NATIONAL ESTUARY PROGRAM SUMMARY WORK PLAN

FOR

FEDERAL FISCAL YEAR 2023 FUNDING

FOR

COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN

IMPLEMENTATION ACTIVITIES

DURING THE PERIOD

October 1, 2023-September 30, 2024 or beyond
[FY2024]

WITH PRIOR YEAR GOALS/ACCOMPLISHMENTS/HIGHLIGHTS
FOR THE PERIOD

October 1, 2022- September 30, 2023
[FY2023]

July 2023

Prepared by:

EPA Long Island Sound National Program Office

in consultation with and on behalf of

the Long Island Sound Study Funded Management Conference Partners

Table of Contents

List of Attachments:

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A. General Information Reporting Requirements

1. CCMP 2023 Goal Focus

The Long Island Sound Study (LISS) Comprehensive Conservation and Management Plan (CCMP) was first approved in 1994 by the States of New York (NY) and Connecticut (CT) and by the U.S. Environmental Protection Agency (EPA). From 2011 through 2015 the LISS partners and EPA met and revised the CCMP. The new CCMP, approved in 2015, identifies four primary themes:

1) Clean Waters & Healthy Watersheds,
2) Thriving Habitats & Abundant Wildlife,
3) Sustainable & Resilient Communities, and
4) Sound Science & Inclusive Management.

The need to continue the Management Conference was identified as an important, unifying component to support implementation. With the enactment of the Long Island Sound Improvement Act of 1990 (P.L. 101-596), the LISS Management Conference was made permanent – "The Administrator *shall* continue the Management Conference of the Long Island Sound Study…" In October 2018, the Congress passed, and the President signed into law, the *America's Water Infrastructure Act of 2018*. Among the many provisions of this far-ranging bill, Sec. 4104. *Amendments to Long Island Sound* revised the legislative underpinnings of the Long Island Sound Study and reauthorized funding through 2023. The bill's passage is important for several reasons. It codifies Congress's intent to authorize continued funding, it strengthens requirements for assessing program progress and financial integrity, and it lowers the non-federal share of grants from 50 percent to 40 percent. It also signals Congress's general support for the Long Island Sound restoration program.

Under the Management Conference structure, the CCMP established a broad-based and integrated approach to addressing the primary environmental and management problem areas identified. This approach required significant and sustained Management Conference coordination, involvement, and funding – at all levels. Further, the CCMP identified many existing and ongoing environmental management programs of the Management Conference partners that would serve as the foundation for addressing the Sound's priority problems. New or separate programs or efforts to implement the CCMP were only to be created to fill gaps or better integrate efforts, such as the LIS Futures Fund (LISFF), LIS Research Grant Program, and CCMP supplemental program (previously called the enhancement program). This FY2023 Work Plan, prepared under EPA's National Estuary Program (NEP) guidance, directly supports these goal areas with NEP and LISS funding as described herein.

Ongoing core environmental programs that contribute to or support CCMP implementation include other federal programs and funds directed to land use and watershed management, water quality, living resource conservation, management, and regulation, as well as state and local programs aimed at regulating human and environmental impacts on the Sound. Many of these programs are delegated to the states, which have the responsibility, authority, and accountability for implementing them.

The CCMP anticipates many funding streams and a variety of funding sources for successful implementation of its recommendations, over time, by the LISS partners. The CCMP also envisions an educated public and informed constituency for the sustained effort to restore, enhance, and preserve the Sound as a national treasure and a 'green' engine of economic activity. Designated as an Estuary of National Significance in 1987, Long Island Sound is an inherent part of EPA's NEP and is a key geographic program of the national water program that includes Chesapeake Bay, Puget Sound, the Great Lakes, and the Gulf of Mexico. Because of its economic, social, and environmental importance to the

Northeast region, Long Island Sound is included as a separate line item and has received funding under EPA's President's Budget request since FY1999.

Below is a list of items that were completed in FY2022 or are to be completed in FY2023 that relate to the CCMP:

a. **2022 Report to Congress.** In 2022, LISS initiated development of the 2022 Report to Congress. The two-year review reports on the investments and progress made by LISS from 2020-2021 by evaluating and assessing the status of investments and their relation to the implementation actions and ecosystem targets set by the CCMP. The review reports on ecosystem target progress, implementation action progress, success stories, status of priority implementation actions, and future areas of focus. LISS has submitted the report to Congress to EPA in December of 2022 and it is under standard review for EPA transmittal of documents to Congress.
b. **Governance Document.** As the LISS continues to grow and evolve, due to the increased amount of funding received over the last few years, the importance of a governance document for the Study has become more crucial than ever. The document describes the organizational function and governance for the LISS in advancing protection and restoration under the CCMP. This document is and must remain consistent with all that is described and defined under Clean Water Act §320 and §119. The structure and governance of the program will change and evolve over time to better plan, align and assess partner activities and resources to meet CCMP goals. Following approval from the Management Committee, the document was presented to the Executive Steering Committee and will be formally adopted by the Policy Committee by the end of the fiscal year.
c. **Government Accountability Office Recommendations.** In April 2022, The Government Accountability Office (GAO) closed out the last of the three recommendations in *GAO-18-410: Long Island Sound Restoration: Improved Reporting and Cost Estimates Could Help Guide Future Efforts,* after determining the EPA had successfully responded. GAO made three recommendations to EPA in the report: 1) The Director, working with the Study, should ensure that as the Study finalizes its reporting format, it fully incorporates leading practices of performance reporting; 2) The Director, working with the Study, should develop cost estimates that include analyses of uncertainties for each of the targets in the 2015 plan; and 3) The Director, working with the Study, should estimate the range of potential costs for all implementation actions and include the estimates in future supplements to the 2015 plan.

2. FY2023 LISS Budget Breakdown

This work plan summarizes tasks and deliverables/outputs contained in EPA FY2022 assistance awards to Management Conference partners that account for the FY2023-24 EPA Environmental Programs and Management (EPM) appropriation for the LISS NEP, and for EPM funding provided by EPA for the Long Island Sound Geographic Program. These funds include $850,000 in NEP allocations under Clean Water Act (CWA) §320, and $40,002,000 under CWA §119 as enacted. Grants are awarded by EPA Region 1 and 2 as delegated under EPA Delegations of Authority 2-42 and 2-94 under the authority of §119 per NEP funding guidance. The required aggregate match for this funding cycle is $22,075,423 as shown in Attachment 2.

On November 6, 2021, Congress passed the Infrastructure Investment and Jobs Act of 2021 (P.L. 117-58) (also known as the Bipartisan Infrastructure Law or BIL), to enhance the nation's infrastructure and resilience. The BIL funds, for the first year of a five-year period, include $909,800 in NEP allocations under Clean Water Act (CWA) §320, and $21,000,000 under CWA §119 ($106,000,000 over five years). LISS developed an Equity Strategy that was approved by the Office of Water, which allows for the continuation of match waivers for the entire five years of BIL funds.

The work activities and the budget amounts contained in this NEP Summary Work Plan were approved by EPA and the LISS Management Committee at its April 20,2023 meeting. The record of the Management Committee meeting is documented in the April 20,2023 Long Island Sound Study Management Committee Meeting Notes.

The LISS budget is organized into the nine Program Activities and three BIL Activities outlined below; the FY2023 LISS budget breakdown by Program Activity is:

Program Activities	Amount
Coordination	*$1,305,063*
Water Quality Planning and Implementation	*$1,084,745*
Modeling	*$4,182,584*
Monitoring	*$7,273,466*
Research	*$3,181,974*
Habitat Restoration and Protection	*$4,856,413*
Public Education and Outreach	*$2,584,657*
Stewardship and Resiliency	*$2,428,115*
Implementation Assistance	*$12,650,000*

BIL Activities	Amount
Environmental Justice	*$6,350,000*
Climate Resiliency	*$2,909,800*
Water Infrastructure	*$10,150,000*

To implement this summary Work Plan, as of this writing, EPA will issue 7 new assistance awards and amend 6 current assistance awards to include the FY2023 funding. Under BIL funding, EPA will issue 1 new assistance agreement and incrementally fund 3 current assistance awards. In addition, EPA will enter into 4 interagency agreements and establish 4 contracts to support work tasks. The project tables, under Section B, is a detailed breakdown of the FY2023 approved budget by LISS Program Activity, Products and/or Services, Implementing Agency, and Environmental Outcome(s). The Environmental Outcomes are derived from the individual partner grant work plans based on EPA Order 5120.

3. LISS Staff and Their Official Responsibilities

The LISS provides funding to certain partners to support staff resources to carry out key elements of implementing the CCMP. **Attachment 1** lists the FY2023 LISS-funded staff by name, title and description of their major roles and responsibilities. Each LISS partner's federal assistance award work plan provides details on the deliverables, outputs and expected environmental outcomes for LISS-funded staff functions as required by EPA Order 5120. In addition to the staff listed in Attachment 1, the CT DEEP employs seasonal staff to assist with conducting the Long Island Sound summer water quality monitoring program as necessary; these, and overtime costs for water quality monitoring staff, are included in that award, but are not shown in Attachment 1 because of the seasonal nature of the positions that may be filled by different incumbents during the period of employment. Each EPA grantee is responsible for managing its personnel under its own organization's human resource management policies and procedures.

As listed in Attachment 1, the EPA provides four full-time equivalent (FTEs) federal employees that staff the EPA Long Island Sound National Program Office (LISNPO). A director, appointed by the Administrator under §119, and five program coordinators to plan, organize, coordinate, and manage

program operations to assist the Management Conference partners in CCMP implementation. EPA Region 1 provides a Team Leader and four program coordinators (one at approximately 50 percent of an FTE) to support EPA efforts for Long Island Sound.

With the increase in funding from BIL, EPA Region 2 hired one FTE in June 2022 and EPA Region 1 hired two FTE, one in June and one in November 2022, to assist with BIL program and grants management. Additionally, EPA Region 2 hired a modeler in June 2022 to coordinate various modeling efforts within the program. Since May 2021, LISS funds will be used to cover the stipend costs associated with an Oak Ridge Institute for Science and Education (ORISE) Fellow. Additional staff in Region 1 and Region 2 are assisting with project officer duties relating to LIS awards. Region 1 also supports a US Government vehicle for LISNPO use via the General Services Administration (GSA). EPA supports, from its Working Capital Fund appropriation, leasing office space for the LISNPO through the GSA. EPA Region 2 provides technical and management support to the program through the Water Division and EPA Region 1 provides staff and technical support through the Water Division. By agreement between the Regions, Region 2 provides other administrative support for official business, such as procurements, funds control and management, information technology and telecommunications support, grants management, travel, training and other policy and program management requirements. Region 1 provides grants management, contract oversight and funds control for the awards processed. This support is essential to operating and maintaining the EPA LISNPO, the national program office for the Long Island Sound Geographic Program. Both Region 1 and 2 provide Quality Assurance support for assistance and interagency agreements that require Quality Assurance Project Plans.

4. Grant awards

Attachment 2 lists the FY2023 LISS budget by recipient organization; the total funding for each recipient may consist of one or more EPA grant awards or amendments to existing grants, **Attachment 4** lists the FY2023 budget by individual EPA assistance award number by grantee. The actual EPA assistance award number is provided for reference where known now. However, the award process is dynamic and final grant award numbers and dollar amounts actually awarded by EPA may differ from Attachment 4 since this NEP summary Work Plan is completed in advance of the grant award process, which must be completed by September 30, 2023. Details of the award purpose, project deliverables, and project completion dates are provided in Section B of this Work Plan below. Attachments 2 and 3 also show the required non-federal matching funds and the overall actual aggregate match requirement for the LISS for FY2023.

