

Gulf of Mexico 'Dead Zone' Will Be Large This Summer, Scientists Predict

The low-oxygen zone can cause harm not just to marine life, but also to those who catch shrimp and fish for their livelihood.



By **John Schwartz**

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The “dead zone” in the Gulf of Mexico will be larger than usual this summer, scientists from the National Oceanic and Atmospheric Administration predicted on Wednesday.

The dead zone, an area of the northern Gulf of Mexico with low oxygen levels that appears every summer, is produced by nutrients washing into the Mississippi, many from fertilizer used on farmland in the river’s vast watershed. Heavy spring rains increase the likelihood that more nutrients will flow into the Gulf, where they stimulate the growth of algae. The algae dies, sinks and decomposes, depleting the oxygen in the water.

The result is an area with low oxygen levels that kills some sea creatures and drives others to move elsewhere. That can cause harm not just to marine life, but also to those who catch things like shrimp and fish for their livelihood, said David M. Kidwell, a supervisory physical scientist with NOAA’s national ocean service.

And while the Gulf dead zone is famous, he added, “it’s not unique to the Gulf.” There are zones of low oxygen, or hypoxia, in many other places around the United States and the world where nutrient runoff causes problems. “It is likely occurring in someone’s back yard, but they don’t know it or have not heard about it yet,” he said.

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The forecast suggests that this year’s zone will be about 6,700 square miles, or roughly the size of Connecticut and Delaware combined. That’s not the biggest recorded, which was 9,776 square miles in 2017, but it is significantly larger than the five-year average.

A separate forecast from two oceanographers from Louisiana State University, R. Eugene Turner and Nancy N. Rabalais, suggested a higher estimate for this year's zone: 7,769 miles, or roughly the size of New Hampshire. That team's work is incorporated into NOAA's estimate.

As it does for hurricane forecasts, the agency creates an overall estimate from an ensemble of computer models developed by the agency and by teams of researchers at the University of Michigan, Louisiana State University, William & Mary's Virginia Institute of Marine Science, North Carolina State University, and Dalhousie University, as well as the United States Geological Survey.

A hypoxia task force that includes federal and state agencies and tribal governments is engaged in efforts to reduce farm runoff and promote water quality, and has set a target of keeping the dead zone to 1,900 square miles over a five-year average. Wednesday's forecasts suggest that this goal is not likely to be reached soon.

"Large reductions are called for in the federal-state action plans that have been in place for almost 20 years," said Don Scavia, a professor emeritus at the University of Michigan school for environment and sustainability, in a statement. "Clearly, something different needs to be done in the watershed to actually reduce the nutrient loads and reduce the size of the dead zone."

Climate change could make attaining those goals even more difficult. One of the factors in creating hypoxia zones, heavy rainfall that contributes to Midwestern flooding, is consistent with the effects of a warming world. Warmer air can hold more moisture, which can fall out of the sky in the form of intense rainfall.

NOAA's annual forecasts are followed up with a physical survey of the Gulf waters later in the summer. Dr. Rabalais conducts the annual cruise that establishes the final estimate of the zone's size. This year's coronavirus pandemic has placed restrictions on her trip, planned for the last week in July, including a reduced crew and the need to set aside a bunk space on the research vessel for possible quarantine. "It's going to be bare bones, but we're going to get it done," she said.

The actual size of the zone can vary from predictions because of weather conditions, including storms that can stir up the water column. Last year's heavy Midwestern flooding led NOAA to predict the 2019 zone would spread more than 7,800 square miles; the actual figure turned out to be 6,952. Among other factors, Hurricane Barry churned the water, temporarily disrupting the hypoxic zone.

In an interview, Dr. Rabalais said that the low-oxygen zone showed the interconnectedness of the nation's land and water. "The nutrients are an issue for the Gulf and for the center of the country," she said. "There's water quality problems in the Midwest and there's water quality issues in the Gulf of Mexico, and it's something we should pay attention to."

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