Oxygen levels improve in Long Island Sound, with hypoxia at a low

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The Day

Published: Dec 13, 2025 3:00 PM**Updated:**Dec 12, 2025 8:09 PM

Long Island Sound experienced this year the lowest levels of hypoxia, or low oxygen, since monitoring of water quality began nearly four decades ago, the Long Island Sound Partnership announced.

Hypoxia levels, which serve as an indicator of water quality, have been declining steadily, a good sign that efforts to improve Long Island Sound are working, said Erica Casper, Long Island Sound Partnership outreach support coordinator at Connecticut Sea Grant, which is one of the partners in the collaborative group.

She called it good news for the Sound, the animals that live there, and nearby residents.

“It’s a success, and that’s really exciting,” Casper said.

Animals living in Long Island Sound need oxygen to live, so if oxygen levels drop, it can cause animals, such as fish, to leave, or make stationary animals, such as shellfish, unhealthy, she said.

If they suffer the stress of hypoxia long enough — and if oxygen is low enough — then it could kill them, Casper added.

Many of the fish species are either commercially or recreationally important, so low levels of oxygen also have an effect on the economy and recreational activities, she added.

The hypoxia in Long Island Sound is concentrated in the western end. The eastern part of the Sound is close to the ocean, so it experiences a lot of mixing with ocean water and does not have the same concentration of nutrients that the western part does, she said.

The Long Island Sound Partnership said in a news release that hypoxia took place this year over a 40-day period from July 14 through Aug. 22, "a shorter duration than in many previous years." Its maximum area was 18.34 square miles, between July 29 and 31.

Hypoxia covered the largest area of Long Island Sound — 393 square miles — in 1994, and lasted 68 days. The longest hypoxia lasted was 82 days in 1989, when it covered 328 square miles.

Penny Vlahos, a professor in the University of Connecticut's Department of Marine Sciences, said the Long Island Sound Partnership has been monitoring the Sound since the late 1980s to identify health risks and potential economic effects in the area and to the ecosystem.

The Environmental Protection Agency, New York and Connecticut created the partnership, a collaboration among agencies, groups, organizations and others, in 1985, according to the Long Island Sound Partnership's website.

Connecticut's Department of Energy and Environmental Protection has multiple stations in Long Island Sound to collect water samples and measure factors like temperature, salinity and oxygen, Casper said.

Vlahos said it was understood that hypoxia, or low oxygen concentrations, would be detrimental and lead to fish kills and destroy the health of the ecosystem and people's ability to enjoy the area's resources.

Action was taken, Vlahos said, to reduce nitrogen entering the Sound. She said sewer treatment overflows and use of fertilizers were overfertilizing Long Island Sound, triggering bacteria, which then reduced oxygen.

Nikita Joshi, a spokesperson for the EPA, said in a statement that "scientists identified sources of excess nutrients and took action, including a 2001 agreement" among EPA, Connecticut and New York, to reduce nitrogen from sewage.

She said large investments from federal and state money upgraded wastewater treatment plants and reduced the amount of nitrogen entering the water.

These investments to improve water quality led to a steady decline in hypoxia in Long Island Sound, she said.

"We still have work to do because there is still hypoxia, but the important thing is that we have long-term records of success now, and the fact that we have had the lowest hypoxia on record is a huge achievement for the system," said Vlahos, who is part of the water quality monitoring group. "It's showing that we're going in the right direction and that we are maintaining and hopefully continuing to improve water quality in Long Island Sound."

Vlahos said the improved oxygen levels are a benefit to all, from shellfisheries to people eating shellfish to people recreationally using the Sound.

But she said there is more work to do, as other factors can increase the extent of hypoxia in future years, including storms, population growth, and the fact that Long Island Sound is warming faster than the ocean.

Joshi said the next steps for improving water quality in Long Island Sound involve continuing efforts to address nutrient pollution, particularly from “non-point sources” like stormwater runoff. This includes supporting “monitoring programs to track areas where hypoxia still exists, with a focus on nearshore habitats such as seagrasses and oysters.”

“To tackle non-point source pollution, EPA and LISP plan to develop strategies and set goals to reduce pollution from sources that aren’t easily regulated,” Joshi said, adding that education and outreach are also key components.

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