

Despite Recent Rain, Regional Streams Still Low

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

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Maryland-Delaware-D.C. Water

Water levels in streams throughout the Mid-Atlantic and surrounding regions are still near record lows for this time of year, according to hydrologists at the U.S. Geological Survey (USGS). Rivers and streams from northwestern Pennsylvania to southeastern North Carolina are flowing at levels well below normal. Although recent rains over the past week have improved conditions in parts of the Midwest, West Virginia, and Ohio compared to March, most streamflows in the Mid-Atlantic states are still below the levels normally expected for this time of year. The USGS national streamflow map is updated daily at [WaterWatch](#).

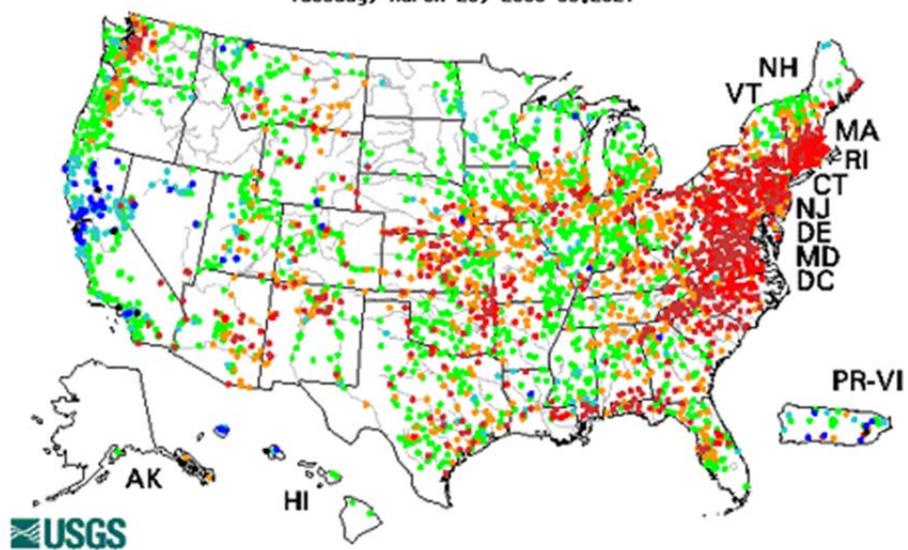
Spring is normally the wettest time of the year in the eastern United States, with high flows in streams from rainfall and snowmelt, and significant infiltration of water into the soil to recharge Groundwater aquifers. The dry spring could have impacts later in the summer on regional water resources and on the Chesapeake Bay.

Status of Streams

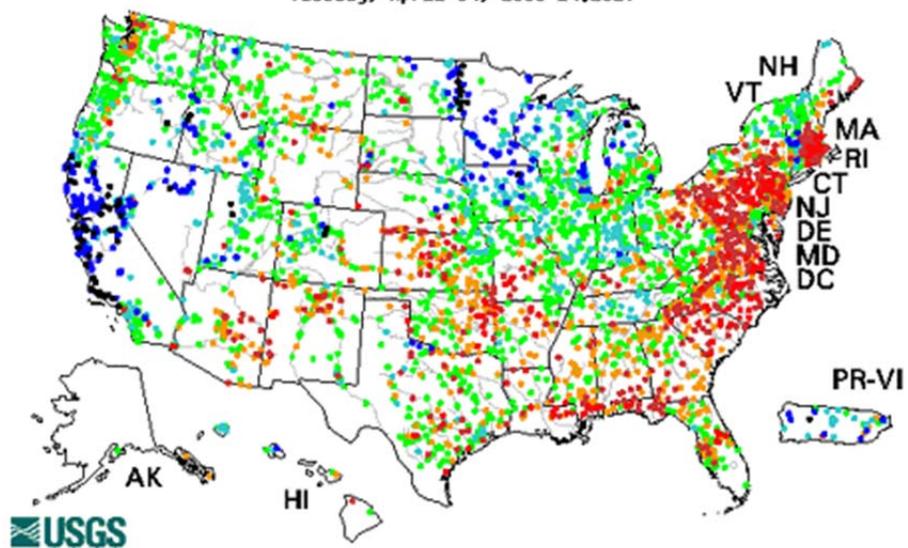
Both large and small streams in Maryland, Delaware, and the District of Columbia are responding to the lack of rain with near-record low flows for this time of year. "Normal" flow in a stream is determined by comparing it statistically with flows measured on the same day over many different years. Streamflow in the eastern United States generally follows a pattern of reaching the lowest levels in October, and the highest flows 6 months later in April. Most local streams showed the expected flow levels in 2005-2006 up until about mid-February, when the flows started dropping off due to the lack of precipitation, instead of increasing toward the normal spring high water levels. Nationwide stream flow at the end of March 2006 is shown below on the upper map; the lower map shows the effects of the rain of April 3, 2006.

