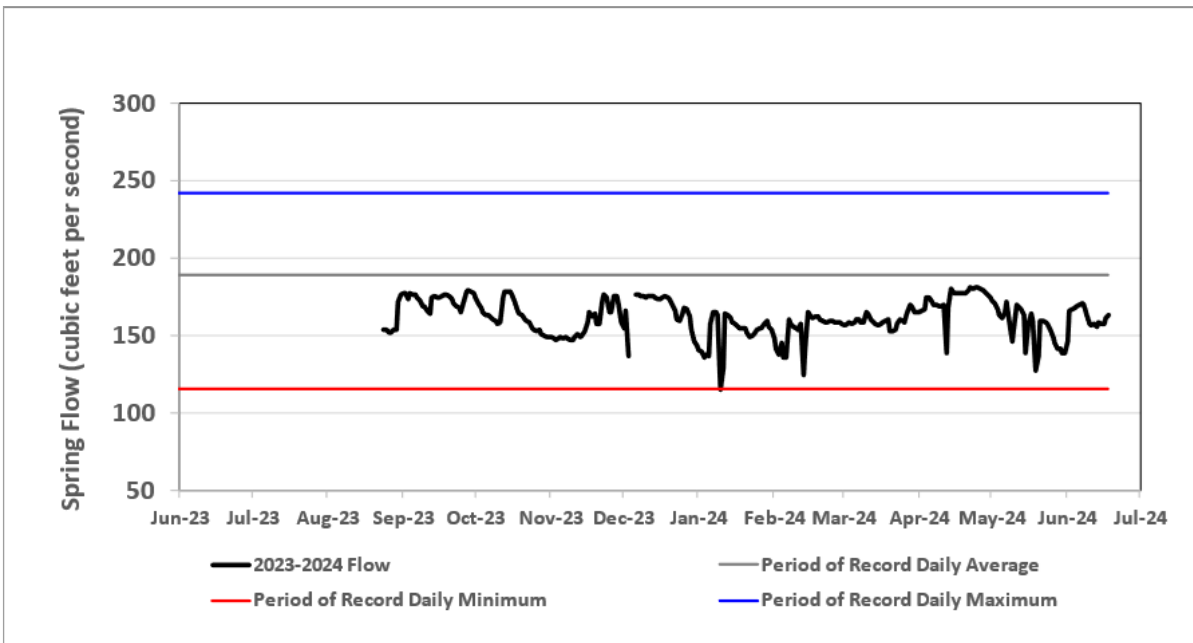


Figure 21: Gainer Spring Group flows

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 within normal ranges by mid-June 2024 except for at three stations (**Figures 22 through 27**). In northwest Leon County, groundwater levels at the USGS-Lake Jackson Upper Floridan monitor well (NWFID 3402) continue to be elevated to above normal levels (**Figure 23**). In central Bay County, groundwater levels at the Fannin Airport Monitor well (NWFID 697) continued to decrease, ending the month classified as much below normal (**Figure 26**). In northern Okaloosa County, the NFWMD-Sand Hill Upper Floridan monitor well (NWFID 5597) continued to be classified as below normal (**Figure 22**). All sand-and-gravel aquifers depicted were within normal ranges except for NFWMD- Allen Tower Deep monitor well (NWFID 5401) in northern Santa Rosa County which was classified as below normal (**Figures 22 & 27**).

Figure 22: Floridan aquifer monitor wells and aquifer level percentiles for June 2024

