

September 2010 USGS Maryland-Delaware-District of Columbia Water Conditions Summary

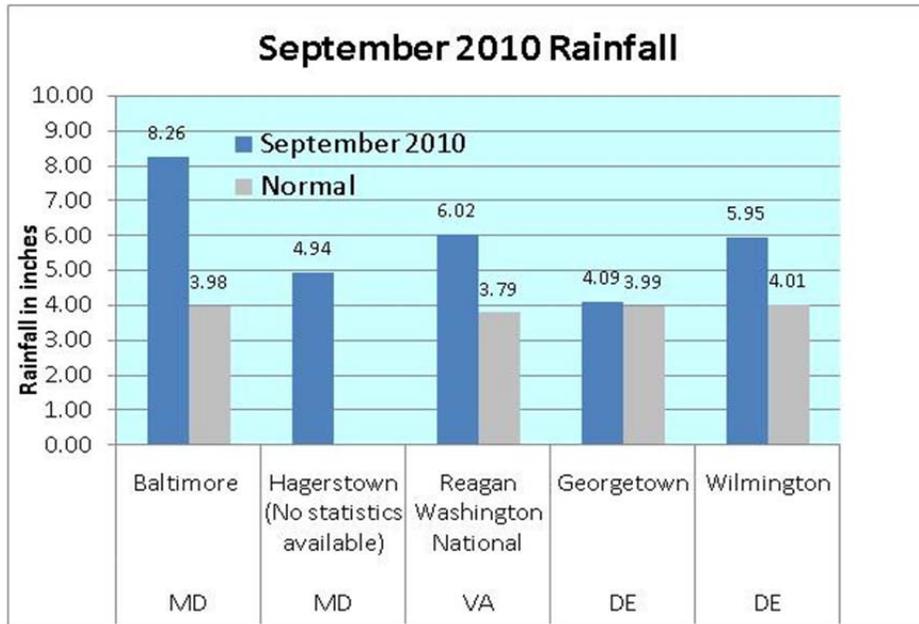
September was dry with little rainfall and low water levels until the last day of the month, when Tropical Storm Nicole descended on the Mid-Atlantic region for more than a day. Rainfall from this storm was between 2 and 10 inches. Many streams overflowed their banks and roadways in the Baltimore area flooded and had to be closed temporarily.

Groundwater and streamflow levels ranged from below normal to above normal in the Maryland, Delaware, and District of Columbia region in September. Western and southern Maryland and the southern Delmarva region continue to have below normal water levels, which reflect the lack of rain for the past 6 months in these areas. Water levels in 4 of the 26 wells used by the U.S. Geological Survey (USGS) to assess the response to climatic conditions in Maryland, Delaware, and the District of Columbia set record lows in September. They were in Carroll, Charles, and Wicomico Counties.

Precipitation

Rainfall at the end of September tipped the scale and left all five National Weather Service stations in the area with above normal precipitation. The Baltimore-Washington International Thurgood Marshall Airport (BWI) had the most rainfall with 8.26 inches, which was 4.28 inches above normal. Georgetown, Delaware had the least amount of rain with 4.09 inches in September. Temperatures were above normal, with 70 degrees Fahrenheit or higher at all five National Weather Service stations in Maryland, Delaware, and at Ronald Reagan Washington National Airport in Virginia.

The Middle Atlantic River Forecast Center's 365-day and "year-to-date" departure from the average precipitation maps show most of the region within the normal to above normal range. The September values ranged from a high in Harford County of 10.7 inches to a low in Worcester County of 3.3 inches, which is 0.2 inches below normal.



Sources: National Weather Service

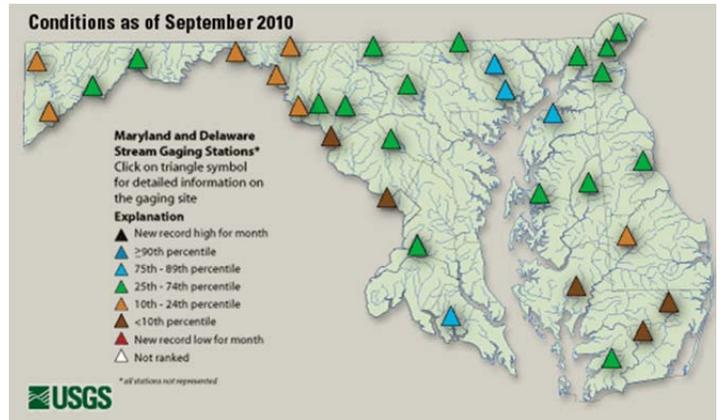
MD and DC: <http://www.weather.gov/climate/index.php?wfo=lwx>

