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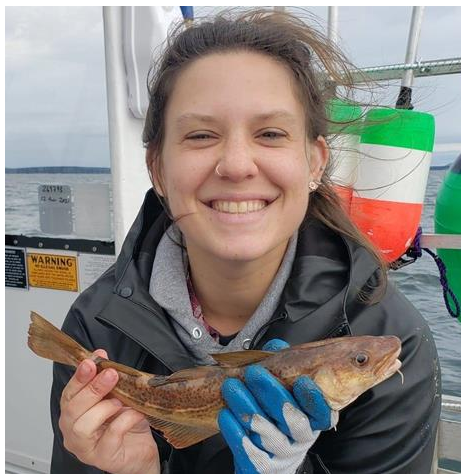


Winter 2024

This issue of *Sound Matters* explores the most recent round of grants awarded through the Long Island Sound Study research grant program. Every two years grants are awarded to scientists to investigate coastal marine issues that help resource managers make science-based decisions to improve the Sound. A total of \$16.4 million through 67 projects have been awarded since the program's start in 2000. The full list of grants awards is available at the LISS [research website](#).

LISS NEWS

Scientists Strive to Find Suitable Habitat for Fish Species Facing Climate Change Threats



Rising temperatures are threatening the ability of cold-adapted fish to continue to live in Long Island Sound. Some warm-adapted species, meanwhile, are thriving. New research being conducted with a 2022 LISS research grant seeks to help level the playing field. The study, led by Stony Brook University scientists with fisheries resource managers in Connecticut and New York, is using

Robyn Linner poses with an Atlantic cod, a cold water-adapted species. Photo courtesy of Linner.

scientific models, maps, and the Long Island Sound Fish Trawl Survey to find suitable habitats for fish species

under different climate change scenarios. One possible outcome will be to call attention to key areas of the Sound where species can go to find thermal refuge. An article about the work is available in [Sound Spotlight](#) in the Media Center.

Study Goes Back in Time to Assess Water Quality Progress in the Sound



Dr. Gregory Dietl is using his background as a paleoecologist to compare mollusk populations from the 1990s to now.

Hypoxia in coastal waters is a condition in which oxygen drops to levels that make it difficult or impossible for fish and other aquatic life to breathe. LISS and its partners have responded by implementing a long-term program to reduce excess nutrients in Long Island Sound. The program has helped contribute to a decrease in the area of waters in the Sound with unhealthy oxygen conditions by more than 50 percent since the 1990s. To help assess the impact of this water quality improvement on marine life,

Dr. Gregory Dietl, a curator at the Paleontological Research Institution in Ithaca, NY, is using his skills as a paleoecologist to create a historical record of the health of clams, oysters, mussels, and other mollusks in the sea floor from the 1980s and 1990s to the present. The research funded with a 2022 LISS research grant includes using radio-carbon dating to identify the age of shells collected in Long Island Sound surveys. The article can be found in [Sound Spotlight](#) in the media center.

Salt Marsh Study Explores Effects of Plant Sourcing, Genetics on Climate Change Resilience



Dr. Sarah Crosby and Nicole Spiller collect biomass samples near a warming chamber. Photo courtesy of Crosby.

Salt marshes are considered some of the most productive ecosystems on Earth. They are also under threat due to sea level rise and warming temperatures. With a 2022 Long Island Sound Study research grant, Dr. Sarah Crosby of the Maritime Aquarium at Norwalk is studying the resiliency of the *Spartina alterniflora* salt marsh species across different sites across the Connecticut coast.

Her team uses warming chambers to simulate what the temperatures would be like for the coming decades to compare healthy *Spartina* with recently restored *Spartina* and varieties sourced from southern nurseries. Crosby is looking for some of the key indicators of resilience, including “not drowning under sea level rise; continuing to provide the habitat that we want them to; and continuing to protect our soil from erosion.” An article on her research appears in [Sound Spotlight](#).

