



News Release

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

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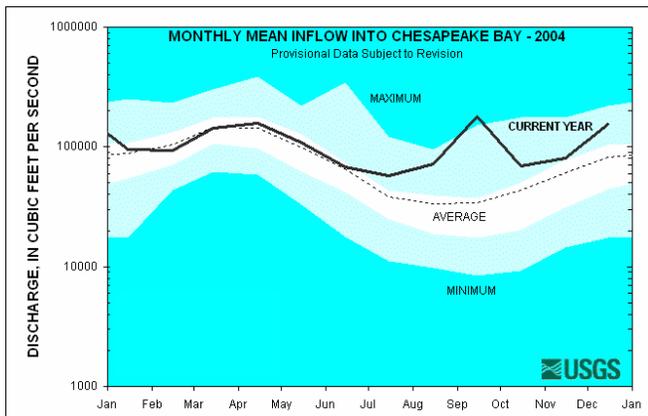
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2004 Ends with Normal to Above Normal Water Levels

Water levels in Maryland, Delaware, and Washington, D.C. were normal to above normal in December and have been for several months, according to hydrologists at the U.S. Geological Survey (USGS). Groundwater and streamflow levels were normal to above normal throughout most of Maryland and Delaware in 2004, with the exception of streams in southern Maryland during the summer months, and a well in Delaware that was below normal in October.

Chesapeake Bay

Monthly mean streamflow into the Chesapeake Bay during December averaged 100 bgd (billion gallons per day), which is 90 percent above normal. Normal flow for December is 52.8 bgd. The record high flow in September 2004 contributed to the total annual flow to the Chesapeake Bay, which was 36 percent above normal with 68.7 bgd.



This graph shows the mean monthly flow to the Chesapeake Bay during 2004 and is available on the web at: <http://md.water.usgs.gov/monthly/bay.html>. For the first half of the year, flow to the Bay was normal (white band), but has been above normal since July, with a peak for the year in September.

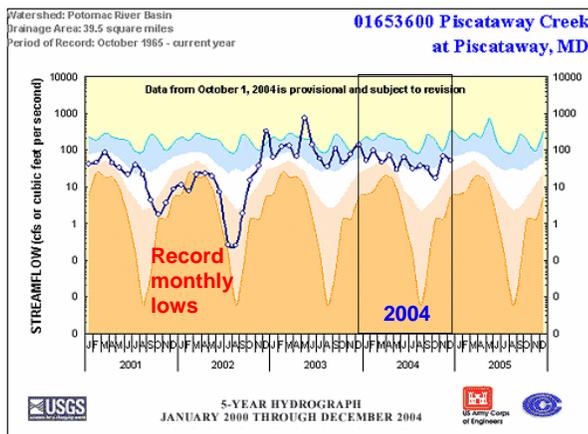
According to USGS scientists, the increased nutrient and sediment loads associated with the higher flows probably only had short-term impacts on the Bay. The increased sediment resulted in less light in the Bay waters, which could impact the growth of submerged aquatic vegetation (SAV).

This impact might be minimal, however, since it was late in the growing season for SAV. SAV is important in the Bay because it provides oxygen and habitat for fish and crabs, and food for waterfowl. The increased nutrient loads could also contribute to algal blooms, which result in low dissolved-oxygen levels in the Bay, especially during the summer months.

Low dissolved oxygen levels can cause loss of fish, crabs, and oysters. The higher nutrient loads during the fall occurred when Bay waters were beginning to cool, so there was less likelihood for impacts on dissolved oxygen levels. The high nutrient loads delivered this fall may cause worse than normal algal blooms and dissolved oxygen levels during the spring of 2005 as the waters warm. For more information about USGS research in the Chesapeake Bay, visit: <http://chesapeake.usgs.gov/chesbay/>.

Streamflow

Streamflow increased and was normal to above normal in streams in Maryland, Delaware, and Washington, D.C. in December. Streamflow was normal to above normal throughout 2004, except for the Choptank River, Nassawango Creek, and the Pocomoke River, which were below normal during the summer. The hydrograph of Piscataway Creek shows that streamflow levels did not follow the typical seasonal pattern because of abundant rainfall and groundwater levels.



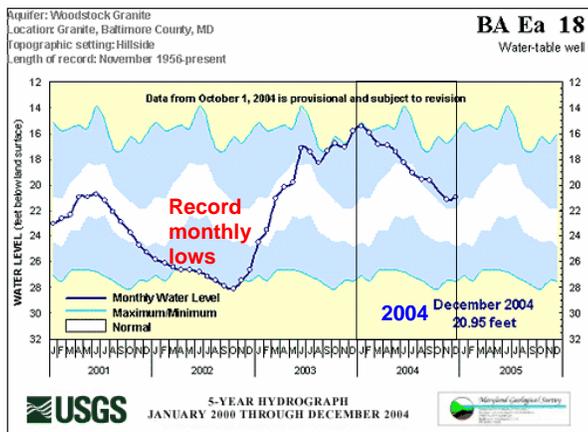
The hydrograph of Piscataway Creek in Prince Georges County, Maryland shows that monthly streamflow levels have been normal (white band) to above normal since the region recovered from the drought in 2002. The streamflow level did not drop as much as usual during the summer months of 2003 or 2004.

