Water Supply Outlook

October 5, 2025
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The ICPRB, through its Section for Cooperative Water Supply Operations on the Potomac (CO-OP), coordinates water supply operations during times of drought and recommends releases of stored water. These operations ensure adequate water supplies for Washington metropolitan area water users and for environmental flow levels. The water supply outlooks are published by CO-OP on a monthly basis between April and October. They are meant to provide an update on the possibility of low-flow conditions in the Potomac basin.

Summary/Conclusions

There is an above-normal probability of needing releases from the Washington metropolitan area's back-up water supply reservoirs through December of 2025. Typically, use of the Jennings Randolph and Little Seneca reservoirs is triggered by low river flows resulting from a combination of dry summer conditions and reduced groundwater levels. September brought continued dryness across the Potomac basin, with only 1.8 inches of precipitation recorded (2.1 inches below normal) and cumulative 12-month rainfall now 4.3 inches below average. Groundwater levels are near long-term averages but slightly less favorable than normal. As a result, drought conditions have intensified in the upper Potomac basin, where roughly 61 percent of the basin is now classified in moderate to extreme drought. In contrast, much of Maryland and Pennsylvania remain normal, and Virginia is under a broad drought watch.

The ICPRB CO-OP is currently operating under its daily drought monitoring protocol to track conditions and coordinate with regional suppliers. No reservoir releases have been required so far this year, and the Potomac River continues to meet all regional demands without augmentation. The Climate Prediction Center forecasts above-normal temperatures and below-normal precipitation through October, with drought expected to persist in the northwestern headwaters. While current water supplies remain adequate, continued dry conditions could increase the likelihood of reservoir operations later in the season.

ICPRB's Low Flow Outlook

There is a 10 to 24 percent conditional probability that natural Potomac flow will drop below 600 to 700 million gallons per day (MGD) at Little Falls through December 31, 2025. At these flow levels, water supply releases from Jennings Randolph and Little Seneca reservoirs may be necessary. Releases occur when predicted flow is less than demand plus a required environmental flow-by. Drinking water demand ranges from 400 to 700 MGD during the summer months and the minimum flow-by at Little Falls is 100 MGD. Note that natural flow is defined as observed flow at the Little Falls gage plus total Washington metropolitan Potomac withdrawals, with an adjustment made to remove the effect of North Branch reservoir releases on stream flow.

The conditional probability is estimated by analyzing historical stream flow records and considering recent stream flow values, precipitation totals for the prior 12 months, and current groundwater levels. Years with watershed conditions most similar to current conditions are weighed more heavily when determining conditional probability. In contrast, the historical, or unconditional, probability is based solely on the long-term record without adjustment for current conditions. The 10 to 24 percent conditional probability compares to the 7 to 14 percent historical probability and is considered the more reliable indicator.

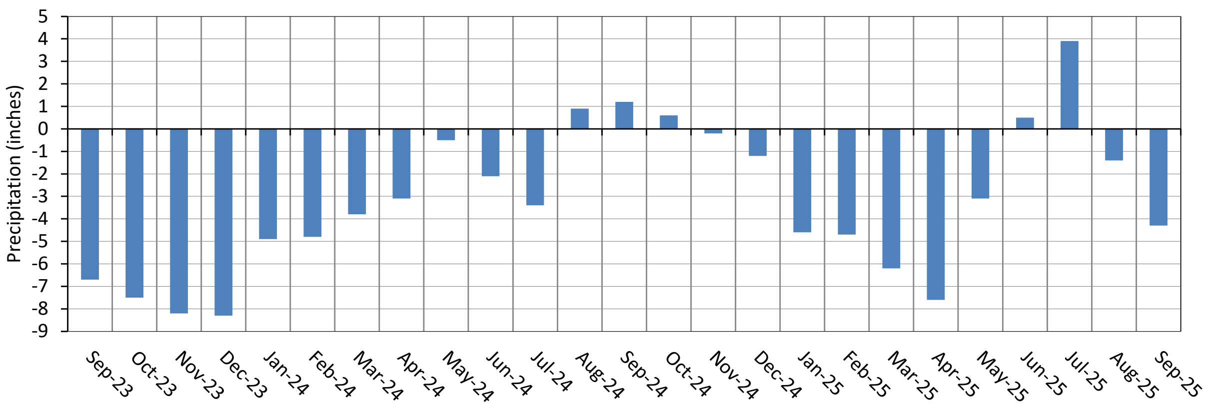
Outlook for natural Potomac River flow at Little Falls – Watershed conditions as of October 3, 2025

