

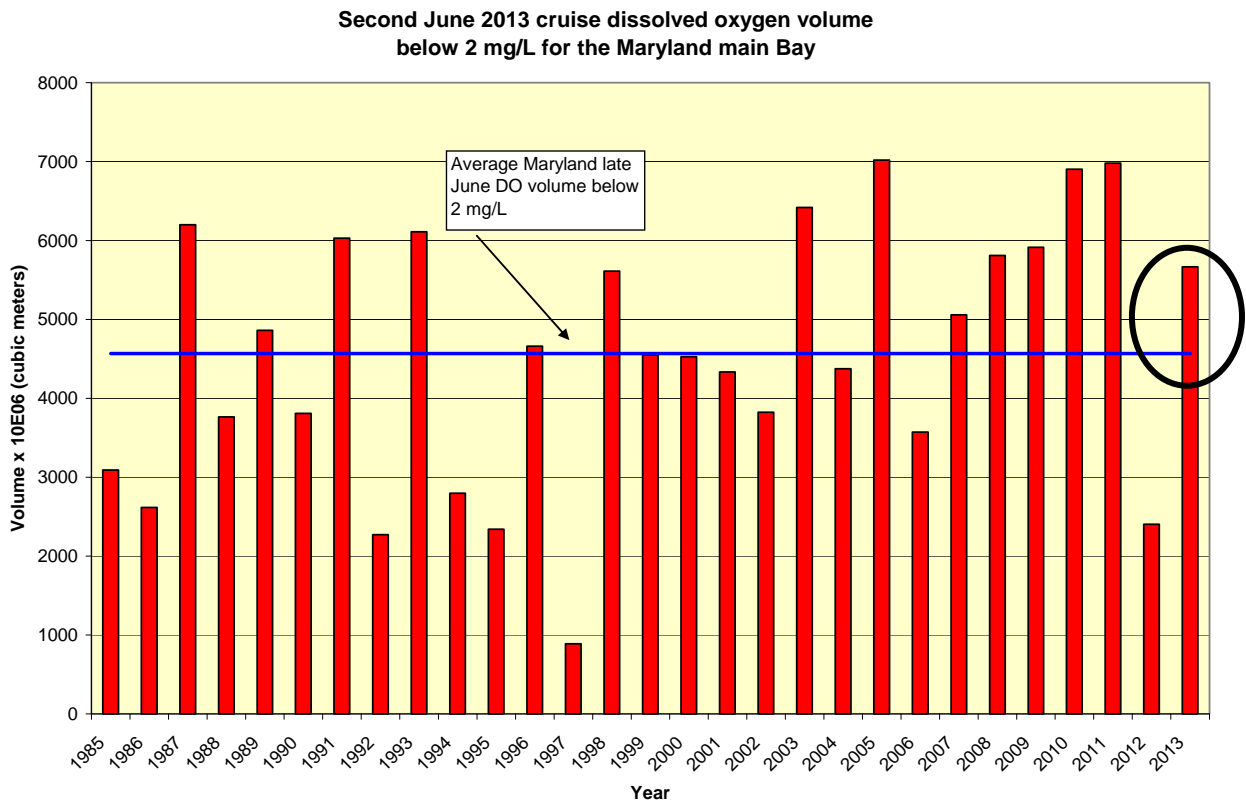
# Tracking status of Chesapeake Bay's summer "DEAD ZONE"

## Late June 2013 report

### The Bay's "dead zone" volume increases in late June

Data from a Maryland DNR Chesapeake Bay Water Monitoring trip on Chesapeake Bay on June 3 - 5 showed that the volume of water in the Bay with oxygen levels that were too low to support fish, crabs and oysters (between 2 and 0 milligrams per liter, or parts per million) was **smaller** than the long-term (29-year) average for the early June period.

