

MONTHLY WATER RESOURCE REPORT

Kentucky Division of Water Water Supply Section

May 2025

Precipitation

In May, Kentucky experienced above-average precipitation across the entire state. The month began with a multi-day event that brought scattered storms and heavy rainfall, making for a soggy Kentucky Derby. Several additional rain events occurred through mid-month, delivering repeated rounds of showers and storms. Notably, on May 16th, a significant storm produced heavy rainfall and a destructive tornado that impacted Somerset and London.

A brief dry spell occurred during the latter half of the month, but rain and storms returned to close out May.

As of the June 3rd update from the U.S. Drought Monitor (USDM), Kentucky was completely free of drought and abnormally dry conditions.

The state averaged 6.75 inches of precipitation in May—2.2 inches above the climatological norm ranking as the 14th wettest May on record. For the year to date, Kentucky has received an average of 32.51 inches of precipitation, which is 10.40 inches above normal and marks the wettest January through May period in the past 131 years.

According to data from the Kentucky Mesonet, Casey and Jackson counties recorded the highest rainfall totals at 10.31 inches, while Carroll County had the lowest at 4.11 inches.

Table 1.	Regional	precipitation	patterns
	negional	precipitation	patterns

Climate Region	D	Palmer Drought				
	This Month	Past 2 Mos.	Past 3 Mos	Past 6 Mos	Past 12 Mos	Severity Index*
Western	1.30	8.58	8.34	15.16	18.88	4.90
Central	2.83	10.28	10.55	17.21	16.89	4.59
Bluegrass	2.18	8.23	8.17	12.25	10.86	3.18
Eastern	2.44	4.93	3.97	10.01	9.45	1.93

*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

Streamflows in May were generally above normal across the state thanks to the plentiful precipitation throughout the month. Streamflows saw spikes in flow throughout the month from the multiple precipitation events. The Green River has remained elevated through out the month, and since the major flooding event at the beginning of April. This is in part to increased releases from the USACE reservoirs in the watershed.

Flow in the Ohio River remains above normal.

There are currently no concerns regarding streamflow in the state.

Table 2. Mean Stream Discharge select stream

Area Area (mi2) 7 Day Flow (cfs) 28 Day Normal* 2144 1459 173 1949 205 400 732 272 586 187 226 465 263 376 182 2657 3660 165 7713 310 6180 13513 272 18507 332 1977 2777 148 4400 208 43 88 301 93 291 6669 2260 358 2666 380					
28 Day					
nal*					
205					
187					
182					
310					
332					
208					
291					
380					
223					
317					
290					
143					
223					
210					
210					
108					





Description:





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

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



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Reservoir Storage

Reservoir storage for water supply lakes remain normal to above normal for the entire state. USACE reservoirs in the Green River watershed are 10' to 20' above summer pool.

Typically, between May and July reservoirs enter what is known a draw down season, a time where withdrawals outpace inflow. As of the end of May, reservoirs had not entered the drawdown season due to the continued above normal precipitation. The later summer draw down begins, the lower the risk for water shortages later in the year.

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: Regular rainfall has kept flow at Royal Springs (Scott Co.) above the confidence interval for the reference period and well above the median due to sequential storm events. Groundwater levels are expected to be at or above seasonal levels following regular rainfall across May. As spring comes to an end, groundwater levels will likely decline in response to higher evapotranspiration.

Jackson Purchase: Water levels in the Viola Well (Graves Co.) were incomplete for the month of May with no data available through the middle of the month. This suggests instrument failure may have been responsible for the previous months rapid fall in water level. Available water levels at the end of the month are well above median water level for the reference period. Groundwater levels are expected to trend lower over the summer 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.) were generally above the median of the reference period across almost all of May with midmonth water levels high during storm response. Groundwater levels are expected to fall to seasonal levels as spring advances into summer and evapotranspiration increases.

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



Figure 8. Locations of reference reservoirs across the

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





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Forecast

The Climate Prediction Center (CPC) is currently predicting increased chances for above normal precipitation for the majority of Kentucky during June. The forecast for the summer - June through August - is for an increased chance for above normal precipitation across the eastern half of the state and equal chances across the western half. The darker green indicates a higher amount of confidence in above normal precipitation. Short term forecasts are predicting above normal precipitation for the first half of June.

The current U.S. Monthly Drought Outlook shows no drought is expected to develop in Kentucky during the month of June.

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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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.