



News Release

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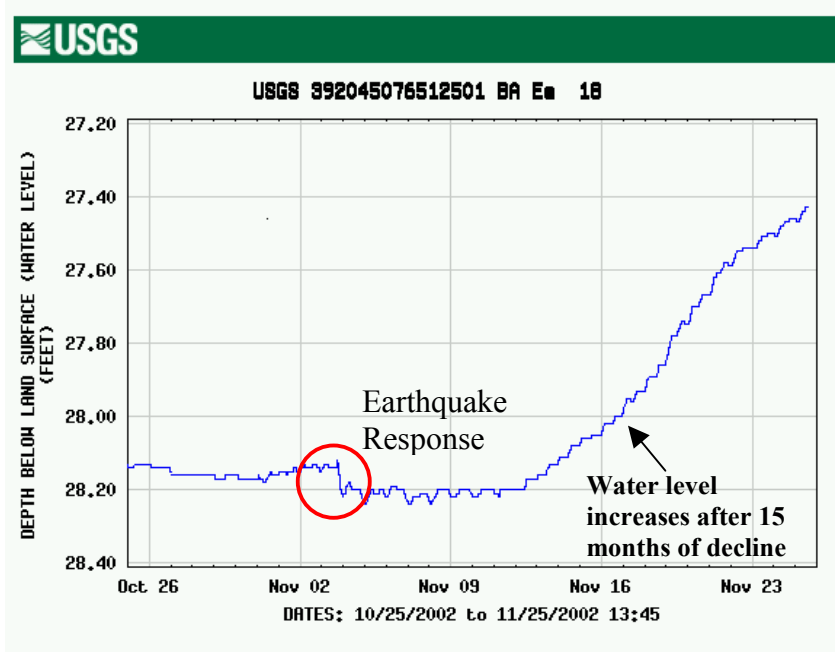
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Hydrologic Drought Wanes as Water Levels Rise

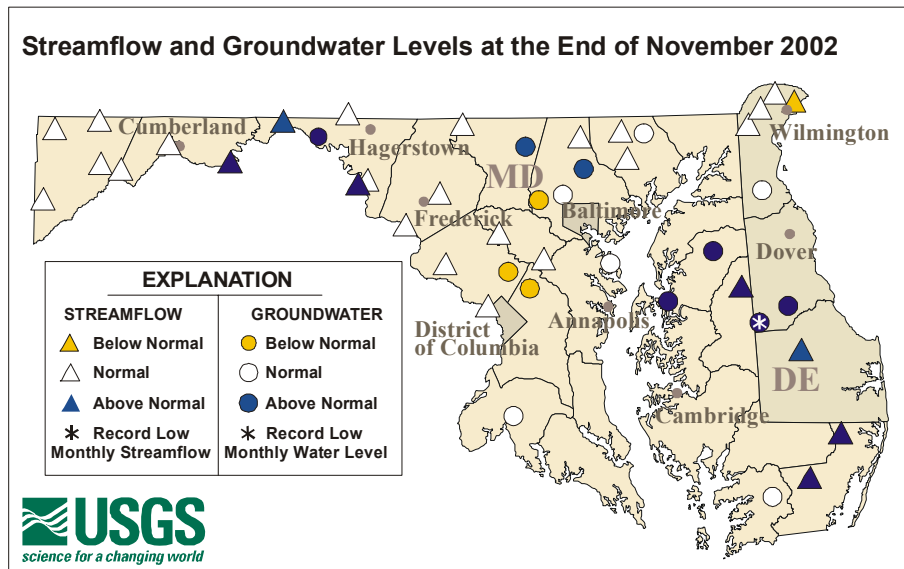
Abundant autumn rains have led to a waning of the hydrologic drought that has engulfed the Mid-Atlantic region for more than a year. Streams were flowing at normal to above normal levels at the end of November. Groundwater levels have increased across Maryland and Delaware, many to normal levels, some to above normal levels, and a well in Delaware reached a record monthly high, according to hydrologists at the U.S. Geological Survey (USGS). The recovery from hydrologic drought conditions has been quicker than expected.

Water levels in a deep bedrock well in Baltimore County, Maryland finally responded to rainfall (aquifer recharge) in mid-November after 15 months of falling water levels. Because the water level in this well is monitored at 15-minute intervals, the magnitude 7.9 Alaskan earthquake on November 3 was detected by a small but sudden drop in water level. Since then, the water level in this well has increased by 0.74 feet.



Groundwater levels, streamflow, and water-quality data can be obtained from the **USGS National Water Information System Web site (NWISWeb)** at <http://waterdata.usgs.gov/nwis/>. NWISWeb provides access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, and Puerto Rico. To reach the real-time groundwater data for Maryland and Delaware, from the main NWISWeb page, select the state of interest from the drop-down box in the upper left, then select “Ground Water,” followed by “Real-time.” Wells are identified and can be accessed by clicking on the station number.

