JOINT NEWS RELEASE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
U.S. GEOLOGICAL SURVEY

Contact: Ben Sherman, NOAA, 202-253-5256, ben.sherman@noaa.gov
Jon Campbell, USGS, 703-648-4180, joncampbell@usgs.gov
Jim Erickson, University of Michigan, 734-647-1842, ericksn@umich.edu
Amy Pelsinsky, UMCES, 410-330-1389, apelsinsky@ca.umces.edu
Dave Malmquist, VIMS, 804-684-7011, davem@vims.edu

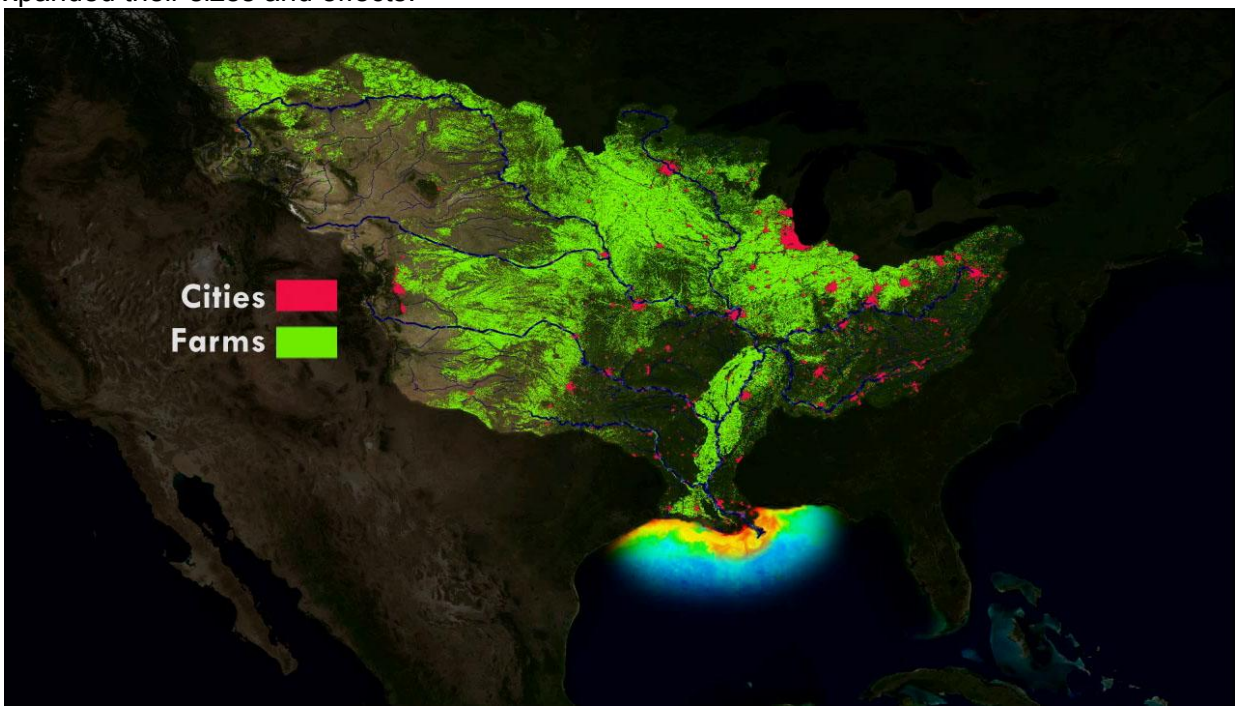
June 24, 2014

NOAA, partners predict an average 'dead zone' for Gulf of Mexico; slightly above-average hypoxia in Chesapeake Bay

Scientists are expecting an average, but still large, hypoxic or "dead zone" in the Gulf of Mexico this year, and slightly above-average hypoxia in the Chesapeake Bay .

NOAA-supported modeling is forecasting this year's Gulf of Mexico hypoxic zone to cover an area ranging from about 4,633 to 5,708 square miles (12,000 to 14,785 square kilometers) or about the size of the state of Connecticut.

While close to averages since the late 1990s, these hypoxic zones are many times larger than what research has shown them to be prior to the significant human influences that greatly expanded their sizes and effects.



Hypoxic zones are areas in the ocean of such low oxygen concentration that animal life suffocates and dies, and as a result are sometimes called "dead zones." One of the largest dead zones forms in the Gulf of Mexico every spring. Each spring as farmers fertilize their lands preparing for crop season, rain washes fertilizer off the land and into streams and rivers. (Credit: NOAA.) Double click image for high resolution video (3:50, 244MB).

