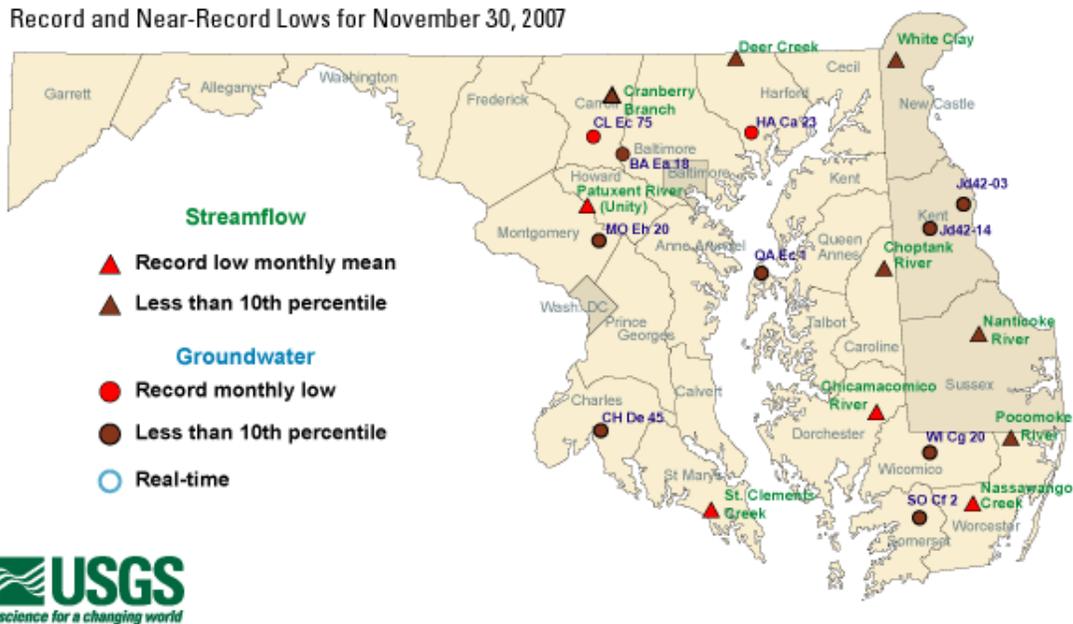


November 2007 USGS Maryland-Delaware-DC Water Conditions Summary

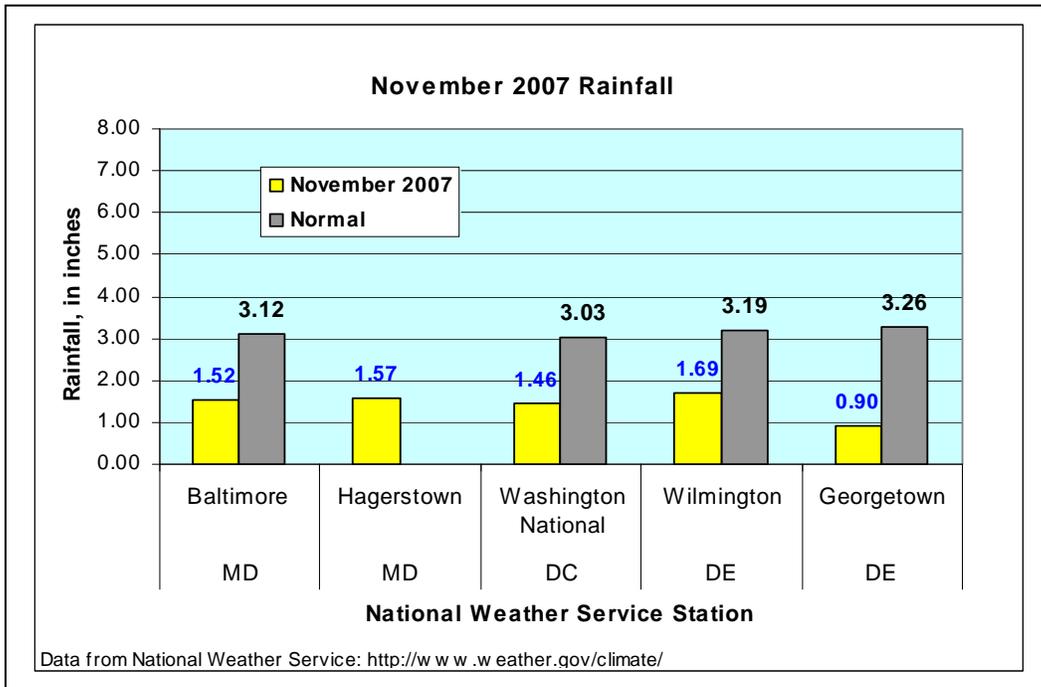
In Maryland, water levels in three streams and two wells monitored by the U.S. Geological Survey (USGS) were at their lowest November level since record keeping began, according to hydrologists at the USGS. Water levels in more than 60% of streams and 60% of wells were below normal at the end of November 2007, although some water levels rose, as expected for the time of year.



