

## Long Island Nitrogen Action Plan (LINAP) - Newsletter

### 2024 Summary of Partnerships

As the Long Island Nitrogen Action Plan (LINAP) approaches its 10th anniversary, it's an opportune time to reflect on the significant progress made in reducing nitrogen pollution and improving the region's water quality. Join us as we highlight the accomplishments of 2024 and explore the initiatives that are paving the way for a more sustainable future, with contributions from:

1. [Department of Environmental Conservation](#)
2. [Long Island Regional Planning Council](#)
3. [Nassau County](#)
4. [Suffolk County](#)
5. [Bioextraction Initiative](#)
6. [New York State Center for Clean Water Technology](#)
7. [Long Island Sound Study](#)
8. [South Shore Estuary Reserve](#)
9. [Peconic Estuary Partnership](#)

### Department of Environmental Conservation (DEC)

This past year, the DEC began the process of transitioning LINAP into a watershed program, broadening its focus beyond nitrogen pollution and adopting the Long Island Action Agenda as its new management plan.

The Long Island Action Agenda sets forth a bold, holistic strategy to safeguard and restore Long Island's water resources, ensuring a sustainable future for its communities and ecosystems. This agenda aligns Long Island with other New York State watershed programs, strengthening its foundation, increasing funding opportunities, and fostering long-term program durability.

The agenda is organized around four primary goals:

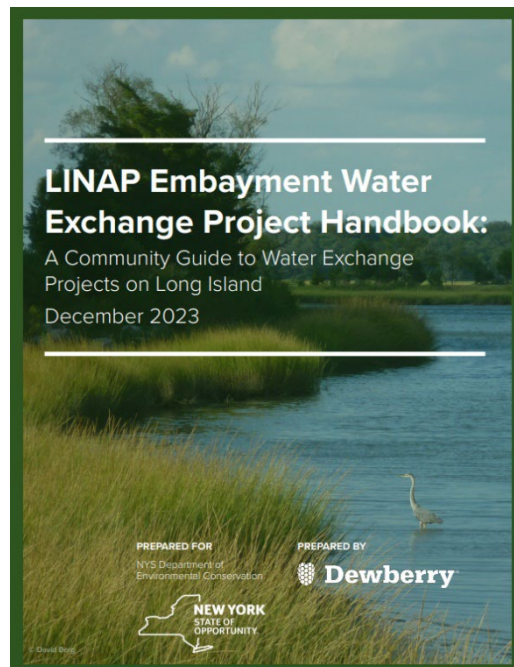
- Clean Water
- Healthy Habitats
- Sustainable Groundwater Resources
- Inspired & Engaged Public

These goals are rooted in the Action Agenda's mission to protect and restore Long Island's water resources for a healthy environment and sustainable future and guided by the vision of a Long Island where clean, healthy, and sustainable water resources and habitats are achieved through innovative strategies and public involvement.

Over the past year, the DEC has worked closely with many LINAP partners to refine the objectives, goals, and actions of the Action Agenda. November marked an important milestone, with [public listening sessions](#) designed to present the agenda's framework and gather valuable

community input. The Action Agenda is expected to go out for public comment in spring 2025 and be released later in the year.

In addition to transitioning to the Action Agenda, the DEC made significant progress on multiple ongoing LINAP initiatives including the completion of the [Embayment Water Exchange Study](#), which explored technologies to increase seawater exchange in embayments to improve waterbody health. The study focused on various Long Island waterbodies, including harbors, tidal streams, lagoons, and ponds. Multiple water exchange practices were evaluated including environmental dredging, sand spit removal, pipe-and-pump, culvert or pipe with tidal flow, and tide gates. Results showed that these technologies have limited effectiveness in large waterbodies, where the scale of water exchange practices is too small to make a substantial impact. However, they may benefit smaller waterbodies, where increased water exchange volume can significantly affect overall water quality. A [handbook](#) was developed to help communities understand the study, its results and what needs to be looked at besides water quality when considering these types of projects.



The DEC is also working on the islandwide expansion of the Solute Transport Model, in collaboration with United States Geological Survey (USGS) and the Long Island Sound Study (LISS). Building on a model developed for the Peconic Estuary, this expanded version will encompass the entire island, including parts of New York City. The objective of the model is to understand historical and current nitrogen loads by tracking water table fluctuations, water use, and nitrogen loading from the predevelopment period (circa 1900) to the present. The model simulates various scenarios that will help decision makers understand how certain management actions might reduce nitrogen in the groundwater. It will also provide realistic expectations on when improvements might be seen, as the travel time of the groundwater in some areas is decades long.