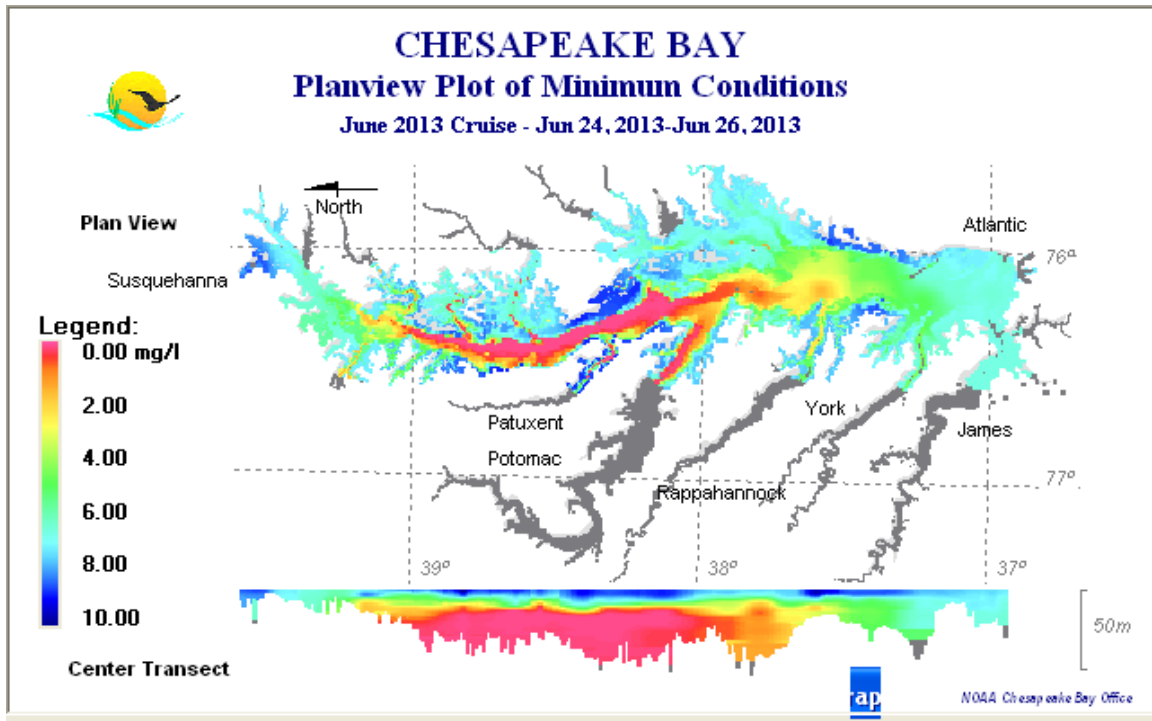
Within three weeks, however, data from a second monitoring trip on June 24 - 26 showed low oxygen conditions in the Bay had **expanded** and **intensified**. The volume of the Bay's waters with low oxygen levels (below 2 mg/L) is **above** than the long-term (29-year) average for late June. In comparison with other late June measurements, this is the 10<sup>th</sup> highest volume of low oxygen water observed over the past 29 years (**Figure 1**).



**Figure 1. Volume of low dissolved oxygen (<2 mg/L) in Chesapeake Bay, late June (1985-2013). Circle shows current volume and long-term average. Source: W. Romano, MD-DNR.**

Comparisons of water quality data and the plan view and profile distributions of these two June sampling cruises show low oxygen levels in the deep waters of the Bay (orange to red) had declined further, widened across the Bay, and extended toward the surface and south from off the Patuxent to the Potomac River mouth (**Figure 2**).

**Figure 2. Distribution of low oxygen levels in Chesapeake Bay (orange to pink) in late June 2013 (Source: W. Romano, MD DNR; using NOAA model)**



