

Hydrologic Conditions Report

September 2025

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Summary

September 2025 was characterized by much-below-normal precipitation and near-normal temperatures (averaging around 78.3 degrees Fahrenheit) that contributed to generally below-normal hydrologic conditions across the Panhandle. Most of the District did not receive appreciable rainfall for more than three weeks through the month, leading to a quick exacerbation of drought conditions along the Florida-Georgia border.



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Rainfall

In September 2025, an average of 1.54 inches of rain was recorded across the Panhandle. This amount was 4.17 inches (115%) below the District normal rainfall for the month of September, which is 5.71 inches (Table 1; Figures 1 - 7). Normal rainfall is defined as average monthly rainfall for the 1991-2020 reference period.

There were very few rain events throughout September 2025. Most rain events that occurred were localized and didn't produce much rain, leaving many areas of the District without appreciable rainfall for more than three weeks (Figure 2). A large portion of the District had a rainfall deficit of at least 5 inches with the worst deficits being more than 10 inches at the end of September 2025 (Figure 3).

There was only one significant rain event in September 2025, which occurred September 25-27, 2025. This rain event was caused by a slowly advancing frontal system and the storms associated with the front produced between 0.25 and 4.50 inches of rain throughout the District. This rain event provided all measurable rainfall for the Tallahassee, Marianna, and Niceville rain gauges and 94% of the rainfall for Pensacola in the month of September 2025 (Table 1; Figures 4-7).

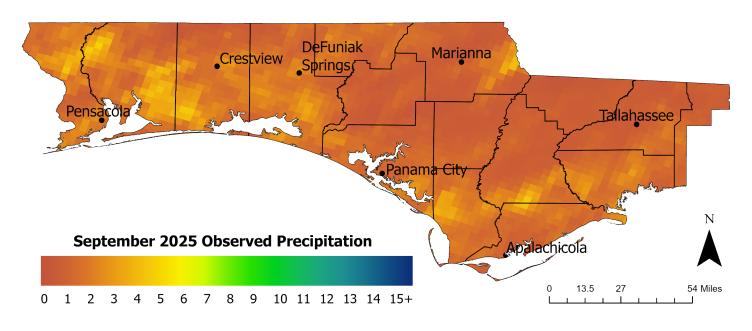


Table 1: September 2025 rainfall compared to 30-year normal monthly rainfall for Tallahassee, Marianna, Niceville, and Pensacola

Station	September Normal Rainfall (1991 to 2020)	September 2025 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	4.91	0.54	-160.4%
Marianna Regional Airport	4.06	0.65	-144.8%
Niceville, FL	6.97	2.40	-97.5%
Pensacola Regional Airport	6.61	2.00	-107.1%

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

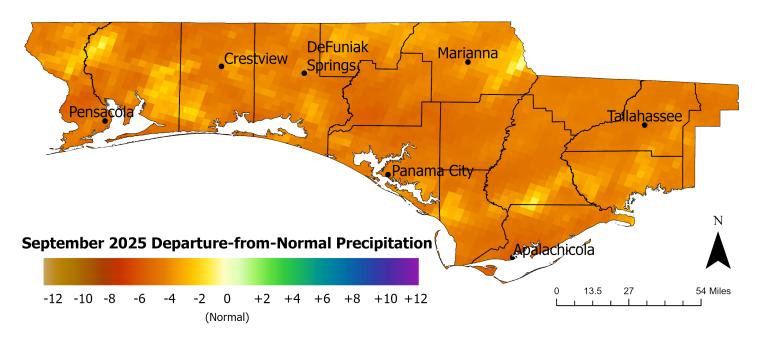
Figure 1: District-wide September 2025 observed rainfall



