

July 2024

Precipitation

July was a wet month across western and southern Kentucky while drought conditions developed across central Kentucky. The month started with scattered storms during the 4th of July weekend followed by the remnants of Hurricane Beryl which brought widespread rains to the western half of the state on July 8th and 9th. Strong storms brought heavy rain to much of western and southern Kentucky on July 17th and 18th. Meanwhile, parts of central and eastern Kentucky were placed in Moderate Drought by the July 16th edition of the US Drought Monitor. Scattered storms continued the next week, again mainly across southern and western Kentucky. Starting on July 28th, multiple rounds of widespread storms began moving through bringing much needed rain to central Kentucky. Lexington was on track to have a top 10 driest June and July on record (4.7") , however, 2.32" over the last 4 days of the month resulted in it being the 36th driest June and July on record (7.02").

The average precipitation for the state was 5.62", 1.23" above normal, making it the 27th wettest July on record for Kentucky. Regional averages ranged from 6.96" (2.45" above normal) for the Central Region to 4.21 (0.31 below normal) for the Bluegrass Region. According to the Kentucky Mesonet, the greatest amount of precipitation in July was reported in Ohio County, 11.53", and Mason County reported the least, 2.3".

Short-term precipitation deficits led to the development of drought in central and Eastern Kentucky. According to the July 30th U.S. Drought Monitor, much of the Bluegrass along with pockets in northern and eastern Kentucky are currently in Moderate Drought (D1).

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	1.6	1.74	7.51	3.27	2.58	3.07
Central	2.45	0.91	5.19	3.77	-1.32	1.57
Bluegrass	-0.31	-2.12	-1.31	-1.09	-4.7	-1.42
Eastern	1.26	-0.05	1.13	0.61	-3.05	0.31

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

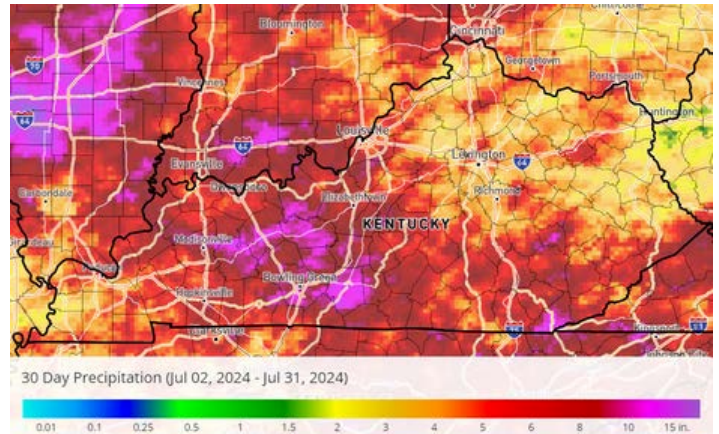


Figure 1. Monthly precipitation map.

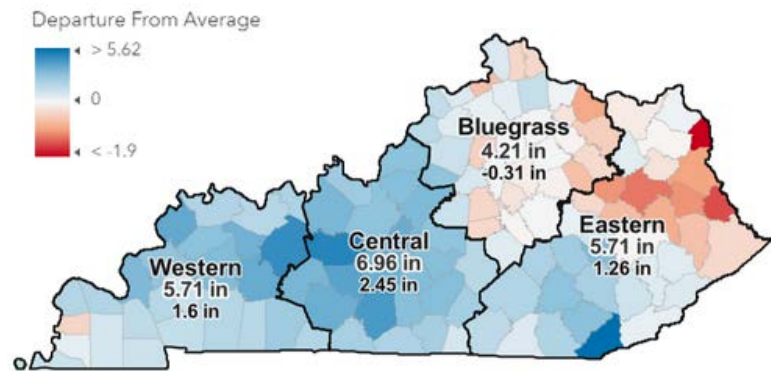
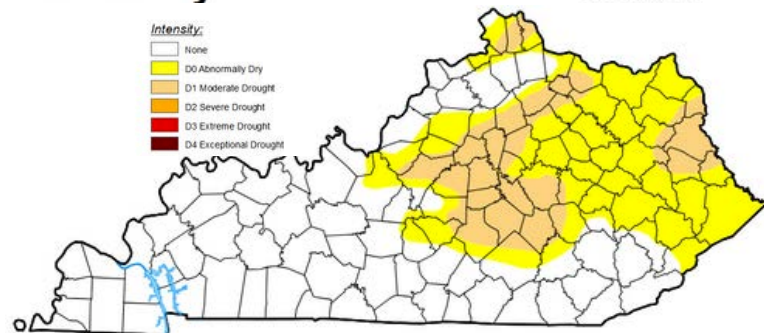