Blog Post Explores Effects of Plant Sourcing, Genetics on Climate Change Resilience

For the past four years, the Long Island Sound Study has been supporting an innovative restoration project that restores a salt marsh designed to respond to sea level rise. The project, at the Great Meadows Marsh in Stratford, CT, involves forming a hummock, similar to a mound or knoll, by adding sediment. This increases the elevation of this portion of the marsh, preventing it from drowning due to sea level rise. A research team at the University of Connecticut has been studying the impact of the hummocks on water quality and plant and animal life. See Madeline Kollegger's blog at [Sound Stories](#) to get insights on the project. Kollegger is a PhD student at the University of Connecticut.

2024 Brings New Grant Cycle, Research Conference to the Research Grant Program



PhD candidate Madeline Kollegger collecting samples at the Great Meadows Marsh. Photo courtesy of Kollegger.



Bio-Optics researchers collect measurements in the Sound. Photo courtesy of Tzortziou Bio-Optics Lab.

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ongoing research, 2024 also heralds the beginning of a new round of projects to be funded by the LISS Research Grant Program. On January 29, Connecticut and New

York Sea Grant announced the availability of up to \$6.5 million for one- or two-year projects. Scientists interested in submitting preliminary proposals can find information about the request for proposals on the Connecticut Sea Grant [website](#).

Also in February, the Sea Grant programs announced that the biennial Long Island Sound Research Conference will be held this year in Port Jefferson on May 15. Information about the conference, which is supported by the Long Island Sound Study, is on the New York Sea Grant [website](#).

SOUND BYTES (LONG ISLAND SOUND STUDY NEWS BRIEFS)

- The research articles in this issue of *Sound Matters* were written by Juanita Asapokhai, a summer 2023 Communications Intern at the EPA Long Island Sound Office in Stamford. The Connecticut resident attends Tuft University where she will be graduating with degrees in Community Health and Sociology this spring. Thanks Juanita!
- **LISS Partner Featured in the News, Part 1:** Rocking the Boat was featured on January 6 on the [CBS Evening News](#) for its mission to teach unique and lifelong skills to youth through boat building and through envi-



Communications Intern Juanita
Asapokhai

ronmental programs to help in the restoration of the Bronx River. Rocking the Boat has received multiple grants from the Long Island Sound Futures Fund since 2005.

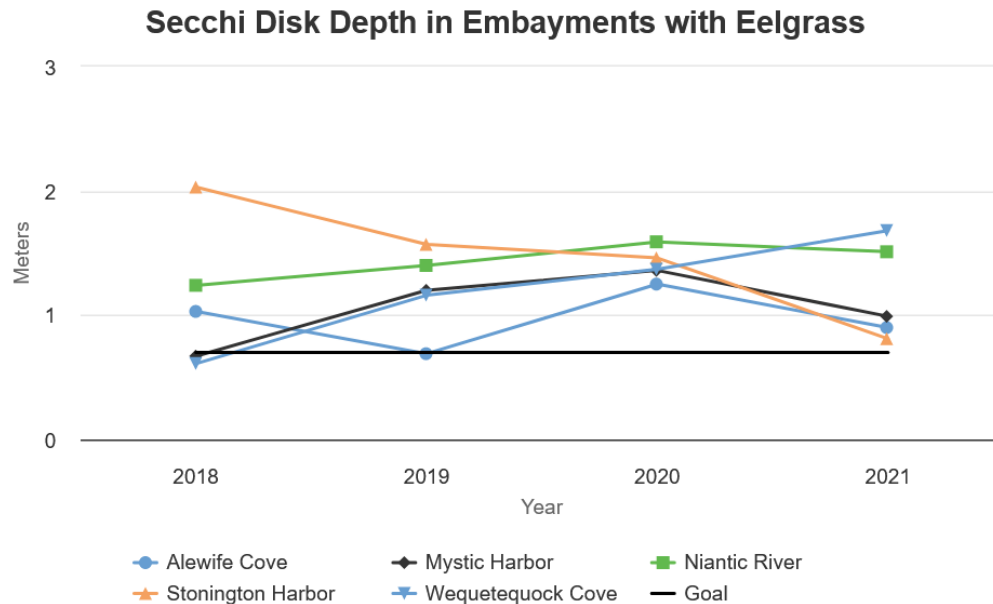
- **LISS Partner Featured in the News, Part 2:** The Long Island Sound Study logo was in the background when the [CBS Morning News](#) featured Rich Earth Institute on January 14. Rich Earth's staff members were interviewed to describe their innovative pee-cycling program