2024 also marked the second year for the [Long Island Garden Rewards Program](#), a collaborative effort with the Long Island Regional Planning Council (LIRPC), NEIWPC, and the Long Island Sound Study. This program reimburses property owners up to \$500 dollars to undertake small-scale water improvement or conservation projects on their properties, including rain garden installations, native plant plantings, and the use of rain barrels. The three eligible practices all play a key role in reducing stormwater runoff and fertilizer usage. Rain gardens reduce and treat runoff by slowing the flow and allowing water to percolate through the garden's roots and soil. Rain barrels capture stormwater, reducing runoff, and promoting water conservation. Native plants can require less fertilizer, and can treat stormwater as well through their long, deep root systems. This program encourages Long Islanders to take action on their property and protect Long Island waterbodies. To date, more than 389 participants have received reimbursements! 2025 is set to be an even more successful year with additional funding for the program provided by the South Shore Estuary Reserve!

### **Long Island Regional Planning Council**

One of the many highlights of 2024 was the launch of the [Nitrogen Smart Communities](#) program (NSC). NSC is a voluntary program created by LINAP to promote local action and awareness to reduce nitrogen from all sources within municipalities on Long Island. By participating in the program, communities will better understand their unique sources of nitrogen and commit to implementing reduction activities based on those priorities. The Town of Smithtown and the Town of North Hempstead serve as participating municipalities in the pilot phase of the program, with each following a series of five steps to earn tiered levels of certification. The pilot municipalities are working with a contracted consulting firm to assist them and the information gathered will help set the stage for an island wide launch. Communities will benefit from participating in the NSC by being acknowledged as one of the foremost leaders for cleaner water on Long Island and creating a deeper engagement with residents who care about the future of Long Island. Investing in clean water can lead to economic growth that benefits tourism, fishing, boating, and property values. NYSDEC secured funding for the pilot program from the Long Island Sound Study.

Last year marked the fifth year of the [Long Island Water Quality Challenge](#) (LIWQC). The LIWQC promotes project-based learning in Science, Technology, Engineering, Arts, and Mathematics (STEAM) in Long Island schools and helps students in grades 6-12 develop a greater understanding of the importance of protecting Long Island's crucial water resources – with a specific focus on reducing or eliminating nitrogen pollution. Twenty-one student teams competed to create innovative green infrastructure projects to reduce nitrogen pollution caused by stormwater runoff on school grounds, with the option of being awarded a grant up to \$2,500 to be used for implementation or partial implementation of the winning project design. To read more about the winning projects, check out the [June newsletter](#).



Island Trees Middle School SEEDS Club breaks ground on a campus rain garden. Photo credit: LIRPC

Last year also marked five years of the LIRPC's long-term commitment to the [Hempstead Bay Water Quality Monitoring Program](#). The program provides a comprehensive framework for monitoring, analyzing, and reporting water quality within Hempstead Bay and its tributaries. Data collected from strategic locations in Hempstead Bay will serve as a baseline for evaluating changes in water quality anticipated over the next decade. These changes will result from large-scale ecosystem-based and engineered improvements in the region, such as the Bay Park Conveyance Project. This includes sampling around the South Shore Water Reclamation Facility where major upgrades have been completed. It also monitors atmospheric nitrogen deposition in the area which is linked to emissions from fossil fuel based energy production, fertilizer usage, and transportation emissions. The scope of work includes more monitoring sites than in previous years and all of the water quality data for Hempstead Bay from 1976 through today has been uploaded to the [EPA Water Quality Exchange](#) (WQX) database making it accessible to the public. The long-term nature of this monitoring work will advance our understanding of the impacts of severe storms, residential and commercial development, and climate change on our water resources. The long-term data collected serves as a valuable resource, advancing our comprehension of environmental impacts. A report on the water quality trends in [Hempstead Bay from 1968 – 2023](#) was published and presented to the public, comparing past water quality data with new data collected under the Program. The 2024 data will be added in early 2025.

The LIRPC also partnered with the Town of Hempstead for the preparation of an aquaculture license/lease feasibility study for Hempstead Bay. The feasibility study, which began at the end of 2022, is near completion and will provide essential information needed by the Town to consider and adopt a lease/license program. Establishment of a properly planned and implemented aquaculture program is part of the Town's efforts to improve water quality. Drafts

of all feasibility study documents have been posted to the Town of Hempstead's feasibility study [website](#) and are available to the public for viewing.

The LIRPC continued to collaborate with Save the Sound to develop training modules for Long Island water quality data generators on how to participate in a new data platform that Save the Sound, Harbor Watch, Maritime Aquarium at Norwalk, The Commons, and University of Connecticut plan to roll out in 2025. The program, called QuickDrops, makes community science data collected throughout the region easily accessible to regulators, advocates, academics, government officials, and agency experts—paving the way for more regional, science-driven decision-making. QuickDrops will offer numerous data storage, download, visualization, and sharing options in addition to responsibly streamlining the upload of data to the EPA Water Quality Exchange database. Nitrogen, in various forms, is one of the initial data sets being entered into QuickDrops. Centralizing nitrogen data for regulators facilitates data-driven decisions to protect and restore coastal waters. Training sessions for data collectors will be conducted this year.

