

News Release

U.S. Department of the Interior
U.S. Geological Survey

Address:
Maryland-Delaware-D.C. District
8987 Yellow Brick Road
Baltimore, MD 21237

Email and Homepage:
wsmcpher@usgs.gov
<http://md.water.usgs.gov/>

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Contact:
Wendy S. McPherson

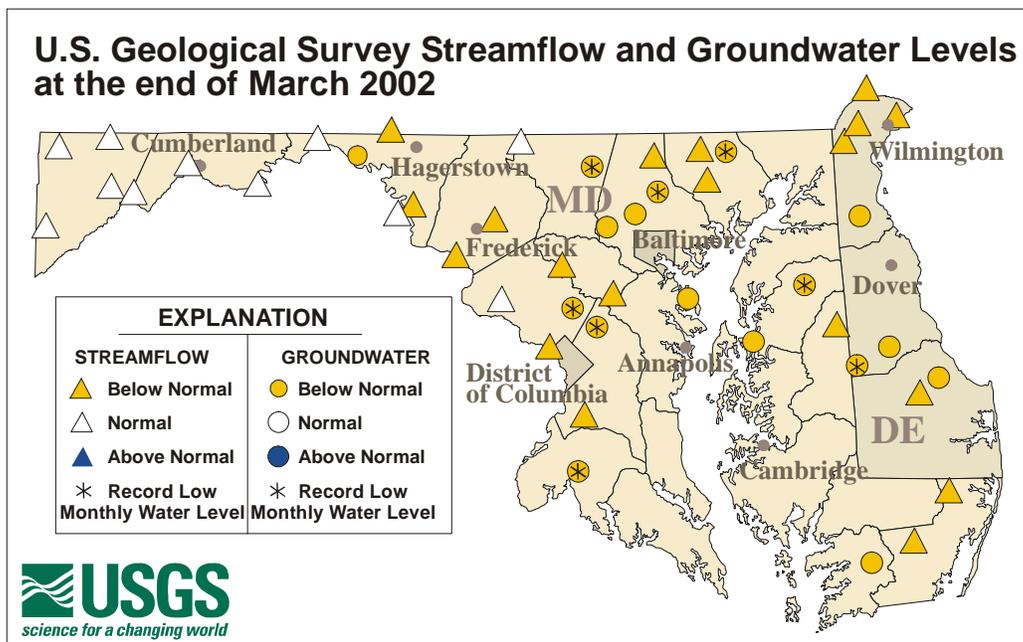
Phone:
(410) 238-4255

Fax:
(410) 238-4210

The Drought in Full Bloom: Low Water Levels Result in Water Restrictions

Despite normal rainfall in March, long-term dry conditions resulted in below-normal streamflow in 19 streamflow stations across Maryland and Delaware during the last week of March, according to the USGS. Record low groundwater levels for March were set in 8 of the 17 wells used to monitor water levels. The groundwater levels are exceptionally low because of the extended period of below normal precipitation and warm temperatures. Water levels are unusually low at the beginning of the growing season, and have led to declared water restrictions in parts of Maryland.

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



For news release and images, go to http://md.water.usgs.gov/publications/press_release/2002/2002-04/2002-04-05.html

Although precipitation in March varied across the region, precipitation was still below normal at the Baltimore-Washington International (BWI) Airport and temperatures were also above normal for March, according to the National Weather Service. Streamflow and groundwater levels are reflecting the impact of seven months of below-

normal precipitation. The lack of precipitation and the warm winter temperatures in the fall and winter left little snow or ice to slowly melt and recharge the groundwater supply. Groundwater levels reflect the long-term effects and the severity of the hydrologic drought and generally take a long time to respond to precipitation events.

Groundwater levels were below normal at the 17 wells used for drought analysis in Maryland and Delaware near months end. Record low groundwater levels were set at 8 water-table observation wells in Baltimore, Carroll, Charles, Harford, Montgomery, Prince Georges, and Queen Annes Counties in Maryland, and Kent County in Delaware (see graphs at <http://md.water.usgs.gov/groundwater/>). In these counties, groundwater levels for March are now lower than they were during the drought of 1999 and the severe drought of the 1960s.

Even with the rainfall at near normal levels in March, the rivers that supply fresh water to the Bay are running at low levels due to low "baseflow" discharge to rivers and streams. Baseflow is water that seeps slowly through the ground and moves into streams, sustaining flow between rainfall events. Because groundwater levels are low, the amount of baseflow to streams and rivers feeding the Bay continues to be low. Total flow into the Chesapeake Bay averaged 42.9 bgd (billion gallons per day), which is less than half the average March flow into the Bay and the second lowest March flow for the period of record. Streamflow from the Susquehanna River remains the predominant source of flow into the Chesapeake Bay. The Potomac River reached record lows not seen since monitoring began in 1931. Monthly streamflow of the Potomac River set a record low for March averaging 4.38 bgd. The previous record low for March was 4.39 bgd in 1931.

The continued low-flow conditions are resulting in an increase in salinity in the Bay. The higher salinity is causing a larger occurrence of oyster disease and will probably result in low dissolved oxygen conditions in many of the tributaries entering the Bay. The low dissolved oxygen can cause fish kills in these tributaries.

Storage in the Baltimore reservoir system increased 2 percent to 59 percent of capacity in March. The Baltimore region has been supplementing the water supply with water from the Susquehanna River since the end of January. Despite the recent rainfall, most of Maryland and Delaware are still 8-16 inches below normal for the past 12 months, according to the Middle Atlantic River Forecast Center. Above normal rain or snow is critical during the spring to replenish low streamflow and groundwater levels. The region needs 5 to 7 inches of rainfall per month through the spring and early summer to relieve the region of drought conditions, according to data from the National Climatic Data Center.

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 U.S. Geological Survey 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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In-depth information about USGS programs may be found on the USGS home page at <http://www.usgs.gov> and <http://chesapeake.usgs.gov/> for Chesapeake Bay activities.