Droughts are more difficult to detect during the winter months because vegetation is dormant. Wendy S. McPherson, hydrologist with the U.S. Geological Survey, states *“The region needs a wetter than normal winter to avoid drought conditions next spring and summer. Now that the vegetation has gone dormant and temperatures are cooler, the precipitation that falls, be it rain, snow, or sleet, can slowly soak into the ground to recharge the aquifers, which serves as water storage for the next growing season”*.

Precipitation

Normal monthly rainfall is more than 3 to 4 inches, yet in November less than 2 inches of rain fell at four of the regional National Weather Service stations and less than 1 inch fell at the station in Georgetown, DE (see graph). The Baltimore weather station registered only 1.52 inches of rain, which is less than half the normal rainfall at this site (source: National Weather Service). The dry regions include the Eastern Shore, Southern, and Central Maryland.

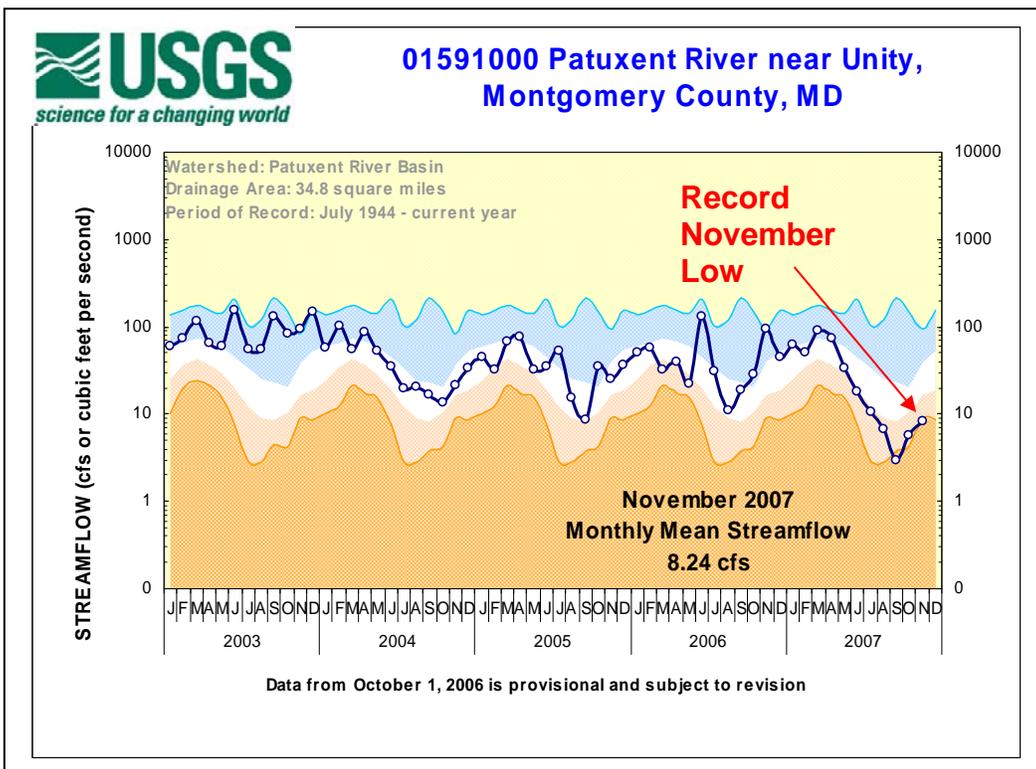
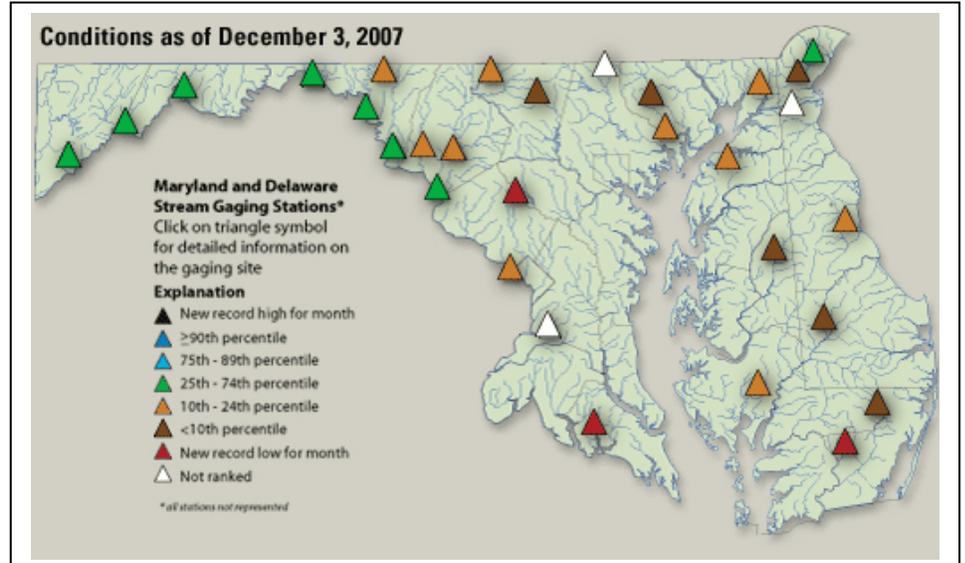