Figure 2. Departure from normal precipitation by county and climate division.

U.S. Drought Monitor Kentucky

July 30, 2024
(Released Thursday, Aug. 1, 2024)
Valid 8 a.m. EDT



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

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droughtmonitor.unl.edu

Figure 3. Current US Drought Monitor Map.

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Streamflow

Streamflow during July varied from below normal in much of central and eastern Kentucky to normal and above normal in western Kentucky. Streamflow was especially low in the Tygarts Creek and North Licking River basins along with the Kentucky River. Flow in the Ohio River continues to remain low as much of its watershed upstream of Kentucky is currently experiencing drought conditions. No navigation issues have been noted below Paducah thanks to above normal flow in the Mississippi River.

Flows in central and eastern Kentucky started the month low and remained there through most of the month as dry conditions were consistent through out the month. Flows were increasing as the month ended due to multiple days of precipitation. Streamflow in western Kentucky remain good through the entire month. The month ended with average 7-day streamflow below normal for the Licking River Watershed and much below normal in the Middle and Lower Ohio River watersheds.

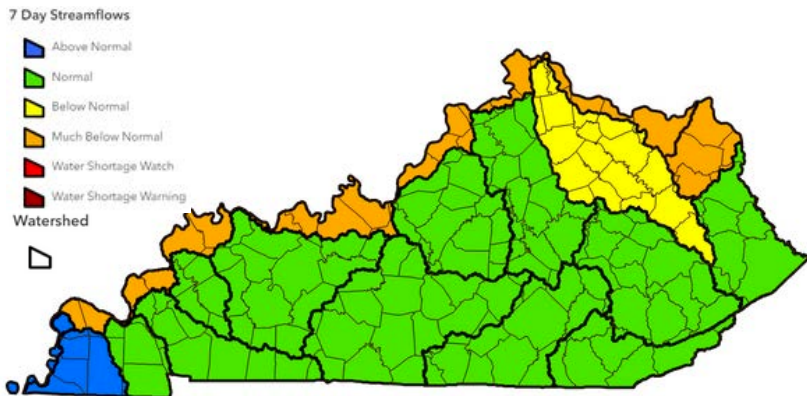


Figure 5. Average streamflow by watershed over the past 7-days (July 25-31).

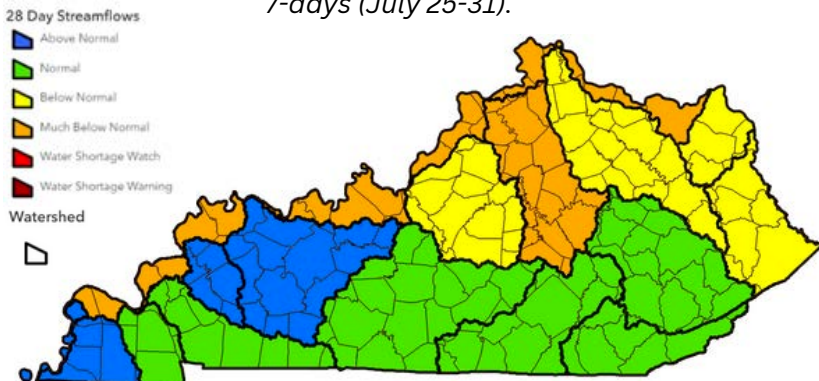


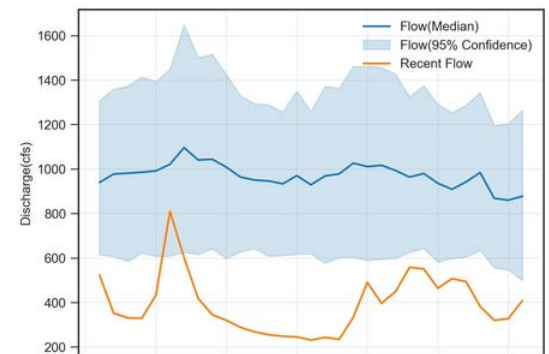
Figure 6. Average streamflow by watershed over the past 28-days (July 4-31).