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

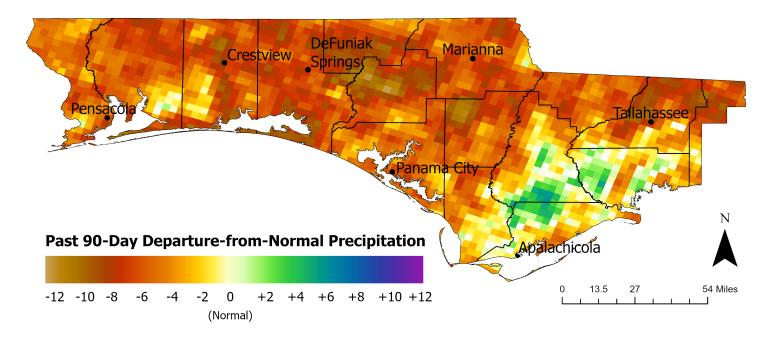


Figure 2: District-wide September 2025 precipitation departure from normal



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

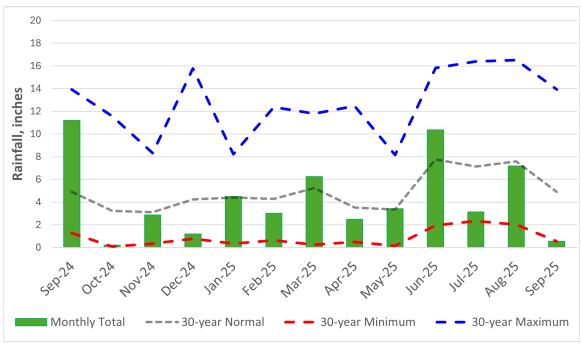
Figure 3: District-wide precipitation departure from normal for the previous 90 days



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



Figure 4: Observed rainfall at Tallahassee Regional Airport for the past 13 months compared to the 30-year normal, minimum, and maximum precipitation for each month



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

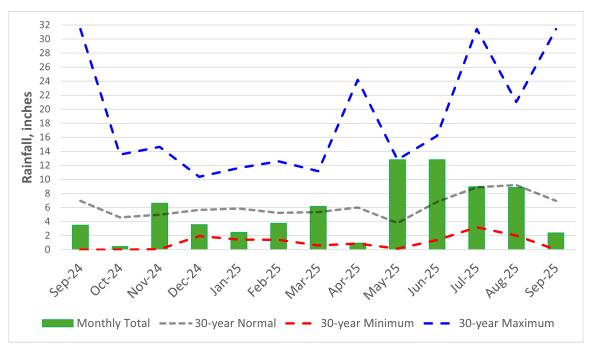
Figure 5: Observed rainfall at Marianna Regional Airport for the past 13 months compared to the 30-year normal, minimum, and maximum precipitation for each month



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



Figure 6: Observed rainfall in Niceville for the past 13 months 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 the past 13 months compared to the 30-year normal, minimum, and maximum precipitation for each month



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



Climate Outlook

According to NOAA's Climate Prediction Center, the forecast issued September 30, 2025, for October 2025 shows a slight chance for above-normal temperatures and equal chances for above-, below-, or near-normal rainfall across the Panhandle (Figure 8).

As of September 29, 2025, ENSO-neutral conditions were present and are favored to persist through the late summer months (56% chance). During the summer, ENSO-neutral conditions tend to produce less vertical wind shear, which is favorable for hurricane development. Equatorial sea surface temperatures were near-to-below normal across the majority of the Pacific Ocean, prompting a La Niña Watch to be advised for autumn and early winter. La Niña conditions typically lead to warmer temperatures and less-than-normal precipitation during winter in Northern Florida.

The 2025 Atlantic Hurricane Season began on June 1, 2025, and runs through November 30, 2025. An updated hurricane season outlook was released August 7, 2025. NOAA predicts an above-normal hurricane activity in the Atlantic basin with 50% confidence. There is a 35% chance of the season being near-normal. A near-normal season would have 6 to 18 named storms. Three named storms, Hurricane Gabrielle (Category 4), Hurricane Humberto (Category 5), and Hurricane Imelda (Category 2) formed during September 2025 in the Atlantic basin. None of the named storms affected the Florida Panhandle.

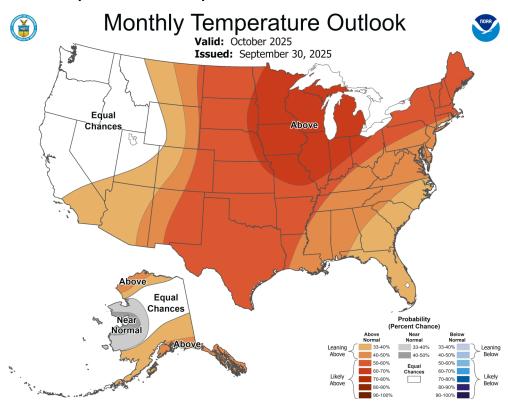
Source: https://www.cpc.ncep.noaa.gov/products/predictions/30day/

