TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET

MONTHLY WATER RESOURCE REPORT

Kentucky Division of Water
Water Supply Section

September 2025

Precipitation

Precipitation across Kentucky was generally above normal in September, though a few areas finished below normal. Despite the wetter-than-average monthly totals, most of the month was actually dry, allowing already dry conditions to intensify. Scattered showers and storms occurred during the first week, but dry weather dominated through the middle of the month. It wasn't until the final full week that several rounds of widespread rainfall developed across the state. This late-month event was largely responsible for pushing precipitation totals above normal and helping to ease impacts from dry conditions. While the precipitation was widespread, some areas did receive lesser amounts, especially in western and far eastern parts of the state.

As of the September 30th U.S. Drought Monitor update, nearly 21% of Kentucky was classified in Moderate Drought (D1) and almost 6% in Severe Drought (D2). This was an improvement from the previous week, when dry conditions reached their peak with two-thirds of the state being classified in drought and over 4% was in Extreme Drought (D3)

Preliminary data indicate that the state averaged 4.18 inches of precipitation in September—0.59 inches above the climatological norm—ranking as the 42nd wettest September on record since 1895. Year-to-date, Kentucky has received an average of 50.00 inches, which is 11.10 inches above normal.

According to the Kentucky Mesonet, Carroll County recorded the highest monthly rainfall total at 7.10 inches, while Hopkins County had the lowest at 2.09 inches.

Table 1. *Regional precipitation patterns*

Climate Region	Departure From Normal (inches)					Palmer Drought Severity Index*
	This Month	Past 2 Mos.	Past 3 Mos	Past 6 Mos	Past 12 Mos	
Western	0.03	-2.44	-2.45	8.35	14.37	3.66
Central	0.80	-1.44	-1.98	8.35	13.02	3.49
Bluegrass	0.58	-1.73	-1.42	6.14	8.29	2.40
Eastern	0.89	-1.22	-0.94	4.04	5.61	3.49

*4.0 and above (Extremely Moist)
3.0 to 3.9 (Very Moist Spell)
2.0 to 2.9 (Unusual Moist Spell)
-1.9 to 1.9 (Near Normal)
-2.0 to -2.9 (Moderate Drought)
-3.0 to -3.9 (Severe Drought)
-4.0 or less (Extreme Drought)