A key contributor to nitrogen pollution is the overuse of fertilizers on lawns. Despite its environmental impact, many homeowners continue to heavily fertilize their lawns. To effectively reduce fertilizer use, it's crucial to understand homeowners' motivations and attitudes toward fertilization and develop targeted messaging that encourages more sustainable practices. In October of 2024 the LIRPC released a Request for Proposals (RFP) inviting proposals from qualified organizations to conduct a public opinion poll focused on homeowner attitudes and behaviors related to fertilizer use on lawns and gardens. The poll will provide insights into homeowner's opinions, attitudes, motivations, and behaviors, as well as effective messaging and communication strategies to encourage homeowners to reduce their fertilizer usage.

## **Nassau County**

Last year was a milestone year for Nassau County, achieving significant progress across multiple initiatives aimed at reducing nitrogen pollution and enhancing wastewater treatment systems including the expansion of the [Septic Environmental Program to Improve Cleanliness \(SEPTIC\) Program](#). The program provides funding to eligible residents and small businesses to replace a cesspool or septic system with Innovative Alternative Onsite Wastewater Treatment Systems (I/A OWTS). The program is administered by the [Nassau County Soil and Water Conservation District](#) and funded by the New York State Septic System Replacement Program and federal sources. Over 700 residents have applied to the program.

The [Bay Park Conveyance Project](#), a collaborative effort between NYSDEC and Nassau County Department of Public Works, made significant progress this past year. This groundbreaking project will convey treated wastewater from the South Shore Water Reclamation Facility (SSWRF), which currently discharges into Reynolds Channel, to the Cedar Creek Water Pollution Control Plant ocean outfall pipe. To date, over 90 percent of the construction is complete and is designed to divert 75 million gallons per day (MGD) of treated wastewater, reducing nitrogen loading in Reynolds Channel and the Western Bays by up to 90 percent! The results of the project will spur the ecological recovery of the Western Bays marshlands which will protect coastal communities from storm surge and sea-level rise.



Micro tunneling technique used to install piping for the Bay Park Conveyance Project. Photo credit Nassau County

The County is also working on the consolidation of the Long Beach Water Pollution Control Plant. The project to convert the Long Beach Water Pollution Control Plant (WPCP) to a pump station and reroute Long Beach’s wastewater – with an average flow of 5 MGD and current peak flow of about 16 MGD – to the newly upgraded SSWRF is underway. The wastewater will be treated more effectively at SSWRF before being sent to Cedar Creek Wastewater WPCP and discharged into the ocean. The project is expected to be completed in 2025.

Point Lookout is one of the few areas on Nassau County’s south shore that remains unsewered, relying on outdated cesspools and septic systems. This past year a sewerage feasibility study of the area was completed. The study is the first step in ushering in a new era of public wastewater treatment for the 800 homes and businesses in Point Lookout. Once installed, the benefits to the area’s environment and economy will be remarkable.

These initiatives signify the County’s commitment to safeguarding our waters and ensuring a sustainable future for Nassau County.

### **Suffolk County**

This past year the County continued to make great progress in the expansion of sewer systems through the [Suffolk County Coastal Resiliency Initiative](#) (SCCRI) and with the assistance of federal, state, and town funding. The SSCRI projects underway will eliminate approximately 5,500 cesspools and septic systems improving water quality, boosting economic development, and protecting against storm surges by strengthening wetlands. This represents the largest expansion of sewer infrastructure in Suffolk County in nearly 50 years!

Construction is nearly finished in the Carlls River and Forge River Watersheds, using low-pressure sewer systems to minimize disruption. Sewer expansion projects in Kings Park and Central Islip broke ground in 2023. Construction in Central Islip was completed in 2024, while Kings Park is expected to be finished in 2025. The Central Islip project will connect 64 parcels while the Kings Park project will connect 105 business parcels and a 144-unit apartment complex. The Huntington Station Hub Sewer Project, which will begin in February 2025, aims to connect 224 parcels to support downtown development. In March of 2024 construction was also completed in Westhampton Village, connecting 156 parcels. This expansion is expected to eliminate 5,000 pounds of nitrogen annually from the bay, representing a 24% reduction.

The County has no plans to stop here. There are 20 additional sewer extension projects in the pipeline! Construction will begin on 3 projects in 2025 while others are being designed or will enter the design phase in 2025.