The Gulf of Mexico prediction is based on models developed by NOAA-sponsored modeling teams and individual researchers at the University of Michigan, Louisiana State University, Louisiana Universities Marine Consortium, Virginia Institute of Marine Sciences/College of William and Mary, Texas A&M University, and the U.S. Geological Survey, and relies on nutrient loading estimates from the USGS. The models also account for the influence of variable weather and oceanographic conditions, and predict that these can affect the dead zone area by as much as 38 percent.

A second NOAA-funded forecast, for the Chesapeake Bay, predicts a slightly larger than average dead zone in the nation's largest estuary. The forecast predicts a mid-summer low-oxygen hypoxic zone of 1.97 cubic miles, an early-summer oxygen-free anoxic zone of 0.51 cubic miles, with the late-summer oxygen-free anoxic area predicted to be 0.32 cubic miles. Because of the shallow nature of large areas of the estuary the focus is on water volume or cubic miles, instead of square mileage as used in the Gulf.

The Chesapeake Bay prediction is based on models developed by NOAA-sponsored researchers at the University of Maryland Center for Environmental Science, University of Michigan, and again relies on nutrient loading estimates from USGS.

The dead zone in the Gulf of Mexico affects nationally important commercial and recreational fisheries and threatens the region's economy. The Chesapeake Bay dead zones, which have been highly variable in recent years, threaten a multi-year effort to restore the water and habitat quality to enhance its production of crabs, oysters, and other important fisheries.

Hypoxic (very low oxygen) and anoxic (no oxygen) zones are caused by excessive nutrient pollution, primarily from human activities such as agriculture and wastewater, which results in insufficient oxygen to support most marine life and habitats in near-bottom waters. Aspects of weather, including wind speed, wind direction, precipitation and temperature, also affect the size of dead zones.

“We are making progress at reducing the pollution in our nation’s waters that leads to ‘dead zones,’ but there is more work to be done,” said Kathryn D. Sullivan, Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator. "These ecological forecasts are good examples of the critical environmental intelligence products and tools that NOAA provides to interagency management bodies such as the Chesapeake Bay Program and Gulf Hypoxia Task Force. With this information, we can work collectively on ways to reduce pollution and protect our marine environments for future generations.”

Later this year, researchers will measure oxygen levels in both bodies of water. The confirmed size of the 2014 Gulf hypoxic zone will be released in late July or early August, following a mid-July monitoring survey led by the Louisiana Universities Marine Consortium. The final measurement in the Chesapeake will come in October following surveys by the Chesapeake Bay Program's partners from the Maryland Department of Natural Resources and the Virginia Department of Environmental Quality.

USGS nutrient-loading estimates for the Mississippi River and Chesapeake Bay are used in the hypoxia forecasts for the Gulf and Chesapeake Bay. The Chesapeake data are funded with a cooperative agreement between USGS and the Maryland Department of Natural Resources. USGS also operates more than 65 real-time nitrate sensors in these two watersheds to track how nutrient conditions are changing over time.

For the Gulf of Mexico USGS estimates that 101,000 metric tons of nitrate flowed down the Mississippi River into the northern gulf in May 2014, which is less than the 182,000 metric tons in last May when stream flows were above average. In the Chesapeake Bay USGS estimates that 44,000 metric tons of nitrogen entered the bay from the Susquehanna and Potomac rivers between January and May of 2014, which is higher than the 36,600 metric tons delivered to the

Bay during the same period in 2013.

"The USGS continues to conduct long-term nutrient monitoring and modeling" said William Werkheiser, USGS associate director for water. "This effort is key to tracking how nutrient conditions are changing in response to floods and droughts and nutrient management actions." The research programs supporting this work are authorized under the Harmful Algal Bloom and Hypoxia Research and Control Act, known as HABHRCA, which was recently amended and reauthorized earlier this month through 2018.

USGS provides science for a changing world. Visit USGS.gov, and follow us on Twitter @USGS and our other social media channels. Subscribe to our news releases via e-mail, RSS or Twitter.

NOAA's mission is to understand and predict changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and to conserve and manage our coastal and marine resources. Join us on Facebook, Twitter and our other social media channels at http://www.noaa.gov/socialmedia.

- 30 -