Many area streams are currently flowing at levels that normally would not be expected until early August. This is illustrated by the hydrographs below showing daily flow (discharge) data collected for the Potomac River at Point of Rocks, Maryland compared to median daily flows measured over the 109-year span of this stream gage. Individual storm events elevated streamflow for brief periods due to runoff, but the discharge essentially followed the median or slightly above until mid-February. Streamflows have been dropping since then, when they should be rising. The hydrographs show the same stream gage for two different time periods to help emphasize the departure from normal.

Tuesday, March 28, 2006 09:20ET

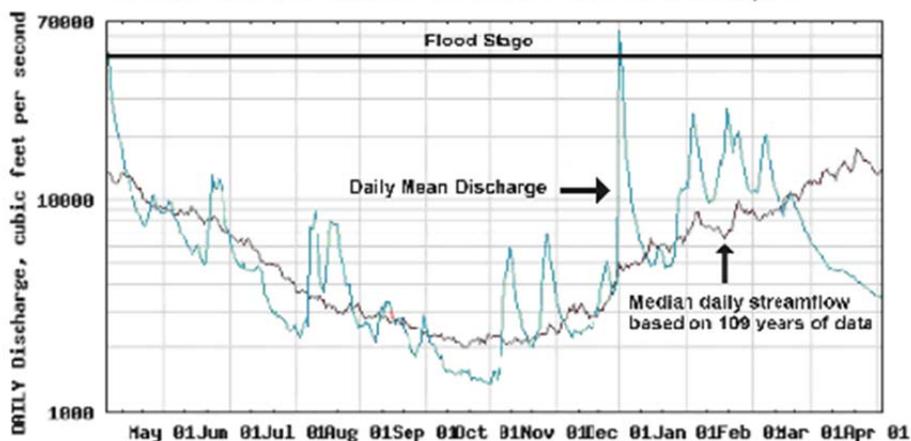


Tuesday, April 04, 2006 14:20ET





USGS 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

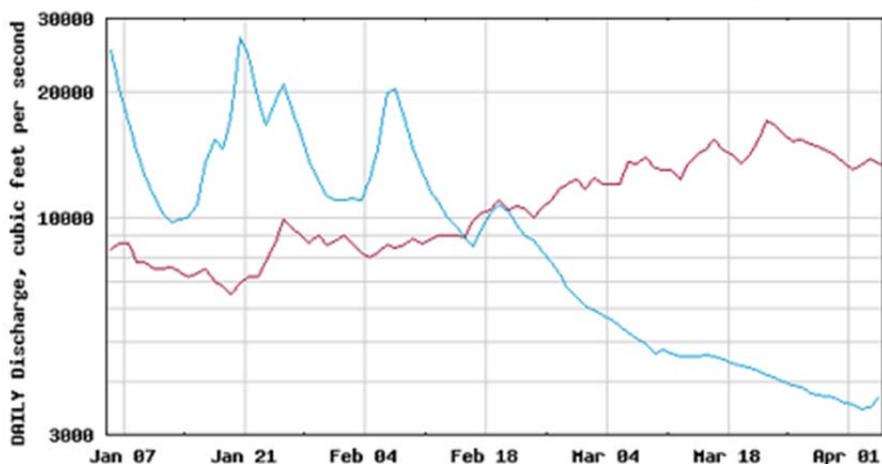


----- EXPLANATION -----
— MEDIAN DAILY STREAMFLOW BASED ON 109 YEARS OF RECORD
— DAILY MEAN DISCHARGE
— ESTIMATED STREAMFLOW

Provisional Data Subject to Revision



USGS 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD



----- EXPLANATION -----
— MEDIAN DAILY STREAMFLOW BASED ON 109 YEARS OF RECORD
— DAILY MEAN DISCHARGE

Provisional Data Subject to Revision

Groundwater

Groundwater levels in the region so far are generally showing relatively minor effects from the dry weather. Most water-table observation wells in eastern Maryland and Delaware had water levels decline by only a few feet during March, although wells in western and southern Maryland showed more significant drops. For example, well FR Bd 96, located in Cunningham Falls State Park, set a new record low for March, as shown below in the five-year hydrograph.