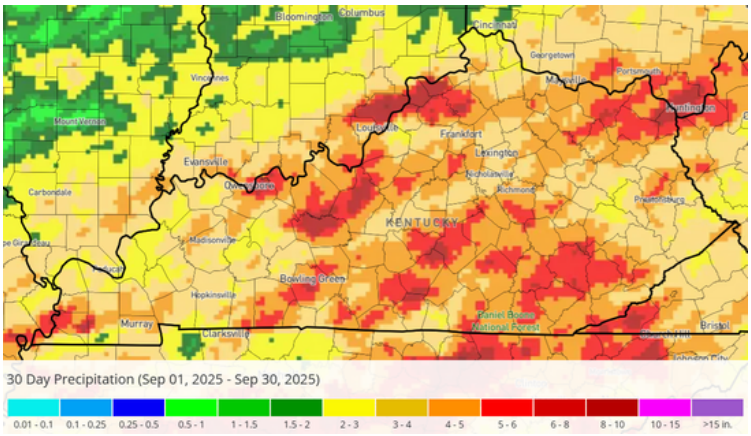

Figure 1. *Monthly precipitation map.*

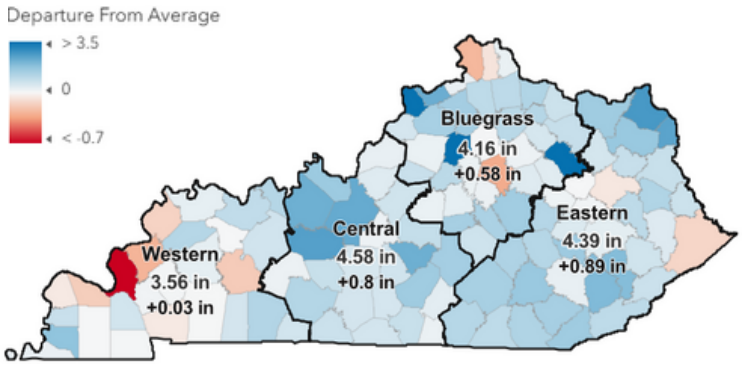

Figure 2. *Departure from normal precipitation by county and climate division.*

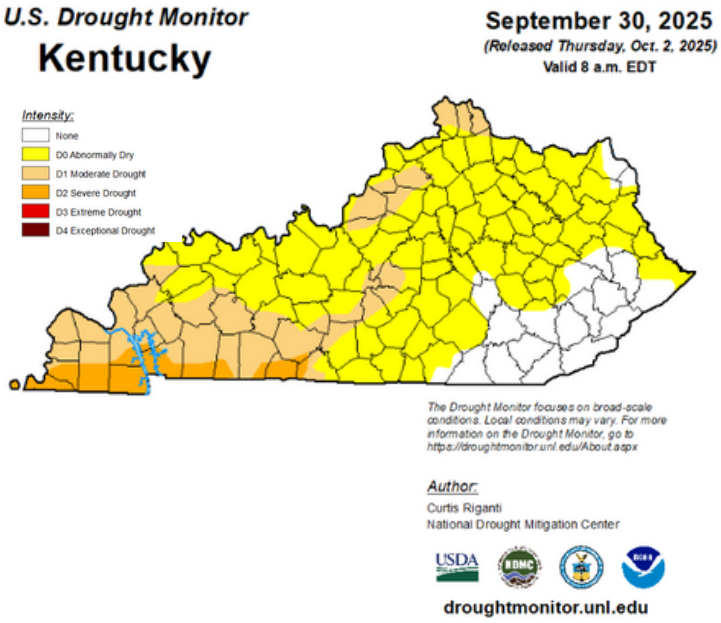

Figure 3. *Current US Drought Monitor Map.*

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Streamflow

Streamflow in September started the month at or below normal across the state. The scattered precipitation during the beginning of the month helped increase flows in watersheds that saw significant precipitation but generally flows remained normal to below normal until the last week of the month when a multiday precipitation event improved streamflows statewide. Despite the dry conditions and below normal flows, there were no concerns with low flows impacting public water systems.

As the month ends, streamflows are generally at or above normal across the state.

Flow in the Ohio is slightly below normal but has been increasing with the recent precipitation. There are currently no concerns with navigation issues on the Ohio River.

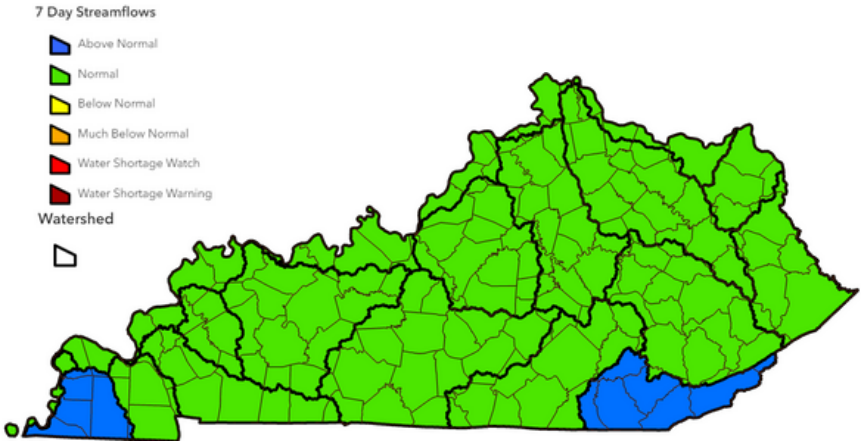

Figure 5. *Average streamflow by watershed over the past 7-days (September 24-30).*

