



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/>

Release:
November 5, 2003

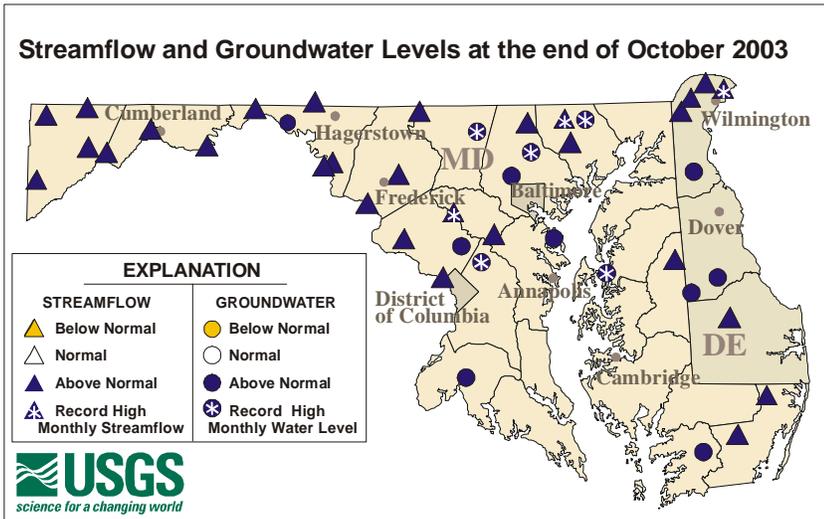
Contact:
Wendy S. McPherson

Phone:
(410) 238-4255

Fax:
(410) 238-4210

Record High Groundwater Levels in October 2003

Streamflow and groundwater levels remain at unusually high levels across Maryland, Delaware, and Washington, D.C. Groundwater levels at five wells were at their highest October levels in 40 years, and for three of these wells, it is the second consecutive month of record high levels. At the end of October, three streams were at their highest levels, according to hydrologists at the U.S. Geological Survey (USGS). These high water levels are typical of levels hydrologists expect to see in the winter and spring when recharge is at its peak and water levels are usually the highest for the year. Water levels are elevated from the abundant rainfall during the last 12 months.



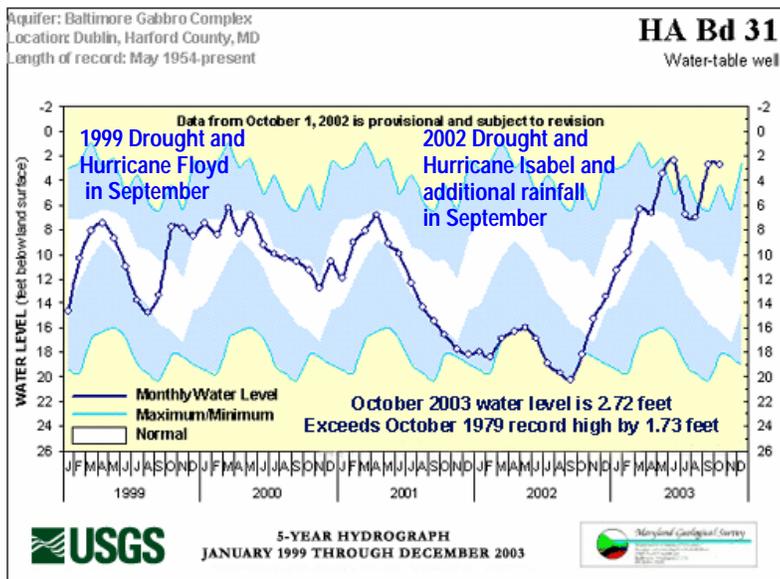
The map to the left shows the wells and streams used by the USGS to monitor water conditions in Maryland, Delaware, and Washington, D.C. At the end of October, all wells and streams were at above normal levels (dark circles and triangles). Five wells were at their highest October levels in 40 years (represented by an asterisk). Three streams had the highest flow for the last week of October.

After the region recovered from the 2002 drought last winter, water levels in most of these streams and wells have been at above normal levels. Many of these sites were at or near record-setting low levels only a year before.

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

Groundwater

Sixty percent of the wells used by the USGS to monitor climatic conditions in the bi-state region were near their highest October levels, and wells in Baltimore, Carroll, Harford, Prince Georges, and Queen Annes Counties, Maryland reached the highest October level in 40 years. This is the second consecutive month of record-setting high levels for wells in Harford, Queen Annes, and Prince Georges Counties. All wells were above normal levels. Last October, the region was still recovering from the severe hydrologic drought of 2002, and wells in Baltimore and Harford Counties were at their lowest levels in 40 years. Recharge to groundwater typically begins in October when most plants are dormant and temperatures are lower, but water levels are already at high levels typically seen during the winter and spring.

