

Water Supply Outlook



Interstate Commission on the Potomac River Basin (ICPRB)

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November 8, 2024

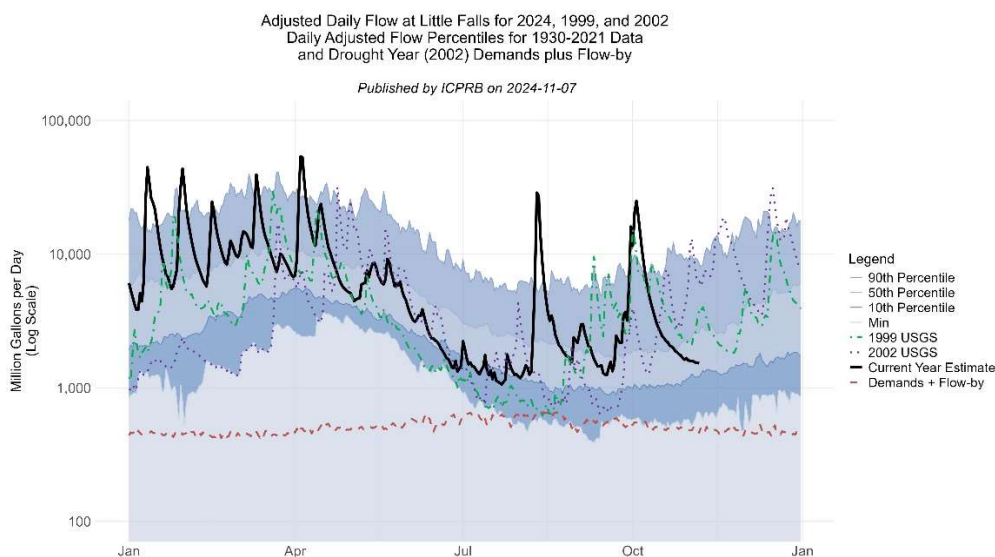
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The ICPRB, through its Section for Cooperative Water Supply Operations on the Potomac (CO-OP), coordinates water supply operations during times of drought and recommends releases of stored water. These operations ensure adequate water supplies for 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

The ICPRB Section for Cooperative Water Supply Operations (CO-OP) commenced its fourth "Drought Monitoring" period of the year on November 1. CO-OP initiates drought monitoring when the flow at the U.S. Geological Survey (USGS) stream gage in Point of Rocks, Maryland, falls below 2,000 cubic feet per second. Due to the persistent dry conditions, the publication period for the Water Supply Outlook has been extended into November, even though the ICPRB's Low-Flow Outlook model does not cover this month. The Potomac basin upstream of Washington, D.C., received 0.8 inches of rain in October, which is 2.2 inches below normal. Streamflow is currently below normal. Groundwater levels are below normal in many observation wells in the basin. The U.S. Drought Monitor reports that 19% of the Potomac basin is experiencing severe drought conditions, while 52% is facing moderate drought conditions. Extreme drought conditions remain in a small western corner of the basin. Many counties in Pennsylvania, as well as a few drought regions in Virginia and Maryland, are currently under a drought watch. Two counties in Pennsylvania are under drought warning. The drought watch declared on July 29 by the Metropolitan Washington Council of Governments (MWCOG) is still in effect. The Climate Prediction Center indicates that normal precipitation is likely over the next three months. The U.S. Seasonal Drought Outlook indicates that drought removal is likely in the central parts and eastern parts of the Potomac Basin over the coming months, while drought is likely to remain but improve in western areas. At present, there is sufficient flow in the Potomac River to meet the Washington metropolitan area's water demands without releasing water from upstream reservoirs. If low-flow conditions further develop, the Washington metropolitan area is protected from a water supply shortage owing to carefully designed drought-contingency plans.