Low flow threshold (MGD)	*Low flow threshold (cfs)*	*Historical probability of lower flow October 1 through December 31*	*Conditional probability of lower flow October 1 through December 31*
1200	1858	64%	88%
1000	1548	45%	73%
800	1238	22%	44%
700	1084	14%	24%
600	929	7%	10%

Past Precipitation

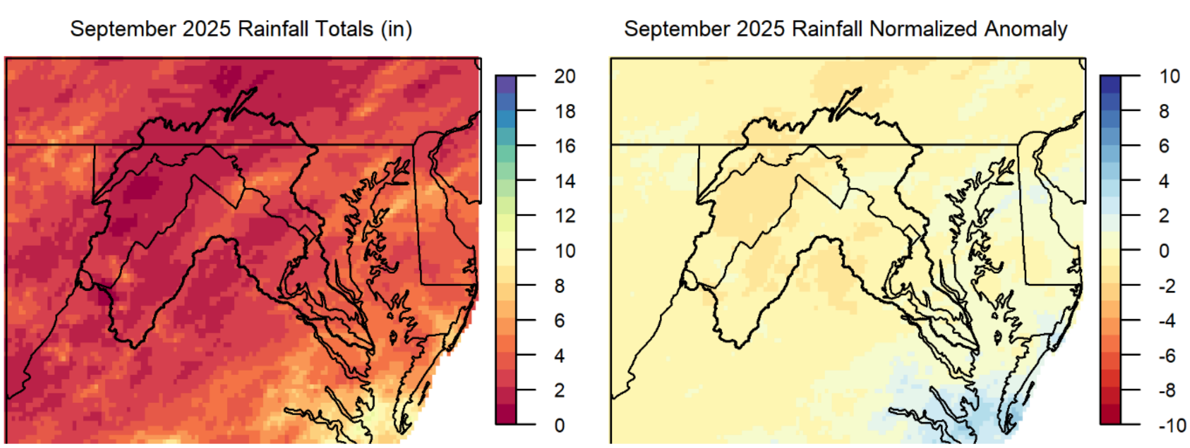
Data from the National Weather Service's Middle Atlantic River Forecast Center (MARFC) indicates that the Potomac basin upstream of Washington, D.C., received 1.8 inches of precipitation in September, which is 2.1 inches below normal. As of October 1, the 12-month cumulative precipitation stands at 35.6 inches, which is -4.3 inches below normal.

12-Month Precipitation Departures from Normal: September 2023 through September 2025



Source: Middle Atlantic River Forecast Center, National Weather Service

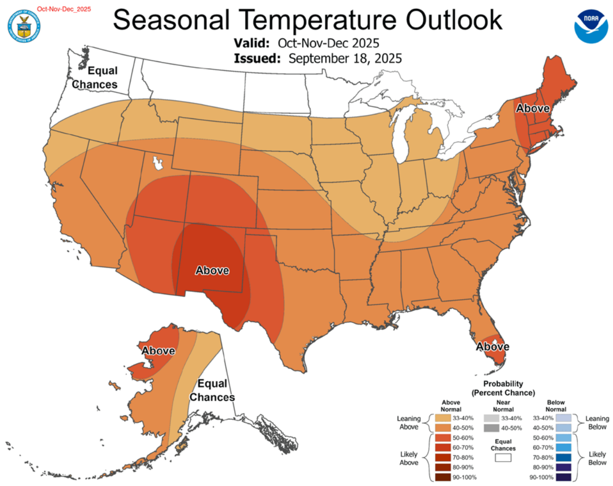
The maps below show September 2025 rainfall conditions across the Potomac River basin using Oregon State University PRISM data. The left map displays total rainfall: the basin received on average 2.2 inches, ranging from 0.3 to 5.8 inches, with most areas between 1.6 and 2.8 inches and a median of 2.0 inches. The right map shows rainfall anomalies relative to normal: the basin had an average standardized anomaly of -0.7, with values from -1.7 to 1.0, most areas between -1.0 and -0.5, and a median of -0.8. These results indicate that much of the basin was drier than normal.