Table 2. Mean Stream Discharge select stream gages.

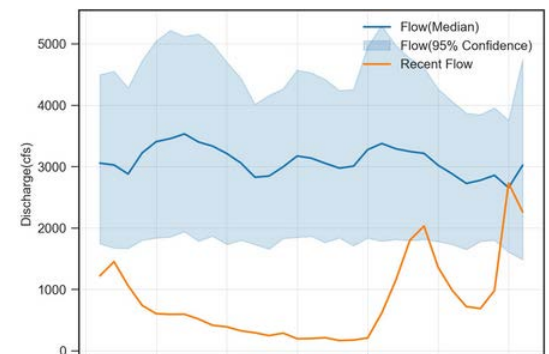
River and Location	Drainage Area (mi2)	7 Day		28 Day	
		Average Flow (cfs)	% of Normal*	Average Flow (cfs)	% of Normal*
Levisa Fork at Pikeville	1232	1011	128	881	112
Little Sandy River near Grayson	400	5.3	3	436	63
North Fork Licking River nr Mt Olivet	226	1.1	1	1.1	1
Kentucky River at Lock 14	2657	1154	56	1266	62
Kentucky River at Lock 2	6180	1694	36	1394	30
Cumberland River at Cumberland Falls	1977	1537	78	1441	74
Beaver Creek near Monticello	43	21.1	70	16.7	56
Beech Fork at Maud	436	6.8	2	7.8	2
Barren River at Bowling Green	1849	3768	196	4127	209
Green River at Calhoun	7566	5824	82	5641	80
Tradewater River at Olney	255	53.6	29	64.1	35
Clarks River at Almo	134	2.8	2	54.4	42
Bayou De Chien near Clinton	69	61.5	79	51.9	67
Ohio River at Greenup Dam	62000	14206	26	14722	28
Ohio River at Cannelton Dam	97000	23600	30	22636	29
Mississippi River @ Thebes, IL	713200	379875	204	406818	217

* Base Period 1980-2023

Tug Fork at Kermit, WV July 2024



Kentucky River at Lock 10 near Winchester, July 2024



Tradewater River at Olney, July 2024

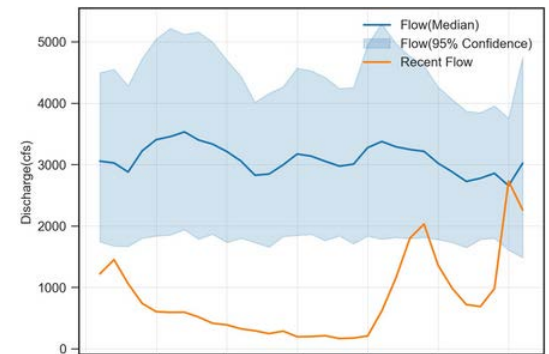


Figure 7. Streamflows compared to average flows for the month.

July 2024

Reservoir Storage

Reservoir storage for water supply lakes remain normal for the entire state.

Water supply lakes continue their summer drawdown. This is normal for this time of year as draw down season for these lakes typically begins sometime between May and July, depending on precipitation patterns. The Water Supply Section will continue to monitor the lakes, but there are no concerns at this time.

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 periods (1980 - 2010) or the longest available period of data.

Inner Bluegrass: Across July, Royal Springs' flow was far below normal with an increase in flow following rainfall towards the end of the month. For the year, total flow has been above normal but is falling back into the expected range.

Jackson Purchase: Water levels in the Viola well (Graves Co.) have fallen to within the reference period range but continue to be above historical levels for the year.