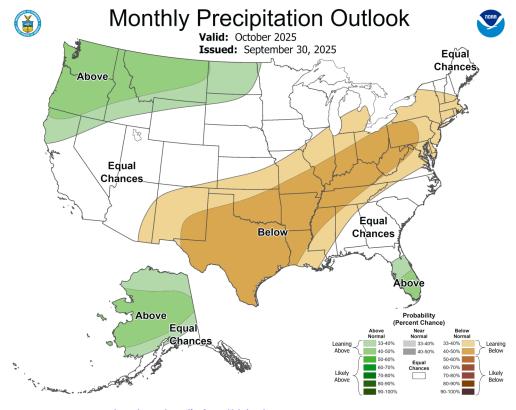
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf https://www.aoml.noaa.gov/2025-atlantic-hurricane-season-outlook/

Source: https://www.cpc.ncep.noaa.gov/products/predictions/30day/



Figure 8: October 2025 Temperature and Precipitation Outlooks for the United States









Drought Conditions

The U.S. Drought Monitor report released for September 30, 2025, showed the entire District under at least abnormally dry conditions with the majority of the Panhandle under moderate drought conditions. There were severe drought conditions along the Florida-Georgia border in Holmes, Jackson, Gadsden, Leon, and Jefferson Counties (Figure 9). This was due to a severe lack of rainfall throughout the District throughout the month.

During this time of year, northern Florida is especially susceptible to flash drought due to being in a transitional period between the summer regime of the land-sea breeze circulation and the frontal systems that tend to drive winter precipitation. Flash drought is the term for a rapid onset or intensification of drought over a relatively short time period. Low precipitation, high temperatures, and high evaporative demand are the main drivers of flash drought.

According to the U.S. Monthly Drought Outlook for October 2025, existing drought conditions were expected to persist in the District. This is likely due to forecasted above-normal temperatures combined with uncertainty around how much precipitation should be expected in October 2025 (Figure 8).

Figure 9: Florida Drought Conditions on September 30, 2025

U.S. Drought Monitor Florida

September 30, 2025 (Released Thursday, Oct. 2, 2025) Valid 8 a.m. EDT

Drought Conditions (Percent Area)

			•			
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	42.27	57.73	30.65	6. 18	0.00	0.00
Last Week 09-23-2025	57.47	42.53	27.04	4.27	0.00	0.00
3 Month's Ago 07-01-2025	45.36	54.64	36.80	9.00	0.77	0.00
Start of Calendar Year 01-07-2025	10.12	89.88	29.22	0.00	0.00	0.00
Start of Water Year 10-01-2024	94.54	5.46	0.00	0.00	0.00	0.00
One Year Ago 10-01-2024	94.54	5.46	0.00	0.00	0.00	0.00

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

<u>Author:</u> Curtis Riganti National Drought Mitigation Center









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

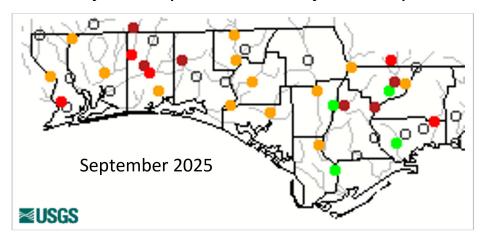


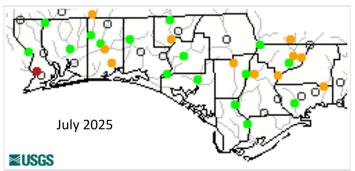
Surface Water

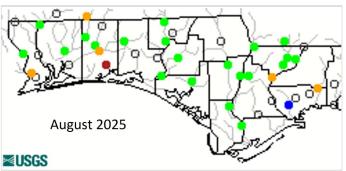
Streamflows. During September 2025, four streamflow stations in the District on average recorded flows within normal ranges, thirteen streamflow stations recorded below normal flows, six stations recorded much below normal flows, and five stations recorded low flows (Figures 10 – 16). The classification of "low" indicates that the estimated streamflow is the lowest value ever measured for that day of the year.

This distribution of percentile classes is a direct result of the dry conditions observed through September 2025 (Figures 1 – 3 & Figure 9). Most stations with depicted time-series graphs received a small bump in flow during and following the significant rain event that occurred at the end of the month (Figures 13 – 16). The St. Marks River near Newport recorded record low flows that continued to decline throughout the duration of the month (Figures 10 & 11).