And still further, the County is preparing a Sewage Treatment Plant (STP) capacity report. The study is looking at the current capacity of private STPs in Suffolk County. Twenty-four of the private STPs have undergone rigorous sampling which will serve as the basis for determining if there is capacity to connect additional parcels to sewers. Four of the private STPs will undergo a Feasibility Study that will provide estimated construction costs and a conceptual design for connecting adjacent unsewered parcels. Private STPs with additional capacity are uniquely positioned to provide both environmental protection through the connection of adjacent unsewered parcels and to help facilitate targeted economic development. Identifying the STPs that have the capacity to serve additional parcels will be critical in guiding future decisions about sewer expansions in the County. Findings are expected to be available later this year.

In areas of Suffolk County where sewers are not a viable solution, the County has successfully advanced the use of Innovative and Alternative Onsite Wastewater Treatment Systems (I/A OWTS) through its [Septic Improvement Program \(SIP\)](#). The program offers grants of up to \$30,000 from State and County funding sources for homeowners to replace cesspools or septic systems with advanced I/A OWTS, covering installation and associated design costs. Additional rebates from towns like [Southampton](#), [East Hampton](#), and [Shelter Island](#) can increase the total funding to \$50,000 for eligible residents.

Public interest in the program remains exceptionally high, with the County receiving on average over 86 applications monthly and issuing more than 5,900 grants to date, highlighting its significant community impact. To further expand the program's reach, the County is streamlining the SIP application process to quadruple installations from annually. Planned improvements include simplified grant agreements, electronic contracts, and a centralized grant portal to enhance accessibility and efficiency.

In addition, a site plan has also been approved to connect 20 mobile homes to a clustered I/A system representing a significant advancement in addressing wastewater challenges for mobile home communities. This project is expected to serve as an important proof of concept, demonstrating how I/A systems can provide effective solutions for mobile home parks. These communities often face unique challenges due to tight lot configurations, which make

traditional wastewater solutions difficult to implement. By addressing these constraints, the project aims to establish a scalable and replicable model for similar areas across the county.

Perhaps the most transformative achievement this year was the passage of the [Suffolk County Water Quality Restoration Act](#), which establishes a Countywide Wastewater Management District and secures a dedicated funding source to combat nitrogen pollution in surface and groundwater. Funded by a 0.125% sales tax increase, the Act is projected to generate \$3.1 billion over 50 years, supporting sewer expansions, cesspool and septic system upgrades, and nitrogen reduction programs. It also extends the 0.25% sales tax supporting the Suffolk County Drinking Water Protection Program through 2060, ensuring long-term financial backing for water quality initiatives.



Governor Kathy Hochul signs the Suffolk Water Quality Restoration Act.

## **Bioextraction Initiative**

Now in its sixth year, the [Nutrient Bioextraction Initiative](#) continues to make great strides in removing nitrogen from marine waters in New York and Connecticut by researching the cultivation and harvest of seaweed and shellfish. Earlier this year, the program welcomed a new [Nutrient Bioextraction Coordinator](#), marking the next chapter in its impactful work.

Economics have been a vital component of the Nutrient Bioextraction Initiative from the start. To better understand the capacity of bioextraction as an industry, a Bioextraction Economic Feasibility/Market Study is being conducted to determine the feasibility of commercial operations using seaweed and/or shellfish in the Long Island Sound for the purpose of bioextraction. The study addresses which seaweed and shellfish species would be best suited for bioextraction, including which would be most feasible and profitable in the short, medium,



and long-term, and the logistical and legal barriers to establishing a bioextraction industry in New York and Connecticut. The full results of the study are expected to be available to the public by early next year and will be part of the effort to encourage a strong bioextraction industry on Long Island.

Sugar kelp, a locally sourced alternative to imported seaweed fertilizers, was studied for its potential in aiding both Long Island's marine and agricultural industries. Pilot projects by Cornell Cooperative Extension of Suffolk County converted locally grown sugar kelp into fertilizer amendments and tested their impact on crop growth. Lab results showed that the crops did not absorb heavy metals from the seaweed fertilizer, addressing concerns about potential contamination risks. The project also found that the locally produced kelp fertilizer performed comparably to commercially available options from other states, suggesting it could provide a sustainable, nutrient-rich alternative for both marine and agricultural industries while reducing reliance on imported fertilizers. Data from the trial can be found in the [NEIWPC Resource Library](#).



Locally grown kelp harvested. Photo credit Kristin Kraseski

Meanwhile ribbed mussels, though not commercially viable for consumption, were also studied this year for their nutrient-extraction potential. Two projects are underway this year. The first project evaluated their ability to reduce nutrients in uncertified waters unsuitable for shellfish harvesting due to contamination. This project was extended for a third growing season and will monitor growth and also assess the mussels' suitability as animal feed. The second project focuses on refining aquaculture techniques for conditioning, spawning, and grow-out to enable

sustainable hatchery production, reducing reliance on wild harvesting and supporting future bioextraction efforts.