For FY2023 Federal assistance awards, the Connecticut Department of Energy and Environmental Protection (CT DEEP) and the New York State Department of Environmental Conservation (NYSDEC) are providing an annual 'overmatch' in its EPA assistance awards to enable the LISS to meet the overall aggregate match for the NEP as required under CWA §320 [see Attachment 2]. The CT DEEP overmatch is from a conveyance and storage tunnel in Hartford, CT to control combined sewer overflow discharges. The NYSDEC overmatch is from stewardship acquisition project. This state overmatch allows other recipients and sub-awardees that are not able to meet matching funds requirements to apply for LISS grant programs, ensuring broader participation in the work of the LISS Management Conference from academic researchers and institutions, local environmental organizations, interest groups and associations, as well as other qualified regional or watershed organizations. **[NB: Final assistance award amounts and number designations are issued by EPA pending final EPA action on individual awards, and each award is subject to the special terms and conditions contained therein.]**

Using FY2023 funding for work that will take place in FY2024, the EPA is providing funding to thirteen LISS partners through new or amended awards: CT DEEP; the Connecticut Sea Grant (CTSEA); the Interstate Environmental Commission (IEC); the National Fish and Wildlife Foundation (NFWF), the

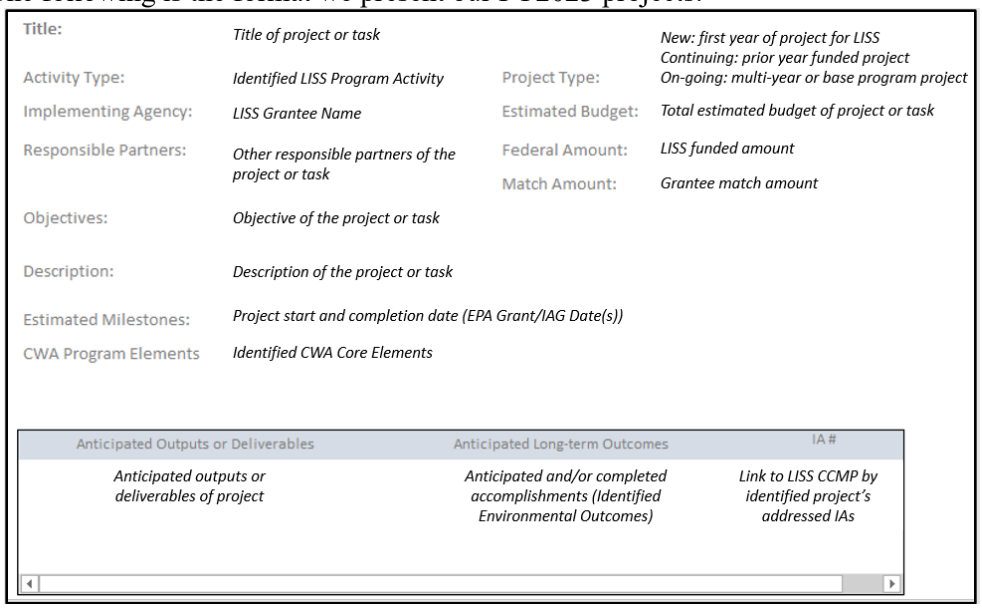
New England Interstate Water Pollution Control Commission (NEIWPCC); Save the Sound; NYSDEC; the New York Sea Grant College Program (NYSEA); the State University of New York Research Foundation (SUNY); the University of Connecticut Marine Sciences Department (UCONN); National Audubon Society; and Massachusetts Department of Environmental Protection (Mass DEP) and Restore America's Estuaries (RAE). EPA established interagency agreements with four federal agencies: the United States Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA), United States Fish and Wildlife Services (USFWS), United States Department of Agriculture – Natural Resources Conservation Service (NRCS). These partners assist in implementing the CCMP and conduct activities to support the LISS program. These awards are managed by staff of the EPA LISNPO, EPA Region 1, and EPA Region 2, who are trained and assigned as EPA Project Officers. Because of multi-year awards and varying federal appropriation levels, not all partners receive LISS funding in every annual budget/work plan cycle. The EPA Project Officers work with their grantees to ensure that any unliquidated obligation (ULO) balances are considered in awarding new year funding, and as necessary, award amounts are adjusted to compensate for ULO balances. It should also be noted that these partners also bring their own non-matching resources to restore and protect the Sound, which are not accounted for in this work plan.

B. Proposed New and Ongoing (FY2023) Regular Appropriation Projects

This work plan provides information as required under EPA's *FY2021-2024 Clean Water Act §320 National Estuary Program Funding Guidance*. The format for Section B is the same as used by the LISS since FY2008, when the LISS adopted a combination of the FY2008 NEP Work Plan Guidance and the September 2008 NEP Program Evaluation Guidance Logic Model format (until updated). To adjust to this reporting format, to the extent feasible, the LISS Program Element activities have been 'broken up' under the following categories contained in the NEP Program Evaluation Guidance (LISS has added the fourth category to better align with our CCMP):

1. Clean Waters
2. Healthy Ecosystems
3. Strong Communities
4. Sound Science and Inclusive Management

The categories will include highlights from FY2022 work implemented to introduce the planned FY2023 activities. The following is the format we present our FY2023 projects:



1. **Cleans Waters.** Clean Waters is addressed under the Clean Waters and Healthy Watersheds Theme of the CCMP as LISS sets out the mission to improve water quality by reducing contaminant and nutrient loads from the land and the waters impact Long Island Sound. The following program activities are used as subsections to highlight our FY2022 accomplishments and introduce planned FY2023 activities, including project details: Water Quality Planning and Implementation, Modeling, and Monitoring.

   a. **Water Quality Planning and Implementation.** The LISS partnership has worked intensely on water quality planning and implementation activities to improve the Sound's conditions – specifically by reducing nitrogen. The following highlight our FY2022 accomplishments:
      - Nitrogen Reduction Strategy**:** EPA is implementing a strategy to aggressively continue progress on nitrogen reductions, in parallel with the States' continued implementation of the 2000 Total Maximum Daily Load (TMDL) and achieve water quality standards throughout Long Island Sound and its embayments and near shore coastal waters. The strategy recognizes that more work must be done to reduce nitrogen levels, further improve dissolved oxygen (DO) conditions, and address other nutrient-related impacts in Long Island Sound. The nitrogen reduction strategy complements the 2000 TMDL in important ways. Foremost, while the 2000 TMDL is premised on achieving water quality standards for DO in the open waters of the Sound, the EPA strategy expands the focus to include other nutrient-related adverse impacts to water quality, such as loss of eelgrass, that affect many of Sound's embayments and near shore coastal waters.
      - Connecticut Second Generation Nitrogen Strategy: This effort combines existing efforts with new initiatives under one plan. It engages nitrogen reduction efforts in three main focus areas: wastewater treatment plants, nonpoint source and stormwater, and embayments. Near term actions that can be taken at the state level to enhance nutrient reduction efforts are proposed for each of the three focus areas.
      - Long Island Nitrogen Action Plan: The Long Island Nitrogen Action Plan (LINAP) is a multiyear initiative with a similar goal of reducing nitrogen in Long Island's surface, coastal, and ground waters. NYSDEC, in cooperation with Suffolk and Nassau Counties, the Long Island Regional Planning Council, local municipalities, environmental and business groups, and many other stakeholders, has been engaged in the development of the comprehensive LINAP. As part this program, the LINAP collaborative is developing county-wide watershed plans: The Suffolk County Subwatershed Wastewater Management Plan was completed in 2020 and evaluated 200 subwatersheds which developed initial nitrogen load reduction goals, established ecological sensitivity priority ranks for each surface waterbody, and provided implementation recommendation for a phased county-wide wastewater upgrade program. The Nassau County Subwatershed Plan was completed in 2022 and estimated nitrogen entering groundwater from various sources (e.g., wastewater, fertilizer, stormwater, atmospheric deposition). Beginning in 2021, NYSDEC has organized monthly meetings with the three Estuary Programs on Long Island (LISS, Peconic Estuary Partnership, and South Shore Estuary Reserve) to better align communication and messaging relating to LINAP implementation. As a result, the programs are working on several initiatives to improve nitrogen management Long Island wide. One of those initiatives that was implemented this year includes the Long Island Garden Rewards program which reimburses homeowners for planting native plants and creating rain gardens.
      - Bioextraction: Through a partnership with NEIWPCC and the NYSDEC, an initiative has been developed that aims to improve water quality in NY and CT coastal waters and the Long Island Sound by removing excess nitrogen through the cultivation and harvest of seaweed and shellfish. The Bioextraction Initiative is engaged in assessing the efficacy and potential challenges of bioextraction, and seeks to define and address the technical, regulatory, and economic considerations needed for the development of a bioextraction industry. This is

achieved through research, facilitating conversations, and providing science-backed information to decision makers as part of the suite of Long Island Sound Study's comprehensive nitrogen reduction programs. Additionally, the Initiative is working with industry professionals to develop markets for and assess cultivation costs of potential bioextraction species and evaluate overall economic viability of seaweed and shellfish bioextraction operations. Resources produced by the Initiative include a Geographic Information System (GIS)-based siting tool, "New York and Connecticut Shellfish and Seaweed Aquaculture Viewer," and its associated story map and instructions, which is publicly available on the Long Island Sound Study website; and "A Guide to Marine Shellfish Aquaculture Permitting in New York," available through the NEIWPCC Resources Library. Other ongoing efforts include 1) commercial testing of locally-sourced sugar kelp (Saccharina latissima) fertilizer amendments in Long Island, NY, 2) refinement of Atlantic ribbed mussel (Geukensia demissa) aquaculture methods and bioextraction through ribbed mussel cultivation, and 3) an economic feasibility market study for nutrient bioextraction within Long Island Sound. Upcoming efforts include: 1) Assessment of wild harvest of seaweeds as a tool to bioextract nutrients from coastal waters, 2) investigating the long-term storage of viable sugar kelp spores and use of cultivated sugar kelp for seaweed turfgrass fertilizer amendments, 3 Long-term Quantification of nitrogen bioextraction and carbon capture by seaweed and bivalve aquaculture)

The following projects have been funded to achieve our FY2023 goals, which are to continue to reduce nitrogen pollution, implementing the Nitrogen Reduction Strategy to expand assessment of harbor and embayment conditions and develop the next generation water quality model for management; and continue to shrink the area and duration of hypoxia, reducing nonattainment of the water quality standards for dissolved oxygen in the Sound:

NEIWPCC LISS Program Implementation Support FY23: Task 7 – LIS Nitrogen Reduction Coordination

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 7 - LIS Nitrogen Reduction Coordination**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$137,499.00
Responsible Partners:	NYSDEC	Federal Amount:	$82,914.00
		Match Amount:	$54,585.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	NEIWPCC will organize and support the LIS Nitrogen Reduction Coordination efforts, to involve the tributary states, in Management Committee activities.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
LIS Nitrogen Reduction Coordination - Host regular (at least two) meetings or conference calls each year, especially to coordinate bi-state actions/approaches;	4-2; 1-1	SM-19; WW-7
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes	4-3.	SM-35
Development of a Nonpoint Source & Stormwater Tracking Tool: Phase 2 Part 2 - Develop a nonpoint source and stormwater tracking system tool for the Long Island Sound watershed; Tracking tool in excel form that allows participants to enter and review data.	1-1.	WW-10

NEIWPCC LISS Program Implementation Support FY23: Task 8 – Bioextraction Coordinator

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 8 LIS Bioextraction Coordinator**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$286,790.00
Responsible Partners:	NYSDEC	Federal Amount:	$174,787.00
		Match Amount:	$112,003.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	The LISS Bioextraction Coordinator position will support the Bioextraction Initiative within Long Island Sound. Bioextraction Coordinator that serves as the collaborative lead in projects involving partners across state, municipal, academic, non-governmental, and federal partners		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Committees and information Exchange - Coordinate the ad-hoc Bioextraction Advisory Committee; Attend seminars and meet with experts and the public to advance bioextraction/aquaculture industries in NY and CT	1-2.	WW-25
Reporting - -Pertinent staff activity and progress towards outputs and outcomes will be reported as required by EPA under this grant award. Reporting is expected to include a narrative summary of successes, challenges, and lessons learned	4-3.	SM-35, SM-40
CCMP Revision Support - Facilitate the revision of the LISS CCMP through staff-led discussions and working group participation to consider successes of the latest iteration of the CCMP and to then make recommendations for improving implementation	4-3.	SM-35

Nutrient Bioextraction Coordination Supplemental Projects

Title:	**Nutrient Bioextraction Coordination Supplemental Projects**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	New
Implementing Agency:	NEIWPCC	Total Estimate Budget	$750,000.00
Responsible Partners:	NYSDEC, SUNY Stony Brook	Federal Amount:	$450,000.00
		Match Amount:	$300,000.00
Objectives:	Projects will address implementation action WW-25 by: addressing technical challenges that are being faced by bioextraction projects and build consistency in sugar kelp cultivation and ensure that bioextraction with sugar kelp will be economically and technically feasible as it begins to scale up to more commercial-scale projects; evaluate the efficacy of an innovative, nature-based solution for nitrogen mitigation and will build on previously funded work that has shown initial promise for being a complement to land-based nitrogen reduction strategies; and test requirements and potential environmental impacts of bioextraction), and will provide information needed to ensure that bioextracted materials can be used safely		
Description:	As part of the Bioextraction Initiative, the following projects are new funding requests in support of the base activities: Investigating the use of alternative seeding methods for sugar kelp cultivation: direct seeding; Investigation into the potential of largescale bioextraction in the LIS: Phase One; Investigation of the impacts of heavy metals in seaweed fertilizers		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Investigation of the impacts of heavy metals in seaweed fertilizers	1-2.	WW-25
Investigating the use of alternative seeding methods for sugar kelp cultivation: direct seeding	1-2.	WW-25
Investigation into the potential of largescale bioextraction in the LIS: Phase One	1-2.	WW-25