Although the declines in regional Groundwater levels are generally modest, the fact that there are declines at all is of concern. Spring is the time of year when Groundwater normally recharges, and the water levels should actually be rising in March, not falling. It is important to keep in mind that seepage of Groundwater provides the majority of flow in streams during the absence of runoff. Drawdown of the shallow Groundwater by streamflow will continue as long as precipitation remains below normal. Deep, confined aquifers, which supply most of the municipal Groundwater used in the region, remain relatively unaffected. If the dry weather continues into the late spring or summer, however, these water resources could face increasing demands.

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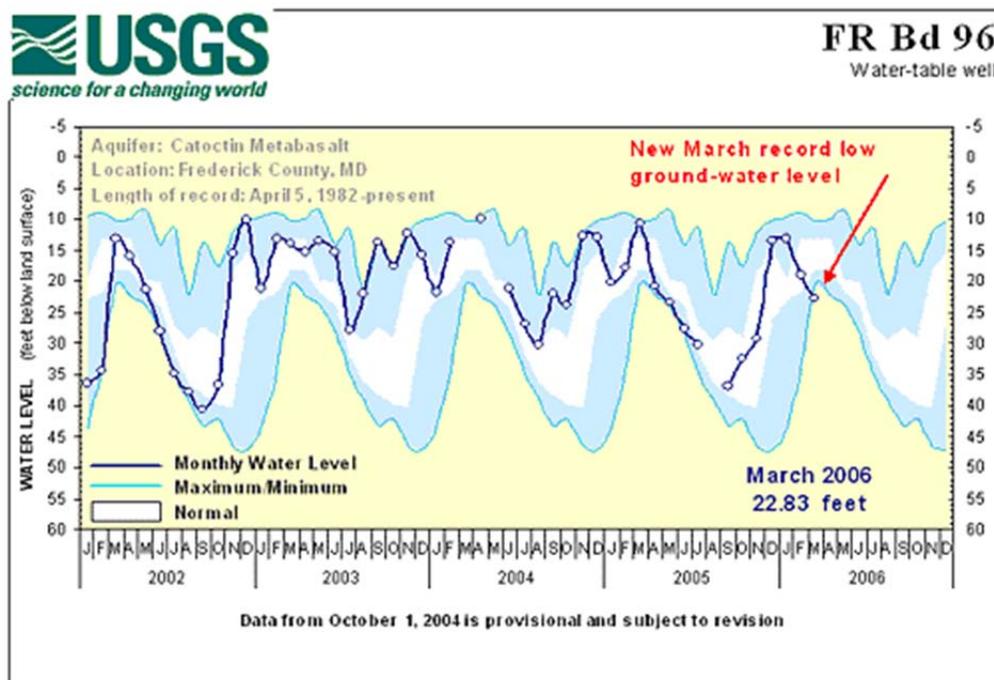
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Precipitation

Temperatures and precipitation were close to normal in the Baltimore area for the month of February. March was a different story. The National Weather Service reported that only 0.05 inch of rain was recorded in March 2006 at Reagan National Airport in Washington, compared to a normal value of 3.60 inches for the month. Thurgood Marshall BWI Airport near Baltimore recorded similar low values -- just 0.18 inch of rain in March 2006 compared to 3.93 inches during a normal March. A statement on the meteorologic drought (<http://www.srh.noaa.gov/data/LWX/ESFLWX>) was issued by the National Weather Service on March 30. The low streamflows resulting from this lack of rain have led the USGS Office of Surface Water (<http://water.usgs.gov/osw/>) to place local areas under hydrologic drought conditions also.

Reservoir Storage

According to the Baltimore City Government, storage in the Baltimore reservoir system is at 100 percent of capacity. The Baltimore reservoirs (Loch Raven, Liberty, and Prettyboy) had been nearly full since May 2003 and were topped-off during the winter, with a combined available water volume of 76.05 billion gallons. The Washington Suburban Sanitation Commission reports

that Triadelphia and Duckett Reservoirs on the Patuxent River, which serve Montgomery and Prince George's Counties, have nearly full storage as well, with 2.10 billion gallons available in Triadelphia and 5.18 billion in Duckett. The U.S. Army Corps of Engineers reports a near-normal pool elevation in Jennings Randolph Reservoir on the Potomac River.