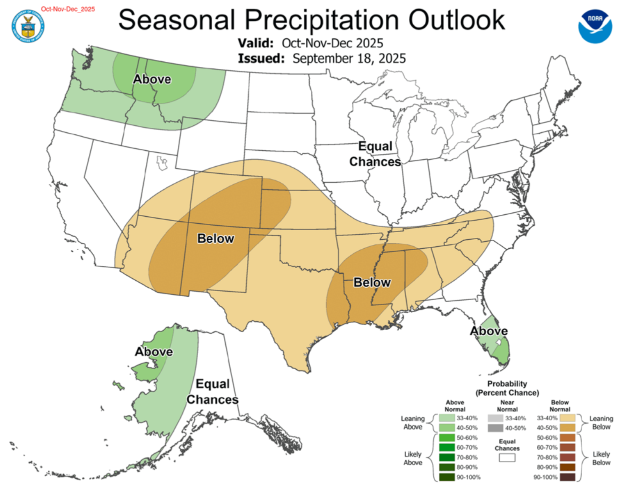


Source: PRISM Climate Group, Oregon State University, https://prism.oregonstate.edu

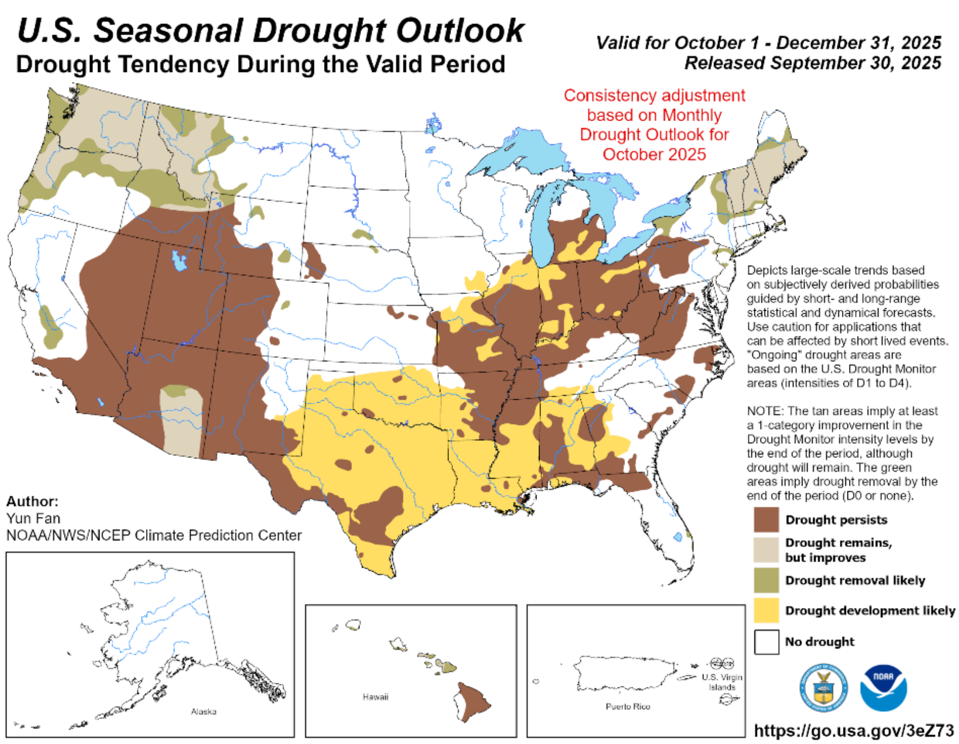
Precipitation and Drought Outlook for October, November, December

The Climate Prediction Center's outlooks for October shows increased chances of above-normal temperatures and below-normal precipitation across the Mid-Atlantic region. The seasonal outlook for October through December 2025 similarly favors warmer-than-average temperatures across the Potomac River basin, with no clear precipitation signal.



