

Eye on Sound's oxygen levels



IN THE FIELD
Jennifer Smith

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With a clank and a whirring of gears, a metal frame loaded with water-sampling equipment swung out over the side of the R/V Seawolf, then slowly lowered into Long Island Sound.

The vessel, anchored near Execution Rocks about a mile off Sands Point, carried a team of Stony Brook University scientists intent on learning more about why oxygen levels in the western Sound plummet as the weather warms.

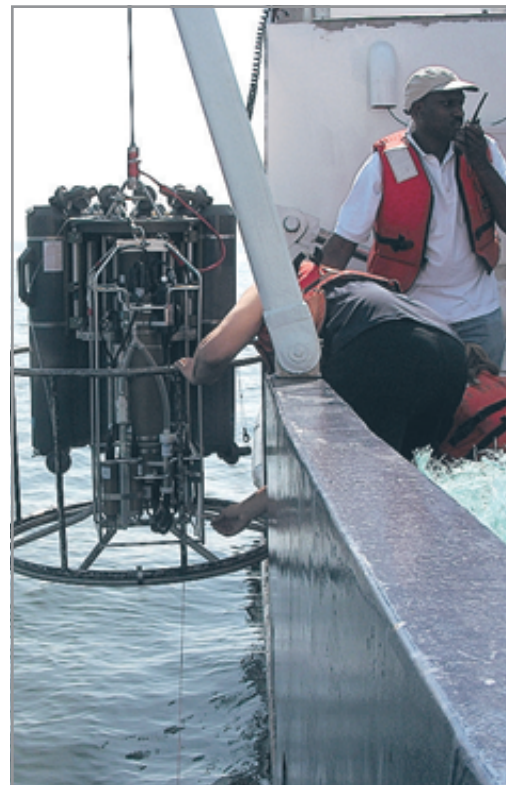
The condition is called hypoxia, and it can damage — and sometimes kill — fish, lobsters and other marine life.

“It’s stressful to animals that live at the bottom,” said Gordon Taylor, an oceanography professor at the university. “It affects habitat quality and the distribution of animals that we care about, so we’re trying to understand the dynamics.”

Scientists understand the basic factors that drive hypoxia: boom and bust cycles of aquatic plant growth. Fueled in part by nitrogen from sewage and storm water runoff, algae and plankton bloom, then die, sucking oxygen from the water as they decompose.

But the interactions are complex. Attempts to predict future hypoxia based on the volume of plankton produced in the spring have largely failed.

Taylor and Kamazima Lwiza, an associate professor of ocean-



NEWSDAY PHOTOS / JENNIFER SMITH

Stony Brook University professor Gordon Taylor, left, measures how quickly plankton and bacteria are breathing. Associate professor Kamazima Lwiza, above, works with the crew on the research vessel Seawolf.

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ography, hope to shed new light on hypoxia by measuring how fast planktonic microbes that live in the waters of the Sound take up oxygen.

They are also collecting detailed information about the structure of the water — the way temperature, salinity and oxygen levels vary at different depths, and how mixing by tidal currents and winds affects the intensity and extent of hypoxic zones in the Sound.

The two-year research project

is mostly paid for by the Long Island Sound Study, a federal-state estuary program. The New York and Connecticut Sea Grant programs, which support research and environmental stewardship, also contributed money to the research, now in its first year.

“We are interested in looking at how hypoxia evolves over the season. . . . We think the bacterial respiration rates are the key,” Lwiza said as he readied equipment in the Seawolf’s onboard lab. Translation: The faster tiny

microbes in the water use oxygen, the less is available in the surrounding water for fish and shellfish.

On deck, Taylor set up an electronic monitor to track those rates by analyzing water samples taken that day.

He filled a cooler with water from the Sound to maintain the ambient temperature of the samples, then checked the slim rubber tubes that connect special plastic sample bags to the monitor. It will

tell Taylor which component of the water column is taking in oxygen most rapidly — tiny plants, protozoa or bacteria.

After some minutes underwater, the water sampling gear was winched up and placed back on deck. Scientists’ students sprang into action, filling containers with water for experiments.

Lwiza’s brow furrowed as he checked the oxygen level of a sample taken near the floor of the Sound, about 72 feet below the Seawolf. Estuaries need about 5 milliliters of oxygen per liter of water to sustain healthy ecosystems. This sample had only .5 milliliters per liter.

“We’ve gone beyond it being hypoxic,” Lwiza said. “It’s almost anoxic,” meaning without oxygen at all — a condition that, if it persisted, could seriously damage marine life.

Inside the lab, Taylor’s students filtered samples from the Sound to prep them for testing.

As the boat zigzagged across the Sound, Lwiza checked readings from a sonar instrument mounted on the boat that measures the direction and magnitude of the current. Back at Stony Brook, the data will tell researchers “how the hypoxic area spreads and contracts with the tide, and also with the wind-driven currents,” Lwiza said. “That will allow us to figure what the hypoxic zone is doing.”

THE MONTH OF SEPTEMBER

Nature hikes

PINEY OAKS. 10 a.m. Sept. 12. A flat hike, 2.7 miles amid oak and pitch pine forest at a moderate pace. Free. Meet on Route 114 a few yards from the intersection with Stephen Hands Path in East Hampton opposite the farm stand. Please do not park at the farm stand. Leader: Richard Lupoletti, 631-324-1127.

BIRDS 'N' STUFF. 8:30 a.m. Sept. 13 at Muttontown Pre-

serve, East Norwich. Three-hour hike focusing on migration patterns and bird-banding. Looking for cedar waxwing, Cooper’s hawk, great horned owl, indigo bunting, Lawrence’s warbler and scarlet tanager. Meet at nature center on Muttontown Lane, south of Route 25A. Preregistration required, 516-571-8500; adults \$5, kids free.

BIKE HIKE. 10 a.m. Sept. 12. Nope, it’s not a hike, but this 15-mile ride will go to several

bay beaches and two ocean beaches, with a stop at the East Hampton Town Marine Museum on Bluff Road. Cool, indigenous fishing gear here to be seen. Helmets required. Free. Meet at village parking lot behind Amagansett Library; Judy Kossover, 631-267-6747.

CEDAR POINT RAMBLE. 10 a.m. Sept. 16. A wooded, 2-mile hike to Hedges Banks by Gardiners Bay. Sparkling East End water views. Free. Meet at the

log cabin park office building just inside Cedar Point Park off Cedar Point Road, which is off Alewife Brook Road, in Northwest East Hampton; Gene Makl, 631-324-8662.

COME HITHER. 10 a.m. Sept. 23. A vigorous, 5-miler in Hither Woods. Free. Following the Serpent’s Back Trail to the Waterfence shoreline overlooking Napeague Bay. Bring water. Meet at the Hither Hills West Overlook off Route 27, about 1

mile east of Montauk Highway-Old Montauk Highway split. Leader: Ed Porco, 631-668-2093.

SPRINGS IN FALL. 10 a.m. Sept. 26 in Springs. A 4.5-mile hike in and around Springs. Free. Through residential neighborhood, historic landmarks and an oak forest. Meet at Ashawagh Hall parking area on Parsons Place just off Springs Fireplace Road. Leader, Gene Makl, 631-324-8662.

— LAURA MANN