Figure 10: Northwest Florida July 2025 to September 2025 monthly streamflow percentiles







Explanation - Percentile classes							
•		•	•		•	•	0
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
LOW	Much below normal	Below normal	Normal	Above normal	Much above normal		Hot-laliked

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



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

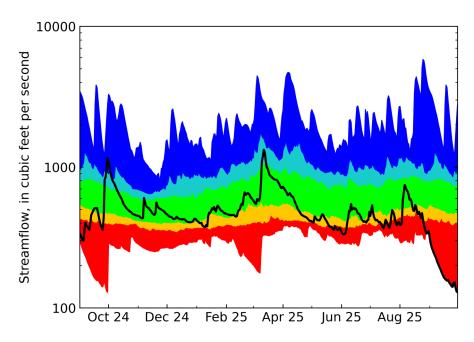


Figure 12: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida

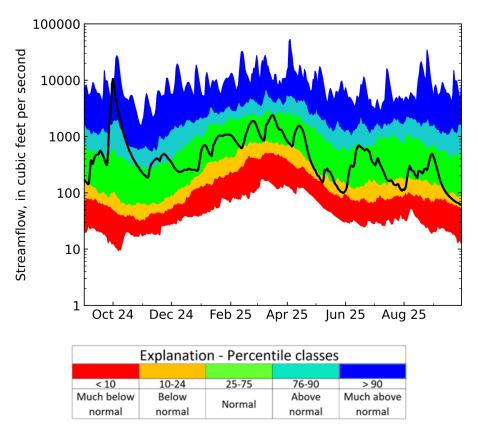




Figure 13: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida

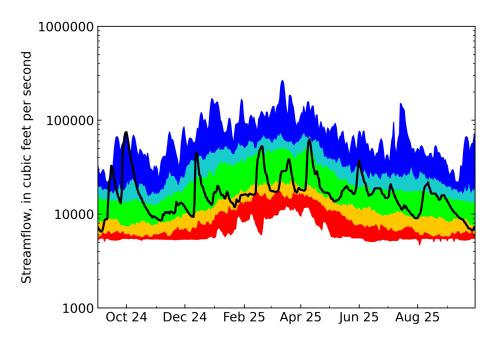
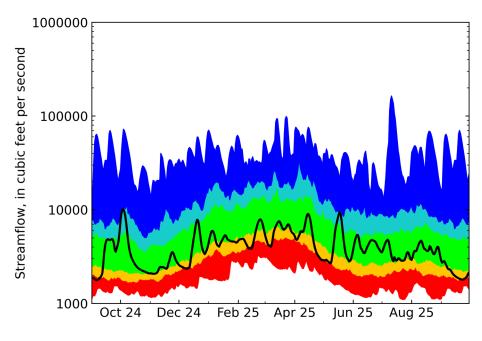


Figure 14: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida



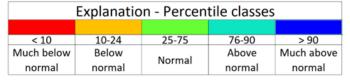




Figure 15: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida

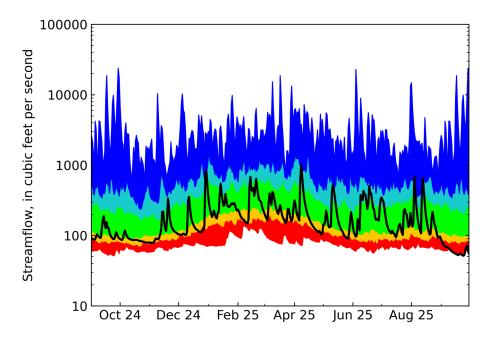
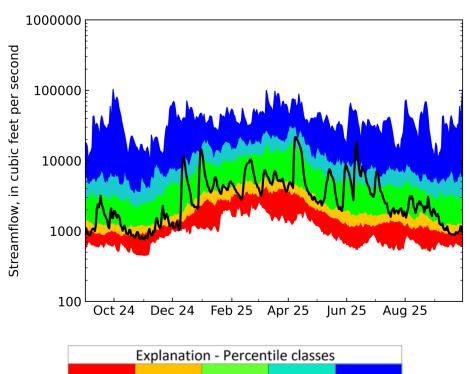


Figure 16: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida



25-75

Normal

76-90

Above

normal

> 90

Much above

normal

10-24

Below

normal

< 10

Much below

normal



Lake Levels. Water levels at Lake Jackson in Leon County decreased by 0.76 feet during September 2025, ending the month with a stage level of 79.53 feet, NAVD 1988 (Figure 17). The long-term (January 29, 2003, to September 30, 2025) average stage level for Lake Jackson is 80.89 feet, NAVD 1988, and the full pool level is 85.74 feet, NAVD 1988.