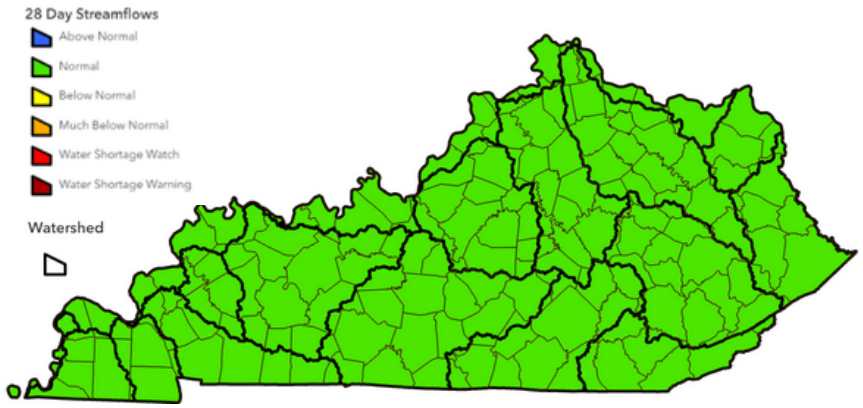

Figure 6. *Average streamflow by watershed over the past 28-days (September 3-30).*

Table 2. *Mean Stream Discharge select stream gages.*

River and Location	Drainage Area (mi2)	7 Day		28 Day	
		Average Flow (cfs)	% of Normal*	Average Flow (cfs)	% of Normal*
Levisa Fork at Pikeville	2,144	271	28	251	28.8
Little Sandy River near Grayson	400	81	23	52	17
North Fork Licking River nr Mt Olivet	226	19	8.7	5.7	3.0
Kentucky River at Lock 14	2,657	874	33	701	29.8
Kentucky River at Lock 2	6,180	1,579	26	1,089	21
Cumberland River at Cumberland Falls	1,977	704	28	521	23
Beaver Creek near Monticello	43	4.1	11.0	3.8	11
Beech Fork at Bardstown	669	53	5.9	19	2.4
Barren River at Bowling Green	1,849	479	18	333	14
Green River at Calhoun	7,566	2,817	29	1,443	17
Tradewater River at Olney	255	27	9.7	10	4.4
Clarks River at Almo	134	71	39	38	24
Bayou De Chien near Clinton	69	63	62	31	35
Ohio River at Greenup Dam	62,000	22,025	33	14,064	23
Ohio River at Cannelton Dam	97,000	33,293	34	19,410	22
Mississippi River @ Thebes, IL	713,200	113,750	62	132,679	74