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

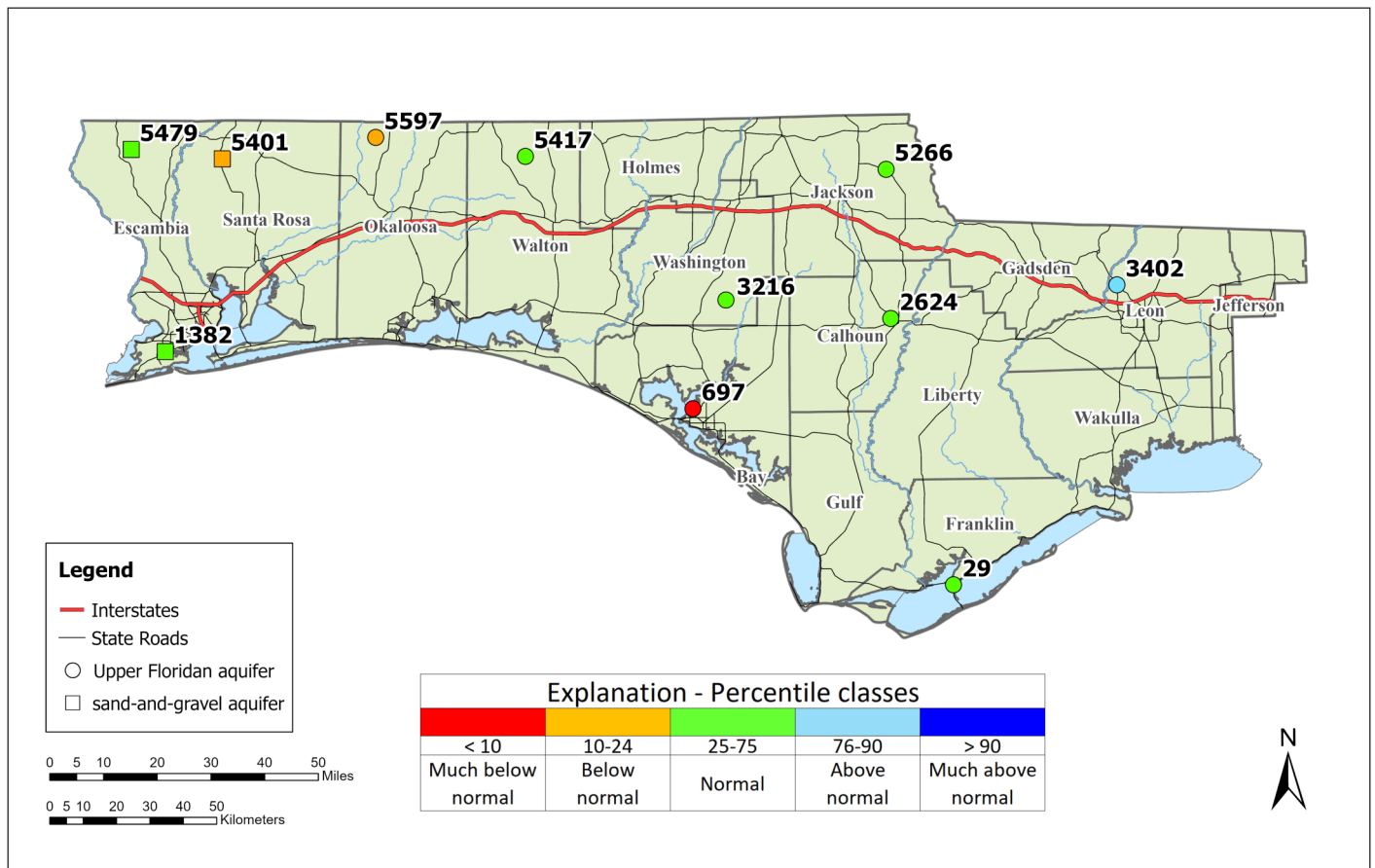


Figure 23: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County

Land surface elevation is 121.40 ft, NAVD 88

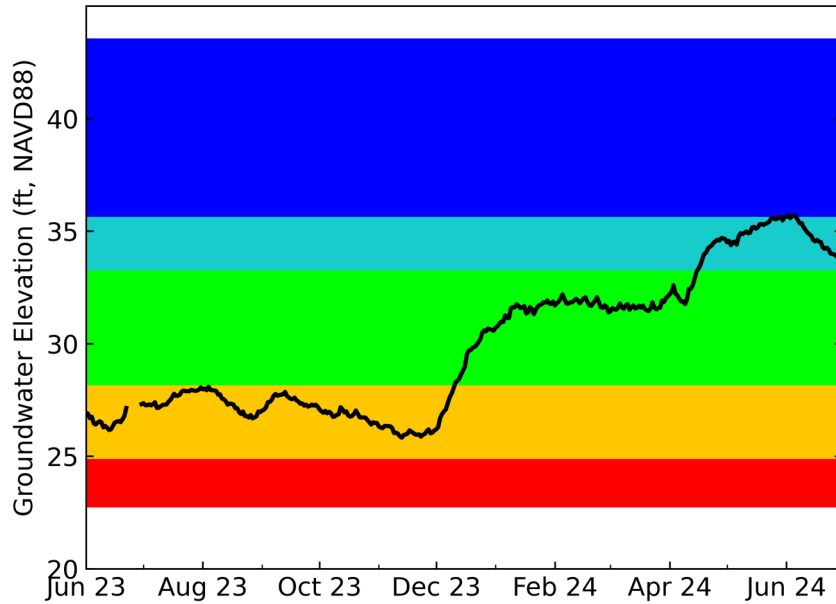