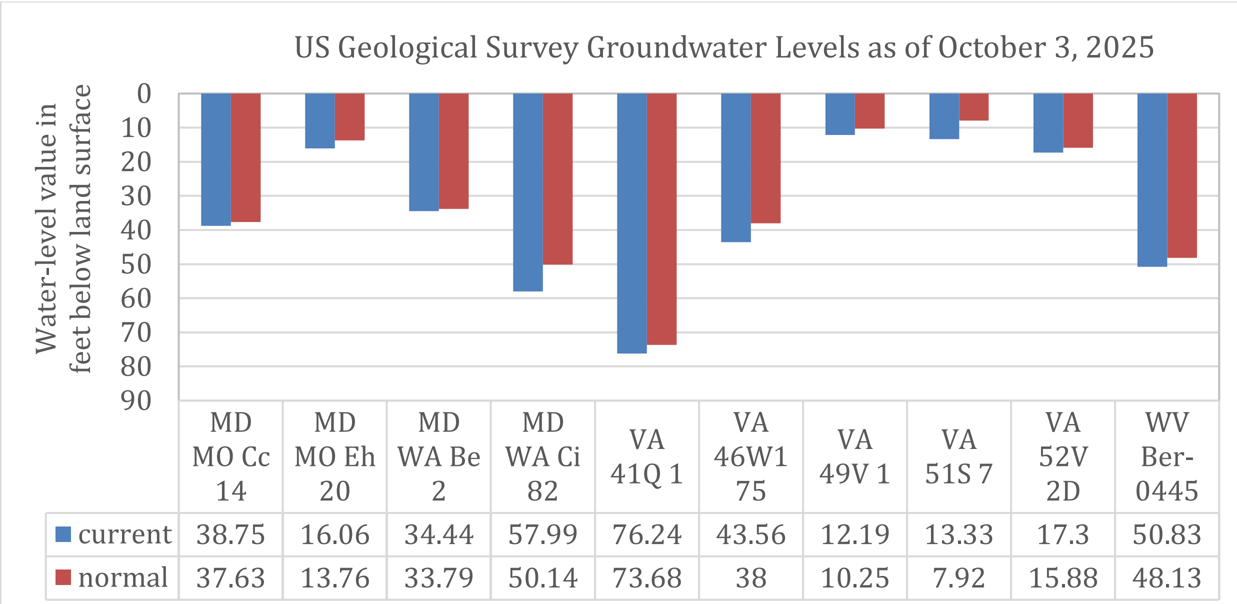


The Climate Prediction Center's September 30 U.S. Seasonal Drought Outlook indicates that drought conditions are expected to persist across the northwestern portions of the Potomac River basin.



Groundwater – Current Conditions

As of early October, U.S. Geological Survey (USGS) data show that groundwater levels across the Potomac River basin generally are near their long-term averages, with conditions slightly less favorable than normal.



Reservoir Storage – Current Conditions

There have been no water supply releases from the CO-OP shared system so far this year. For the latest information on North Branch Potomac River and Savage River releases, visit https://www.nab-wc.usace.army.mil/nab/northBranch.html.

Reservoir storage as of October 3, 2025

Facility	Percent Full	Current usable storage, BG	Total usable capacity, BG
WSSC Water's Patuxent reservoirs[1]	76	8.1	10.5
Fairfax Water's Occoquan Reservoir[2]	93	7.6	8.2
Little Seneca Reservoir[3]	99	3.8	3.9
Jennings Randolph water supply[4]	100	13.1	13.1
Jennings Randolph water quality[4]	49	8.0	16.3
Savage Reservoir[5]	55	3.5	6.3