At Piney Lake in southern Washington County, water levels decreased 0.63 feet during September 2025, ending the month with a stage level of 48.47 feet, NAVD 1988 (Figure 18). When the water levels at Piney Lake drop below 51.42 feet, NAVD 1988, the lake separates into two distinct "lobes". Based on the lake level data being collected at Piney Lake since 2022, the lake may have been continuously separated since December 15, 2023.

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

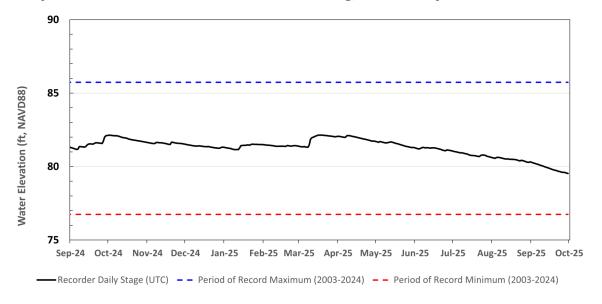
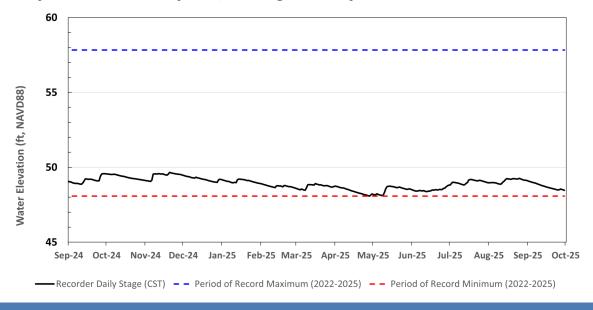


Figure 18: Daily water levels at Piney Lake, Washington County





Spring Flows

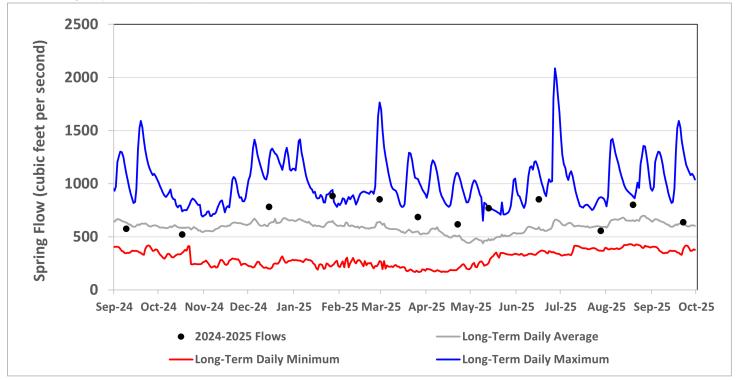
Wakulla and Sally Ward Spring System. Flow from Wakulla Spring increased 165 cubic feet per second (cfs) between the measurements taken in August and September 2025, dropping to just above the long-term daily average. The most recent flow measurement for Wakulla Spring was 636 cfs, which was conducted on September 22, 2025 (Figure 19). The long-term (October 23, 2024, to September 22, 2025) average flow for the month of September is 622 cfs.

Flow at Sally Ward Spring decreased by 5.7 cfs between the measurements taken in August and September 2025. The most recent flow measurement for Sally Ward was 24.2 cfs on September 22, 2025. This measurement was 0.4 cfs lower than the long-term (November 1, 2004, to September 22, 2025) average flow for the month of August of 24.6 cfs.

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 August 18, 2025) average flows for Wakulla and Sally Ward springs are 589 cfs and 24.2 cfs, respectively. The combined long-term spring flow for both systems is 613.2 cfs, which exceeds the established Minimum Flow of 538 cfs by 75.2 cfs.

Figure 19: Wakulla Spring flows

Data from October 1, 2023, through September 22, 2025, represent discrete measurements. Daily statistics are based on the October 23, 2004, through September 22, 2025, period of record.



