



News Release

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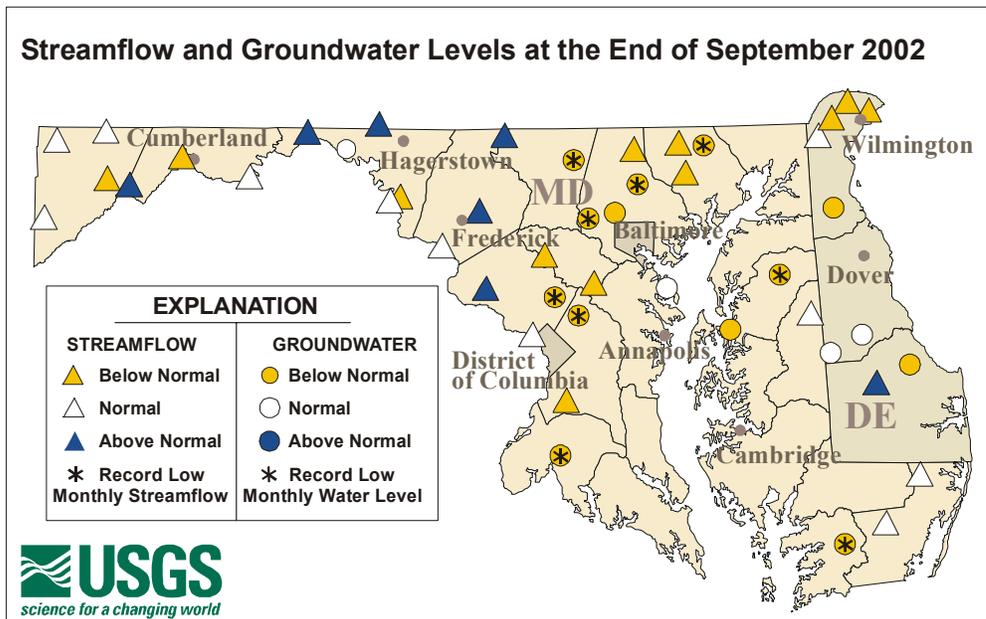
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Water Levels Remain at Record-Setting Lows

Near normal rainfall in September had little effect on groundwater levels in parts of Maryland. Streamflows increased, although only temporarily in some locations. With a little luck, we may have seen the lowest water levels we will see until next summer. October 1 begins the new water year, when water levels are expected to increase because less water evaporates or is used by plants. Temperatures have been warm, however, extending the growing season, and the deficit in groundwater levels is so large that without an exceptionally wet winter to recharge the groundwater system, water levels may be very low again next year.

Average streamflow at the Potomac River near Washington, D.C. during the 2002 water year was the lowest since record-keeping began in 1930. New daily record low flows were set for 9 days during September and 72 days for the water year. Monthly streamflow for the Potomac was 52 percent of normal (see graphs at <http://md.water.usgs.gov/monthly/poto.html>).

Groundwater levels continued to decline in September across Maryland and Delaware, setting many monthly and all-time record low levels. Four of the 17 wells used for drought analysis in Maryland and Delaware were in the normal range, while the remaining 13 wells had below normal water levels at the end of September, 9 wells set monthly record lows for September, and 7 of these wells set all-time record lows (since record-keeping began in 1962), according to hydrologists at the U.S. Geological Survey (USGS).



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

In Maryland, water levels in wells in Baltimore, Charles, Harford, Montgomery, Queen Annes, and Somerset Counties reached the all-time lowest level since record-keeping began in 1962 (see attached table), breaking the records set during the 1966, 1981, and 1999 drought years. These wells and two additional wells from Carroll and Prince Georges Counties set record lows for September.

Record Low Monthly Groundwater Levels in Maryland, September 2002 [Water levels are in feet below land surface]								All-Time Record	
County	Well Name	September	Record			Normal			
		Water Level	Water level	Date	Exceeds Record (feet)	Water Level	Departure (feet)	Water Level	Date
Baltimore	BA Ce 21	22.48	21.21	1966	1.27	19.7	2.78	21.54	Feb-66
Baltimore	BA Ea 18	27.91	27.51	1966	0.40	22.97	4.94	27.57	Sep-66
Charles	CH Ee 16	16.74	16.28	1963	0.46	15.49	1.25	16.53	Oct-68
Carroll	CL Bf 1	75.76	73.72	1966	2.04	70.25	5.51	76.76	Mar-92
Harford	HA Bd 31	20.25	18.31	1966	1.94	14.23	6.02	19.59	Feb-66
Montgomery	MO Eh 20	18.03	16.34	1986	1.69	14.04	3.63	16.67	Aug-99
Prince Georges	PG Bc 16	25.91	25.4	1986	0.51	23.39	2.52	26.46	Jul-81
Queen Annes	QA Cg 1	6.49	5.85	1965	0.64	4.92	1.57	6.47	Jan-66
Somerset	SO Cf 2	6.55	6.3	1998	0.25	4.99	1.56	6.49	Nov-98