Potomac River Flow

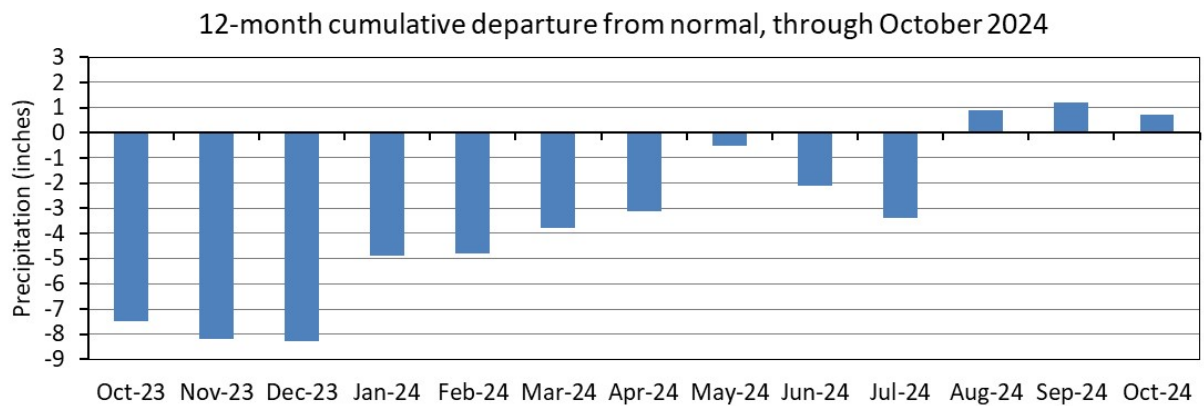


Adjusted flow represents the natural flow that would occur in the absence of major withdrawals. The USGS publishes adjusted flow data for Little Falls based on actual withdrawals reported by the CO-OP utilities and Loudoun Water. However, the USGS data may not always be available in time for the outlook. 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.

The estimated adjusted Potomac flow at Little Falls on November 1 was 1.56 billion gallons per day (BGD). For this day of the year, this value was above the 10th percentile flow value 1.18 BGD and below the median value of 2.21 BGD. Adjusted flow, shown in the figure above, is the flow that would occur in the absence of major Washington metropolitan area withdrawals, but includes releases from upstream reservoirs. Adjusted flow averaged 7.93 BGD for the past 10 months and 5.7 BGD in October.

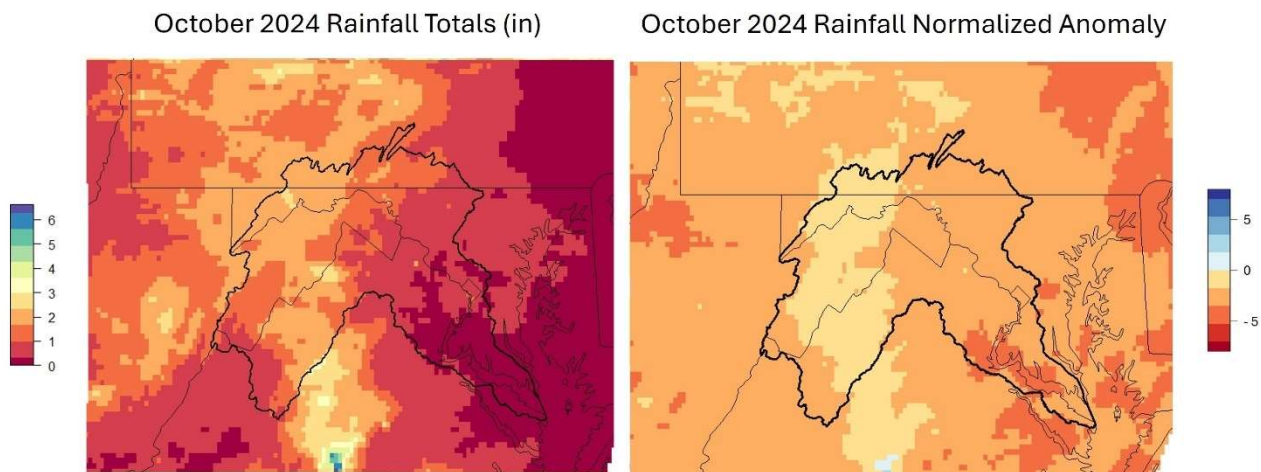
Past Precipitation

Data from the National Weather Service’s Middle Atlantic River Forecast Center (MARFC) shows that the Potomac basin upstream of Washington, D.C., received 0.8 inches of precipitation in the month of October, which is 2.2 inches below normal. The 12-month cumulative basin precipitation is 0.6 inches above normal as of October 31 (see graph below).