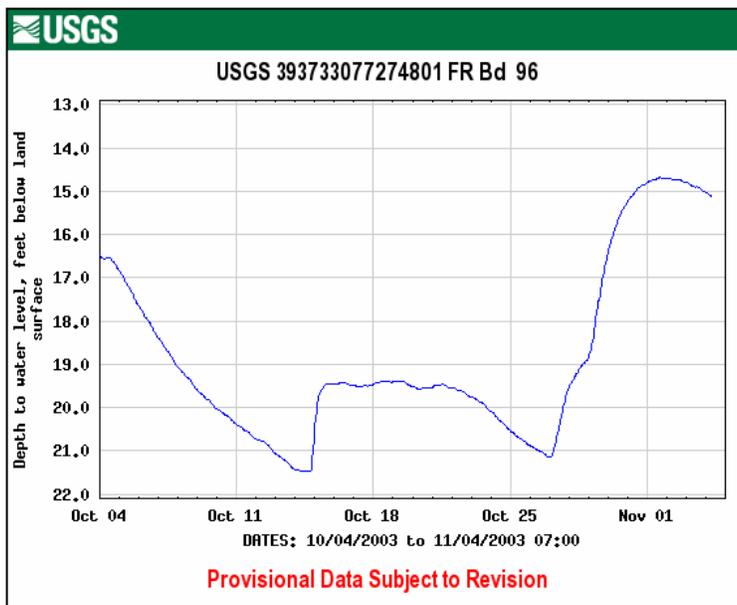


The 5-year hydrograph for a well in Harford County at left shows that the water level in the well, measured in depth below land surface, is at a record-setting high for October 2003. This is the second consecutive month of record-setting high levels. Water levels recovered from the record-setting low during the 2002 drought a year ago, and have been above normal for the past 6 months.

Notice the greater response in the water level at this well to the drought and hurricanes in 2002-2003 in comparison to the drought in 1999 and recovery from Hurricane Floyd.

For 5-year hydrographs of groundwater levels for the climatic indicator wells, visit: <http://md.water.usgs.gov/groundwater/>.

Groundwater is an important component (in addition to streamflow and reservoir storage) in assessing water resources, however, as groundwater is usually hidden underground, it is difficult to know the status of aquifers in a timely manner. Most wells are measured by hand on a regular basis, commonly monthly. Recently, four wells in Maryland (Allegany, Frederick, and Washington Counties) have been equipped with real-time data collection as part of a cooperative study by the USGS and the Interstate Commission on the Potomac River Basin (ICPRB) to assess water resources in the Basin.



This 31-day hydrograph for a well in Frederick County, Maryland, is an example of the real-time output used to assess groundwater levels. Water levels are measured continuously in depth below land surface and are typically recorded once per hour and the data are transmitted via satellite every 4 hours.

Hydrographs and data can be viewed at the National Water Information System (NWISWeb) webpage. Notice the response in the well to about an inch of rainfall from October 26-29. The water level rose about 6 feet in less than a week.

Real-time groundwater data are defined as data automatically collected, transmitted, and made available to the public at least once a day. These data can be transmitted by land-line telephone, cellular telephone, radio, satellite telemetry, or a combination of these technologies. The advantages of real-time data collection include timeliness, data quality, data availability, and cost. There are currently five wells in Maryland and one well in Delaware equipped with real-time data collection. Within the next year, several wells in Calvert County, Maryland will also be monitored in real-time. To view real-time groundwater levels, visit the USGS NWISWeb site at <http://waterdata.usgs.gov/>. Select groundwater from the data category, then real-time, then your region of interest, such as Maryland.

Streamflow

Streamflow across Maryland and Delaware has been at or above normal levels for about 12 months. At the end of October, Deer Creek and Patuxent River in Maryland, and Shellpot Creek near Wilmington, Delaware were at their highest levels for this period. Monthly flows were all above normal. Five-year monthly streamflow hydrographs from the USGS stream-gaging network can be viewed on the USGS website at <http://md.water.usgs.gov/surfacewater/streamflow/>. Current and historical streamflow data can be monitored on the web at: <http://waterdata.usgs.gov/>.

Daily streamflow on the Potomac River near Washington, D.C. in October averaged 8.0 bgd (billion gallons per day), which is 4 times higher than normal flow. Further information on the Potomac River is available at: <http://md.water.usgs.gov/monthly/poto.html>

Chesapeake Bay

Total flow into the Chesapeake Bay during October averaged 53 bgd, which is 96 percent above average or almost twice the normal October flow into the Bay. Flow has been above normal since May 2003. More information about streamflow, water quality, and the Chesapeake Bay can be found at <http://chesapeake.usgs.gov/> and www.chesapeakebay.net.

Precipitation and Reservoir Storage

Precipitation during 2003 has been far above normal levels-- the third wettest year at Baltimore-Washington International (BWI) Airport and the second highest at Washington National Airport since record-keeping began in the late 1800s, according to the National Weather Service. Above normal rainfall has left groundwater and streamflow levels across Maryland and Delaware at very high levels. Since the ground is nearly saturated, when it rains, the water has little place to go except to accumulate in low spots or become runoff and fill our waterways. The high water levels make the region vulnerable to localized flooding.

High groundwater levels and above normal rainfall helped to keep reservoir storage levels in the Baltimore reservoir system and in the Triadelphia and Duckett Reservoirs on the Patuxent River at capacity in October.

USGS Water Monitoring

Streamflow and groundwater levels are used to assess the current water conditions and can be used to predict the potential for flooding and drought conditions. These USGS data have been provided to State and local water resource managers and are critical for making appropriate decisions on water regulation. For more information on streamflow and groundwater levels in Maryland, Delaware, and Washington, D.C., visit Water Watch at: <http://md.water.usgs.gov/waterwatch/>.

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, Baltimore County, Baltimore City, and other agencies. The observation wells used in this analysis are operated in cooperation with the Maryland and Delaware Geological Surveys. The real-time wells are operated in cooperation with the Maryland and Delaware Geological Surveys and the Interstate Commission on the Potomac River Basin. The USGS publishes data for 137 streamflow stations and 379 observation wells across Maryland and Delaware.

The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

* * * USGS * * *