* Base Period 1980-2023

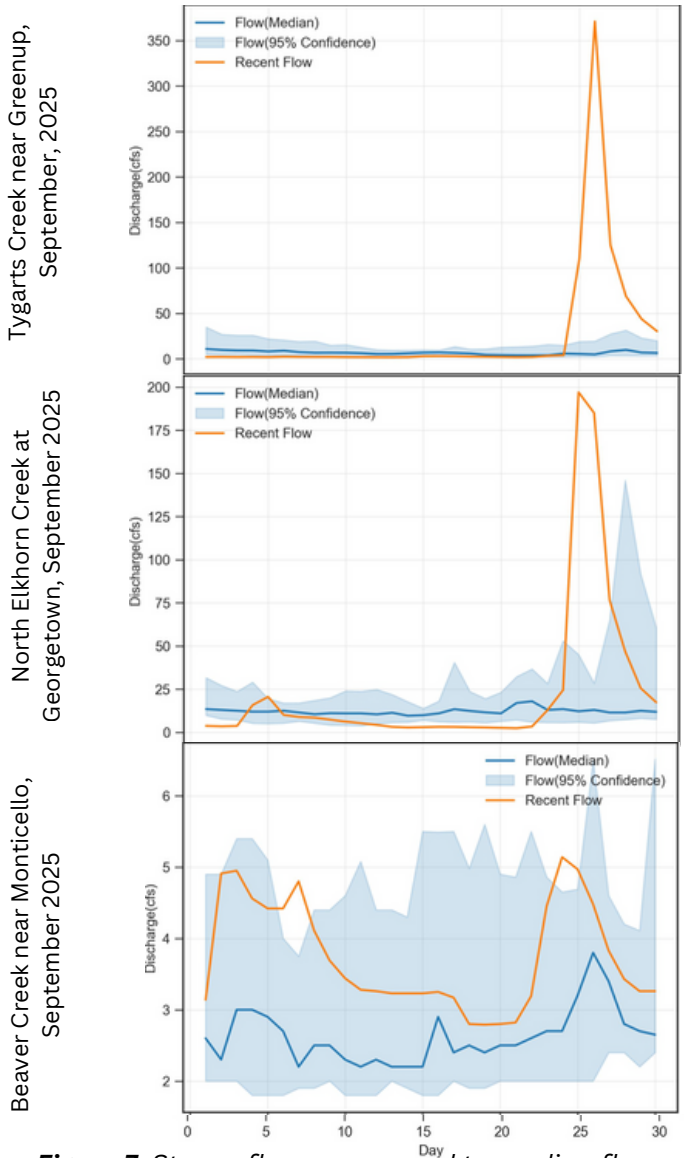

Figure 7. *Streamflows compared to median flows for the month.*

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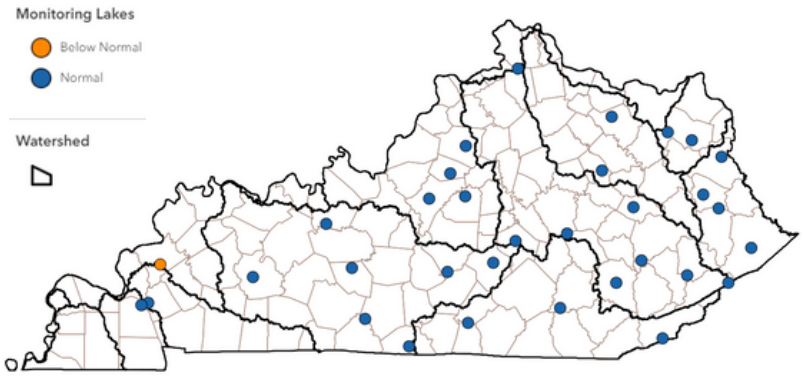
Reservoir Storage

Reservoir storage for water supply lakes remain normal for the entire state with the exception of Marion in Crittenden County. This is due to infrastructure issues though the lack of precipitation is not helping the situation.

All water supply lakes remain in the draw-down stage, as withdrawals and evaporation outpace inflow, resulting in reservoirs that are below normal pool. This is normal for this time of year. There are no other concerns with reservoir water supplies. While dry conditions still exist in parts of the state, the likelihood of a shortage developing is low.

Figure 8. *Locations of reference reservoirs across the state. Status of reservoir levels indicated by color.*



Groundwater

General Statement: Kentucky is a geologically, and hydrogeologically, diverse state. Groundwater data is limited in availability and where available may only be applicable to the immediate area given regional geologic variability. Local conditions may not be accurately reflected by the reference locations selected and local rainfall and surface water conditions may provide additional or more representative information. Current data is compared to a 30-year reference period (1980 – 2010) or the longest available period of continuous data.