NEIWPCC LISS Program Implementation Support FY23: Task 4 – LIS Regional Coordinator

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 4 LIS Regional Coordinator**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$155,044.00
Responsible Partners:	N/A	Federal Amount:	$155,044.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	The LISS NYS DOW Regional Coordinator (LISRC) position will supplement and increase NYSDEC DOW participation and involvement in all aspects of the LISS to advance the CCMP goals & objectives		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Project Management - Build, strengthen, and maintain effective partnerships and working relations with key stakeholders, especially local municipalities; Assist NYSDEC staff with TMDL implementation, evaluations, revisions, and implementation of plans	1-1; 4-1; 4-2	WW-2; SM-8; SM-17
Funding Coordination - Serve as coordinator and project manager for LISS EPA grants to DOW, keeping project timelines intact and working closely with the EPA Project Officer. Prepare and provide timely reporting on grant and contract deliverables.	1-1; 4-1	WW-2; SM-8
Workgroups and Committees - Provide technical support and participation on the stakeholder group for EPA's LIS Nitrogen Reduction Strategy.	1-1; 4-1	WW-2; SM-8
Homeowners Rewards Program - Reimbursements for Homeowners Rewards Program & Engagement with Homeowners Applicants	3-1.	SC-14
Outreach - Prepare informational materials and conduct outreach and education activities (e.g., meetings, presentations, web content, etc.), with municipalities to help them learn about the LISS program, the LISFF, and restoring and protecting the Sound.	1-1; 4-1; 4-2	WW-2; SM-8; SM-17
Reporting - Pertinent staff activity and progress towards outputs and outcomes will be reported as required by EPA under this grant award. Reporting is expected to include a narrative summary of successes, challenges, and lessons learned	4-3.	SM-35
CCMP Revision Support - Facilitate the revision of the LISS CCMP through staff-led discussions and working group participation to consider successes of the latest iteration of the CCMP and to then make recommendations for improving implementation	4-3.	SM-35

Report to update Nutrient Loads from the Connecticut River at Middle Haddam

Title:	**Report to update Nutrient Loads from the CT River at Middle Haddam**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$82,000.00
Responsible Partners:	CT DEEP	Federal Amount:	$82,000.00
		Match Amount:	$0.00
Objectives:	Compute loads of nitrogen to LIS from the Connecticut River watershed at Middle Haddam, CT. The work outlined in this proposal will continue the enhanced monitoring that enables the USGS to conduct load and trend analyses of nutrients.		
Description:	The goals of this project are focused toward providing updated load estimates for the Connecticut River at Middle Haddam, CT from 2015 to 2022. This data will be compared to loads estimated from the CT River at Thompsonville, CT. being calculated as part of other USGS research to inform on what percent of the total load in the Connecticut River came from Connecticut portion of the watershed. The report will also calculate the incremental load from wastewater treatment plants between Thompsonville and Middle Haddam using data from the Connecticut Nitrogen Credit Trading Program. Having the information on the proportion of the nitrogen load from wastewater sources will provide useful information on the contributions of nonpoint source nitrogen loads in the Connecticut River as well.		
Estimated Milestones:	October 1, 2023-September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
QAPP	1-2.	WW-23; WW-24
Update R-Loadest models for Middle Haddam - Generate approved loads for total nitrogen at Middle Haddam	1-2.	WW-23; WW-24
Compile total nitrogen loads for Thompsonville CT Wastewater treatment plants	1-1; 1-2	WW-9, WW-24, WW-31
Prepare draft of report and colleague review	1-1; 1-2	WW-9, WW-24, WW-31
Semi-annual reporting	1-1; 1-2	WW-9, WW-24, WW-31
Release approved USGS SIR	1-1; 1-2	WW-9, WW-24, WW-31

Summary Report of Water-Quality and Streamflow Data Collected to Support the CTWM HSPF Model

Title:	**Summary report of water-quality and streamflow data collected to support the CTWM HSPF Model**		
Activity Type:	Water Quality Planning and Implementation	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$140,000.00
Responsible Partners:	CT DEEP	Federal Amount:	$140,000.00
		Match Amount:	$0.00
Objectives:	To analyze nutrient, suspended sediment, and chlorophyll a data that were collected to be input for the statewide CTWM HSPF model and summarize the finding into a USGS SIR		
Description:	The proposed project is to publish a USGS Scientific Interpretive Report (SIR) summarizing the water-quality and streamflow data collected February 2020 to March 2023 to support the update of the statewide Connecticut Watershed Model (CTWM) Hydrological Simulation Program-Fortran (HSPF) model. The updated CTWM HSPF model will be used to estimate loads of selected nutrients and sediments throughout the state of Connecticut and into Long Island Sound (LIS). Data collected to support the update of the statewide CTWM HSPF model also could be used to characterize nutrient, carbon, and suspended sediment transport to LIS from the major tributaries across the state of Connecticut.		
Estimated Milestones:	October 1, 2023 - April 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Compilation of tables of summary statistics, graphs of correlated, and regressed data variables.	1-2.	WW-23; WW-24
Draft report submitted to colleague and cooperator reviewers that includes analysis and interpretation of the data with graphs and tables to support the summaries.	1-2.	WW-23; WW-24
Addressed editorial and USGS Bureau Approving Officials' comments	1-2.	WW-23; WW-24
Quality Assurance Project Plan	1-2.	WW-23; WW-24

b. **Modeling.** LISS has invested in a multitude of modeling efforts to improve the technical tools used to understand and manage the sources and impacts of nutrients on Long Island Sound.

- CT DEEP is currently developing several models:
    - A watershed model to analyze the movement of water, sediment, and pollutants over the landscape to the waterbody. The model will be able to predict sediment supply to tidal marshes, point and nonpoint source loads, and streamflow and pollutant loads under current and possible future precipitation and land use scenarios.
    - A groundwater model to incorporate groundwater budgets, travel time distributions, and loadings to receiving waters. The model will provide an estimated time context for management scenarios that have an impact on nitrogen into the Sound.
    - Embayment models to analyze the movement of water and impacts of nutrients from surface and groundwater sources on surface water quality. The results will be used to validate upland watershed models and develop a process-based water quality model specific to each embayment. In coordination with the watershed and groundwater models, the embayment modeling project will help develop embayment specific nutrient targets to manage water quality.
- Solute Transport Model: USGS, in collaboration with NYSDEC and Peconic Estuary Partnership, is developing this model for Long Island. The modeling looks at water table fluctuation over time, water use, and nitrogen loading—as a function of changing land use and atmospheric deposition rates—from predevelopment (e.g., 1900) through the present. Using FY2020 and FY2021 funds, LISS is supporting the completion of the central and western portions. Once complete, LISS will be able to use the model to predict how

nitrogen reduction strategies will impact the Sound. Furthermore, this modeling effort, combined with the companion groundwater modeling effort in CT will provide complete coverage of the groundwater contributing area to the entire Long Island Sound watershed. Coordination between these modeling efforts will eventually allow for a comprehensive analysis of time-varying nitrogen loading and the simulation of the effects of various nitrogen-management scenarios at the regional watershed scale for the Sound.

- Systemwide Eutrophication Model: LISS and NYC Department of Environmental Protection are developing a new systemwide model to simulate water quality in LIS and system response to changes such as warming temperatures and increased development that threaten water quality. The newly updated model will allow researchers to better understand how the Sound may respond to changes in human (e.g., pollution) and natural (e.g., weather) drivers that impact the system. The model will also enable managers to evaluate potential impacts of point source nutrient inputs on water quality. From a Request for Proposals (RFP) released in 2019, NYCDEP entered into a contract with HDR, Inc., in 2020, to conduct the modeling effort. A Management Advisory Group meets regularly to coordinate work with agency needs and a Model Evaluation Group provides independent technical review. ROMS-RCA was selected as the hydrodynamic-biogeochemical model, and model calibration and validation is currently underway. This multi-year project will guide investments in pollution control for the next decade by NYCDEP, NYSDEC, CT DEEP, New Jersey Department of Environmental Protection, and EPA.
- Compound Flood Risk Model: As part of the first year of the implementation of the Sustainable and Resilient Communities Work Plan, USGS was funded in FY2021 to quantify coastal flood risk and the impacts of sea-level rise on stormwater infrastructure and management. The project will improve understanding of compound flood risk on event, seasonal, and long-term scales. The resulting risk assessment may be used by public and private entities seeking to identify future capital-improvement and operational management needs that address increased flooding caused by sea-level rise and groundwater table rise. This underlying framework can help agencies develop cost and benefit data associated with financing projects under future climate scenarios, including consideration for environmental justice. In FY2023, we plan to continue to fund this effort.
- Hypoxia Forecast Tool: In collaboration with EPA's Office of Research and Development (ORD), LISO is developing a Long Island Sound Hypoxia Forecast Tool to predict the hypoxia extent and duration in Long Island Sound and its embayments for each summer and to enhance the communication and awareness of hypoxia and its impacts – from water quality to habitat quality. The tool will include both a natural science element that will inventory, synthesize, and review existing models that predict hypoxia in the Sound based on early-season environmental observations, and develop new models using existing data that emphasize quantifying variability and uncertainty; and a social science element that identify effective communication methods and use them to produce a web-based communication platform to share and contextualize the forecast for stakeholders. To guide the development of the forecast tool and identify best engagement approaches to use hypoxia forecasting, an in-person workshop was held to gather input from people at the interface of science and practice in LIS. As a result of the workshop, EPA is developing workshop proceedings to guide the development of the tool and its associated communication products. This work emphasizes understanding community needs and values to improve targeted communications and motivate community behavioral change to mitigate environmental challenges.

The following modeling projects were approved to be funded in FY2023 to further our progress:

Environmental Characterization of the Long Island Sound Cable Fund Priority Area III

Title:	**Environmental Characterization of the Long Island Sound Cable Fund Priority Area III**		
Activity Type:	Modeling	Project Type:	Ongoing
Implementing Agency:	CT DEEP	Total Estimate Budget	$3,480,558.33
Responsible Partners:	N/A	Federal Amount:	$2,088,335.00
		Match Amount:	$1,392,223.33
Objectives:	To address the spatial, thematic, and temporal gaps existing in the Phase III area, we propose a field campaign to collect the data needed to characterize the geological, ecological, and physical characteristics of this area's benthic habitats		
Description:	This proposal is envisioned as part of a larger series of "Environmental Mapping and Characterization of Long Island Sound" projects which provide complementary efforts leveraging LISS funding opportunities to expand upon and be consistent with the long-standing Seafloor Habitat Initiative of the LIS Cable Fund (LISCF).		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Synthesized project report	4-1.	SM-1
Ecological Characterization of the Phase III study area	4-1.	SM-2; SM-3
Physical Characterization of the Phase III study area	4-1.	SM-2; SM-3
Data Management	4-1.	SM-10

Integrated Environmental Mapping and Characterization of Long Island Sound

Title:	**Integrated Environmental Mapping & Characterization of Long Island Sound**		
Activity Type:	Modeling	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$2,084,000.00
Responsible Partners:	LISCF	Federal Amount:	$1,250,000.00
		Match Amount:	$834,000.00
Objectives:	To develop new analytic products (including but not limited to thematically-based individual and integrated habitat maps/similar spatial data products, sensitivity analyses, spreadsheets/graphs, project reports, assessments, and recommendations) useable for managers and stakeholders to understand and assess the various benthic environments of Long Island Sound		
Description:	Three projects focusing on environmental characterizations in Long Island Sound: sensitivity/risk based analysis for potential future placement strategies of energy transmission infrastructure, complete geologic sampling and mapping work previously begun under a previous LISS award and help identify and prioritize new mapping areas, provide data applicable to the CT Blue Plan marine spatial planning effort.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Data collection, analysis, and delivery for at least one prioritized area	4-1.	SM-1; SM-3
Integrated habitat data products	4-1.	SM-1, SM-2
Conduct project planning for future prioritization	4-1.	SM-1; SM-3
LIS Risk Assessments/Sensitivity Analyses	4-1.	SM-1; SM-3
Sediment data collection and characterization	4-1.	SM-2; SM-3