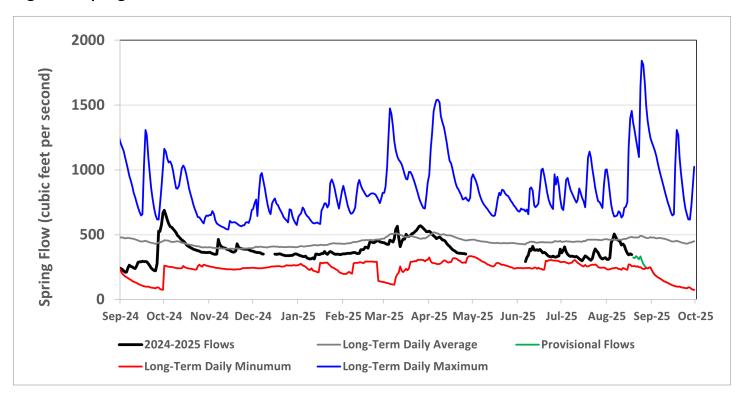


St. Marks River Rise. The mean daily spring flow for September 2025 at the St. Marks River Rise was 123 cfs, based on the available USGS provisional data which extends through September 30, 2025 (Figure 20). This was much below the long-term (October 1, 1956, through September 30, 2025) average flow for the month of September of 454 cfs. Flows this month were so low that there was a new long-term minimum flow for nearly every day in September.

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 December 3, 2024) is 423 cfs. If the provisional data from December 4, 2024, through August 31, 2025, are included, the 30-year moving average spring flow for the St. Marks River Rise is 422 cfs.

The established Minimum Flow for the St. Marks River Rise is 419 cfs. Whether using the approved or provisional data, the 30-year moving average flow exceeded the established Minimum Flow for the St. Marks River Rise by 4 cfs and 3 cfs, respectively.

Figure 20: Spring flows for the St. Marks River Rise

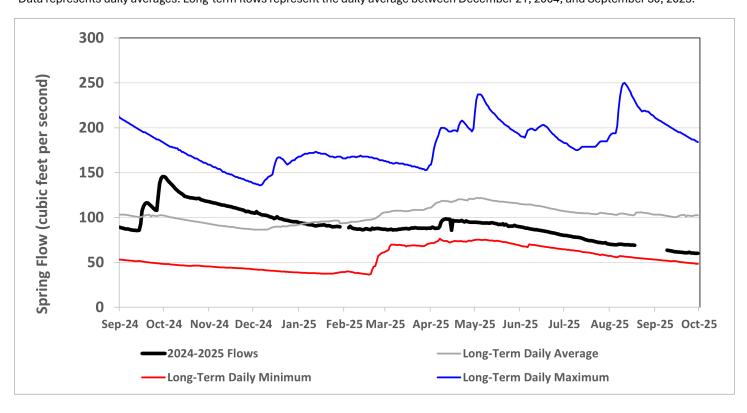




Jackson Blue Spring. Daily flows at Jackson Blue Spring for the month of September 2025 (September 9 through 30, 2025) averaged 61.5 cfs. This was below the long-term average flow of 102.1 cfs for the month of September, based on the December 21, 2004, through September 30, 2025, period of record (Figure 21). Flows from Jackson Blue Spring have been below the long-term average flow since January 2025.

Figure 21: Spring flows for Jackson Blue Spring

Data represents daily averages. Long-term flows represent the daily average between December 21, 2004, and September 30, 2025.



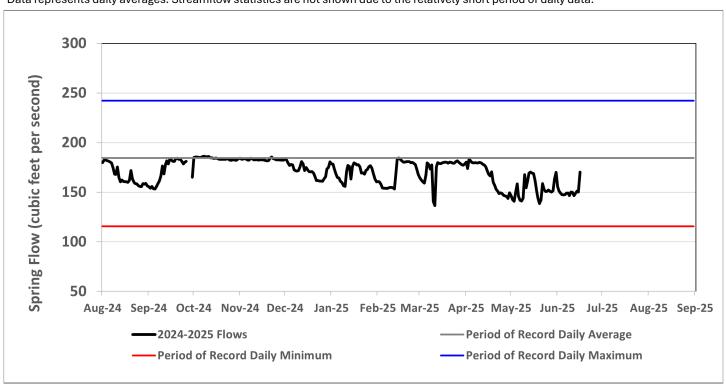


Gainer Spring Group. During June 2025 (June 1 to June 16, 2025), the average flow at the Gainer Spring Group was 151 cfs (Figure 22). The record period (October 28, 2019, through June 16, 2025) average monthly spring flow for the month of June is 183 cfs. It should be noted there is a relatively brief period of record for this system, and spring flows among the highest and lowest on record are to be expected. Data collection was interrupted on July 2, 2025, due to malfunctioning equipment and resumed September 16 2025.