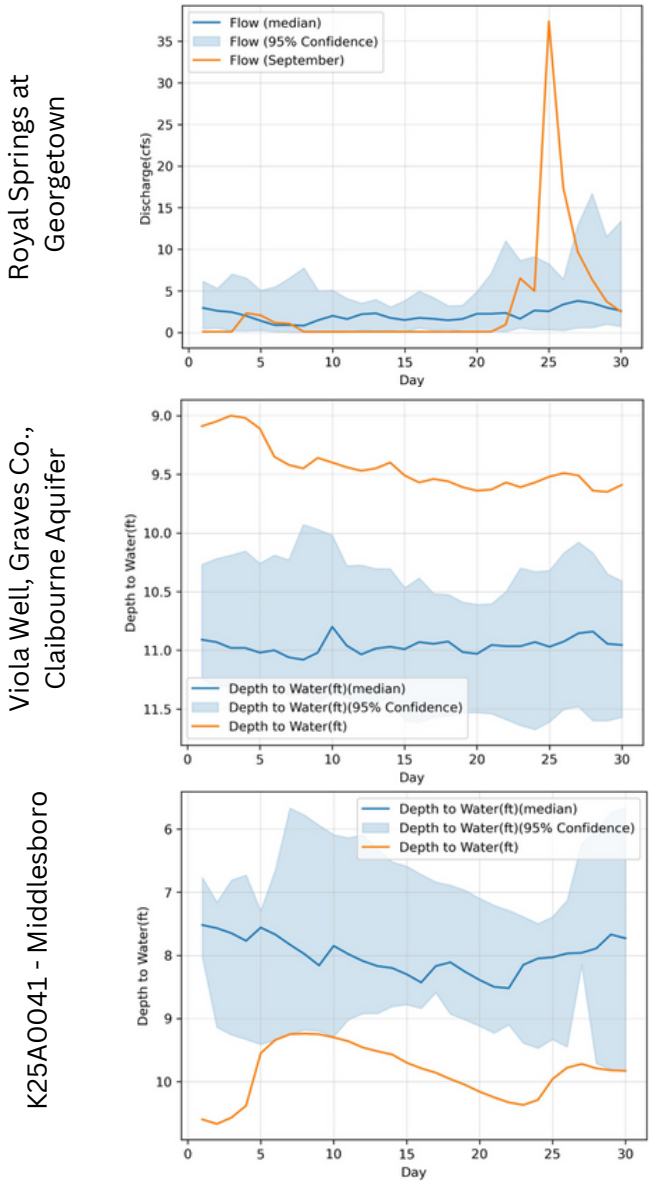
Inner Bluegrass: Flow at Royal Springs (Scott Co.) stayed at or below the reference median for the majority of September. Flow was above the reference median only twice for the month in response to rainfall with flow peaking above 35 cubic feet per second October 25th. Barring consistent rainfall, flow below the reference median is expected to continue into October, and groundwater levels will continue to decline. For the year, flow at Royal Springs has been above normal.

Jackson Purchase: Water levels in the Viola Well (Graves Co.) continued to fall in September. While remaining well above the reference median, median water level is historically stable in contrast to the additional drop of approximately 0.6 feet (peak to trough) across September. Groundwater levels are expected to trend lower seeking an equilibrium between recharge from rainfall and the influence of evapotranspiration and locally, pumping for irrigation.

Middlesboro: Water levels within the Middlesboro well (Bell Co.) stayed below the reference period confidence interval and well below the reference median across the month. Two brief increases in water level occurred as muted responses to early- and late-month rainfall but water levels did not recover to median values and just returned to at the confidence interval. Groundwater levels are expected to continue to fall both with seasonal trends and in response to below average rainfall. For the year, water levels have generally been higher than the reference period.

Additional data can be found at:
https://www.uky.edu/KGS/water/water-groundwater-monitoring.php

Figure 9. *Groundwater observations compared to normal for the month.*



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Forecast

The Climate Prediction Center (CPC) is currently predicting above normal chances for below normal precipitation during October. The seasonal outlook (October through December) shows equal chances for much of the state with a slightly increased chance for below normal precipitation along the Tennessee border. The darker colors depict a higher amount of confidence. The short-term forecasts are predicting wet conditions to start October with drier conditions returning through at least the middle of October.

The current U.S. Monthly Drought Outlook shows drought conditions are expected to continue and expand in northern and western Kentucky, however, the latest U.S. Drought Monitor showed improvement of drought in these areas.

Note: these forecasts do not provide the quantity above or below normal, just the probability it will occur.