Embayment Data Collection for Modeling

Title:	**Embayment Data Collection for Modeling**		
Activity Type:	Modeling	Project Type:	Continuing
Implementing Agency:	CT DEEP	Total Estimate Budget	$1,233,333.00
Responsible Partners:	N/A	Federal Amount:	$740,000.00
		Match Amount:	$493,333.00
Objectives:	To collect data in one to be determined embayment for nutrient modeling purposes and to continue data collection at five watershed pour points to four of the existing study embayments.		
Description:	Funding is requested to continue the initial embayment monitoring and modeling effort started with FY19 funds and further supported with FY20, FY21 and FY22 funds. As described in earlier proposals, this effort supports monitoring and modeling of priority embayments in accordance with Connecticut's Second Generation Nitrogen Strategy. In 2017, CT DEEP prioritized the following eight embayment complexes (complexes include multiple waterbodies): Pawcatuck River, Mystic River, Niantic River, Farm River, Sasco Brook, Saugatuck River, and Norwalk Harbor		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Collection of water quality, hydrodynamic, benthic, and macrophyte data in one embayment with associated stream gage continuous and discrete measurements) at the watershed pour point	1-3.	WW-27; WW-28; WW-35
Continuation of stream gage at the pour points to four priority embayment's currently under study.	1-3.	WW-27; WW-28; WW-35
Semi-annual progress report and final grant closeout for FY23.	1-3.	WW-14; WW-28

EPA/ORD RBEROST Contract Support

Title:	**EPA/ORD RBEROST Contract Support**		
Activity Type:	Modeling	Project Type:	New
Implementing Agency:	EPA ORD	Total Estimate Budget	$104,249.00
Responsible Partners:	USGS	Federal Amount:	$104,249.00
		Match Amount:	$0.00
Objectives:	1) Expand the geographic extent of supporting databases for RBEROST v1 to evaluate the most cost-effective suite of management practices within the full Long Island Sound Basin and subbasins of interest to meet downstream N loading targets protective of the Sound, as well as P loading targets within the network to meet TMDLs and other stakeholder targets with associated uncertainty, 2) to demonstrate how RBEROST can be used in conjunction with existing tracking and accounting tool inventories to provide a more comprehensive approach to tracking progress towards meeting load reduction goals, and 3) to adapt RBEROST v1 to allow optimization of nutrient management practices to meet targets for seasonally varying loads to Long Island Sound.		
Description:	EPA's River Basin Export Reduction Optimization Support Tool (RBEROST) was developed with an initial pilot in the Upper Connecticut River Basin to determine the most cost-effective management practices (wastewater treatment plant upgrades, agricultural conservation practices, stormwater BMPs, riparian zone restoration) to meet nitrogen and phosphorus loading targets at the mouth and intermediate points within the basin. The proposed project will not only identify cost-effective BMPs for communities in NY and CT to implement through proper tracking and accounting, but also better our understanding and implementation of new and innovative technologies, such as septic and wastewater treatment upgrades, and septic to sewer conversions.		
Estimated Milestones:	October 1, 2022-September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
RBEROSTv2 with optimization results, data sets, and updated user guide	1-1; 1-3	WW-1; WW-27

c. Monitoring. LISS has continually invested in several water quality monitoring programs, including in 2022. These programs include:

- CT DEEP's Long Island Sound Water Quality and Hypoxia Monitoring Program: Since 1991, the program has monitored surface and bottom waters at 17 stations throughout the Sound. The following water quality parameters are measured: temperature, salinity, dissolved nitrogen, particulate nitrogen, water clarity, and dissolved oxygen. The program provides the basis for the determination of hypoxic, and other ambient conditions in LIS and to determine state compliance with water quality standards for DO. This information is reported by CT DEEP and is used by the LISS to report annual progress in meeting CCMP goals.
- IEC Long Island Sound Monitoring: Since 1991, IEC has monitored the far western Sound (the Narrows) and its embayments and the Upper East River. The following water quality parameters are measured: temperature, salinity, DO, pH, and secchi disk depths. Additionally, IEC also measures chlorophyll-a, total suspended solids, biological oxygen demand, and nutrients in surface samples.
- UConn's Long Island Sound Integrated Coastal Observing System (LISICOS) Buoys: Implemented in 2003, LISICOS was conceptualized as part of a water quality monitoring program that combined the traditional ship-based point sampling surveys with continuous, real-time sampling stations. LISICOS continuously monitors in situ water quality parameters and meteorological parameters, every 15 minutes, at up to 8 stations across the Sound.
- USGS's River Monitoring Stations: Since 2017, USGS has performed enhanced monitoring of the Connecticut River to establish a long-term record of observations of temperature, salinity and sea level that will allow the assessment of the effect of global-scale changes in climate on the ecosystem of the Sound and Connecticut River. In 2019, the LISS supported a

three-year USGS pilot project to expand water quality sampling in the three major tributaries to Long Island Sound (Thames, Connecticut, and Housatonic Rivers). The goal of the project is to continue to characterize the tributaries to develop a longer-term monitoring plan for each of the three tributaries.

- Save the Sound's Unified Waters Study (UWS): Since 2018, the UWS monitors 40 embayments conducted by 25 monitoring groups which include various communities, organizations and citizen scientists. The following parameters are collected: water depth, temperature, salinity, DO, alkalinity, pH, Secchi disk, light intensity, chlorophyll-a, turbidity or TSS, nitrogen, phosphorus, bacteria, dinoflagellates and their toxic products, nonindigenous plants/animals, presence of sewage, biological monitoring.
- EPA's National Coastal Condition Assessment (NCCA**)**: Initiated in 2020 and continued in 2021, EPA HQ contractors conducted NCCA probabilistic sampling each year at 60 sites in Long Island Sound embayments. This project utilized the power of random statistical design and standard collection and analytical techniques of the NCCA Program to characterize the nutrients, sediments, and benthic macroinvertebrate community in embayments.
- Long Island Sound Coastal Acidification Monitoring**:** In 2022, the LISS initiated coastal acidification monitoring within the Sound and its embayments. Connecticut Department of Energy and Environmental Protection (CT DEEP), Interstate Environmental Commission (IEC), U.S. Geological Survey (USGS), and University of Connecticut are monitoring a suite of acidification parameters within their existing monitoring programs. This monitoring program will initiate a baseline to better understand the overall trends of coastal acidification, its interaction with other stressors, and impacts on important services on three different spatial levels – 1) the Open Sound, 2) Embayments, and 3) Watershed. The first initial years of this program will focus on better understanding the variability of trends in the open Sound and the embayments. Once that variability is determined, LISS will focus to tease apart multi-stressors interactions, and their impacts on foundation species (i.e., shellfish beds).

The following monitoring projects were approved to be funded in FY2023 to further our progress:

Connecticut River at Middle Haddam Nutrient Loading

Title:	**Connecticut River at Middle Haddam Nutrient Loading**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	USGS	Total Estimate Budget	$82,000.00
Responsible Partners:	N/A	Federal Amount:	$82,000.00
		Match Amount:	$0.00
Objectives:	Continue collecting data for the computation of loads of nitrogen to LIS from the Connecticut River watershed at Middle Haddam, CT.		
Description:	Before 2009, the USGS calculated nitrogen loads at the Connecticut River at Thompsonville, CT because it is the only streamgage on the Connecticut River without tidal influence. In 2009, recognizing that a large portion of the urbanized land use in the watershed and many wastewater-treatment facilities are downstream from this site, the USGS established a station on the Connecticut River at Middle Haddam, CT. Unlike other stations where periodic data are collected, this station can provide continuous time-series data for nitrate, streamflow, turbidity, colored dissolved organic matter (CDOM), and specific conductance. In addition, discrete samples of nitrate, ammonia, total organic nitrogen, and total nitrogen are collected approximately 18 times per year to validate the total nitrogen concentration model that allows for the computation of instantaneous total nitrogen loads .		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Project QAPP	1-1; 1-3	WW-27; WW-28
Water quality monitoring - approved continuous data for five parameters important in characterizing water quality	1-1; 1-3	WW-27; WW-28
Discrete water quality sampling - approved discrete water quality data for a range of forms of nitrogen	1-1; 1-3	WW-27; WW-28
Estimates of loads of nutrients	1-1; 1-3	WW-7; WW-27; WW-28
Semi-annual reporting - routine updates characterizing project progress	1-1; 1-3	WW-7; WW-27; WW-28

USGS Water Quality Monitoring in Selected Near Coast Environments of Long Island Sound

Title:	**USGS Water Quality Monitoring in Selected Near Coast Environments of Long Island Sound**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	USGS	Total Estimate Budget	$250,000.00
Responsible Partners:	CT DEEP	Federal Amount:	$250,000.00
		Match Amount:	$0.00
Objectives:	The scientific objectives of this project are to maintain a long-term record of observations of water quality parameters and sea level that will allow the assessment of the effect of global scale changes in climate on the near coastal ecosystems of the Long Island Sound. A secondary objective is to document seasonal variations of salinity and temperature gradients in the Connecticut River estuary that can be expected at different times of the year in spite of human activities in the watershed.		
Description:	Long-term continuous data at four wetland locations (Connecticut River at Old Lyme, Connecticut River at Essex, Oyster Bay, and Flax Pond) toassist in understanding the range of salinity conditions that currently exist and will help understand some of the possible changes that may occur under different hydrologic conditions that may occur as a result of global climate change		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Project QAPP	1-1; 1-3	WW-7; WW-27; WW-28
Water quality monitoring - approved continuous data for water temperature and specific conductance	1-1; 1-3	WW-7; WW-27; WW-28
Ocean elevation - approved stage data	1-1; 1-3	WW-7; WW-27; WW-28
Semi-annual reporting - routine updates characterizing project progress	1-1; 1-3	WW-7; WW-27; WW-28

USGS Continuous Water Quality Monitoring in Norwalk River

Title:	**USGS Continuous Water Quality Monitoring in Norwalk River**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$125,000.00
Responsible Partners:	CT DEEP	Federal Amount:	$125,000.00
		Match Amount:	$0.00
Objectives:	The scientific objectives of this project are to continue continuous water quality and estuary elevation data collection in the Norwalk River Estuary at the dock near the Maritime Aquarium at Norwalk.		
Description:	USGS has been operating a continuous water quality monitor station on the Norwalk River Estuary at the Maritime Aquarium at Norwalk since the Spring of 2021. This monitoring station was equipped with both near surface and near bottom water quality monitors that collected water temperature, specific conductance, salinity, dissolved oxygen, turbidity and chlorophyll a. During the summers of 2021 and 2022 the dissolved oxygen concentrations often went below 3 mg/ L in both the near surface and near bottom water. This seasonal hypoxia is the result of excess nutrients entering the harbor and fueling algal blooms in portions of the upper Norwalk harbor. USGS has engaged with many different aspects of the Norwalk community to communicate the water quality issues that are being observed in the Norwalk River estuary. This location would be able to demonstrate the effective partnerships between the many local, state, and federal partners working together for a healthier LIS.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Project QAPP	1-1; 1-3	WW-7; WW-27; WW-28
Water quality monitoring - approved continuous data for water temperature and specific conductance	1-1; 1-3	WW-7; WW-27; WW-28
Ocean elevation - approved stage data	1-1; 1-3	WW-7; WW-27; WW-28
Semi-annual reporting - routine updates characterizing project progress	1-1; 1-3	WW-7; WW-27; WW-28
Develop and conduct outreach with the Aquarium at Norwalk	2-3; 3-1	SC-6

Adding a New Group Monitoring Two Embayments with Eelgrass Present to the Unified Water Study, 2024 Season

Title:	**Adding a New Group Monitoring Two Embayments with Eelgrass Present to the Unified Water Study, 2024 Season**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	Save the Sound	Total Estimate Budget	$59,483.00
Responsible Partners:	N/A	Federal Amount:	$35,690.00
		Match Amount:	$23,793.00
Objectives:	To continue to monitor and assess the ambient conditions of water quality nearshore harbors and embayments throughout LIS, and therefore identify and control local pollution sources through community-based watershed monitoring (including community science) and protection programs.		
Description:	This supplemental proposal came out of a Long Island Sound Study Working Committee request to add UWS monitoring groups in embayments with eelgrass to characterize water quality conditions in these waters. Mumford Cove was added in 2023 in response to this interest and this supplemental proposal will bring two Fisher Island embayments into the UWS in 2024.		
Estimated Milestones:	October 1, 2023 - December 31, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Train 1 group in the SOPs for monitoring Tier 1 parameters in the UWS	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Conduct in-the-field quality control audits	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Collect sampling data from new embayment's for dissolved oxygen, water clarity, temperature, salinity, chlorophyll a and qualitative macrophytes (Tier 1)	1-3.	WW-27; WW-28; WW-35