Throughout the time-series, there are several drops and recoveries in the spring flow. This is caused by Econfina Creek spiking in stage adjacent to the spring group after rain events. The extra pressure exerted on the groundwater by the higher surface water in the stream slows flow from the spring group. Since Econfina Creek does not tend to stay high for long after the conclusion of a rain event as the stage level quickly drops, the flow from the spring group recovers since there is less head pressure from the stream.

Figure 22: Gainer Spring Group flows

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



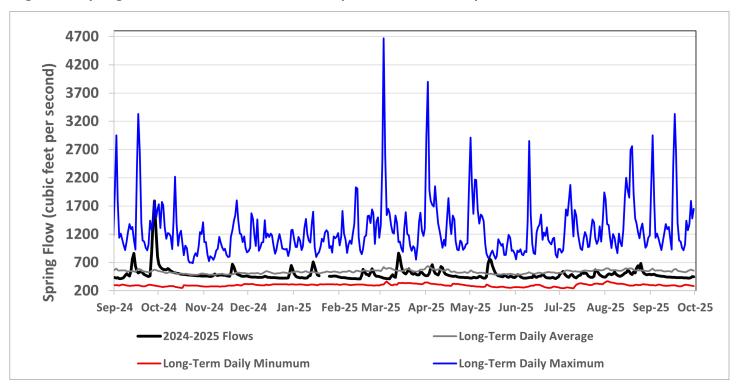


Middle Econfina Creek. The mean daily flow for September 2025 at Middle Econfina Creek was 446 cfs, based on the available USGS provisional data which extends through September 30, 2025 (Figure 23). This was below the long-term (October 1, 1935, through September 30, 2025) average flow for the month of September of 557 cfs.

The current 30-year moving average flow for Middle Econfina Creek based on the most recent approved USGS data (October 1, 1935, through December 3, 2023) is 537 cfs. If the provisional data from December 4, 2024, through September 30, 2025, are included, the 30-year moving average flow for Middle Econfina Creek is 518 cfs.

A Minimum Flow of 486 cfs was formally adopted on June 29, 2025, for Middle Econfina Creek. Whether using the approved or provisional data, the 30-year moving average flow exceeded the established Minimum Flow for Middle Econfina Creek by 51 cfs and 32 cfs, respectively.

Figure 23: Spring flows for Middle Econfina Creek (Econfina @ Bennett)





Aquifer Levels

In the middle of September 2025, of a total of nine Floridan aquifer monitor wells, five were classified as within normal ranges, one was classified as below normal, and three were classified as having water levels in much below normal ranges (Figures 24 — 30). The Floridan monitor well classified as below normal was Pittman VISA monitor well (NWFID 5266) in eastern Jackson County (Figure 27). Jackson Still Floridan monitor well (NWFID 5417) in northern Walton County and Sand Hill Upper Floridan monitor well (NWFID 5597) in northwestern Okaloosa County have had below normal water levels for the past several months but dipped into much below normal ranges during September 2025. The areas surrounding the Pittman VISA (NWFID 5266), Jackson Still (NWFID 5417), and Sand Hill (NWFID 5597) Floridan monitor wells received very little rainfall and were under severe drought conditions (Figure 9) during the month which contributed to the low water levels recorded at these wells (Figure 1).

One of three sand-and-gravel aquifer monitor wells had water levels that were classified as within normal ranges in mid-September 2025. Water levels at Allen Tower Deep monitor well (NWFID 5401) in northern Santa Rosa County had been classified as below normal for several months, increased just enough to be classified as within normal ranges in August 2025, and then dropped back to below normal ranges in September 2025. Weller Ave Deep monitor well (NWFID 1382) in southern Escambia County had been classified as above normal for several months but has been classified as within normal ranges since June 2025 (Figure 30). Oak Grove Deep monitor well (NWFID 5479) continued to record below normal groundwater levels, as it has for several months (Figure 24).



Figure 24: Floridan aquifer monitor wells and aquifer level percentiles for mid-September 2025 Percentile class rankings are based on each well's period of record. All wells have a minimum of 20 years of data.