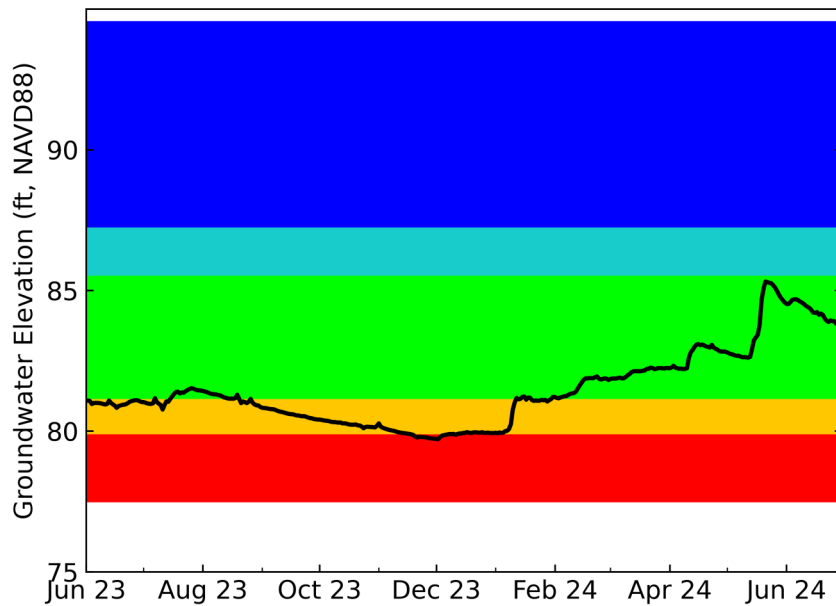


Figure 24: Daily Upper Floridan aquifer levels at NFWFMD Pittman Visa well (NWFID 5266), Jackson County

Land surface elevation is 127.31 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 25: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County