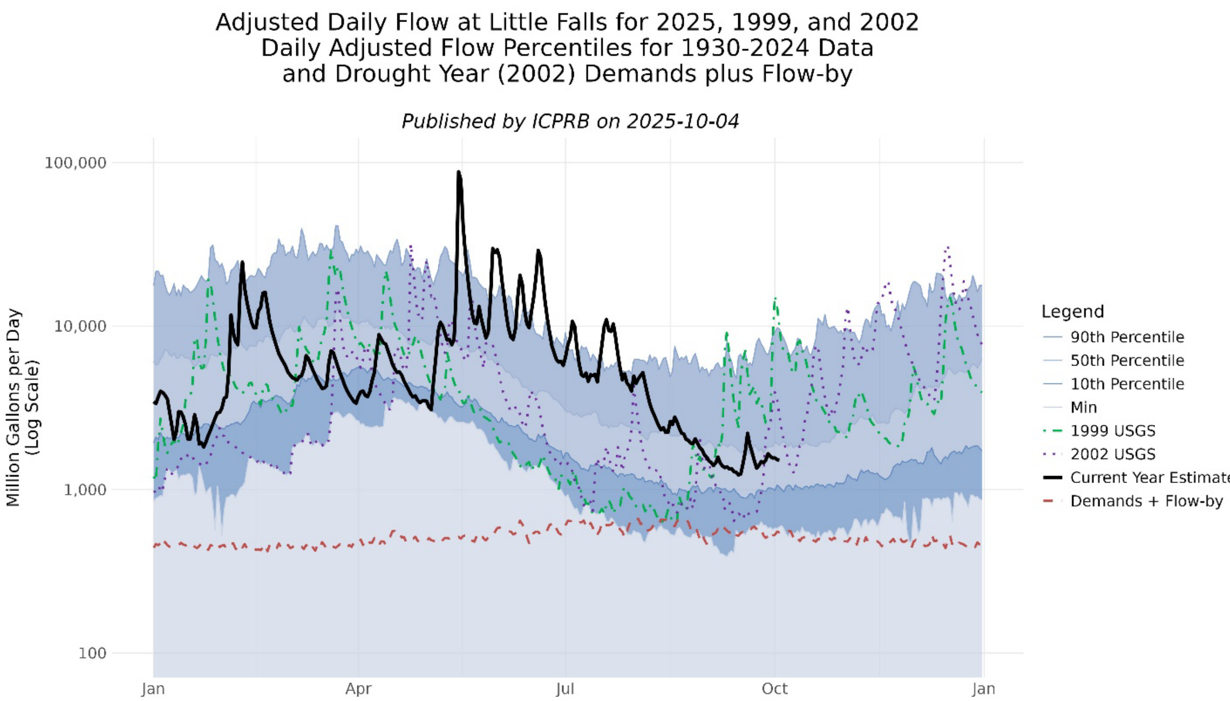
[1] Bathymetric study conducted December 2015 with revisions in December 2016, and unusable storage corrected June 2017.
[2] Bathymetric study conducted in 2019.(2002, 1999, 1966
[3] Usable capacity consistent with Ortt, *el al.* (2011).
[4] 2013 revised stage-storage curve provided by Bill Haines, US Army Corps of Engineers, Baltimore District.
[5] 1998 revised stage-storage curve provided by Bill Haines, US Army Corps of Engineers, Baltimore District.

Potomac River Flow

Potomac River flows are below median levels for this time of year. On October 1, the adjusted flow at Little Falls measured approximately 1.6 billion gallons per day (BGD), falling between the historical 50th percentile (1.9 BGD) and 10th percentile (1.0 BGD) for that date. The average flow for September was 1.5 BGD, while the nine-month average through September stood at 7.2 BGD. Adjusted flow represents river conditions without major local withdrawals but accounts for upstream reservoir releases.

Environmental Flow-by

Average observed Potomac flow at Little Falls in September was well above the minimum recommended environmental flow-by of 100 MGD.