Land Cover Analysis Phase 1 – Indicator Development

Title:	**Land Cover Analysis Phase 2- Indicator Development**		
Activity Type:	Monitoring	Project Type:	Continuing
Implementing Agency:	CT DEEP	Total Estimate Budget	$178,333.00
Responsible Partners:	UConn CLEAR	Federal Amount:	$107,000.00
		Match Amount:	$71,333.00
Objectives:	The objectives are to determine updated current metric as well as the applicable comparison with historical values to determine trends for the following indicators: impervious cover, forest cover and riparian buffer extent.		
Description:	This is the 2nd phase of this project funded under CT DEEP's base program. In this phase of the project the results of the land cover analysis (phase 1) will be utilized to generate three essential indicators for tracking the progress of the CCMP. Specifically, the update will include tracking impervious cover, forest cover and riparian buffer extent. In addition, the study will have significant detailed imagery which can aide the Habitat Connectivity development (FY22 project under NEIWPCC's programing).		
Estimated Milestones:	October 1, 2023 – September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Impervious Cover Trends	1-1.	WW-17
Riparian Buffer Extent Trends	2-1.	WW-15; WW-16; HW-10
Forest Cover Trends	2-1.	SM-10; SM-1; HW-6
Updated Clear Website and Enhance/Updated Data Viewer	4-1.	SM-1; SM-4; SM-30

Unified Water Study: Long Island Sound Embayment Research – 2024 Season

Title:	**Unified Water Study: Long Island Sound Embayment Research – 2024 Season**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	Save the Sound	Total Estimate Budget	$2,003,098.00
Responsible Partners:	N/A	Federal Amount:	$1,201,859.00
		Match Amount:	$801,239.00
Objectives:	To continue to monitor and assess the ambient conditions of water quality nearshore harbors and embayments throughout LIS, and therefore identify and control local pollution sources through community-based watershed monitoring (including community science) and protection programs.		
Description:	Save the Sound seeks funding to coordinate and implement the Unified Waters Study establishing a comparable bay-to-bay dataset describing the eutrophic conditions and environmental health of bays and harbors around the LIS with 26 subrecipients conducting the water-quality testing.		
Estimated Milestones:	October 1, 2023 - December 31, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Train 26 groups in the SOPs for monitoring Tier 1 parameters in the UWS	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Train 7 groups in the SOPs for monitoring Tier 2 parameters in the UWS	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Conduct in-the-field quality control audits	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Collect sampling data from 45 embayment's for dissolved oxygen, water clarity, temperature, salinity, chlorophyll a and qualitative macrophytes (Tier 1)	1-3.	WW-27; WW-28; WW-35
Collect sampling data for nitrogen, phosphorous, continuous DO, and Quantitative macrophytes from 12 embayment's (Tier 2)	1-3.	WW-27; WW-28; WW-35
Provide 4 email links to data to all project stakeholders; Use standardized UWS data spreadsheets; Publish data on Save the Sound website and enter into EPA WQX	3-1.	SC-7
Coastal clean up - engage 1500 volunteers, coordinate 55 cleanups on CT shorelines, clean 50 miles of shoreline	1-2; 2-1	HW-1; WW-20
QuickDrops- work with stakeholders for LIS community science groups, contract and provide feedback to consultant for Quickdrops, Develop in-system trainings for Quickdrops usage, test versions	4-1.	SM-9
Train 21 volunteers in procedures for collection ambient water samples for fecal indicator bacteria	2-3; 3-1; 4-1	HW-22; SC-11; SM-8
Guide volunteers to collect 700 samples for fecal indicator bacteria	1-3.	WW-27; WW-35
Update beach report from 2023-2024, publish beach report, publicize the Beach Report with 2 press events and coverage, distribute informational materials through multiple formats to raise awareness of LIS	3-1; SM-33	SC-7; SC-9, SM-33

Continuous Water Quality Monitoring for Eelgrass Pilot

Title:	**Continuous Water Quality Monitoring for Eelgrass Pilot**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	Save the Sound	Total Estimate Budget	$22,133.00
Responsible Partners:	N/A	Federal Amount:	$13,280.00
		Match Amount:	$8,853.00
Objectives:	Monitor continuous water temperature and light in selected embayments with eelgrass meadows to better understand water quality impacts on habitat.		
Description:	Save the Sound seeks funding to coordinate and implement the Unified Waters Study establishing a comparable bay-to-bay dataset describing the eutrophic conditions and environmental health of bays and harbors around the LIS with 26 subrecipients conducting the water-quality testing.		
Estimated Milestones:	October 1, 2023 - December 31, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Collect continuous data from embayment through deployed water quality loggers	1-3.	WW-27; WW-28; WW-35

Major Long Island Sound Tributary Sampling

Title:	**Major Long Island Sound Tributary Sampling**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	USGS	Total Estimate Budget	$305,000.00
Responsible Partners:	CT DEEP	Federal Amount:	$305,000.00
		Match Amount:	$0.00
Objectives:	The objective of the proposed work is to maintain a water-quality monitoring network in the estuarine reaches of the Thames, Connecticut, and Housatonic Rivers.		
Description:	The project would be the fifth year of a long-term monitoring project to collect water quality data on the three major tributaries to Long Island Sound (Thames, Connecticut, and Housatonic Rivers). The goal of the project is to characterize water quality in the three major tributary's estuaries and to further develop a nitrogen loading station in the lower tidally effected Housatonic River estuary.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
QAPP	1-1; 1-3	WW-7; WW-27; WW-28
Continuous water quality monitoring - approved continuous data for important parameter used to characterize water quality	1-1; 1-3	WW-7; WW-27; WW-28
Discrete water quality sampling - approved discrete water quality data nutrients and chlorophyll-a	1-1; 1-3	WW-7; WW-27; WW-28
Continuous streamflow gaging station - Approved continuous streamflow data on tidally influence reach of the Housatonic River	1-1; 1-3	WW-7; WW-27; WW-28
Semi-annual reporting - routine updates characterizing project progress	1-1; 1-3	WW-7; WW-27; WW-28

Water Quality Monitoring Observation to Support the Hypoxia Management in Long Island Sound

Title:	**Water Quality Observations to Support Hypoxia Management in Long Island Sound**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	University of Connecticut	Total Estimate Budget	$792,172.00
Responsible Partners:	N/A	Federal Amount:	$645,024.00
		Match Amount:	$147,148.00
Objectives:	Sustaining the distribution and analyses of the CTDEEP ship survey data that are used to determine the area of the bottom of LIS subject to hypoxia, and sustaining the operation of the on-line calculator for hypoxic volume and area; Continuation of the monitoring of the near bottom dissolved oxygen concentration and duration of hypoxia in the region that is likely to experience improvement first with the ARTG buoy, together with the other water-qualityand environmental parameters required to understand the variability in DO; Evaluate the effectiveness of the use of an autonomous glider to map the location of the 3 and 5 mg/l dissolved oxygen concentration contour on two 10-15 day surveys; The interannual and spatial variability in the rates of respiration and productivity in Long Island Sound has for several decades been thought to be highly variable. Recently, the deployment of in-situ respiration sensors has revealed the character of the variations quantitatively for the first time.		
Description:	Since 2013 the LISS has supported the deployment and operation of a buoy (ARTG) as an element of the LISICOS array, a component of the NERACOOS. LISS has also been providing partial support for the data system that allows access to the observations, and those of the ship survey program of the Connecticut Department of Environmental Protection. In the last year, the data system was augmented to allow calculation of the hypoxic area and volume from the ship survey data archive and this will be sustained for 2023- 2024. Sampling using autonomous gliders was added to the program in 2021 to complement the ship and buoy data through a cost-sharing arrangement with MARACOOS. Finally, we propose to add Automated Respiration Chambers (ARCs) to the sustained buoy program.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Hypoxia data products and maps	1-3; 4-1	WW-39; SM-6
Operate ARTG buoy with surface and bottom DO sensors, pCO2, nitrate concentration, fluorecence and light (PAR) at 3 buoys	1-3.	WW-27; WW-32
Observations of the variability on the location of the 3 and 5 mg near-bottom DO contour with Glider surveys	1-3; 4-1	WW-27; WW-32; SM-6
High frequency estimates of respiration rates using ARCs	1-1.	WW-8
Time series pH and pCO2 monitoring	1-3.	WW-32
Operational access to all LISICOS buoy data, QAQC metrics, and a summary report	1-1; 1-3	WW-8; WW-32; WW-39
Reporting interim and final	1-1; 1-3	WW-8; WW-32

In-Stream Nitrogen Monitoring in the Upper Connecticut River Watershed

Title:	**In-Stream Nitrogen Monitoring in the Upper Connecticut River Watershed**		
Activity Type:	Monitoring	Project Type:	Continuing
Implementing Agency:	USGS	Total Estimate Budget	$545,000.00
Responsible Partners:	N/A	Federal Amount:	$545,000.00
		Match Amount:	$0.00
Objectives:	The objectives of this nitrogen monitoring program are to: a) leverage existing and historical N data collection efforts in the upper Connecticut River watershed, and b) meet ongoing N loading, fate and transport modeling data needs		
Description:	To optimize efforts to reduce loading of nitrogen to Long Island Sound, managers need a better understanding of relative magnitude and timing of nitrogen transported to LIS from tributaries to the Connecticut River in the northern portion of the Connecticut River watershed. The primary goal of the proposed study is to develop and implement a water quality monitoring strategy for nitrogen (N) phosphorus (P) and dissolved organic carbon (DOC) in the upper basin states of Massachusetts, Vermont, and New Hampshire		
Estimated Milestones:	October 1, 2023 - September 30, 2026		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Project QAPP	1-3.	WW-23; WW-24; WW-25
Water quality monitoring - approved continuous data for important parameter used to characterize water quality including spectrolyzer	1-3.	WW-23; WW-24; WW-25
Discrete water quality sampling - approved discrete water quality data for a range of forms of nitrogen and carbon	1-3.	WW-23; WW-24; WW-25
Estimates of loads of nutrients	1-3.	WW-23; WW-24; WW-25
Semi-annual reporting - routine updates characterizing project progress	1-1; 1-3	WW-7; WW-27; WW-28

Continuous Monitoring in Support of Nutrient Load Estimation on the Connecticut River

Title:	**Continuous Monitoring in Support of Nutrient Load Estimations on the Connecticut River**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$65,000.00
Responsible Partners:	Mass DEP, NEIWPCC	Federal Amount:	$65,000.00
		Match Amount:	$0.00
Objectives:	The objective of the proposed monitoring is to help understand and quantify sources of nitrogen and other nutrients in the Connecticut River that may ultimately discharge to LIS		
Description:	The project will continue collecting streamflow data at the Connecticut River at Northfield near the Massachusetts/New Hampshire/Vermont border (USGS station 01161280 Connecticut River near Northfield, MA). Streamflow data collected from this monitoring station will be used for nutrient load estimation.		
Estimated Milestones:	January 1, 2024 - December 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Annual streamflow/annual nitrate concentration data	1-3.	WW-29

Connecticut State Water Quality Monitoring for Long Island Sound

Title:	**Connecticut State Water Quality Monitoring for Long Island Sound**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	CT DEEP	Total Estimate Budget	$2,654,403.00
Responsible Partners:	N/A	Federal Amount:	$1,592,642.00
		Match Amount:	$1,061,761.00
Objectives:	Monthly nutrient water quality surveys are conducted throughout the year to document processes relevant to hypoxia and nutrient dynamics. Additional hypoxia cruises are conducted each month from June to September period, for a total of eight surveys conducted during the summer season, to document the areal extent and concentrations of dissolved oxygen during the peak period for hypoxia. CT DEEP, as weather permits, conducts supplementary Winter/Spring chlorophyll a surveys in Western Long Island Sound during February and March to document chlorophyll concentrations more accurately through this period. CT DEEP continues biological/ecosystem sampling as part of the ongoing monitoring program. LISS funding includes a plankton community sampling and analyses component, allowing the continuation of work that was started with funding from EPA's NCA program in 2002.		
Description:	The goals of the CT DEEP LIS Offshore Monitoring Program are: To monitor water quality parameters year round on a monthly schedule at stations throughout Long Island Sound; To monitor the temporal and spatial extent of summertime hypoxia through Sound-wide sampling every other week from late June through mid-September; To maintain a long-term database of information collected; To review data periodically, in combination with available historic data, for trends; To assess the long-term results of management actions (e.g., no-net increase nutrient (nitrogen) policy, nitrogen strategy, 2nd generation nitrogen strategy); To provide state and federal managers and policy-makers with information on existing conditions and trends that can be used in the development, implementation, and assessment of strategies to control and improve water quality in the Sound; To make data available for related efforts such as research and water quality model development and calibration; To make data available to other interested individuals/groups.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Reporting - Organized and available databases to researchers and the public; interpretive graphics and factsheets for the public on website	1-3; 4-1	SM-6; SM-7
Plankton Community Assessment - Continue to collect plankton community data to evaluate biological condition and response to changing water quality; incorporate this data into the LISS WQ Indicators Reporting; Monthly zooplankton & phytoplankton community	4-3.	SM-28
Ocean Acidification Monitoring - Conduct monitoring in the open Sound for coastal acidification monitoring; To continue pH monitoring and add alkalinity and DIC to calculate at buffering capacity and omega (at 2-3 selected stations)	1-3; 4-1	WW-32; SM-26
Participate in LISS workgroups and tasks (Water Quality Monitoring Work Group)	1-3.	SM-13
Monthly Nutrient Surveys - Conduct monthly surface/bottom water quality data collection from 17 (year round) stations in LIS	1-3.	WW-24; WW-25
Hypoxia Surveys - Monthly oxygen profiles at 17 stations; Supplementary profiles at up to 30 stations during June – Sept period on bi-weekly basis	4-1.	SM-4; SM-5