Looking ahead, 2025 will be an exciting year for the Nutrient Bioextraction Initiative. Three projects, in partnership with SUNY Stony Brook's School of Marine and Atmospheric Sciences, will be launching. These projects will look into seaweed harvesting to create fertilizer, test the long-term storage of sugar kelp, and finally a long-term monitoring project will be developed to track nitrogen and carbon uptake by seaweed species and oysters in Long Island Sound.

### **New York State Center for Clean Water Technology**

The [Center for Clean Water Technology](#) had a groundbreaking year in 2024. Funded by the New York State Environmental Protection Fund, administered by the New York State Department of Environmental Conservation and with additional state funding from the New York State Department of Health, the Center continues to play a pivotal role in driving innovation and delivering much-needed improvements in water and wastewater technology.

Among the Center's accomplishments are advancements in Nitrogen Removing Biofilters (NRBs). These biofilters process wastewater through a sand bed, using an oxygen-free sand and woodchip biofilter to remove nitrogen and other pollutants. In recent testing, two NRB variants—the lined and woodchip-box NRBs—achieved nitrogen removal rates of 85% and 90%, respectively, significantly outperforming traditional systems and other innovative alternatives. The Center's current goals are to expand installation of these technologies which Suffolk County Article 19 testing has shown produce either the lowest or close to the lowest total nitrogen in final effluent of any systems tested. By providing hands-on training to engineers and contractors the Center hopes to facilitate broader adoption.

The Center's Wastewater Research and Innovation Facility (WRIF) has been pivotal in advancing wastewater technology. One notable development is a cutting-edge nitrogen sensor that continuously monitors nitrate and ammonia levels in wastewater, offering valuable insights into system performance during peak usage. Stony Brook University, the Center's parent organization, has now licensed the technology to a private company for commercial development.

The Center also continued to address legacy nitrogen pollution—persisting groundwater contamination from past practices—by testing Permeable Reactive Barriers (PRBs). These systems filter groundwater through specialized media to remove contaminants. Additionally, the Center worked to improve constructed wetlands, which use natural processes involving plants, soil, and microorganisms to treat wastewater by removing pollutants like nitrogen, phosphorus, and pathogens. Efforts aim to enhance their efficiency, making them cost-effective and sustainable for residential and small-scale wastewater treatment where traditional infrastructure is impractical. Preliminary results from three installations in Suffolk County showed nitrogen levels below the Article 19 threshold of 19 mg/L.



Center researcher collects samples of marine sediment downstream from a PRB in Hampton Bays.  
Photo credit: Center for Clean Water Technology.

In April 2024, the Center was granted a US patent for its [FlexTreat Biofilter™](#) wastewater treatment system. FlexTreat™ is a prefabricated, plug-and-play, continuous-flow nitrogen-removing onsite wastewater treatment system that uses inexpensive and readily available filtration media and woodchips to convert ammonia to harmless nitrogen gas. The system design features a variety of flexible, operator-friendly controls to ensure nitrogen reduction continues under varying wastewater strength and flow that can differ from home to home. After three years of successful pilot testing FlexTreat™ consistently produced effluent with a total nitrogen concentration of less than 10 mg/L. Ongoing refinement of the system aims to lower costs, reduce maintenance, and improve performance, with plans to seek approval from the Suffolk County Department of Health Services and certification for global market entry.

The Center is also exploring groundbreaking methods for nitrogen reduction in wastewater, including urine separation. This approach, which could potentially reduce nitrogen in wastewater by 75%, holds promise in large public venues, where separated waste can be collected, treated, and repurposed as a safe, effective fertilizer. The Center continues to test the feasibility of urine separation in public restrooms and similar settings, with the goal of making a substantial impact on nitrogen levels through minimal plumbing modifications.

### **Long Island Sound Study**

In 2024, the Long Island Sound Study (LISS) made significant strides in advancing environmental protection and sustainability efforts. Much of LISS's efforts this year focused on revising the [Comprehensive Conservation Management Plan \(CCMP\)](#). The CCMP is a document that outlines goals and steps to restore and maintain the health of Long Island Sound and its watershed. The goal for the revised CCMP, which was last updated in 2015, was to further the improvement of

