

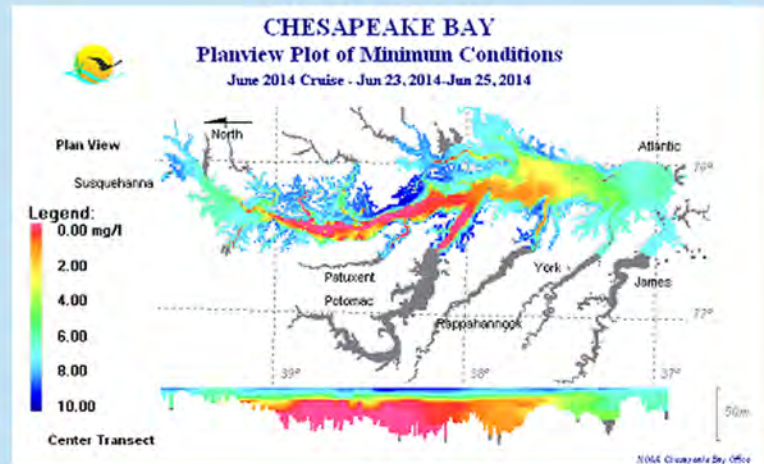
Maryland Department of Natural Resources

2014 Chesapeake Bay Hypoxia Report - Early July Update

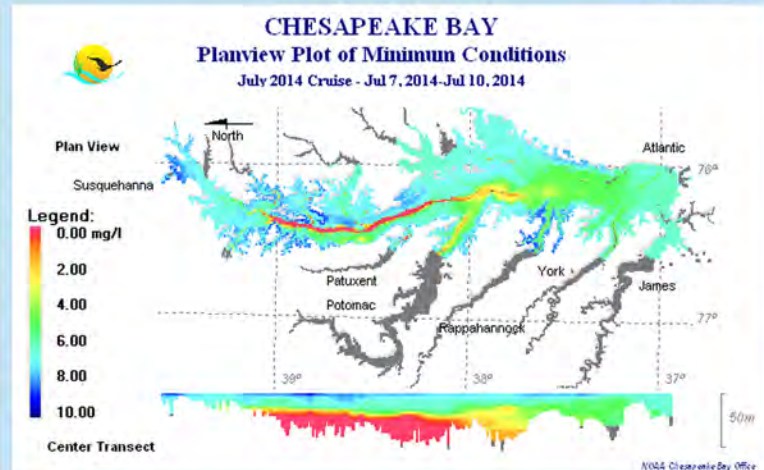
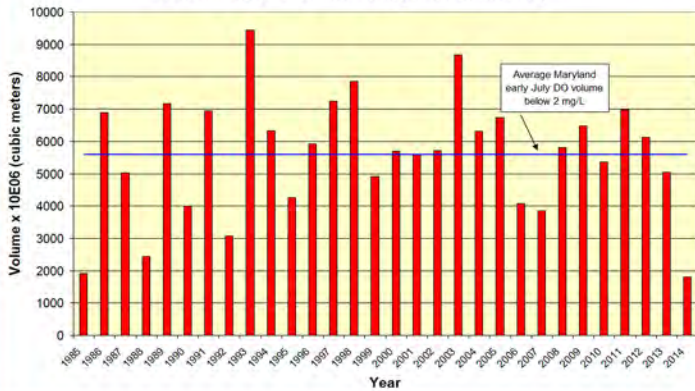


Crabs, fish, oysters and other creatures in the Chesapeake Bay need oxygen to survive. Scientists and natural resource managers study the volume and duration of Bay hypoxia (less than 2 mg/L oxygen) to determine possible impacts to Bay life. This area of hypoxia is often termed “The Dead Zone” in media reports.

Each year from June through September, Maryland DNR computes these volumes from data collected by Maryland and Virginia. Data collection is funded by these states and their partner, the EPA Chesapeake Bay Program.