Source: Middle Atlantic River Forecast Center, National Weather Service

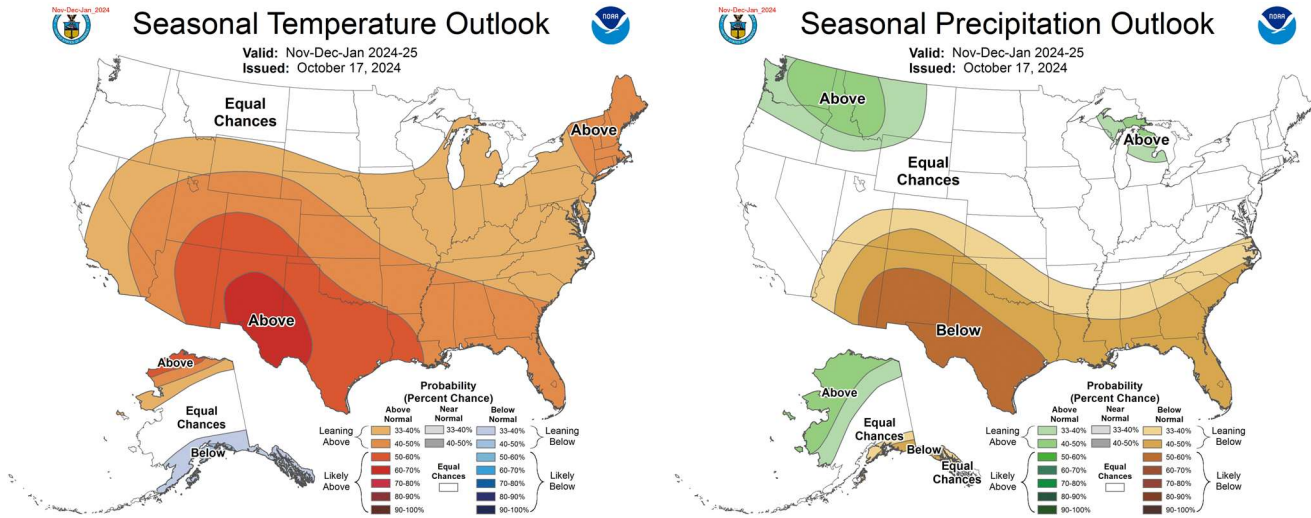
The maps below illustrate the spatial variability of rainfall over the Potomac basin in October based on PRISM (Parameter-elevation Regressions on Independent Slopes Model) data. Normalized rainfall anomaly, indicating departure from normal conditions, reveals below normal rainfall across the entire basin, especially in eastern parts.



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

Precipitation and Drought Outlook for November, December and January.