Rainfall in November was near normal to above normal in some regions. Because the rain fell at a time of year when water demand is low, streamflows and groundwater levels increased throughout most of Maryland and Delaware. Water levels usually increase in the fall because seasonal changes cause less water to be lost to evaporation or used by plants, but the abundant rainfall has brought the water levels up more quickly than expected.



For news release and images, go to http://md.water.usgs.gov/publications/press_release/current/

Groundwater is the last hydrologic element to recover from drought conditions because of the time required to recharge aquifers. Groundwater levels increased throughout the region, although wells in Baltimore, Montgomery, and Prince Georges Counties in Maryland still had levels below normal at the end of November (see graphs at <http://md.water.usgs.gov/groundwater/>). In September 2002, 9 of the 16 wells used by the USGS to assess water resources across Maryland and Delaware set monthly record lows. By November, water levels rose in all 16 wells, and in several of these wells, groundwater levels rose significantly. The table below compares the water levels for wells that set record monthly lows in September 2002 with current water levels, showing the increase during the 2-month period.

Monthly Groundwater Level Comparison in Maryland September 2002 (record low) and November 2002 (near normal) [Water levels are in feet below land surface]					
County	Well Name	September Water Level	November Water Level	Status at the end of November	2-Month Water Level Increase (feet)
Baltimore	BA Ce 21	22.48	18.62	Above Normal	+3.86
Baltimore	BA Ea 18	27.91	27.39	Below Normal	+0.52
Charles	CH Ee 16	16.74	15.49	Normal	+1.25
Carroll	CL Bf 1	75.76	68.06	Above Normal	+7.70
Harford	HA Bd 31	20.25	15.27	Normal	+4.98
Montgomery	MO Eh 20	18.03	14.67	Below Normal	+3.36
Prince Georges	PG Bc 16	25.91	25.28	Below Normal	+0.63
Queen Annes	QA Cg 1	6.49	3.68	Above Normal	+2.81
Somerset	SO Cf 2	6.55	3.45	Normal	+3.10

The water level in a well in Carroll County, Maryland rose more than 7 feet during the last 2 months, and is now above normal. The groundwater level in the deep, bedrock well in Baltimore County (mentioned above regarding earthquake response), is slowly climbing and has increased by 0.52 feet since September. However, the November water level is only 0.03 feet away from the November record set in 1966 (27.42 feet).

In contrast, water levels in the Coastal Plain region on the Eastern Shore of Maryland and Delaware rose to above normal levels for November. The water level in a well in Kent County, Delaware reached a new monthly record high at 8.77 feet, breaking the record set in 1967 by 1.27 feet.

Streamflows during the last 7 days of November and monthly streamflow ranged from normal to above normal at streamflow stations across Maryland and Delaware. Five-year monthly streamflow hydrographs can be viewed on the USGS website at: <http://md.water.usgs.gov/surfacewater/streamflow/> Average monthly streamflow at the Potomac River near Washington, D.C. was about twice the normal flow at 93 percent above normal (see graphs at <http://md.water.usgs.gov/monthly/poto.html>). Total flow into the Chesapeake Bay during November averaged 57.2 bgd (billion gallons per day), which is 47 percent above average. More information about water and the Chesapeake Bay can be found at <http://chesapeake.usgs.gov/>.

The above normal streamflows have helped only slightly to refill reservoirs. Storage in the Baltimore Reservoir System increased 6 percent to 52 percent of capacity at the end of November, and the contents of the Triadelphia and Duckett Reservoirs on the Patuxent River increased 14 percent to 57 percent of capacity. Reservoirs in the region are typically above 80 percent of capacity at this time of year.

Tracking streamflow and groundwater levels is essential to gauge drought severity and recovery. These USGS data have been provided to State and local water resource managers and are critical for making appropriate decisions on water restrictions. For more information on how climate is affecting streamflow and groundwater levels in Maryland and Delaware, see Drought Watch at: <http://md.water.usgs.gov/drought/> Please note that the streamflow and groundwater level data are provisional and subject to change.

The real-time streamflow stations used in this analysis are operated in cooperation with the Maryland and Delaware Geological Surveys, the Maryland State Highway Administration, the U.S. Army Corps of Engineers, the Maryland Department of Natural Resources, the Maryland Department of the Environment, and other agencies. The observation wells used in this analysis are operated in cooperation with the Maryland and Delaware Geological Surveys. The USGS publishes data for 128 streamflow stations and 379 wells across Maryland and Delaware.

The USGS, a Bureau within the Department of the Interior, is the Nation's largest water, earth and biological science, and civilian mapping agency providing reliable, impartial scientific information to resource managers, planners, and other customers. This information is gathered in every state by USGS scientists to minimize the loss of life and property from natural disasters, contribute to the sound conservation and the economic and physical development of the Nation's natural resources, and enhance the quality of life by monitoring water, biological, energy, and mineral resources.

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