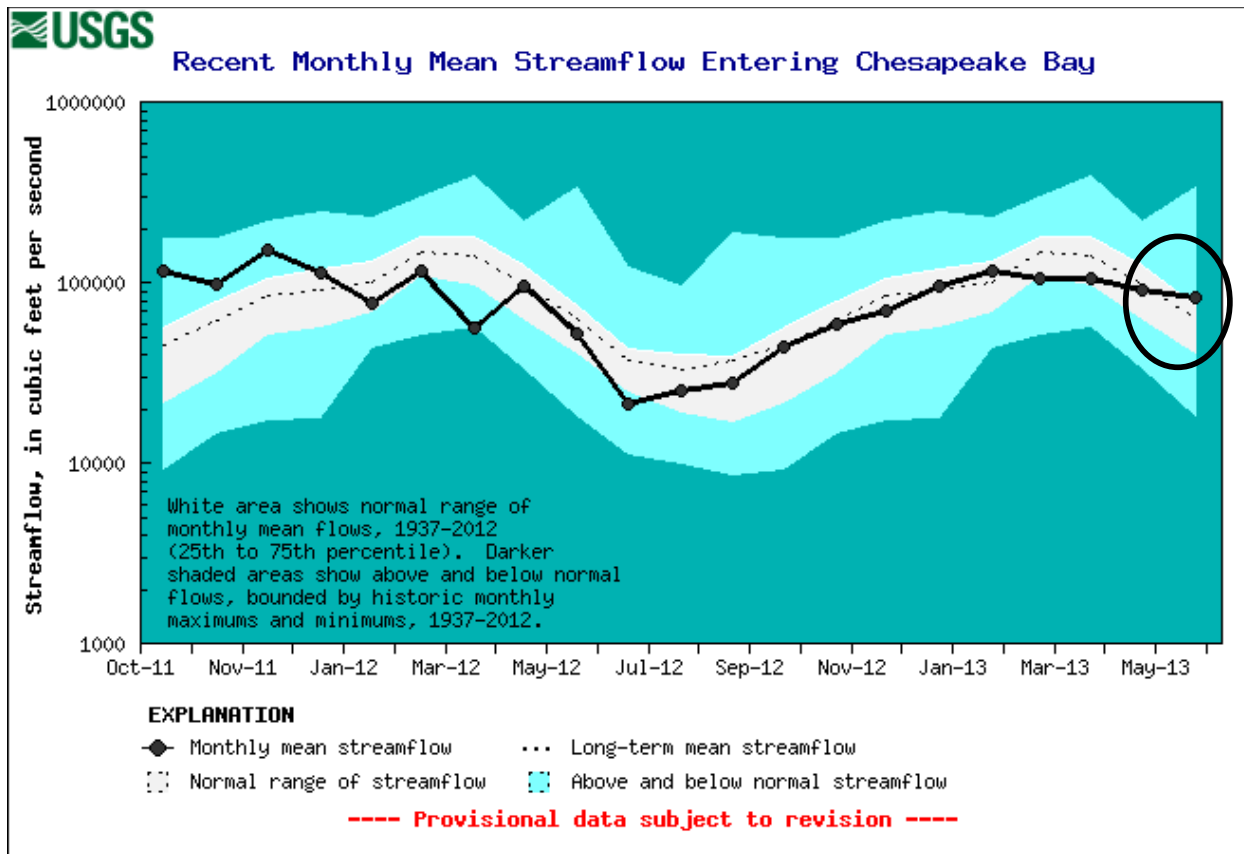
***Bay’s surface waters freshened by summer rains***

In the portion of the Bay between Baltimore Harbor and the Maryland-Virginia line, salinity in surface waters in late June were lower (fresher) than salinities observed three weeks earlier by about 2 parts per thousand. This lighter, fresh water cap overlying more dense and salty Bay waters are likely due a pattern of summer rainstorms throughout the Bay watershed that have been locally heavy. National Weather Service data from Baltimore show that June 2013 had the heaviest rainfall for this month since 1972 when Tropical Storm Agnes struck the watershed. The freshwater cap may have reduced oxygen exchanges between the atmosphere and the water or kept oxygen-producing phytoplankton deeper in the Bay.

Recent estimates from US Geological Survey (USGS) on the streamflow volume entering Chesapeake Bay shows that while the monthly flow of freshwater flow entering the Bay has continued to decline from a peak in February, this flow is now above the normal range for the month (**Figure 3**).

***2013 Chesapeake Bay Hypoxia Forecast***

The Chesapeake Bay summer hypoxia forecast in collaboration with researchers from the University of Maryland and the University of Michigan calls for a smaller than average summer Dead Zone in the Bay in 2013. The forecast is based on nitrogen loading from the Susquehanna River during January-May 2013 provided by USGS. Susquehanna River loadings data are funded with a cooperative agreement between USGS and the MD Department of Natural Resources.



**Figure 3. US Geological Survey estimates of monthly streamflow to Chesapeake Bay**  
(<http://md.water.usgs.gov/waterdata/chesinflow/>)

DNR will continue to monitor the oxygen conditions of the Bay and its tributaries and will provide updates through the summer. Implementation of the Baywide TMDL commits Maryland and the other Bay watershed States to accelerate their nutrient and sediment reduction strategies which should reduce the size and duration of the Bay's 'dead zone'.

### ***What you can do:***

Responsible Marylanders know that reducing polluted runoff is the key to a healthier Chesapeake Bay. Here's how you can do your part now and make a difference:

- Limit your use of lawn fertilizers
- Maintain your septic system
- Drive less
- Plant a tree

### For more information:

- Real-time Maryland Tidal Water Quality Conditions: [www.eyesonthebay.net](http://www.eyesonthebay.net)
- Restoring the Chesapeake Bay: Maryland's Actions & Progress: [www.baystat.maryland.gov/](http://www.baystat.maryland.gov/)
- What You Can Do to Help the Bay: [www.baystat.maryland.gov/what\\_you\\_can\\_do.html](http://www.baystat.maryland.gov/what_you_can_do.html)