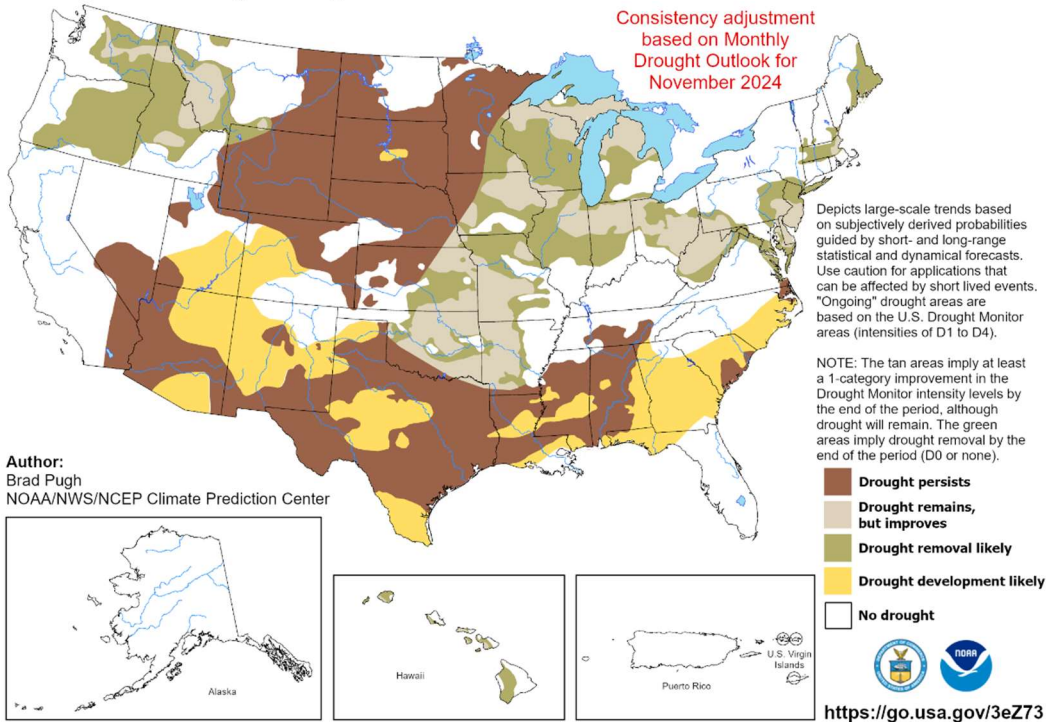
The Climate Prediction Center's November outlook calls for above normal temperatures and below normal to normal precipitation in the Potomac Basin. The 90-day outlook calls for above-normal temperatures and normal precipitation.



The Climate Prediction Center's U.S. Seasonal Drought Outlook, as of November 1, 2024, indicates drought removal is likely in central parts of the basin, but drought is likely to remain but improve in western parts of the basin.

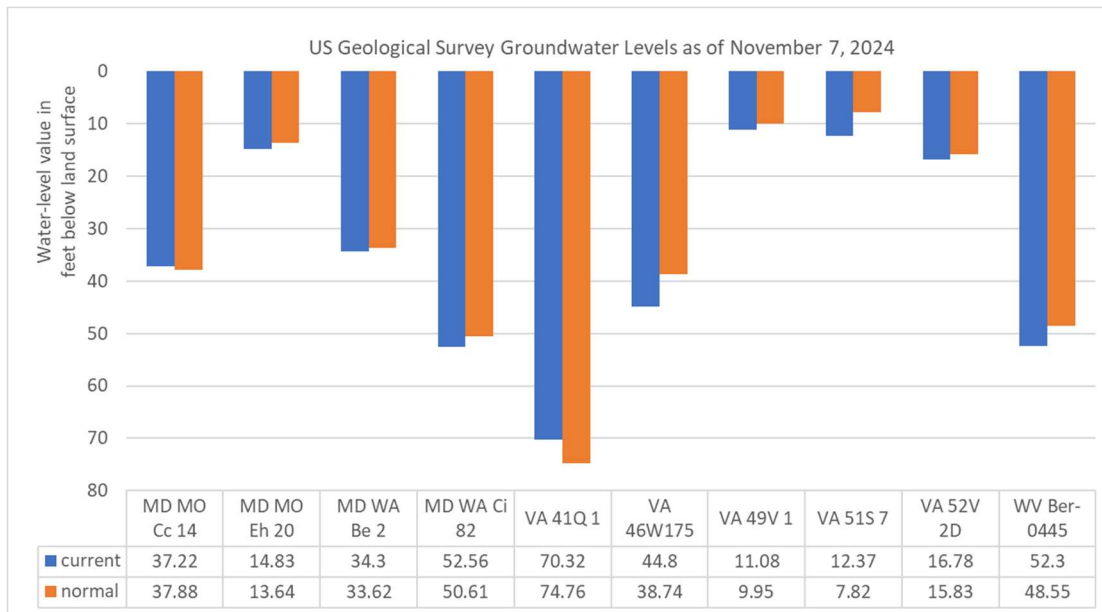
U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for November 1, 2024 - January 31, 2025
Released October 31, 2024



Groundwater – Current Conditions

Based on U.S. Geological Survey (USGS) data, the depth to groundwater level (measured in feet) shows most of the wells are below normal levels.