DE: <http://www.erh.noaa.gov/phi/>

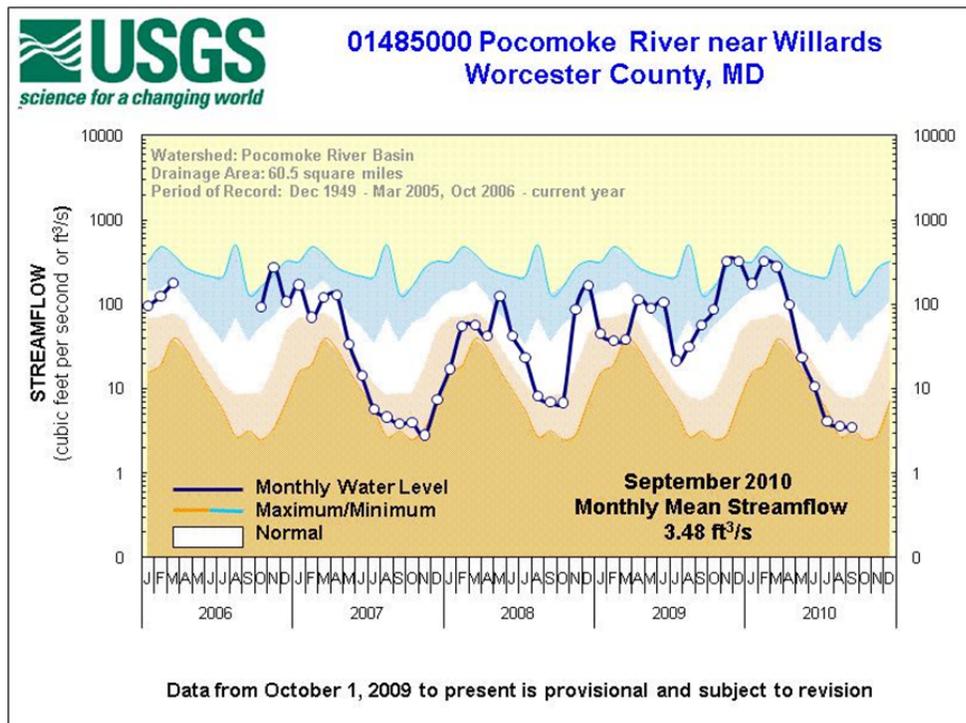
Middle Atlantic River Forecast Center (MARFC): <http://www.erh.noaa.gov/marfc/Maps/precip.html>

Streamflow

Streamflow levels in western Maryland and the southern Delmarva Peninsula remained below normal again this month. Monthly mean streamflow was in the lowest 10th percentile in 5 of the 33 USGS streamflow stations used to assess climatic conditions in Maryland, Delaware, and the District of Columbia. The high amount of rainfall on the last day of September led to streamflow levels in the normal range at 16 stations, and 4 streams with above normal levels, mostly in central Maryland.



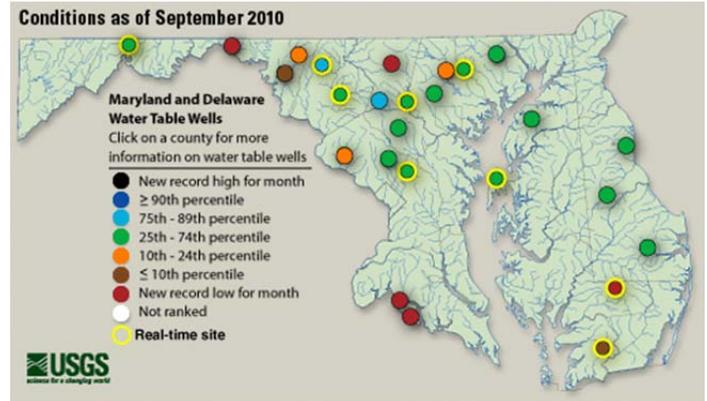
The September monthly mean streamflow on the Pocomoke River was in the lowest 10th percentile and has been since May, with a record low in July. The streamflow level dropped more quickly than the normal rate from the highest 10th percentile in March, to below normal by May and continued that trend. Precipitation in this region has been below normal for the past 6 months. The dark line in the 5-year hydrograph represents the current monthly mean streamflow and the white band shows the normal range (25th to 74th percentile) based on the period of record (1949 to current year).