IEC 2023-2024 Water Quality Monitoring Program in Far Western Long Island Sound

Title:	**IEC 2023-2024 Water Quality Monitoring Program in Far Western Long Island Sound**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	IEC	Total Estimate Budget	$6,093,544.00
Responsible Partners:	N/A	Federal Amount:	$593,544.00
		Match Amount:	$5,500,000.00
Objectives:	The objective of the IEC water quality monitoring program is to address the LIS updated CCMP 2020 goal of reducing the area of hypoxia by identifying the most problematic areas in western Long Island Sound that are most in need of improved management actions.		
Description:	The IEC's 2023-2024 monitoring surveys of western Long Island Sound will consist of continuing eight monthly "winter" surveys throughout the WLIS and the upper East River from October 2023 through May 2024 and 12 weekly "summer" surveys (June 2024 through September 2024).		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Reporting - Staff will work with the LIS Water Quality Workgroup and CTDEEP to deliver a coordinated Soundwide water quality report after the monitoring season. Improved assessment of WLIS of environmental factors affecting dynamics of hypoxia in LIS.	1-3; 4-1	WW-28; WW-32; SM-6; WW-8
Coordination - Assessment of need for additional or modified monitoring in WLIS and/or embayment's. Cooperation with LISS workgroups, stakeholders and community groups, as appropriate.	1-3; 4-1	WW-28; WW-32; SM-6; WW-8
Water Quality Monitoring Surveys - Twelve weekly (June 2024-September 2024) surveys to assess the onset, extent and duration of hypoxia and hypoxia-related parameters. Bi-weekly surveys will include nutrients and BOD at 11 stations and TSS at all 22 stati	1-3; 4-1	WW-28; WW-32; SM-6; WW-8
Water Quality Monthly Surveys - Monthly surface data (October 2023-May 2024) for chlorophyll and TSS from all 22 historical stations and surface data for BOD and nutrients from 11 stations.	1-3; 4-1	WW-28; WW-32; SM-6; WW-8

Eelgrass Aerial Survey 2024

Title:	**Eelgrass Aerial Survey 2024**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$40,243.00
Responsible Partners:	USFWS	Federal Amount:	$40,243.00
		Match Amount:	$0.00
Objectives:	Conduct a 2024 aerial survey. USGS will contract for the flight and collection of the imagery and then the image will be post-processed and boat-based ground truthing will be carried out to improve accuracy of polygon delineation and acreage calculations (USFWS)		
Description:	This proposal is to fund two interagency agreements to USGS and USFWS where 1) conduct an aerial survey in 2024, led by USGS, and 2) process the imagery from the aerial survey and conduct an intercomparison study between remote-sensing technologies, led by USFWS and in collaboration with CTDEEP, NYSDEC, and EPA.		
Estimated Milestones:	October 1, 2023 – September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
2024 Aerial Survey: QAPP Development and Approval	2-1; 2-4	HW-7; HW-23; HW-25
2024 Aerial Survey: Oversight of aerial orthoimagery mission, management, and logistics	2-1; 2-4	HW-7; HW-23; HW-25

LISS Alkalinity Analyses Intercalibration: Closing the gap in total alkalinity analyses in the Long Island Sound Estuary

Title:	**LISS Alkalinity Analyses Intercalibration - Closing the gap in total alkalinity analyses in the Long Island Sound Estuary**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$193,333.00
Responsible Partners:	UConn	Federal Amount:	$116,000.00
		Match Amount:	$77,333.00
Objectives:	To determine the differences in TA derived from two standard TA methods that are currently utilized in the LIS TA monitoring efforts		
Description:	The LIS Estuary has launched a new interagency monitoring effort for Total Alkalinity (TA) across LIS and its tributaries. It is expected that the two methods (USGS and Dickson) will yield different values of TA and in an estuary such as the LIS this difference will result in serious offsets when trying to interpret and compare data from different sources. We propose to perform a side by side analysis of the two methods at two different locations and develop an intercalibration between the two.		
Estimated Milestones:	October 1, 2023 – September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Sampling Housatonic and Connecticut River	4-3; 1-3; 4-1, 4-2; 3-1	WW-32; WW-39
Data Analyses	4-3; 1-3; 4-1, 4-2; 3-1	WW-32; WW-39
Manuscript and report preparation	4-3; 1-3; 4-1, 4-2; 3-1	WW-32; WW-39
Intercalibration Study	4-3; 1-3; 4-1, 4-2; 3-1	WW-32; WW-39

Development of Benthic Macroinvertebrates Sampling Methodology and Tools to Assess Embayment Health in Long Island Sound, Phase 2

Title:	**Development of Benthic Macroinvertebrate Sampling Methodology and Tools to assess Embayment Health in Long Island Sound, Phase 2**		
Activity Type:	Monitoring	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$167,000.00
Responsible Partners:	Tetra Tech (contract)	Federal Amount:	$100,000.00
		Match Amount:	$67,000.00
Objectives:	To develop a set of benthic biological indicators of health explicit to Long Island Sound embayments.		
Description:	This project will utilize the data collected during the Intensification Studies and the results of the Phase I project to develop an index to determine biologic conditions specific to Long Island Sound embayments tailored around local stressors and management concerns		
Estimated Milestones:	October 1, 2023 – September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Development of Benthic Index of Biological Integrity	1-3; 4-2; 4-3	WW-8; WW-31; SM-30

Acoustic Telemetry Array for Tagged Migratory Fish in Long Island Sound Phase 2

Title:	**Acoustic telemetry array for tagged migratory fish in Long Island Sound Phase 2**		
Activity Type:	Monitoring	Project Type:	Continuing
Implementing Agency:	CT DEEP	Total Estimate Budget	$90,815.00
Responsible Partners:	N/A	Federal Amount:	$54,489.00
		Match Amount:	$36,326.00
Objectives:	To document movements and migrations of currently tagged Atlantic sturgeon that were collected and telemetered prior to the project period. This project would collect information on tagged species including threatened and endangered species (both Federally and State listed)		
Description:	We are proposing to deploy and maintain an acoustic array of Innovasea receivers to detect and record all animals previously implanted with Innovasea 69 kHz tags. A minimum amount of receivers is requested to augment a variety of Acoustic Receivers currently in CT DEEP inventory. Receivers will be deployed throughout Long Island Sound to optimize collection of information on the US Federally Endangered Atlantic Sturgeon, currently being studied by the CT DEEP Marine Fisheries Division		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Prepare QAPP	1-3.	WW-37
Supply Purchase	2-2.	HW-16
Final Receiver Location Mapping	2-2.	HW-16
Receiver and mooring preparation	2-2.	HW-16
Receiver deployment	2-2.	HW-16; HW-17
Receiver check	2-2.	HW-16
Retrieve and download receivers	2-2.	HW-16
Data processing, analysis, and mapping	2-2; 3-1; 3-4; 4-2	SC-7; SM-3; HW-19; SM-20

Pathogen Monitoring Network in Long Island Sound Watershed

Title:	**Pathogen Monitoring Network in Long Island and Sound Watershed**		
Activity Type:	Monitoring	Project Type:	Continuing
Implementing Agency:	IEC	Total Estimate Budget	$6,601,695.00
Responsible Partners:	Harbor Watch at Earthplace, The Maritime Aquarium at Norwalk, CTDEEP	Federal Amount:	$1,101,695.00
		Match Amount:	$5,500,000.00
Objectives:	To coordinate existing pathogen monitoring programs, standardizing protocols, expanding the network to fill geographic gaps and building technical and laboratory capacity		
Description:	This project seeks to build a coordinated, geographically strategic, scalable pathogen monitoring network for fecal indicator bacteria in the Long Island Sound watershed.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Onboarding of new monitoring groups	1-1; 1-2; 1-3; 4-1	WW-35; HW-22; SM-8
Build laboratory capacity	1-1; 1-2; 1-3; 4-1	WW-35; HW-22; SM-8

USGS Coastal Acidification Monitoring

Title:	**USGS Coastal Acidification Monitoring**		
Activity Type:	Monitoring	Project Type:	Ongoing
Implementing Agency:	USGS	Total Estimate Budget	$300,000.00
Responsible Partners:	N/A	Federal Amount:	$300,000.00
		Match Amount:	$0.00
Objectives:	Provide data from which aragonite saturation can be calculated from estuarine embayments and major tributaries across Long Island sound through operation of long-term monitoring networks and discrete sampling		
Description:	USGS will continue to contribute to this long-term coastal acidification monitoring, increasing spatial and temporal coverage of the Long Island Sound and itsembayments. Data from this project will include parameters needed to assess the aragonite saturate state in the lower reaches of the major tributaries and embayments to the LIS. These data will enable water resource managers to provide baseline information on the current status of aragonite saturation and evaluate changes over time.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Develop QAPP	1-3; 4-1	WW-28; WW-32; HW-23; SM-8
Continuous water quality monitoring - approved continuous data for six water quality parameters	1-3; 4-1	WW-28; WW-32; HW-23; SM-8
Discrete water quality sampling - approved discrete water quality data including total alkalinity, dissolved inorganic and organic carbon, and pH	1-3; 4-1	WW-28; WW-32; HW-23; SM-8
Computed aragonite saturation estimate	1-3; 4-1	WW-28; WW-32; HW-23; SM-8
Semi-annual reporting - routine updates characterizing project progress	1-3; 4-1	WW-28; WW-32; HW-23; SM-8

2. **Healthy Ecosystems.** Healthy Ecosystems is addressed under the Thriving Habitat and Abundant Wildlife Theme of the CCMP as LISS sets out the mission to restore and protect the Sound's

ecological balance in a healthy, productive, and resilient state to benefit both people and the natural environment. The Habitat Restoration and Protection is the only program activity that applies to this section. Because of the complexity of planning, organizing and carrying out restoration projects in both states, the LISS funds two habitat coordinators, one each in NYSDEC (via NEIWPCC) and CT DEEP, who develop priority Long Island Sound projects, including fish passage projects, in their state. These staff positions are included in the description of LISS-funded staff in this Work Plan in Attachment 1. It should be noted that the acres restored/protected and river miles reopened were not all funded by the LISS; the CCMP called for many and varied funding sources to implement its actions. LISFF projects do help contribute to the total acres restored/protected, to the extent that eligible projects are qualified, apply, and are approved for funding.

a. **Habitat Restoration and Stewardship**. As reported in EPA's NEPORT reporting system, LISS partners completed 25 restoration projects for a total of 134.3 acres. The program achieved its goal to restore 350 acres of coastal habitat in 2018, two years ahead of the 2020 target and LISS is 59.3 percent of the way to the goal of restoring 1,000 acres of habitat by 2035 from the 2014 baseline. The study partners protected 605.2 acres of open space through acquisitions or easements at 18 sites. By the end of the calendar year 2022, the program has now achieved 74.8 percent of the goal to protect 7,000 acres of land by 2035 from the 2014 baseline.

   In 2022, 3.75 new stream miles were reported opened, due to the Bulkley Pond Dam Removal in Westport & Fairfield, CT. The program is at 62.6 percent of the goal to reconnect 200 river miles to Long Island Sound for fish passage by 2035 from the 2014 baseline. The LISS-funded CT DEEP and NYSDEC habitat restoration coordinators develop projects to reopen fish passage in each state. Because CT's river and stream network along the Long Island Sound shoreline is much more extensive than NY's, the bulk of the fish passage projects are in CT rivers and streams. Historically there were approximately 1,858.5 miles of river in CT that supported diadromous fish runs; currently there are approximately 432.9 miles of river reaches open to fish passage. This is not meant as a management target for restoration. It should be noted that the river miles reopened were not all funded by the LISS; the CCMP called for many and varied funding sources to implement its actions.

   LISS has set out the following goals for FY2023: Restore 10 acres of coastal habitat, protect 600 acres of coastal habitat, and reopen 11 river miles to diadromous fish passage (i.e., migrating between fresh and salt water).