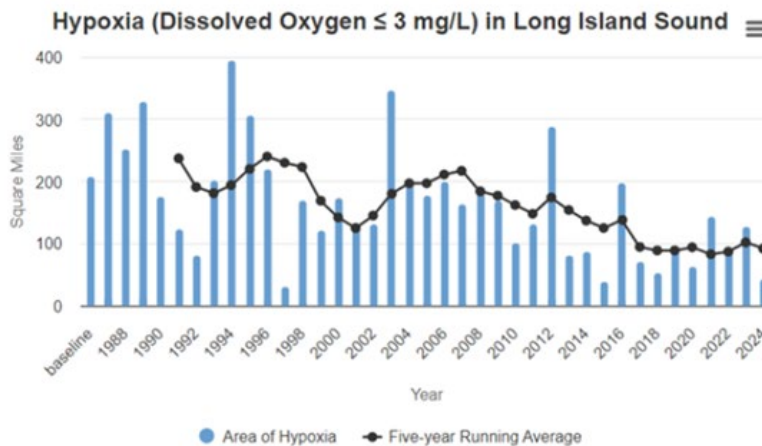
the health of Long Island Sound and its watershed and create a management plan that reflects current priorities for the Long Island Sound. Public input was solicited through multiple engagement sessions and an online comment form. The new CCMP is slated for completion in early 2025.

Part of the new plan includes a name change. Input from the program's workgroups and advisory committees, as well as the public, increasingly communicated that calling the program the *Long Island Sound Study* was misleading and confusing, emphasizing study rather than action. Scientific research and environmental monitoring are integral to the program, but only in the service of taking action, of coordinated implementation. Therefore, the program, will release the new plan under a new program name that better reflects the commitment to act through coordinated strategies by all levels of government and diverse stakeholders. Stay tuned for the release of the new program name and logo.

The [Long Island Sound Community Impact Fund \(LISCIF\)](#) continued to address environmental justice concerns by improving both the quality and accessibility of Long Island Sound for underserved communities. Guided by a year-long [Environmental Justice Needs Assessment](#), which highlighted the challenges, needs, and priorities of communities in the region, LISCIF offers technical and financial support to disadvantaged areas to ensure equitable access to resources for tackling environmental issues. Insights gathered from community listening sessions revealed key concerns such as waterfront accessibility, flooding from climate change, and resource gaps. These findings directly shaped the design of the Request for Applications for LISCIF funding. To further strengthen regional collaboration, the Annual Learning Exchange was launched in June 2024, bringing together sub awardees, organizations, Tribal communities, professionals, and stakeholders. This event, along with ongoing capacity-building efforts, aims to empower communities, promote resilience, and provide access to future funding opportunities.

This year, the [Long Island Sound Research Grant Program](#) and the Long Island Sound Futures Fund grants allocated record-breaking funding- \$6.7 million and \$12 million respectively. These programs fund research and conservation efforts, underscoring the significant strides made in safeguarding the ecological integrity and sustainability of the Long Island Sound watershed. Research projects announced on December 11, 2024, to begin in 2025 can be viewed [here](#). Future Fund 2024 awardees can be viewed [here](#).

[Monitoring](#) efforts continued, including ship-based, real-time buoy, citizen science initiatives and collaborations with the United States Geological Survey (USGS), significantly contributed to the understanding and management of the estuary's conditions. To address coastal acidification, a growing concern linked to excess nitrogen, LISS initiated a long-term effort to monitor coastal acidification to understand its coastal implications on water quality, hypoxia, and climate change. During the 2024 summer hypoxia monitoring season, LISS recorded the third smallest 'dead zone' since monitoring began in 1987. The affected area measured 43.4 square miles. The duration of hypoxia measured 38 days, a decrease from 42 days reported for the summer of 2023.



Hypoxia data within the Long Island Sound. Photo Credit: Long Island Sound Study.

To help assess the impact of this water quality improvement on marine life, the LISS Research Grant Program funded a study underway in 2024 that will 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 includes using radio-carbon dating to identify the age of shells collected in Long Island Sound surveys. To learn more about the study, visit the LISS webpage [here](#).

Research previously funded by LISS has also developed tools to identify areas where excessive fertilizer use contributes to nitrogen pollution. The [project](#) includes the creation of maps that will allow resource managers and policymakers to identify nitrogen “hot spots” — neighborhoods and communities where homeowners are both likely to apply large amounts of fertilizer and where there also is a high likelihood of nitrogen flowing directly to the Sound.

In August 2024, a landmark agreement between the Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service established a Salt Marsh Monitoring and Analysis Network in the Long Island Sound. This project will involve scientists and managers working together to gather consistent data on the impacts of climate change on salt marshes. The goal is to support restoration efforts by providing municipalities, NGOs, and other organizations with reliable data for planning. This initiative is a key priority of the Long Island Sound Study and began implementation on October 1, 2024. Salt marshes provide vital ecosystem services, such as storm protection, water filtration, and habitat for wildlife, but inconsistent data has hindered their restoration. This project aims to improve data collection to better inform restoration efforts. With these accomplishments, LISS continues to champion the ecological integrity and sustainability of Long Island Sound.