Rainfall is especially deficient on the Eastern Shore of Maryland. The rainfall deficit since January 1, 2007 is 13.0 inches in Worcester County, and 11 inches or more in Somerset and Wicomico Counties. Howard and Montgomery Counties near Washington, D.C., also experienced a rainfall deficit of more than 11 inches.

Streamflow

Three streams were at their lowest monthly November streamflow since record-keeping began: Patuxent River at Unity (since 1944 or 63 years), Nassawango Creek at Snow Hill (since 1949 or 58 years), and St. Clements Creek in St. Mary's County (since 1968 or 39 years). These streams are identified with red triangles on the map below. Another 6 streams were extremely low, three of which are on the Delmarva Peninsula: Nanticoke River, Choptank River, and Pocomoke River. The other streams with low monthly mean streamflow include Deer Creek in Harford County, Cranberry Branch near Westminster, and White Clay Creek in Delaware.

Eight of the 26 streams used by the USGS as climate indicators had November flows in the normal range. These were predominantly located in Western Maryland.

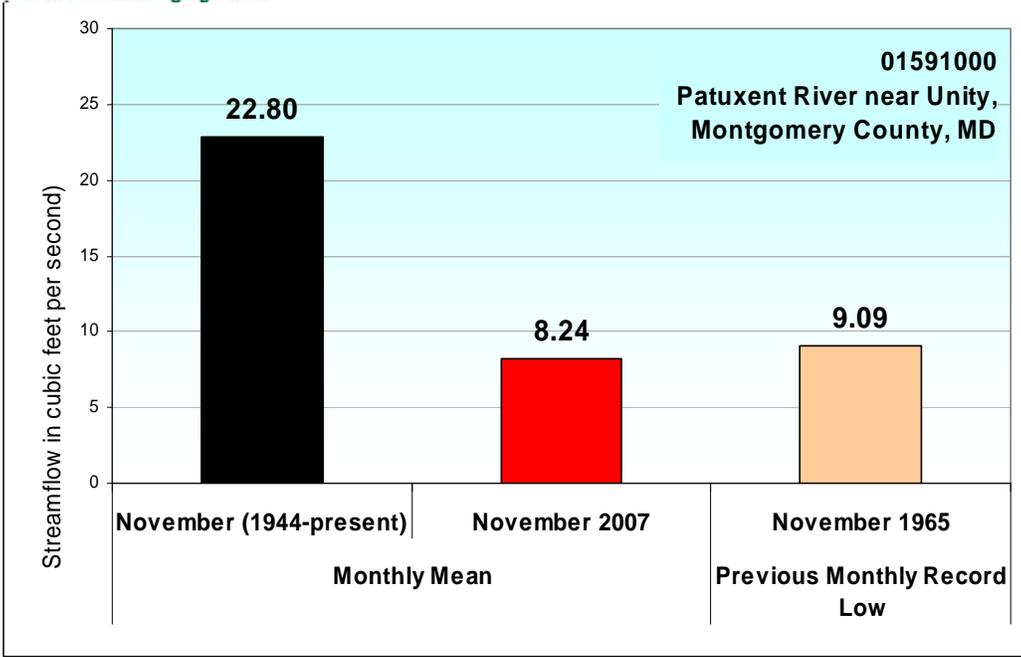


This 5-year hydrograph of the Patuxent River shows streamflow, also known as discharge, measured in cubic feet per second (cfs). Streamflow in the normal range is represented as a white band and the 2007 values are shown as a dark line.

Notice that the streamflow value has increased during the last two months, as expected for this time of year. However, the flow is still below normal because of the record setting low streamflow levels in September.



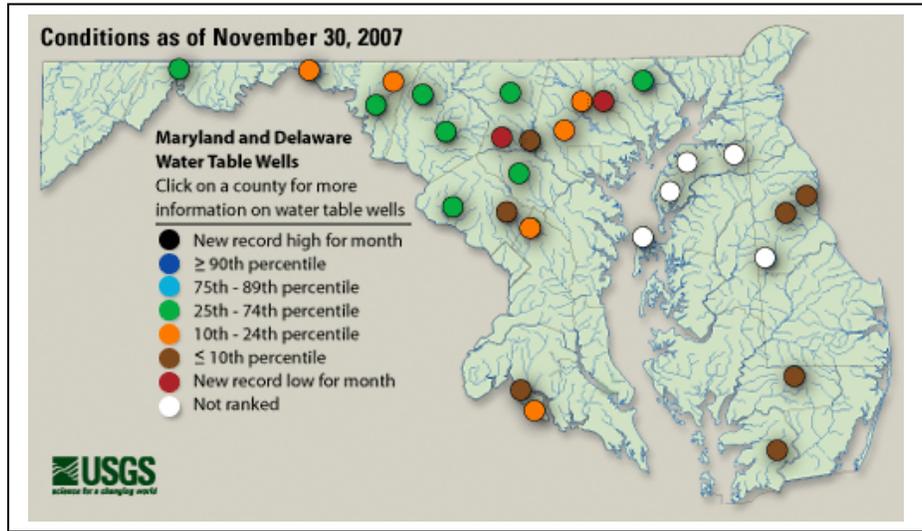
Monthly Record Low Streamflow Level compared to Normal and 2007 monthly value