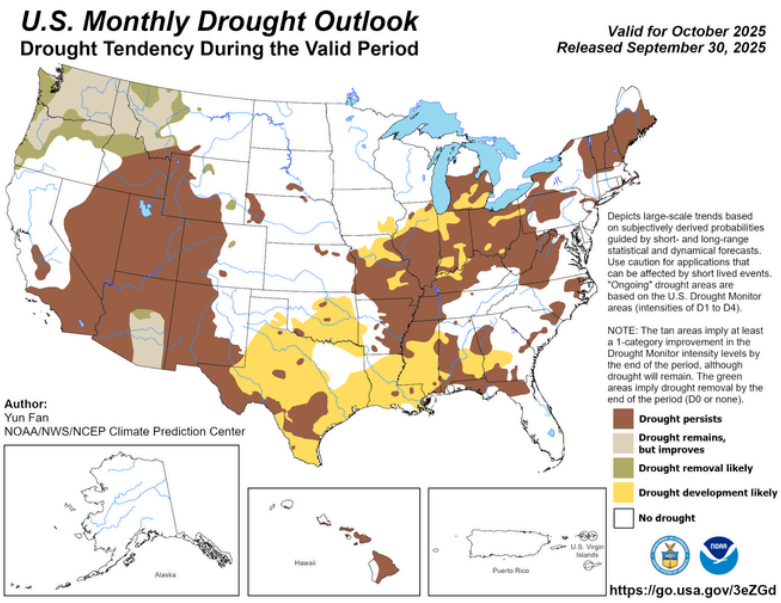

Figure 10. *Monthly drought outlook.*

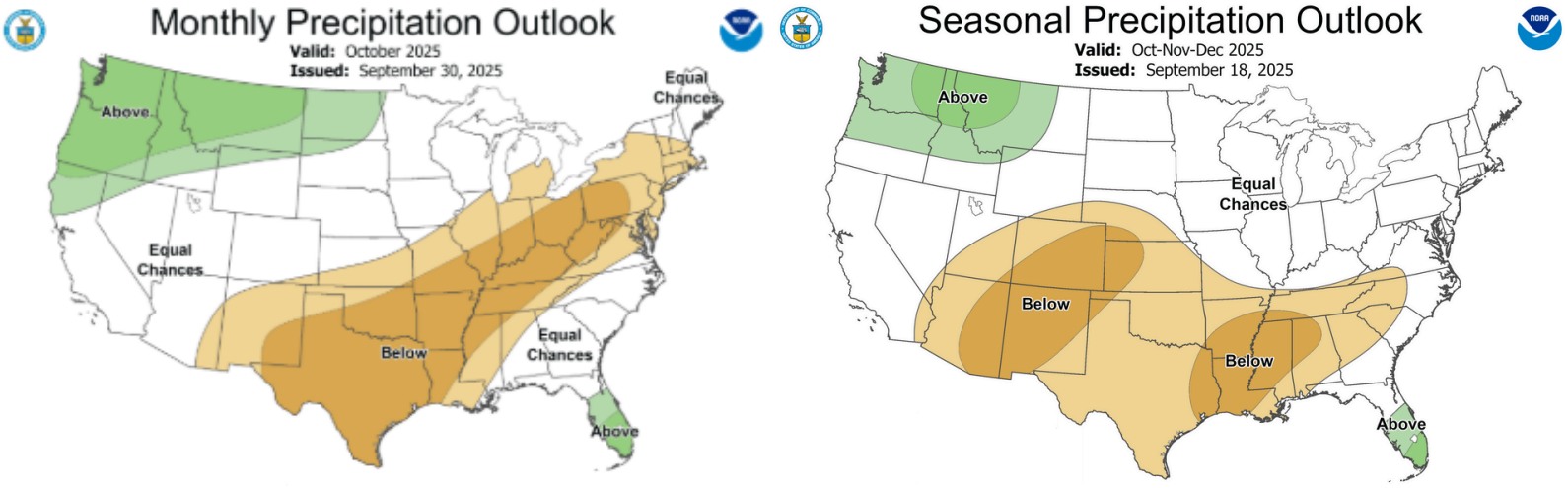

Figure 11. *Monthly and seasonal precipitation outlooks.*

Contact Us

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Report Drought Conditions

Acknowledgments

Precipitation Data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Centers for Environmental Information; Kentucky Mesonet; Midwest Regional Climate Center; Southern Regional Climate Center.

Streamflow Data:
U.S. Geological Survey, Water Resources Division.

Reservoir Data:
U.S. Army Corps of Engineers, Huntington, Louisville, and Nashville Districts; Kentucky Division of Water, Water Supply Section.

Forecast Data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climate Prediction Center.