### South Shore Estuary Reserve

The South Shore Estuary Reserve (SSER) has been a vital partner in LINAP’s efforts to protect and restore Long Island’s water quality and coastal ecosystems. 2024 kicked off with a historic \$2 million dollar budget appropriation to support its mission, as well as the [appointment of Chris Clapp as Director](#). The SSER continues to implement projects outlined in the [Comprehensive Management Plan \(CMP\)](#), a guiding document for stakeholders in preserving

the estuary. To prioritize recommendations contained in the CMP, the SSER, in partnership with the United States Geological Survey, began working to develop a five-year action plan to identify and prioritize specific short and long-term activities identified in the CMP. This plan will enable the SSER to sort and execute projects efficiently, ensuring that efforts are focused on those with the most significant impacts. The SSER has convened Action Planning Sessions with members of the SSER Council, Technical Advisory Committee, and Citizen's Advisory Committee. These sessions are set to continue into 2025, with the final plan released later in the year.

Salt marsh restoration continued to be a key priority, with recent federal funding allocated to projects in vital areas of the SSER, including Scully Marsh, East Islip Preserve, and Cupsogue Beach. The goal is to bolster these marshes to counteract the effects of sea-level rise and to support overall ecosystem resilience.



Suffolk County Executive Ed Romaine announces the first of three phases to restore saltmarshes on Long Island's south shore. Photo credit: Long Island News

SSER's [Blue Carbon Seagrass Restoration Project](#) continued in partnership with Cornell Cooperative Extension. Eelgrass meadows play a vital role in coastal ecosystems by providing habitats, stabilizing shorelines, and capturing carbon, and their restoration is essential for the health of the estuary. Two eelgrass restoration plantings were completed in the Reserve in Shinnecock Bay and in Moriches Bay. Data is being collected from sites throughout the Reserve and this information will be used to further identify potential successful restoration sites.

The South Shore Estuary Reserve Council Stewardship Award recognizes citizens and organizations that have made significant contributions to preserve and protect the South Shore Estuary's unique natural environment and maritime traditions. In 2024 SSER honored the Village of Patchogue, the Atlantic Marine Conservation Society (AMCS), and Tom Wilson for their contributions to restoring the estuary. Patchogue replaced a 1,300-foot bulkhead with a living shoreline to improve water quality and resilience. Wilson, a retired Stony Brook University

engineer, received the 2024 Career Milestone Award for his lifelong dedication to the estuary, and the AMCS was recognized for rehabilitating marine wildlife and public education.

And to round out 2024, the New York State Department of State unveiled a \$3.5 million Strategic Investment Plan for the SSER. The plan includes programs to be funded over the next two years that will accomplish many goals and priorities in the CMP, including water quality improvement, habitat and species restoration, shoreline resiliency, outdoor recreational opportunities and economic development. Initiatives include mapping submerged aquatic vegetation like eelgrass, funding for the Long Island Garden Rewards Program, eDNA monitoring systems to track the presence of species, and much more! A detailed brochure outlining the SSER Strategic Investment Plan is available [here](#).