The drought monitoring well with the largest departure from normal is in Harford County, Maryland. The groundwater level at this well was 6.02 feet below normal at the end of September, surpassing the previous September record set in 1966 by 1.94 feet and setting a new all-time record low. In Baltimore County, Maryland, the 5-year hydrograph shows that the groundwater level has been dropping since summer 2001, indicating that rainfall has not recharged the groundwater system at all during 2002 (see graphs at <http://md.water.usgs.gov/groundwater/>).

The groundwater level in a real-time well located in Kent County, Delaware rose by more than half a foot in August and has maintained the higher level in September. Real-time groundwater levels and streamflow are monitored by the USGS across the Nation at 15-60 minute intervals and the data are transmitted via satellite to USGS offices every 1 to 4 hours. This information can be viewed within minutes of arrival at: <http://waterdata.usgs.gov/>.

Remnants of Tropical Storm Isidore, which passed to the west of most of Maryland, left abundant rainfall across most of Maryland and part of Delaware. This rainfall helped streamflow levels recover somewhat, especially in the west-central part of Maryland, such as Frederick County. Streamflows during the last 7 days of September ranged from below normal to normal, and even above normal at real-time streamflow stations across Maryland and Delaware. However, record low monthly streamflows were recorded at Deer Creek and Patuxent River in Maryland, and Brandywine Creek in Delaware. These sites and Antietam Creek also set new daily lows for more than 13 days in September. Streamflow on the Choptank River near Greensboro, Maryland was 21 percent above normal. Five-year streamflow hydrographs can now be viewed on the USGS website at: <http://md.water.usgs.gov/surfacewater/streamflow/>.

Average streamflow at Deer Creek in Harford County, Maryland was below normal during the entire 2002 water year. New daily record lows were set for 206 days at Deer Creek. September flow was 66 percent below normal. Streamflow at Deer Creek has been below normal for 16 of the last 17 months, and set daily low streamflow records for 13 of the 30 days in September. This is the eighth consecutive month with record-setting monthly low streamflow for Deer Creek.

Total flow into the Chesapeake Bay during September averaged 8.27 bgd (billion gallons per day), which is 61 percent below average. This is the fourth lowest September flow to the Bay since 1964 (5.47 bgd). (see graphs at <http://md.water.usgs.gov/monthly/bay.html>.) For the 2002 water year (October 2001 through September 2002), the total inflow to the Chesapeake Bay was 342 bgd, which is 15 percent less than the 2001 water year (403 bgd).

The Baltimore region has been supplementing its water supply with water from the Susquehanna River since the end of January. Streamflow on the Susquehanna River reached low levels that required Maryland water suppliers to reduce the amount of water withdrawn from the river and increased the amount of water withdrawn from reservoirs. The result was a 6-percent decline in storage of the Baltimore Reservoir System since August. Storage in the Baltimore Reservoir System was 42 percent of capacity at the end of August, and the contents of the Triadelphia and Duckett Reservoirs on the Patuxent River were at 43 percent of capacity.

September rainfall was near normal across Maryland and Delaware, and because the average temperature was higher than normal, most of the rainfall evaporated or was used by plants, resulting in minimal recharge to groundwater aquifers. Only about 5 percent of the rain became runoff, or contributed water to streams. This indicates that more than 95 percent of the water evaporated, was used by plants, or remained in the soil and possibly recharged groundwater. The rapid decline in streamflows after a rainfall event is caused by the low groundwater storage. During periods of no rainfall, streamflows are maintained by groundwater storage, but because of low groundwater levels, less base flow is contributed to streams, and water levels have been at record lows for many months in central Maryland. Streamflow and groundwater levels reflect the long-term effects and severity of the hydrologic drought.

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 the drought 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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