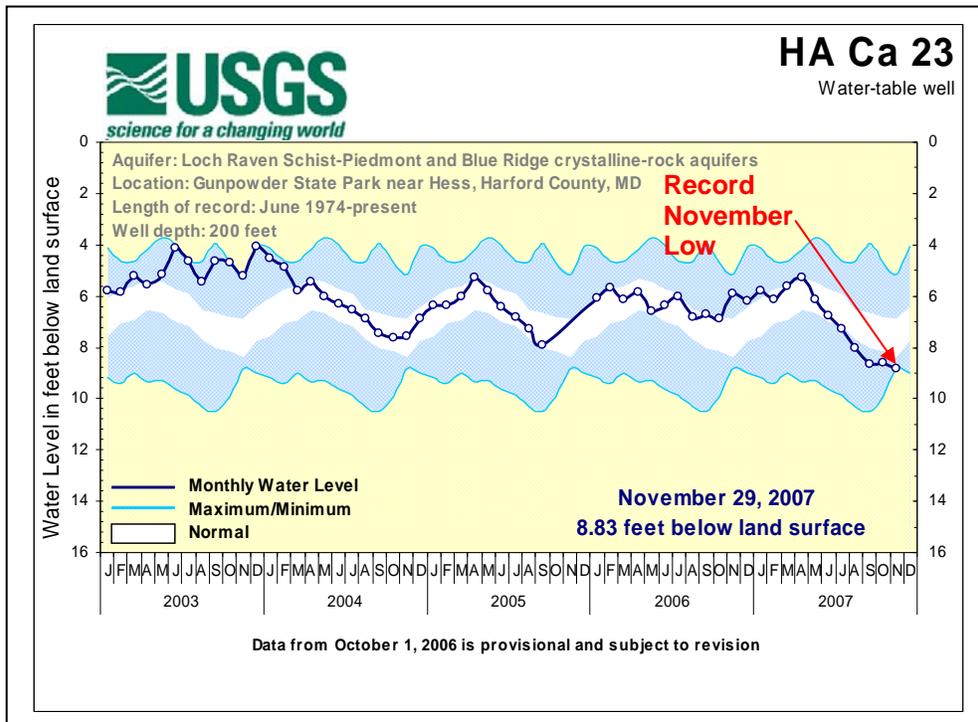
The November monthly streamflow at the Patuxent River near Unity was 8.24 cfs which is the lowest it has been in November since 1965 (9.09 cfs). Normal streamflow is 22.80 cfs. Streamflow data have been collected at this site for 63 years. The driest years at this site have been 1966, 1999, and 2002. September 2007 was also a record-low month.

Ground Water

Ground-water levels at 17 of the 25 shallow, unconfined wells used by the USGS to monitor hydrologic conditions were below normal, and wells in Carroll and Harford Counties set new record lows for November. The areas with the lowest ground-water levels include the Delmarva Peninsula, and central and northern Maryland. Another 8 wells were at very low levels. They are located in Baltimore, Charles, Montgomery, Queen Anne's, Somerset, and Wicomico Counties in Maryland, and Kent County in Delaware. Below-normal rainfall has not allowed for much recharge to the aquifers, although recovery is evident at some sites.



The well CL Ec 75 in Carroll County broke a record from 1998, which preceded the drought of 1999. In Harford County, well HA Ca 23 also set a record low for November reaching 8.83 feet. In the hydrograph below, the ground-water level is shown in depth below land surface for this well in Harford County, Maryland. In November 2007, the water level was 8.83 feet below land surface. This exceeds the previous record of 8.82 feet set in 1981. In the 5-year hydrograph, notice that the water level was above normal to normal since recovering from the drought of 2002. Starting in late spring 2007, the water level has dropped at a steeper rate and has not started to rise.



Previous low levels at this site (not shown on hydrograph) include 8.75 in 1986, 8.44 in 1998, and 8.78 in 2001. All of these low water levels precede drought years. Note the similar patterns of low water levels in this well to previous drought periods. The USGS will be watching closely to see if this well is an indicator that the drought will worsen in 2008.

Reservoirs

Water available from the Baltimore reservoir system (Loch Raven, Liberty, and Prettyboy) was 50.28 billion gallons or 66% of the available storage at the end of November. Water stored in the Triadelphia and Duckett Reservoirs, which serve Montgomery and Prince George's Counties, was at 52% of the normal capacity at the end of November.

November 2007	Percent available	Volume (billion gallons)	Source
Baltimore Reservoirs			Baltimore City
Loch Raven	81%	16.75	
Liberty	73%	24.94	
Prettyboy	53%	8.59	
Total	66%	50.28	
Patuxent Reservoirs			WSSC
Tridelphia	60%	3.39	
Duckett	39%	1.95	
Total	52%	5.34	