   - Long Island Sound Stewardship Initiative: Additionally, the LISS website contains an updated online Stewardship Atlas. The LISFF supported several Stewardship Initiative projects and public involvement efforts centered around trails days at stewardship sites.
   - Long Island Sound Eelgrass Management and Restoration Strategy: In order to make progress on the Eelgrass Extent ecosystem target, LISO convened a group of local experts to develop a targeted Long Island Sound Eelgrass Management and Restoration Strategy. Over the course of three meetings, held on July 25, September 19, and November 15 of 2022, the group outlined recommendations and specific actions to implement starting in FY2023. More specifically, the group identified current issues/threats, resources, and gaps (meeting 1), identified a prioritization system for management areas and actions/next steps (meeting 2), and finalized this strategy (meeting 3). This document provides guidance for short and long-term actions that should be taken to manage and restore eelgrass meadows in the Long Island Sound and act as a resource for other estuaries in the region facing similar issues. This is a living document meaning that as new research, resources, and information becomes available, the gaps and required actions may change. The actions memorialized in the strategy will be implemented under a few awards this year (see below), and these projects will be guided by the new Long

Island Eelgrass Collaborative led by Connecticut National Estuarine Research Reserve.

The following habitat restoration and protection projects were approved to be funded in FY2023 to further our progress:

Support for Regional Long Island Sound Real Property Coordinator and Stewardship of Titus Mill Pond by the NYSDEC

Title:	**Support for Regional Long Island Sound Real Property Coordinator and Stewardship of Titus Mill Pond by the New York State Department of Environmental Conservation**		
Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	NYSDEC	Total Estimate Budget	$125,000.00
Responsible Partners:	NEIWPCC, Save the Sound, City of New Rochelle	Federal Amount:	$125,000.00
		Match Amount:	$0.00
Objectives:	NYSDEC will coordinate with partners and landowners to conduct site surveys, tidal wetland ecological assessments, as well as identify restoration needs and opportunities. This project will also provide funds to support the Youth Bureau's Ecology Ambassadors use of Titus Mill Pond.		
Description:	The NYSDEC is requesting funds to survey Titus Mill Pond, located in New Rochelle, to allow for stewardship and habitat restoration of the area.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Complete site surveys and tidal wetland ecological assessments	2-1.	HW-1
Purchase and protection of LIS watershed properties	1-1; 2-1	HW-9
Marine debris clean-ups	1-2.	WW-20
Support the Ecology Ambassadors in habitat restoration activities	2-3; 3-1; 3-3; 3-2	HW-21; SC-4; SC-19

Title:	**Support for Regional Long Island Sound Real Property Coordinator by the New York State Department of Environmental Conservation**		
Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	NEIWPCC	Total Estimate Budget	$390,096.00
Responsible Partners:	NYSDEC	Federal Amount:	$390,096.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	The coordinator hired would be advancing and closing several acquisitions that were previously funded by LISS in FFY 2018 to FFY 2022. These acquisitions include Stell, Tyree, Kozikowski, Watson, Bateson, and Shoreham. The coordinator can begin pursuing the prospect of acquiring large parcels of land in Nassau County such as Laurel Hill Farm and United Universalist Church using Bipartisan Infrastructure Law (BIL) funds.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Purchase and protection of LIS watershed properties	1-1; 2-1	HW-3; HW-9

USFWS Eelgrass Intercomparison Study and Seasonality Assessment

Title:	**USFWS Eelgrass Intercomparison Study and Seasonality Assessment**		
Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	USFWS	Total Estimate Budget	$173,031.00
Responsible Partners:	USGS, University of Rhode Island, CT DEEP, EPA	Federal Amount:	$173,031.00
		Match Amount:	$0.00
Objectives:	Conduct an intercomparison study to assess the comparability and usability between these methodologies (drones, aerial, and satellite) during the season (USFWS); and quantify seasonal variability in eelgrass bed density using drone imagery and underwater camera transect data at three sites during two survey windows (early and late season) (USFWS)		
Description:	This proposal is to fund two interagency agreements to USGS and USFWS where 1) conduct an aerial survey in 2024, led by USGS, and 2) process the imagery from the aerial survey and conduct an intercomparison study between remote-sensing technologies, led by USFWS and in collaboration with CTDEEP, NYSDEC, and EPA.		
Estimated Milestones:	October 1, 2023 – September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Intercomparison: GIS database development, analysis, report writing, misc.	2-1; 2-4	HW-7; HW-23; HW-25
2024 Aerial Survey: QAPP Development and Approval	2-1; 2-4	HW-7; HW-23; HW-25
2024 Aerial Survey: Oversight of aerial ortho-imagery mission, management, and logistics	2-1; 2-4	HW-7; HW-23; HW-25
Intercomparison: LIS Eelgrass Collaborative to provide input on the study's approach.	2-1; 2-4	HW-7; HW-23; HW-25
Intercomparison: SAV Orthoimagery interpretation, delineation, and ground-truthing field work	2-1; 2-4	HW-7; HW-23; HW-25

Habitat Restoration for Flax Pond

Title:	**Habitat Restoration for Flax Pond**		
Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	NYSDEC	Total Estimate Budget	$2,250,000.00
Responsible Partners:	N/A	Federal Amount:	$1,300,000.00
		Match Amount:	$950,000.00
Objectives:	Shoaling at Flax Pond is causing hypoxic events and threatening the health of the ecosystem. Stonybrook University School of Marine and Atmospheric Sciences (SBU SoMAS) studied Flax Pond and determined that the inlet must be returned to its 1972 dimensions to restore its health. Restoring the inlet will increase tidal flushing, reduce possible hypoxic events, and improve tidal wetland health. Dewberry, the hired consultant for this project, will be designing and implementing a plan to remove sediment from the inlet to restore the tidal flushing of Flax Pond to its 1972 condition.		
Description:	The NYSDEC was previously awarded and is requesting additional funds to restore the tidal flushing at Flax Pond in Old Field, NY.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Restore tidal flushing of Flax Pond in Old Field, NY	1-1.	HW-1
Developing conservation plans for NY's LIS Marsh Complexes, Phase 2 - Expanded marsh migration Viewer and develop at least one, but up to three marsh conservation plans to increase coastal resiliency. Provides tool for local communities to develop marsh c	2-1; 2-4	HW-9; HW-27; HW-30
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes.	4-3.	SM-35
Assess historical shoreline change as is occurring in LIS.	3-3; 4-1	SC-21; SM-1
Evaluate how current shoreline change trends influence the likelihood of a coast to respond dynamically.	3-3; 4-3	SC-21; SM-26
Explore shoreline change outputs (rates and vulnerability) and aggregate with coastal classification schemes in CUSP/ESI data.	3-5.	SC-31

Update and Enhancement of the GIS-based Long Island Sound Eelgrass Habitat Suitability Index

Title:	**Update and Enhancement of the GIS-based Long Island Sound Eelgrass Habitat Suitability Index**

Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	NEIWPCC	Total Estimate Budget	$200,000.00
Responsible Partners:	N/A	Federal Amount:	$200,000.00
		Match Amount:	$0.00

Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.
Description:	The primary objectives of updating the Eelgrass Habitat Suitability Index Model (EHSI Model) are to expand the evaluation of sites being considered for eelgrass restoration efforts in the Long Island Sound (LIS) area and to identify areas where environmental or climate factors reduce or eliminate the potential for natural eelgrass colonization.
Estimated Milestones:	October 1, 2023 - September 30, 2025
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Develop interpretive materials allowing others to use the model	2-1; 2-4	HW-5; HW-7; HW-23; HW-25
Gather newly collected data (both already existing parameters in the 2013 model and new parameters to be added) to create a preliminary model	2-1; 2-4	HW-5; HW-12; SM-26
Design and conduct fieldwork based on output of preliminary model	1-3; 2-1; 4-3	WW-27; HW-7; SM-26
Collect necessary data to test the model at a defined subset of sites	1-3; 2-1; 4-3	WW-27; HW-7; SM-26
Develop a predictive model to run future scenarios	2-1; 4-3	HW-7; SM-26

Long Island Sound Collaborative Coastal Habitat Assessment, Restoration, and Monitoring

Title:	**Long Island Sound Collaborative Coastal Habitat Assessment, Restoration and Monitoring**		
Activity Type:	Habitat Restoration and Protection	Project Type:	Ongoing
Implementing Agency:	USFWS	Total Estimate Budget	$268,920.00
Responsible Partners:	N/A	Federal Amount:	$268,920.00
		Match Amount:	$0.00
Objectives:	The objectives are to 1) work collaboratively within the tidal marsh working groups to identify priority projects, 2) provide technical expertise and financial resources to advance one or more of these projects through design and permitting, 3) provide technical support for projects that are permitted for implementation and 4) collect pre- and post-restoration monitoring data across sites to inform development of best practices for subsequent projects within the Long Island Sound watershed.		
Description:	This project will provide support through both capacity building within USFWS, hiring staff focused on working in the LISS boundary and leveraging additional Service technical expertise.		
Estimated Milestones:	October 1, 2022-September 30, 2026		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Build efficiencies across agencies and organization	2-1.	HW-2; HW-22
Initiate planning for one or more projects. Baseline data collection compiled into design plans and permitting applications	2-1.	HW-1; HW-3; HW-5
Initiate and complete marsh restoration activities for one or more project sites.	2-3; 3-1; 3-2	HW-11; HW-14; HW-22
Initiate monitoring on using standard monitoring protocols. Build understanding of effective techniques for restoration	2-1; 2-2	HW-2; HW-16, HW-17
Additional restoration actions initiated on sites as needed to ensure project goals achieved	2-1;; 2-2; 3-1; 3-2;	HW-1; HW-13; HW-17
Project outcomes shared with LISS, and broader scientific community, progress reports submitted	2-1; 2-2	HW-1; HW-27
Selection of two wildlife biologist / coastal ecologists	2-1.	HW-1
Selection of one or more tidal marsh restoration projects to focus on	2-1; 2-2	HW-5; HW-11; HW-27

NEIWPCC LISS Program Implementation Support FY23: Task 3 – Habitat Restoration and Stewardship Coordination

CCMP Revision Support - Facilitate the revision of the LISS CCMP through staff-led discussions and working group participation to consider successes of the latest iteration of the CCMP and make recommendations for improving implementation	4-3.	SM-35

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 3 - Habitat Restoration and Stewardship Coordination**		
Activity Type:	Habitat Restoration and Protection	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$252,583.00
Responsible Partners:	NYSDEC	Federal Amount:	$138,189.00
		Match Amount:	$114,394.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	NEIWPCC's NYS Habitat Restoration and Stewardship Coordinator will facilitate and conduct activities associated with the LISS Habitat Restoration Initiative including: Preparing, assisting, and evaluating project applications for habitat restoration, assessment, monitoring, and research funding; Developing partnerships to restore LIS habitats and promote stewardship (public access, land acquisition, land management); Working with regional staff to help partners prepare project workplans that are compatible with state regulations; and Assisting NYSDEC with activities associated with the LISS Habitat Restoration & Stewardship Workgroup.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Coordinate LISS Habitat Restoration & Stewardship Workgroup	2-1; 2-3	HW-1; HW-22
Coordinate NYS habitat, wildlife, and stewardship activities in the LIS watershed	2-1.	HW-1; HW-9; HW-10
Promote habitat quality assessments for tidal wetlands.	2-1; 2-4	HW-6; HW-23; HW-27
Track habitat restoration and land protection activities in NYS	2-1; 2-4	HW-1; HW-9; HW-24
SET monitoring data	2-1; 2-4	HW-5; HW-23; HW-27
Public Communication and Outreach	2-2; 2-3	HW-13; HW-22; SC-12
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes.	4-3.	SM-35

Coastal Resiliency Assessments: Near-term Coastal Change Along the Shorelines of Long Island Sound

Title:	**Coastal resiliency assessment: near-term coastal change along the shorelines of Long Island Sound**		
Activity Type:	Habitat Restoration and Protection	Project Type:	Continuing
Implementing Agency:	USGS	Total Estimate Budget	$289,596.00
Responsible Partners:	N/A	Federal Amount:	$289,596.00
		Match Amount:	$0.00

Objectives:

The objectives of this project are to: Perform an assessment of shoreline change trends from historical data for both long-term (80+ years of positional data) and short-term (~30 years); Incorporate shoreline change data into a coastal change likelihood assessment that uses location-specific coastal hazards to estimate the potential for landscape change over the next decade; Aggregate the shoreline change metrics and coastal change likelihood assessment outputs with coastal classification schemes available in NOAA's Continuously Updated Shoreline Position and/or NOAA's Environmental Sensitivity Index data layers (for example, classify change for "natural" and "hardened" shorelines); Publish all geospatial data layers generated in this analysis and make available in the web accessible USGS Coastal Change Hazards data portal; Publish a peer-reviewed interpretative report on the model outputs and data aggregation; Connect USGS Research Social Scientist(s) with Sea Grant Extension Sustainable and Resilient Communities (SRC) professionals in the Long Island Sound Work Group to support product dissemination and solicit feedback on product use and applications.

