Researchers warn Gulf of Mexico 'dead zone' could grow

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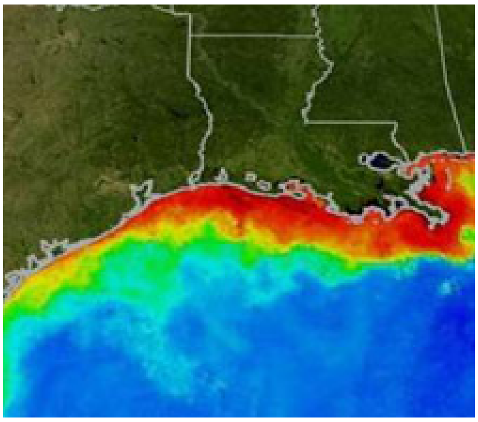

Photo courtesy of NASA/Goddard Space Flight Center Scientific Visualization Studio

The New Jersey-size Gulf of Mexico "dead zone" will likely grow in coming years unless federal policies to control it change, in part because the demand for corn-based ethanol fuel will worsen the problem, University of Michigan scientists say.

The dead zone forms each spring off the Louisiana and Texas coast when oxygen levels drop too low to support most life in bottom and near-bottom waters. This summer the oxygen-starved zone swelled to 7,900 square miles, the third-largest Gulf of Mexico dead zone recorded since measurements began in 1985.

Fertilizer runoff from as far away as the Corn Belt is largely blamed for the annual low-oxygen, or hypoxic, event, which threatens the half-billion-dollar Gulf Coast fishery, says U-M researcher Donald Scavia.

"We have made no progress in controlling it. And if we continue to put more land into corn because of the ethanol craze, then there'll be more nitrogen and larger dead zones," said Scavia, a U-M School of Natural Resources and Environment scientist who led the first federal integrated assessment of the Gulf dead zone in 2000.

In the journal Environmental Science & Technology, Scavia and U-M researcher Kristina Donnelly conclude that the best way to shrink the dead zone is to reduce amounts of two key nutrients—nitrogen and phosphorous—that flow down the Mississippi River and into the Gulf.

Previous efforts focused only on cutting nitrogen, which is used to make crop fertilizer.

Scavia and Donnelly took new U.S. Geological Survey estimates of nutrient levels entering the Mississippi River and plugged them into a U-M computer model that projects the future of Gulf hypoxia.

Their study showed that reducing phosphorous alone—a course advocated by some in the agricultural industry—could trigger the growth of even bigger dead zones in the waters of the western Gulf. Phosphorous is found in the discharge from sewage treatment plants, as well as in fertilizers.

The article will be available online Oct. 31 and will be published in the Dec. 1 hard-copy edition of *Environmental Science & Technology*.

"We understand what needs to be done, and the technology needed to do it is available," Scavia said. "All we really need is the political will and the funding."

The 2000 assessment concluded that excess nitrogen from fertilizers fueled the Gulf dead zone's growth in the 1970s. In 2001, a Hypoxia Action Plan was delivered to Congress and the president. Its goal was to shrink the dead zone by reducing nitrogen runoff into waterways.

The 2001 plan is now under review by the

Environmental Protection Agency's Science Advisory Board. Scavia briefed the EPA panel on his latest computer-model results earlier this year, and the new nitrogen-and-phosphorous approach was adopted in the panel's recently released draft assessment.

"The data in this (Environmental Science & Technology) paper influenced that recommendation," Scavia said. "Prior to our paper, the EPA panel had no strong basis to come to the conclusion it did."

Each year in late spring and summer, nutrients from the Mississippi River fuel explosive algae blooms in the Gulf of Mexico. The algae eventually die and sink to the bottom, where bacteria decompose them, consuming oxygen in the process.

In this year's State of the Union address, President Bush called for the production of 35 billion gallons of ethanol by 2017, which would equal about 15 percent of U.S. liquid transportation fuels. In August, the Agriculture Department forecast a 2007 corn harvest of 85.4 million acres, the most since 1933 and 14.8 million more acres than last year.

Last month, the National Research Council issued a study concluding that projected increases in corn-based ethanol production could harm U.S. groundwater and rivers, as well as coastal and offshore waters.

Source: University of Michigan

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