Middlesboro: Water levels within the Middlesboro well rebounded to or above normal following rainfall in the latter half of July. Water levels continue to be above normal for the year.

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

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

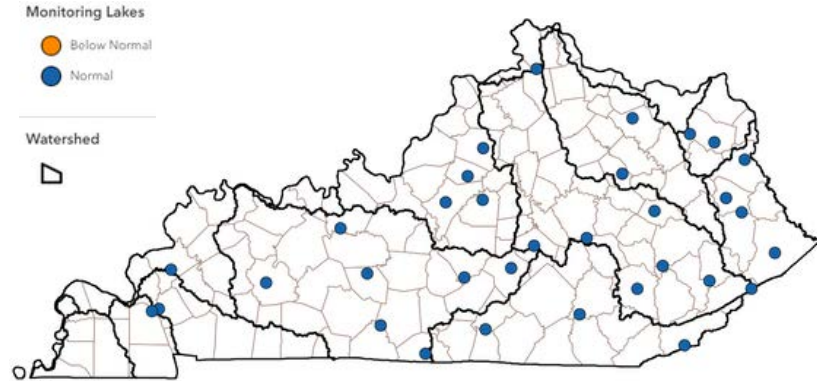
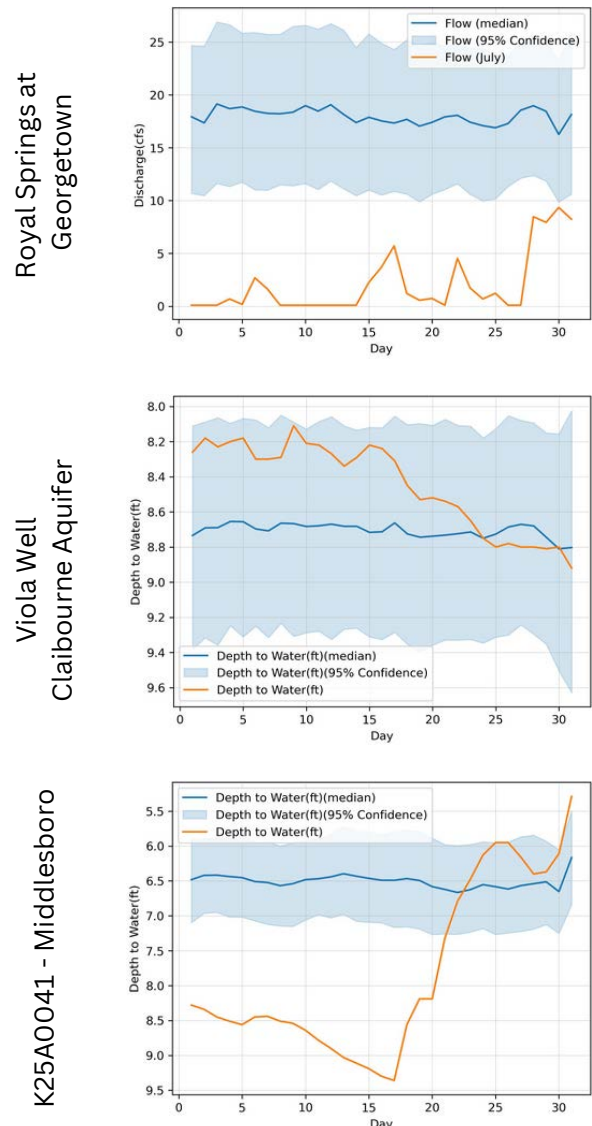


Figure 9. Groundwater observations compared to normal for the month.



July 2024

Forecast

The Climate Prediction Center (CPC) is currently predicting equal chances for above or below normal precipitation for much of Kentucky during the month of August though there is an increased chance for below normal precipitation in far western Kentucky. The prediction for August through October is for equal chances for above or below normal precipitation for most of the state, but there is an increased chance for above normal precipitation along the Virginia border.