Current and historical streamflow data can be monitored on the web at: <http://waterdata.usgs.gov/>. Five-year monthly streamflow hydrographs from the USGS stream-gaging network can be viewed on the web at: <http://md.water.usgs.gov/surfacewater/streamflow/>

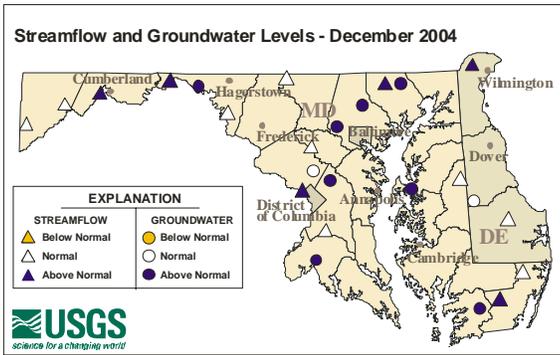
Daily streamflow for the Potomac River near Washington, D.C. averaged 13.2 bgd in December, which is 67 percent above normal. For 2004, average flow was 10.4 bgd, which is 49 percent above the long-term annual average of 7.0 bgd. More information on the Potomac River is available at: <http://md.water.usgs.gov/monthly/poto.html>.

Groundwater

Precipitation was slightly below normal in December, yet groundwater levels rose and were above normal during December in wells used by the USGS to monitor unconfined or shallow aquifer response to climatic conditions in Maryland and Delaware. The fall and winter months typically are time of recharge to the groundwater system and water levels rise because of low evapotranspiration (water that evaporates or is used by plants) rates. The highest groundwater levels are typically in March or April before the growing season begins. For 5-year hydrographs of groundwater levels for the climatic indicator wells, visit: <http://md.water.usgs.gov/groundwater/>.



This observation well BA Ea 18 in Baltimore County, Maryland shows groundwater levels in depth below land surface. The water level in the well shows a similar pattern to the hydrograph of Piscataway Creek above. Since the recovery from the 2002 drought, during which water levels were at record monthly lows, water levels have generally been above normal and did not show the typical seasonal pattern.



Status of Streams and Wells

This map shows the location and status of wells and streams used by the USGS to monitor water conditions in Maryland, Delaware, and Washington, D.C. for December 2004. Water levels were normal to above normal in Maryland, Delaware, and Washington, D.C.

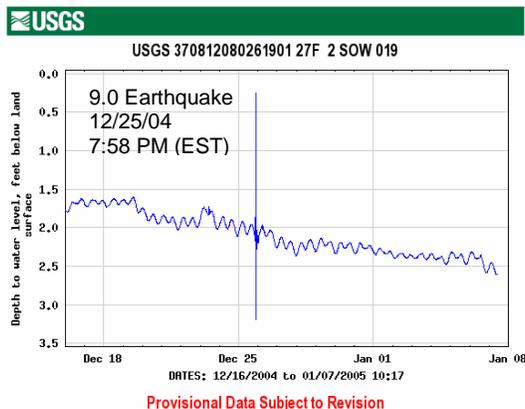
Precipitation

December rainfall was slightly less than normal in Maryland and Delaware, and normal in Washington, D.C. Rainfall in Baltimore was 3.73 inches above normal in 2004, according to preliminary rainfall data from the National Weather Service.

Reservoir Storage

Storage in the Baltimore reservoir system rose 1 percent to 99 percent of capacity in December. The Baltimore reservoirs (Loch Raven, Liberty, and Prettyboy) have been nearly full since May 2003. Storage in the Triadelphia and Duckett Reservoirs on the Patuxent River, which serve Montgomery and Prince Georges Counties, rose 9 percent to 93 percent of capacity in December.

Virginia Well Records Northern Sumatra Earthquake



Real-time hydrologic data show a water-level response to the Magnitude 9.0, Sumatra-Andaman Islands Earthquake on December 25, 2004 at 7:58:52 PM (EST) in a 450 foot deep well in Montgomery County, Virginia. The epicenter was 9,600 miles away. The water level fluctuated in response to compression and expansion of fractures caused by the seismic waves and is available on the web at <http://waterdata.usgs.gov/>. No water-level fluctuations were recorded in Maryland in response to the earthquake. For more information, see the special news release about these unique phenomena at <http://va.water.usgs.gov/>.

U.S. Geological Survey

Streamflow and groundwater levels are used to assess 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 the Washington, D.C., visit Water Watch at: <http://md.water.usgs.gov/waterwatch/>.

The USGS, a Bureau within the Department of the Interior, has served the Nation and the world for 125 years 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 make important decisions and enhance and protect our quality of life.

*** USGS ***