Five-year hydrographs can be viewed at: <http://md.water.usgs.gov/surfacewater/streamflow/>

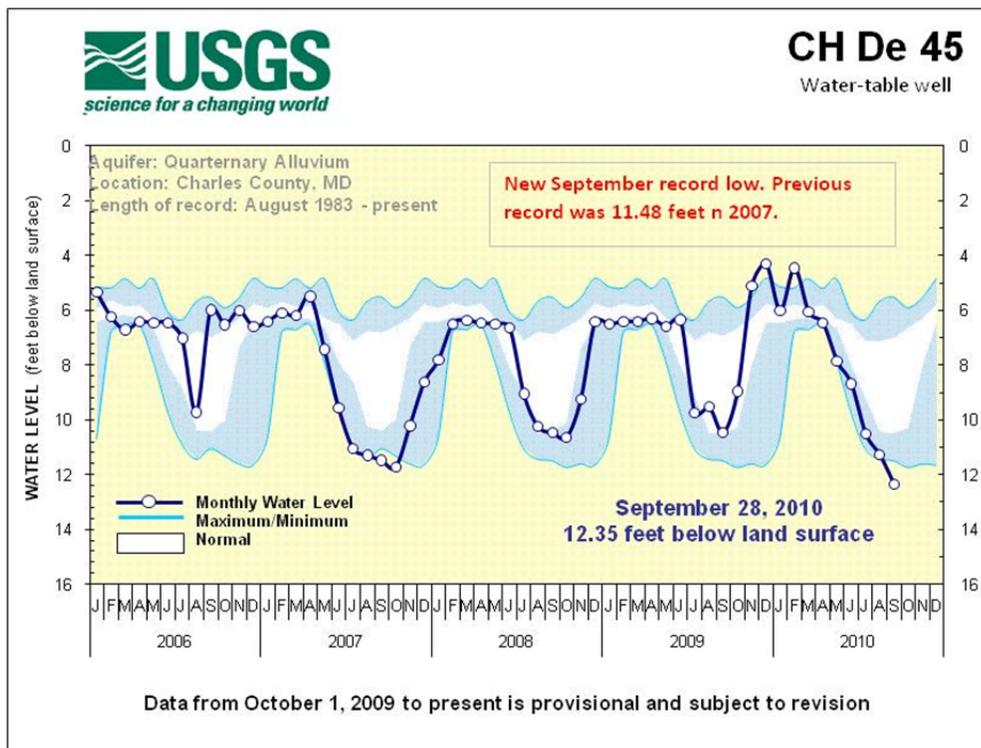
Groundwater

Although rainfall was plentiful in central Maryland in September, groundwater levels were extremely low in southern Maryland and the lower Delmarva Peninsula. Record low September water levels were set in Carroll, Charles, and Wicomico Counties. Groundwater levels in Somerset and Washington Counties were in the lowest 10th percentile. Groundwater levels were normal in 14 of the 23 wells used by the USGS to assess climatic conditions in September, mostly in central Maryland and Delaware.



The groundwater level in well CH De 45 in Charles County, Maryland had a significant decrease of 7.89 feet from a record high of 4.46 feet below land surface in February 2010, to a record low of 12.35 feet below land surface. The water level was 11.05 feet below land surface in the drought of 2002.

Groundwater levels have dropped at a faster rate than the long-term trend since February. The 5-year hydrograph shows the water level as a dark line and the normal range (between the 25th and 74th percentiles) as a white band based on the period of record (1983 to present).



Five-year groundwater hydrographs can be viewed at:

http://md.water.usgs.gov/groundwater/web_wells/current/water_table/counties

Reservoir Levels

At the end of September, more than double the normal monthly precipitation fell in parts of the Mid-Atlantic region. The abundant rainfall in the reservoir watershed will likely fill the reservoirs past the September values listed in the table below. Storage in the Baltimore reservoirs (Loch Raven, Liberty, and Prettyboy) was at 85 percent of available storage capacity at the end of September, with 64.79 billion gallons in available storage.

The Triadelphia and Duckett Reservoirs, which serve Montgomery and Prince George's Counties, were at 76 percent of normal storage capacity, with 7.93 billion gallons at the end of September 2010.

September 2010	Percent available/ normal storage	Volume (billion gallons)	Source
Baltimore Reservoirs			Baltimore City – Environmental Services Division
Liberty	84%	31.04	
Loch Raven	91%	19.32	
Prettyboy	81%	14.43	
Total	85%	64.79	
Patuxent Reservoirs			Washington Suburban Sanitary Commission (WSSC)
Triadelphia	73%	4.00	
Duckett	78%	3.93	
Total	76%	7.93	