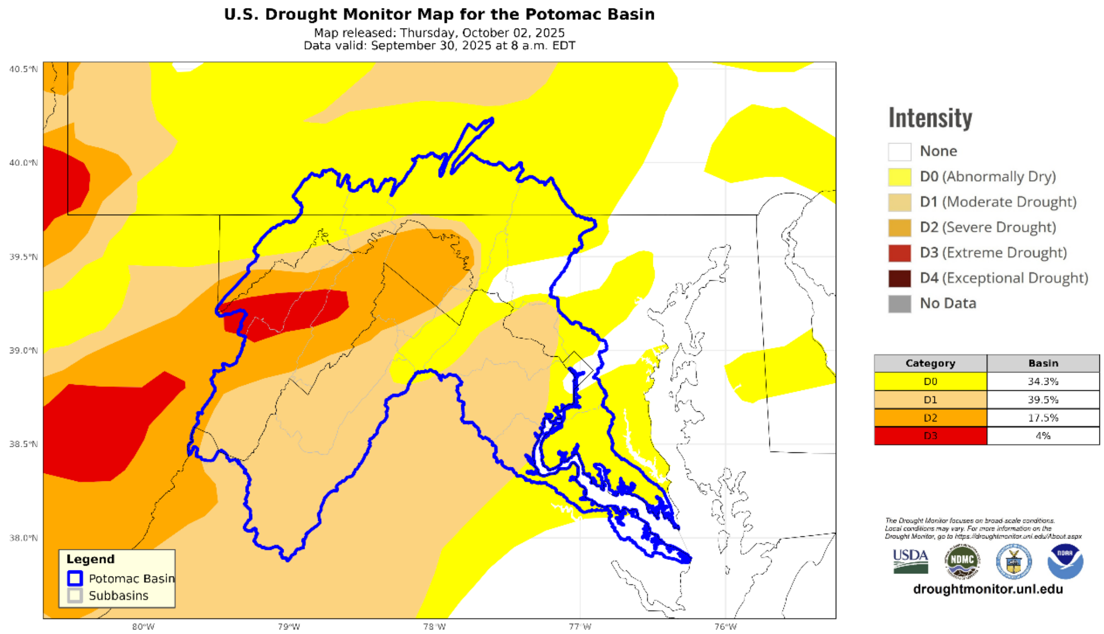
Adjusted flow represents the natural flow that would occur in the absence of major withdrawals. The USGS publishes adjusted flow data for Little Falls based on actual withdrawals reported by the CO-OP utilities and Loudoun Water. However, the USGS data may not always be available in time for the outlook. In such cases, ICPRB estimates the adjusted flow using a 20-day rolling average of past withdrawal data or observed data collected from the utilities.

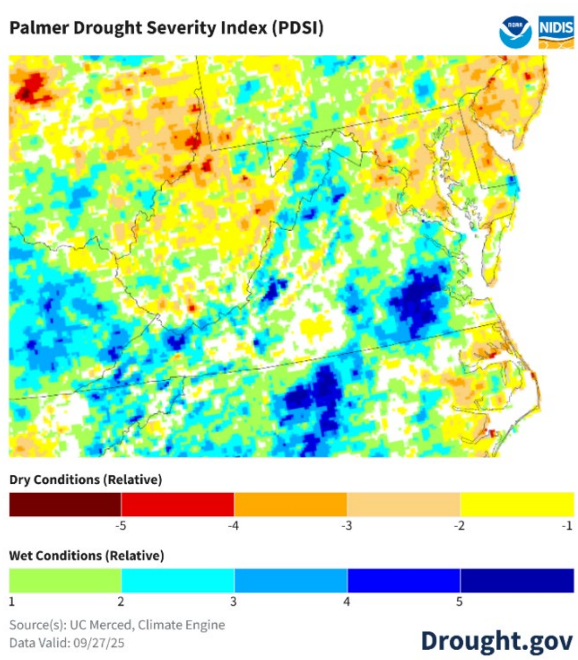
Drought Status

As of September 15, 2025, Maryland's overall hydrologic conditions were normal, though Central Maryland remained under a groundwater warning and an overall drought watch. As of September 29, 2025, drought watch conditions extended across the Shenandoah, Northern Virginia, Upper James, and Roanoke regions, while the remainder of Virginia remained mostly normal. In the Pennsylvania portions of the Potomac River basin, primarily Franklin, Fulton, and Bedford Counties, conditions were also normal. According to the Metropolitan Washington Council of Governments (MWCOG) Water Supply and Drought Response Awareness Plan, the regional drought stage remains normal.

Drought Monitor and Soil Moisture

The U.S. Drought Monitor map shows that drought conditions intensify toward the upper Potomac basin near the headwaters, while areas downstream toward the Washington metropolitan region remain dry but less severe. As of September 30, 2025, about 34% of the basin was abnormally dry (D0), 39% in moderate drought (D1), 18% in severe drought (D2), and 4% in extreme drought (D3). Similarly, the Palmer Drought Severity Index (as of September 27, 2025) indicates dry to very dry conditions in the upper Potomac basin and wetter conditions across southern and coastal areas of Virginia and Maryland.





Source: https://www.drought.gov/data-maps-tools/us-gridded-palmer-drought-severity-index-pdsi-gridmet