Land surface elevation is 66.75 ft, NAVD 88

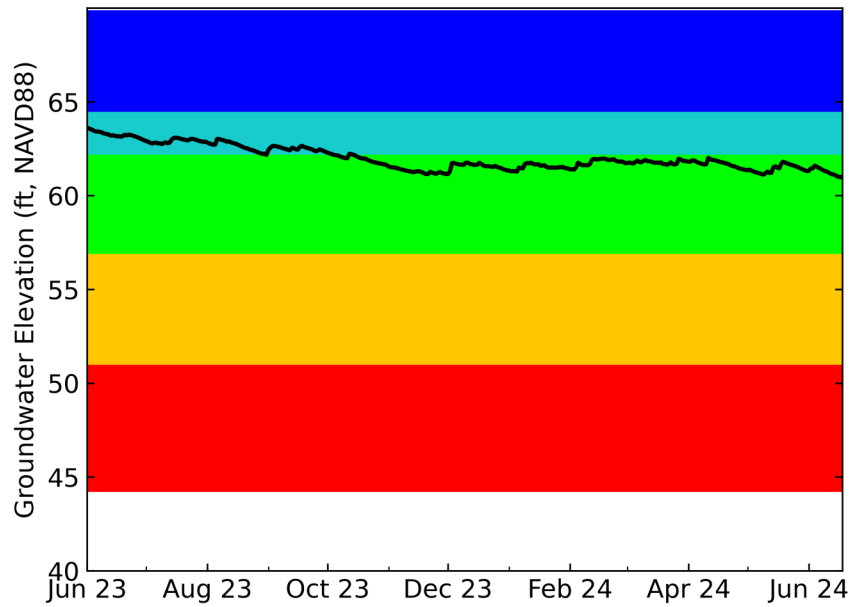
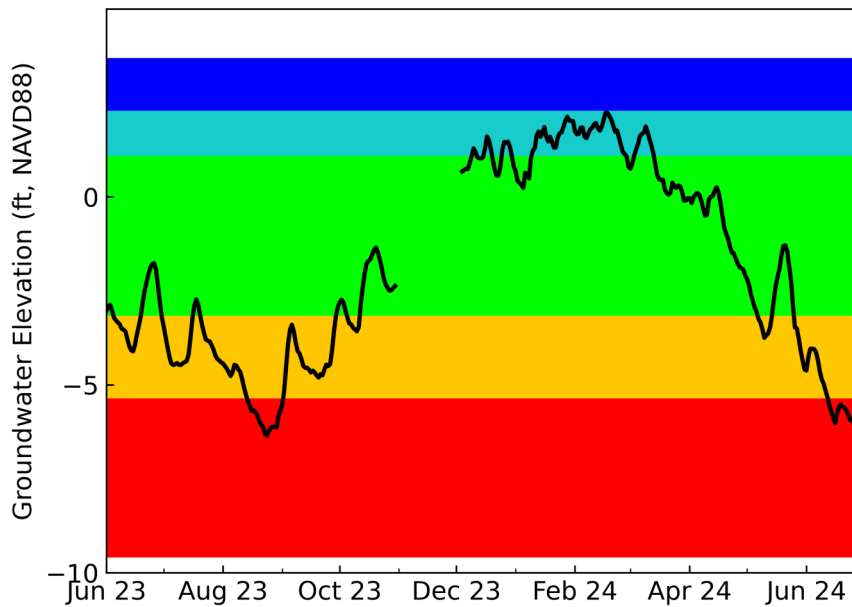


Figure 26: Daily Upper Floridan aquifer levels at Fannin Airport well (NWFID 697), Bay County

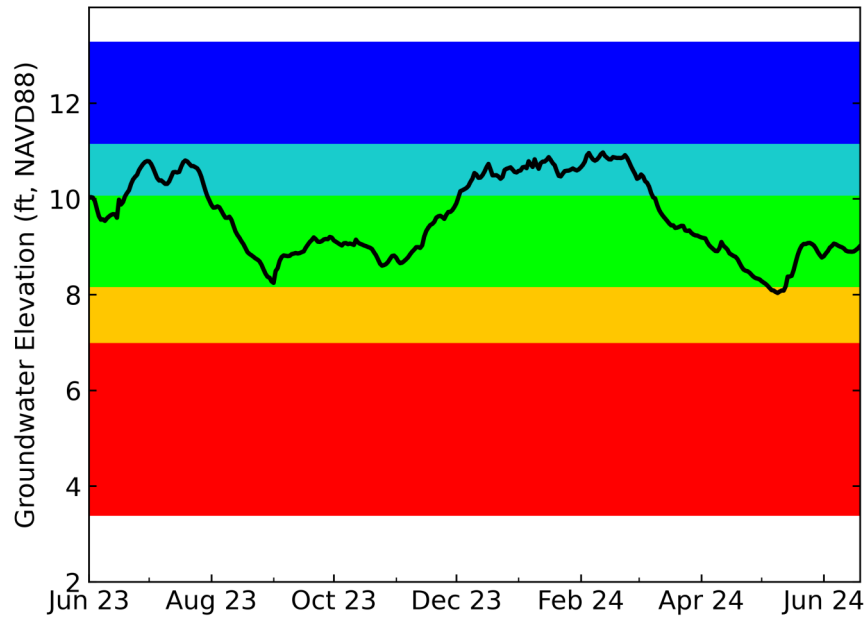
Land surface elevation is 4.05 ft, NAVD 88



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

Figure 27: 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