The current U.S. Monthly Drought Outlook for Drought to persist, though much of that that drought area has already been removed since the map was released

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

U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for August 2024
Released July 31, 2024

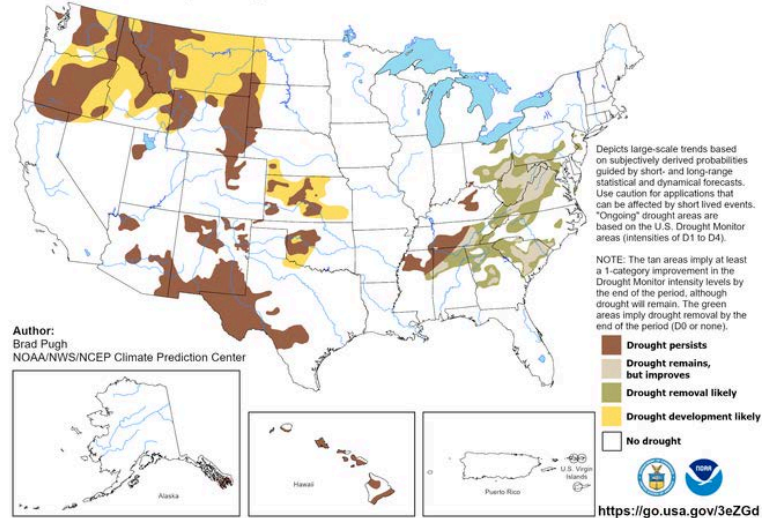


Figure 10. The monthly drought outlook.

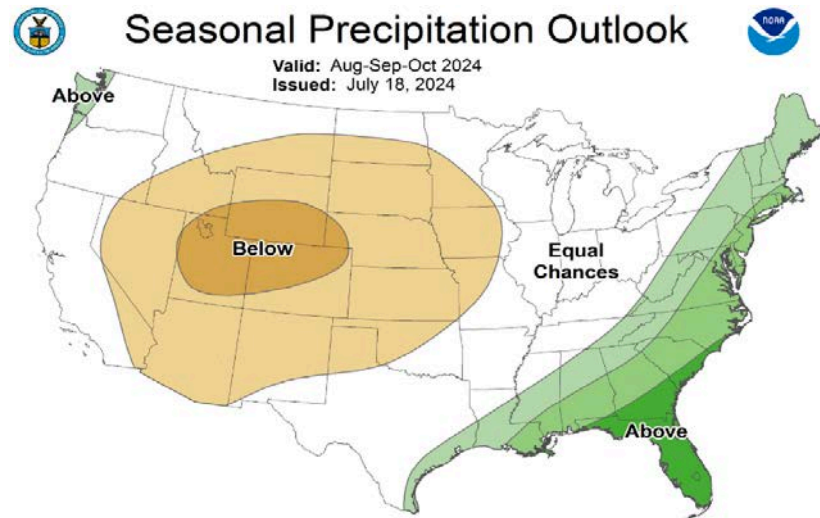
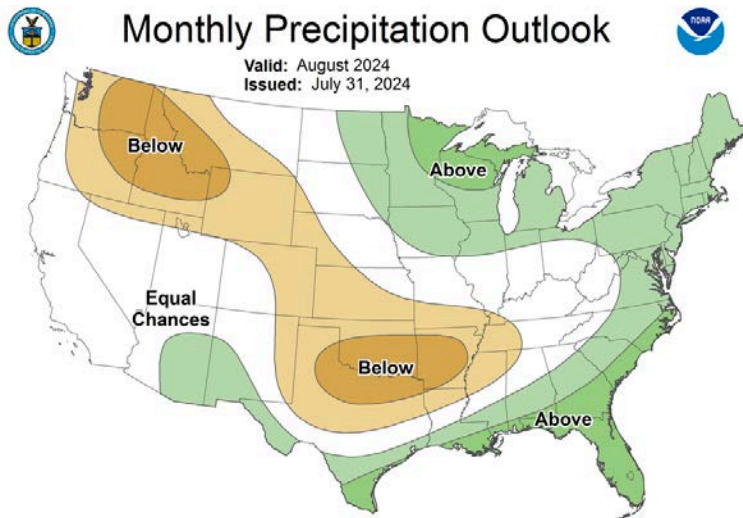


Figure 11. The monthly and seasonal precipitation outlooks.

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.