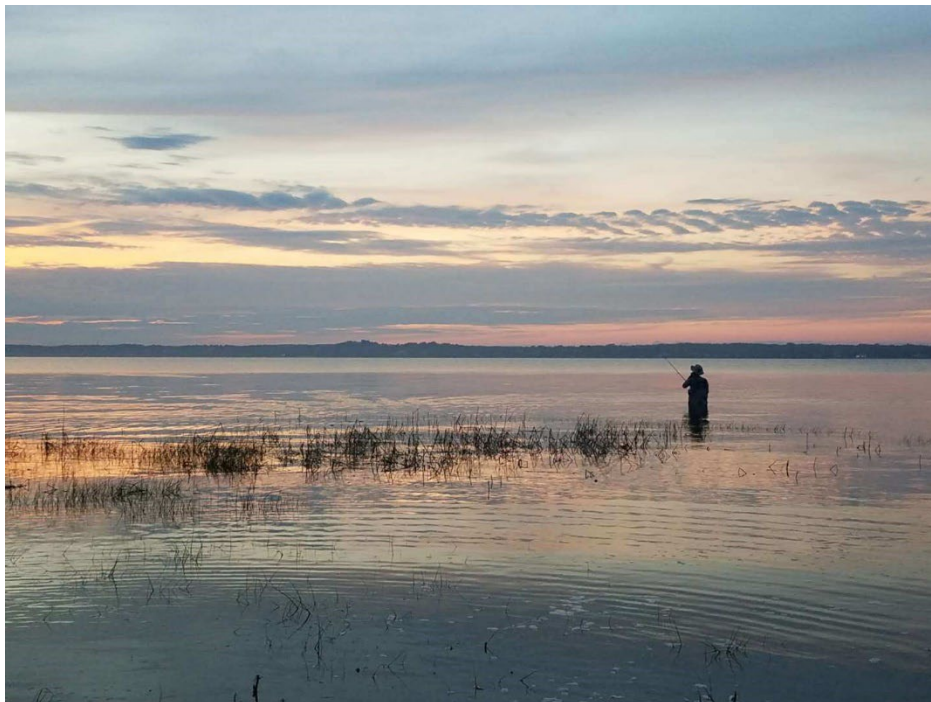


Photo credit: SSER

### **Peconic Estuary Partnership**

One of the most significant accomplishments this year for the [Peconic Estuary Partnership \(PEP\)](#) was the great progress made on the [Solute Transport Model](#) for the Peconic Estuary. The model was developed to understand historical and current nitrogen loads to the Peconic watershed. It is being used to run scenarios that will help decision makers understand how certain management actions, like upgrading septic systems, might reduce nitrogen in the groundwater that will eventually flow into marine waters. These results will help inform decisions about where and how nitrogen reducing efforts might be beneficial. It also provides realistic expectations on when improvements might be seen, as the travel time of the groundwater in some areas is decades long. The model is currently being expanded to include the Long Island Sound watershed and the results for both watersheds will be released simultaneously when the Long Island Sound portion is completed.

PEP also advanced several habitat restoration projects this year at Indian Island County Park and Meetinghouse Creek. The Indian Island Wetland Restoration project restores a tidal wetland enhancing water quality, supporting wildlife habitats, and increasing coastal resilience. And at Meetinghouse Creek, PEP will construct a 1.2-acre [stormwater wetland](#) that filters pollutants, mitigates flooding, and improves water quality, helping to restore the Creek, an impaired waterbody identified by the NYSDEC.

Additional stormwater management improvement projects included the Goose Creek Discharge Elimination project, which prevents direct stormwater discharge into Goose Creek through updated infrastructure, and the Sag Harbor Stormwater Control Project, which enhances water quality in Sag Harbor Cove by installing green infrastructure to filter pollutants and manage runoff effectively.

The C.H.A.N.G.E.S Shoreline Protection Project (**C**reating **H**abitat, **A**cidification reduction, **N**itrogen bio-extraction, **G**uarding our shorelines, **E**rosion control, **S**equestering carbon) continued this year. Funded with \$600,000 from the Bipartisan Infrastructure Law, C.H.A.N.G.E.S is a comprehensive effort by PEP to enhance ecological resilience in the Peconic Estuary. Targeting six key sites across Shelter Island, North Haven, and Sag Harbor, the project focuses on addressing challenges like coastal erosion, sea-level rise, and water quality degradation. It employs innovative methods such as creating blue carbon ecosystems, restoring coastal habitats, and cultivating kelp, oysters, and seagrasses. These initiatives aim to reduce ocean acidification, extract nitrogen, sequester carbon, and improve shoreline protection against storms.



PEP C.H.A.N.G.E.S Site Map. Photo Credit: PEP

Another exciting development in 2024 was the continued success of PEP's eelgrass restoration project. In collaboration with the Peterson Lab, PEP harvested adult eelgrass shoots from



Shinnecock Bay and planted them in restoration sites. This project, supported by the Restore America's Estuaries Coastal Watershed Grant, aims to protect eelgrass habitats threatened by climate change and rising water temperatures, with the goal of developing a model restoration technique that can be applied throughout the northeast.

Through the [Homeowner Rewards Program](#), PEP continued to reimburse homeowners in the Peconic Estuary watershed for the cost of removing turf and pavements, and adding green infrastructure such as rain barrels, rain gardens and native plant gardens.

This year PEP also launched the second year of their Mini-Grant Funding Opportunity, which invited organizations to apply for funding to implement projects that align with PEP's Comprehensive Conservation Management Plan (CCMP). The 2024 recipients were:

- The Perfect Earth Project for their work on reducing nutrient pollution through residential outreach and nature-based land care education.
- The Accabonac Protection Committee for their efforts in enhancing water quality communications in the Accabonac Watershed.
- The Citizen Science Learning Center for their "Adopt-a-pond Water Quality Monitoring and Pond Keepers Educational Programming."

Additionally, the Peconic Bay Scallop Review Committee continued its important work investigating the causes of recent bay scallop die-offs in the Peconic Estuary. Comprised of scientists, conservationists, and local experts, the committee has been monitoring scallop health and evaluating environmental stressors, such as temperature fluctuations and disease, to guide restoration efforts aimed at improving scallop survival.

As PEP heads into 2025, the partnership is excited to build upon the successes of 2024, strengthening efforts to restore, protect, and manage the Peconic Estuary for the benefit of the environment and the communities that rely on it.