Early July 2014 dissolved oxygen volume below 2 mg/L for the Maryland main Bay



For more information:

- *Eyes on the Bay* (www.eyesonthebay.net) - Chesapeake and Coastal Bays water quality results, and past hypoxia reports
- *Baystat* (<http://baystat.maryland.gov>) Maryland’s action and progress towards Chesapeake restoration

The ‘plan view’ in the above maps show the lowest oxygen value that occurs in the water column at that point, which is usually towards the bottom waters. The ‘center transect’ shows the vertical variation in oxygen along the main channel of the Bay. The oranges and reds are indicative of hypoxic zones.

This year, the early July 2014 sampling shows that hypoxic volume in Maryland’s portion of the Bay **dramatically shrunk**. It is the **smallest** MD early-July hypoxic zone recorded in the 30 years of sampling. The dead zone is confined to mainly the deep center channel of the Bay, extending from the Bay Bridge to the mouth of the Potomac. (continued on next page)

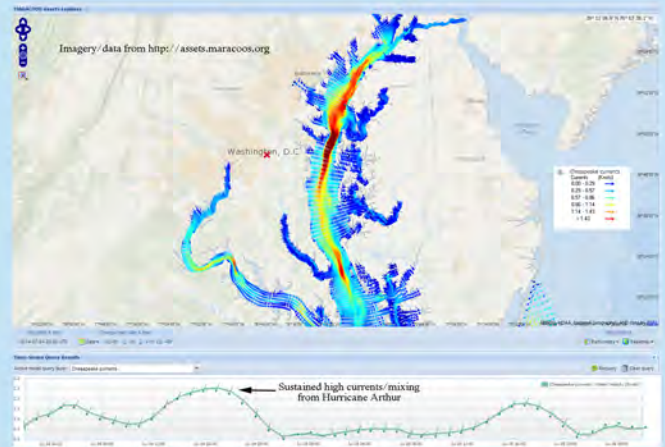
Posted: July 17, 2014



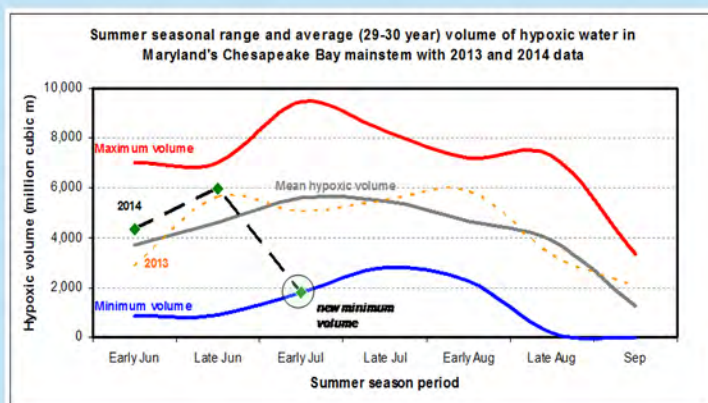
What produced the dramatic reduction in dead zone size?

Hurricane Arthur passed closely by the Maryland coast on July 4th, producing sustained winds in the region. Chesapeake Bay modeled data on currents, obtained from the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) of which Maryland DNR is a member, shows a sustained period of higher than average currents being forced down the Bay.

<http://assets.maracoos.org>



These wind driven currents helped to mix oxygenated less saline surface waters with oxygen depleted bottom waters as shown in the two vertical transects of salinity from late June before Arthur, and early July, 3-5 days after Arthur.



2014 was on track to be an above average size dead zone, as predicted by a team of NOAA, USGS and university scientists, because of increased nitrogen loads to the Bay early this Spring. (<http://1.usa.gov/1qK7DaC>).

Extreme meteorological events like Arthur, however, can produce temporary mixing to reduce dead zones. It is likely, given no more unusual weather events, that the dead zone will increase closer to average size by late July. This will be verified by the next Chesapeake Bay monitoring cruise scheduled for the week of July 21st.

Through numerous best management practices, Maryland is diligently working to reduce nutrient and sediment pollution. Maryland has defined goals for reducing this pollution, as set forth in the US EPA's Total Maximum Daily Load (TMDL) process. The EPA Chesapeake Bay Program just announced that Maryland has reached its 2013 TMDL pollution reduction milestones for nutrients and sediment. For more information on Maryland's pollution reduction progress, view this recent press release: <http://1.usa.gov/V2NxNU>

<http://www.eyesonthebay.net>