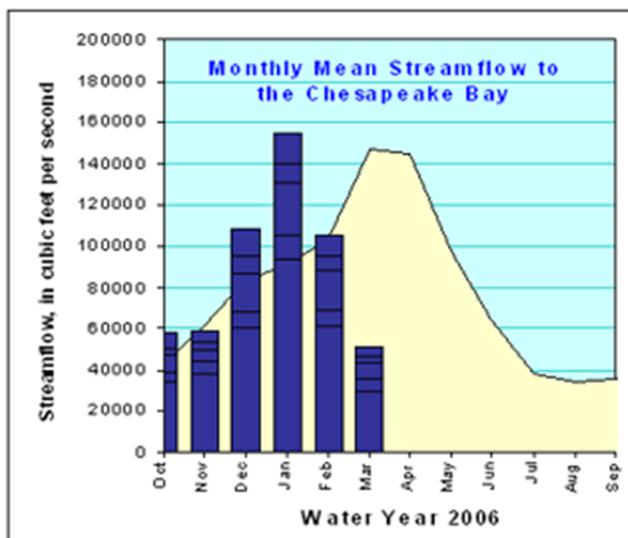
Chesapeake Bay Inflow

Freshwater streamflow into the Chesapeake Bay set a new record low in March 2006. Streamflow to the Bay last month averaged 51,500 cubic feet per second (cfs), equivalent to 33.3 billion gallons per day. This sounds like a lot of water, but it is actually 65 percent below average for March, and 10,000 cfs lower than the previous March low-flow record set in 1981.

Some of the consequences of low river flows include reduced nutrient and sediment loads to the Bay, and higher salinities because of less freshwater input. The reduced nutrient and sediment loads could result in improved water quality conditions for fish and crabs this summer.

On the other hand, higher salinities could make oysters more susceptible to disease, impact freshwater species of underwater grasses, and favor greater numbers of jellyfish. In May, the Chesapeake Bay Program (CBP) will be producing an ecological forecast of summer conditions. The USGS interacts with the CBP partners to produce the ecological forecast by providing river flow and nutrient loads to the Bay as one of the critical pieces of information for the predictions.

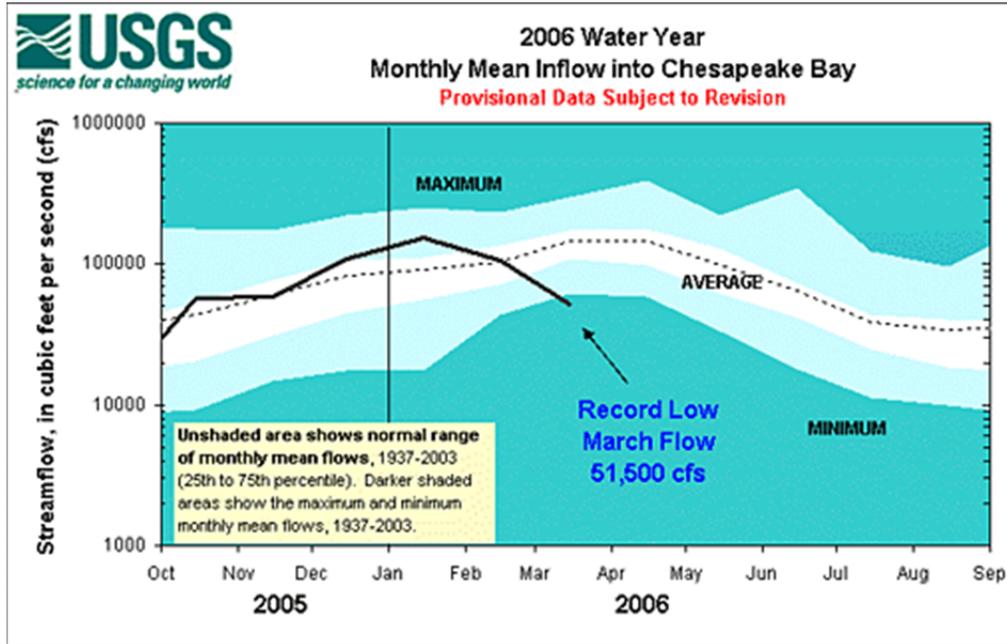
More information about USGS studies to help with the protection and restoration of the Chesapeake Bay and its watershed can be found at <http://chesapeake.usgs.gov>.



The graph above shows monthly stream inputs this year as the blue bars, and median flows expected as the yellow area under the line.

The graph below shows freshwater inflow to the Chesapeake Bay, and is available on the web at: <http://md.water.usgs.gov/monthly/bay.html> . Even though the river flow to the Bay is well below

normal for March, flow has been near or slightly above average since this past fall (as shown on the left side of the graph).



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 Washington, D.C., visit Water Watch at: [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 ***

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.