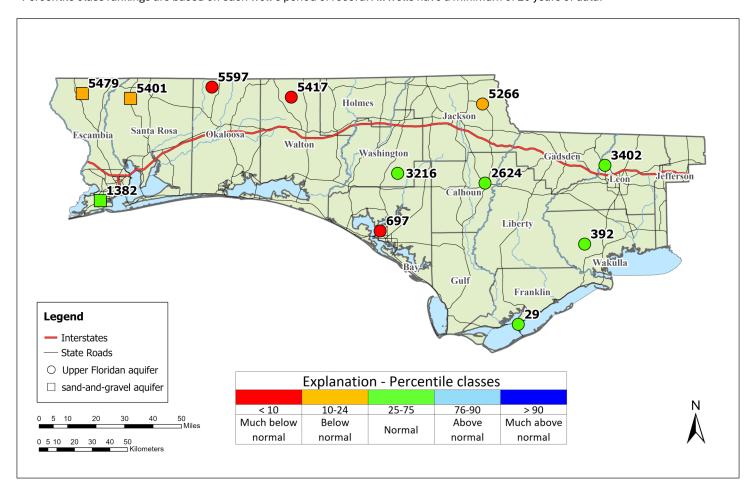




Figure 25: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County Land surface elevation is 121.40 ft, NAVD 88

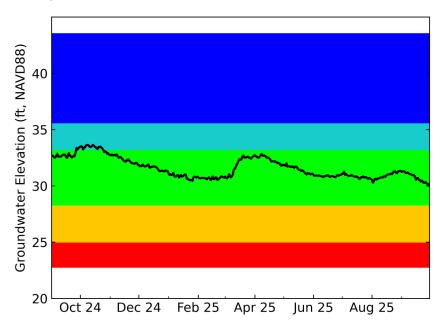


Figure 26: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County Land surface elevation is 46.27 ft, NAVD 88

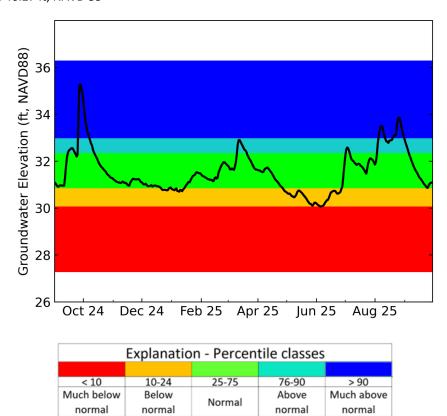




Figure 27: Daily Upper Floridan aquifer levels at NWFWMD Pittman Visa well (NWFID 5266), Jackson County Land surface elevation is 127.31 ft, NAVD 88

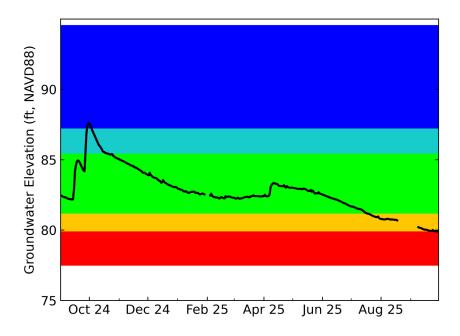


Figure 28: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County

Land surface elevation is 66.75 ft, NAVD 88

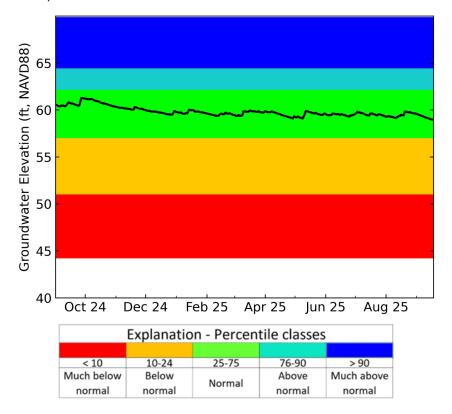




Figure 29: Daily Upper Floridan aquifer levels at Fannin Airport well (NWFID 697), Washington County Land surface elevation is 4.05 ft, NAVD 88

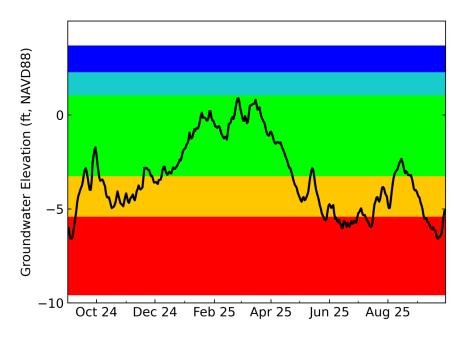


Figure 30: Daily sand-and-gravel aquifer levels at NWFWMD Weller Ave Deep well (NWFID 1382), Escambia County

Land surface elevation is 25.09 ft, NAVD 88

