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LONG ISLAND ENVIRONMENT

'Perfect storm' of conditions leads to record fish kills in LI waters, Stony Brook scientists say



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A 'perfect storm' of excessive nitrogen and other conditions in the region's coastal waters

According to a report from scientists at Stony Brook University, excessive nitrogen, harmful algal bloom and the effects of climate change contributed to a record-setting 50 fish kills in the summer of 2022. Credit: Debbie Egan-Chin

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A "perfect storm" of excessive nitrogen in the region's coastal waters, combined with harmful algal blooms and the effects of climate change, led to a record number of fish kills on Long Island during the summer of 2022, according to a new report from scientists at Stony Brook University.

The report found that conditions in Nassau and Suffolk's waterways have deteriorated, leading to a combined total of 50 fish kills in every major bay and estuary across Long Island —from Hempstead Harbor to the west to Montauk's Big Reed Pond to the east.

In most years, the Island sees less than a half-dozen fish kill locations, according to Christopher Gobler, a professor at Stony Brook University's School of Marine and Atmospheric Sciences.

He points to high levels of nitrogen, seeping from aging septic systems, that are washing through the groundwater into the South Shore's coastal waters, stimulating harmful algal blooms that remove oxygen from bottom waters as they decay.

Meanwhile, the waters of Long Island Sound are now two degrees warmer during the summer months that they were at the turn of the century, further reducing oxygen levels for fish, he said.

"So we've got really the perfect storm here," Gobler said at a Cold Spring Harbor waterfront near waters that he described as the "epicenter" of the crisis. "Climate change, excessive nitrogen loading, leading to low oxygen."

The declining water quality, Gobler said, also affects the pocketbooks of everyday Long Islanders.

A new [report](#) by the Environmental Protection Agency and Stony Brook University linked Suffolk's poor water quality to a reduction in home values by as much as \$30,000 in some waterfront communities.

Stony Brook's 2022 Water Quality Impairment Map identified 30 Long Island dead zones with low oxygen levels, along with 20 toxic blue-green algal blooms in lakes and ponds.

Among the most concerning findings, Gobler said, was the spread of fish-killing algal blooms known as Gymnodinium that for the first time was discovered in July and August across the Great South Bay and Moriches Bay.

Gymnodinium contributed to the death of more than 500,000 fish in the Western Peconic Estuary in 2015, experts said, and harmful algal blooms have contributed to the collapse of critical marine habitats, major fisheries such as scallops and clams and the deterioration of coastal wetlands that help protect waterfront communities from the damaging impacts of storms.

"We have the evidence that we have the problem," said Kevin McDonald, the Long Island policy adviser for the Nature Conservancy. "We have the processes at the county, state and local governments to begin addressing these issues. So all this does is make us all think again about redoubling our efforts to continue to take polluting septic systems out of the ground and substitute them with units that don't pollute."

For the past six years, Suffolk has had more lakes with blue-green algal blooms than any other county in the state, a distinction that is likely to be repeated in 2022, the report said. Blue-green algae make toxins that can be harmful to humans and animals and have been linked to dog illnesses and deaths across Long Island and the United States.

"People live on Long Island because we get to live by the water," said Adrienne Esposito, executive director of the Farmingdale-based Citizens Campaign for the Environment. "And so cleaning up the water and protecting this resource is of the utmost importance to people."



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