Reservoir Storage – Current Conditions

There have been no water supply releases from the CO-OP shared system so far this year. Due to prolonged hot and dry conditions this summer and early fall, the U.S. Army Corps of Engineers canceled two scheduled artificially varied flow releases and a whitewater release in August and September to conserve water quality storage. Currently water quality reservoir releases are at a minimum.

Reservoir storage as of November 6, 2024

Facility	Percent Full	Current usable storage, BG	Total usable capacity, BG
WSSC Water's Patuxent reservoirs ¹	68	7.1	10.5
Fairfax Water's Occoquan Reservoir ²	96	7.7	8.2
Little Seneca Reservoir ³	98	3.8	3.9
Jennings Randolph water supply ⁴	100	13.1	13.1
Jennings Randolph water quality ⁴	18	2.9	16.3
Savage Reservoir ⁵	29	1.8	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.

³ Usable capacity consistent with Ortt, *et al.* (2011).

⁴ 2013 revised stage-storage curve provided by Bill Haines, US Army Corps of Engineers, Baltimore District.

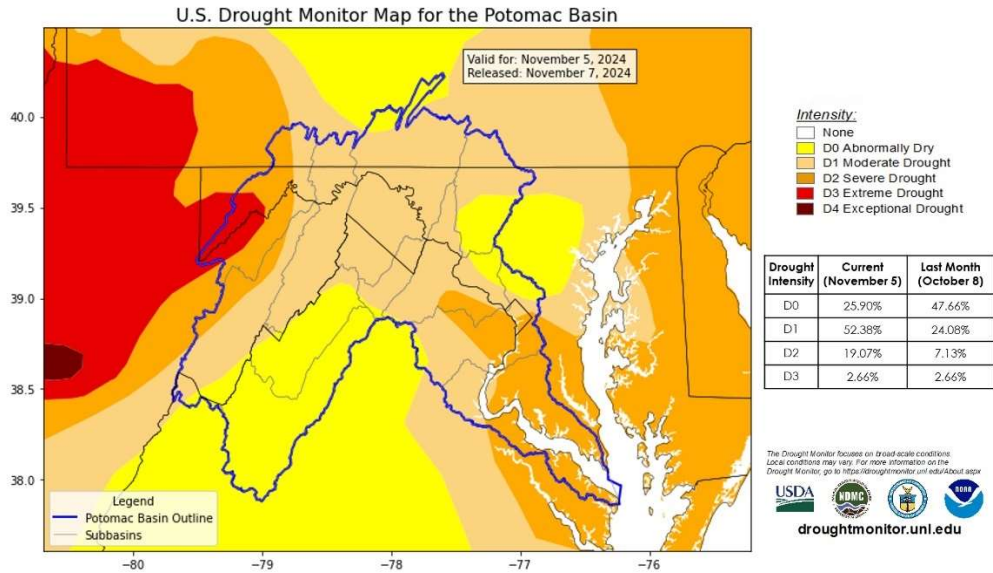
⁵ 1998 revised stage-storage curve provided by Bill Haines, US Army Corps of Engineers, Baltimore District.

Drought Status

Conditions have rapidly degraded in [Pennsylvania](#) with two counties now under a drought warning while over 20 others are under a drought watch. In [Maryland](#), the Eastern region is under a drought watch. In [Virginia](#), 5 regions are under a drought watch, including the Shenandoah and Northern Virginia drought regions. The drought watch declared on July 29 by the Metropolitan Washington Council of Governments (MWCOG) is still in effect.

Drought Monitor and Soil Moisture

The U.S. Drought Monitor map from the NOAA Climate Prediction Center indicates that the entire basin is experiencing abnormally dry to extreme drought conditions. 19% of the Potomac Basin is experiencing severe drought conditions, while 52% is facing moderate drought conditions. A small area of the basin in western Maryland and West Virginia is experiencing extreme drought conditions. The Palmer Drought Severity Index by Division map indicates varying conditions across the basin with notably dry conditions in western areas.



Retrieved from: https://droughtmonitor.unl.edu/data/json/usdm_20241105.json
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