that collects and recycles human urine from residences and businesses for application as fertilizer on local pasture lands. Using nutrient reclamation and recycling technologies, Rich Earth has been effectively removing nitrogen and phosphorus from wastewater streams that lead into the Connecticut River and Long Island Sound. The Vermont-based group has also received multiple Futures Fund grants.

- EPA scientist Melissa Duvall's research evaluating the influence of tides on the development of hypoxia in Western Long Island Sound was published in fall 2023 in the journal *Estuaries and Coasts*. The research was funded by EPA and the Long Island Sound Study. It's available on the Springer Link [website](#).
- Save the Sound is hiring a Coastal Restoration and Resilience Project Manager to manage its portfolio of coastal work in CT and NY. The posting can be found [here](#).
- In January, Chris Pickerell, director of Cornell Cooperative Extension's Marine Program in Suffolk County, testified before a U.S. House Subcommittee on Water, Wildlife and Fisheries on the importance for Congress to pass the Long Island Sound Restoration and Stewardship Reauthorization Act of 2023. The bill includes reauthorizing \$40 million in annual funding for the Long Island Sound Study. Pickerell told the subcommittee, according to the *Cornell Chronicle*, a communications site of Cornell University, that federal funding helps to maintain water quality monitoring, habitat restoration and debris removal, and supports farmers around the region to develop management practices that protect the sound's watershed. The article appears on the Cornell University [website](#). Pickerell is an alumnus of Cornell.

FOCUS ON LISS INDICATORS

Water Clarity at Bays and Harbor



(Chart/Long Island Sound Study Ecosystem Target and Supporting Indicators presentation)

The Long Island Sound Study Ecosystem Targets and Supporting Indicators microsite tracks indicators of the health of the Sound and whether the Study is achieving restoration goals. In each issue of Sound Matters we highlight the latest trends in one of the indicators or targets.

Secchi disk depth is a measure of water transparency and how deep light can penetrate into water. According to [DataStream](#), it refers to the depth at which a disk lowered into the water can no longer be seen from the surface. Embayment water clarity is a new supporting indicator for the Long Island Sound Study that shows Secchi disk depths at bays and harbors in eastern Long Island Sound. The indicator signifies whether there is sufficient light penetrating the surface for eelgrass to grow (eelgrass requires a minimum depth of .7 meters or 2.3 feet). The chart above shows that all embayments monitored for Secchi disk depth in the eastern Sound with eelgrass have exceeded the requirement. Another chart on the LISS website, however, shows embayments that have exceeded the minimum depth for light penetration, but do not have eelgrass. It indi-

cates that there are locations in the Sound where there is a potential for eelgrass to be restored.

Visit the Ecosystem Targets and Supporting Indicators [microsite](#) for more information on the Embayment Water Clarity indicator.

SOUND FACT

Long Island Sound's Underwater Plant



Illustration by Lucy Reading-Ikkanda for the Long Island Sound Study.

This month's Sound Fact highlights the importance of eelgrass in Long Island Sound to provide habitat for fish and to protect the shoreline from coastal erosion and to filter nutrient pollution. For more facts on eelgrass,

and to see a Story Map produced by the Long Island Sound Study and EPA visit the [LISS media center](#).

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