Description:

This project is designed to build out data and interpretative capabilities in three years where year-end product deliverables have independent value and can stand-alone. The project will first quantify rates of shoreline change, then use the rates to update a coastal landscape change assessment that incorporates multiple hazards datasets with geomorphic and ecologic characteristics via machine learning (ML) outcomes, to identify areas with the highest propensity for experiencing change. Combining the updated shoreline change rates into the coastal landscape change assessment can be used to identify coastal vulnerability hot spots, determine areas with more potential for resiliency, and can be used to help detect optimal areas for investing in protective measures, such as living shorelines. More broadly, these products can be used to inform decision makers about the increased likelihood of near-term (10 years) coastal change hazards in the coastal zone including impacts to landforms such as tidal wetlands, dunes, and human infrastructure.

Estimated Milestones: October 1, 2023-September 30, 2025

CWA Program Elements **Wetlands Program Support/Implementation**

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Assess historical data - Informal memo (not published) including table and maps identifying existing resources available for shoreline change analysis. Semi-annual reports.	3-3; 4-1	SC-21; SM-1
Compile historical data - Final draft form of GIS files for publication in USGS ScienceBase data release: NEW extracted lidar shorelines, compiled existing historical shorelines, and Federal Geographic Data Committee metadata in alignment with the guidanc	3-3; 4-1	SC-21; SM-1
Assess historical shorelines - Final draft form of GIS files for publication in USGS ScienceBase data release: baselines, transects (short- term/long-term), intersects (ST/LT) shorelines and FGDC metadata for all files.	3-3; 4-1	SC-21; SM-1

Land Acquisition and Public Access

Title:	**Land Acquisition & Public Access**		
Activity Type:	Habitat Restoration and Protection	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$2,500,000.00
Responsible Partners:	N/A	Federal Amount:	$1,500,000.00
		Match Amount:	$1,000,000.00
Objectives:	CT DEEP will use this funding to protect land that has been identified as a priority opportunity for coastal land conservation and that provide benefits to, or are located in, Environmental Justice communities.		
Description:	This proposal will focus on the acquisition of an approximately 29-acre coastal parcel in Branford at 12 Bowhay Hill Rd, which includes tidal and inland wetlands, provides opportunities for direct coastal access and connectivity to local public greenways and trail systems.		
Estimated Milestones:	October 1, 2023 - September 30, 2028		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Land Conservation Identification and Acquisitions	1-1; 2-1	HW-3; HW-9

Establishing a Long Island Sound Eelgrass Collaborative

Title:	**Establishing a Long Island Sound Eelgrass Collaborative**		
Activity Type:	Habitat Restoration and Protection	oject Type:	New
Implementing Agency:	University of Connecticut	Total Estimate Budget	$273,381.00
Responsible Partners:	CT National Estuarine Research Reserve	Federal Amount:	$235,046.00
		Match Amount:	$38,335.00
Objectives:	To implement the LIS Eelgrass Management and Restoration strategy through increased collaboration between regional partners		
Description:	In 2022, the LISS convened a group of local experts to develop a Long Island Sound Eelgrass Management and Restoration Strategy. This document provides guidance for short- and long-term actions that should be taken to manage and restore LIS eelgrass meadows and acts as a resource for other estuaries in the region facing similar issues. Development of the Strategy represents a new phase in our effort to restore this important Sound habitat, with the formation of the Eelgrass Collaborative providing a regional, coordinated approach to implement Strategy elements.		
Estimated Milestones:			
CWA Program Elements			

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Meet with aquaculture partners to identify barriers and concerns for conflicting uses	2-4.	HW-25
Improve bi-state communication and coordination	2-4.	HW-25
Provide advice and input on other LISS funded eelgrass projects	2-4.	HW-25; HW-23
Plan and organize eight EC meetings	2-1; 2-4	HW-1; HW-25; HW-23
Interview state partners to identify management and restoration barriers	2-1; 2-4	HW-1; HW-25; HW-23

3. **Strong Communities.** Strong Communities is addressed under the Sustainable and Resilient Communities Theme of the CCMP as LISS sets out the mission to support vibrant, informed, and engaged communities that use, appreciate, and help protect Long Island Sound. The following program activities are used as subsections to highlight our FY2023 accomplishments and introduce planned FY2024 activities, including project details: Public Education and Outreach, and Stewardship and Resiliency.
   a. **Public Education and Outreach.** The LISS provides grants to several of its partners to support their public outreach, information, and education (PI&E) program activities, a key Program Element of the LISS. NEIWPCC, NYSEA and CTSEA are primarily responsible under their LISS grant awards for public outreach assistance. The LISS communications team consists of staff of these partners and other interested parties, including members of the LISS Citizens Advisory Committee (CAC). The communications team meets periodically to develop and carry out work as reflected in each grant award. The LISNPO and LISS partners provide significant support to the CAC, which is co-chaired by an elected member each from NY and CT. Coordinated by the NY/CTSEAs, the CAC meets quarterly at alternating locations in CT and NY in the LIS watershed (however, this past year was all virtual due to COVID-19) and provides advice to the Management Conference partners in implementation of the CCMP. The CAC operates under its Bylaws and is composed of up to 60 members who represent organizations with a demonstrated interest in Long Island Sound. Financial support for CAC meetings is provided through NEIWPCC's PI&E line item in its LISS assistance award. CAC members are reimbursed for their travel expenses directly related to attending CAC meetings. However, this past year there was minimal travel due to the COVID-19 pandemic, in which all CAC meetings were held virtually **[see Attachment 5].** In addition, the CAC meets as needed with the STAC to jointly review program priorities from a scientific perspective and to update each other on issues of scientific and public concern. The CAC co-chairs are members of the Management Committee and provide a public perspective at Management Committee meetings. The CAC also appoints two liaisons to the STAC, one each from New York and Connecticut to represent the CAC at STAC meetings. CAC members participate on LISS teams and work groups and attend those meetings as appropriate.

      The LISS will continue to fund the CT and NY Sea Grant LIS Mentor Teacher program, which trains a cadre of K-12 educators to train-the-trainers in the use of LIS as a teaching tool and resource for NY and CT teachers. The Long Island Sound Mentor Teacher (LISMT) program has consistently recruited high quality, creative, and respected teachers to assist their peers in incorporating LIS content into curricula within the scope of the CT Science Frameworks.

      - LISS Communications: The LISS partners produce their own materials and press releases to communicate their accomplishments and plans to their public or special audiences. The LISS, via a grant to NEIWPCC, maintains its website for public information and access, and produces *SoundBytes*, an electronic email product to keep constituents informed in topical and timely areas. *Sound Update and Outlook* are also produced several times a year, but paper copy distribution has been phased down to conserve resources and be more 'green.' LISS-produced materials emphasize the bi-state nature of public information on the Sound, its ecology or status, while individual partners' public information programs may focus on single state or communities of interests' priorities or needs. Examples of these publications are on the LISS website. Furthermore, LISS has set out to develop a new five-year strategic communication plan to increase the knowledge of and engagement in the Sound's restoration efforts by key stakeholders. Within this plan was the request for new staff to help further engagement. An intern was hired and will be helping with engagement through the 2023 summer.
      - Communications, Outreach, and Engagement Plan: In FY2021, LISS funded NEIWPCC, in collaboration with CTSEA, NYSEA, and The Nature Conservancy, to develop a new

coordinated Sound-wide Strategic Communications, Outreach, and Engagement Plan ("COE Plan") with measurable objectives, including the additional resources sufficient to implement the new COE Plan, that will maximize the impact of communications, outreach, and engagement efforts and ensure the effective use of resources by and among the LISS Communications Team and partners. Marstel-Day, LLC ("MD Team") was contracted to develop the new COE Plan that will provide guidance for LISS staff and partners to implement effective COE efforts that inform, educate, and engage stakeholders and residents living in Long Island Sound. The COE Plan was approved by the Management Committee in FY2022.

- Communications, Outreach, and Engagement Work Group (COE): The Public Involvement and Education Work Group (PIE) was revived, transformed and renamed to the Communications, Outreach, and Engagement Work Group (COE) in March 2023. This new work group aims to encourage deeper and wider collaboration across the full diversity of Sound communities in support of the Long Island Sound Study's mission to conserve, restore, and sustain the Sound and its magnificent aquatic and shoreline resources. The work group is made up of LISS members, non-formal educators, outreach professionals, and communications specialists from organizations and community groups whose work aligns with that of LISS: to connect the people living in the Long Island Sound watershed to the Long Island Sound estuary through communications, outreach, and engagement to improve environmental awareness, knowledge, stewardship, and equal access to the local environment.

The following Public Education and Outreach projects were approved to be funded in FY2023 to further our progress:

A Network of Long Island Sound Schools: Protecting the Sound Once School at a Time

Title:	**A Network of Long Island Sound Schools: Protecting the Sound One School at a Time**		
Activity Type:	Public Education and Outreach	Project Type:	New
Implementing Agency:	Connecticut Sea Grant	Total Estimate Budget	$262,934.00
Responsible Partners:	N/A	Federal Amount:	$249,796.00
		Match Amount:	$13,138.00
Objectives:	To provide opportunities for schools to learn about LIS, LIS research, and promote best environmental practices, develop skills to foster the next generation of LIS leaders and stewards, take care of LIS within local communities while at the same time projecting a positive image of the school itself; and to provide opportunities for students, teachers, parents, and friends to participate in a range of environmental activities to take care of LIS.		
Description:	As a result of participation in the LIS Schools network, students, teachers, and their communities a) have the awareness, knowledge, and skills to help protect LIS; and b) future generations have the skills to become leaders and stewards of LIS.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Develop criteria and rubric for LIS school designation	3-1; 4-1-; 4-2, 1-3	SC-8; SC-17; SC-19
Recruit and select schools	3-1; 4-1-; 4-2, 1-4	SC-8; SC-17; SC-19
Review, finalize, and implement projects	3-1; 4-1-; 4-2, 1-3	SC-1; SC-8; SC-17; SC-19
Disseminate results	3-1; 4-1-; 4-2, 1-4	SC-1; SC-8; SC-17; SC-19

Long Island Sound Mentor Teachers Program Work Plan FY23

Title:	**Long Island Sound Mentor Teachers Program Work Plan FY23**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	Connecticut Sea Grant	Total Estimate Budget	$38,248.00
Responsible Partners:	N/A	Federal Amount:	$35,798.00
		Match Amount:	$2,450.00
Objectives:	To increase awareness and understanding of the importance of LIS and its watershed		
Description:	Continue the Long Island Sound Mentor Teacher program in CT to recruit high quality, creative and respected teachers to assist their peers in incorporating LIS content into curricula within the scope of the newly adopted Next Generative Science Standards.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Hold 2 LISMT professional development workshops for 40 K-12 formal & nonformal educators in spring/summer 2024	3-2.	SC-17; SC-18; SC-19
Continue to develop and/or distribute LIS-focused curricular resources	3-1.	SC-1

Residential Fertilizer Community Based Social Marketing Project

Title:	**Residential Fertilizer Community Based Social Marketing Project**		
Activity Type:	Public Education and Outreach	Project Type:	New
Implementing Agency:	NYSDEC	Total Estimate Budget	$416,667.00
Responsible Partners:	N/A	Federal Amount:	$250,000.00
		Match Amount:	$166,667.00
Objectives:	This project seeks to develop a CBSM campaign in a municipality/community in the Long Island Sound watershed in New York that address undesirable fertilizer behaviors by homeowners. The goal of the campaign will be to break down barriers associated with nitrogen fertilizer on residential lawns by homeowners		
Description:	This project seeks to develop a community based social marketing (CBSM) project aimed at homeowners that apply fertilizer themselves. The project is a continuation of a Long Island Nitrogen Action Plan (LINAP) initiative to better understand the barriers to proper fertilizer use of Long Island residents through a survey on fertilizer behaviors that is being deployed in the spring of 2023. The CBSM project will aim to address the undesirable behaviors that are found during the survey to be detrimental to the Long Island Sound, such as misapplication		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
CBSM Campaign Development	3-1.	WW-9; SC-14; SC-15
CBSM Campaign Deployment	3-1.	WW-9; SC-14; SC-15
Analysis CBSM campaign success	3-1.	WW-9; SC-14; SC-15

Long Island Sound Study – Agriculture and Nutrient Management Planning and Outreach

Title:	**Long Island Sound Study – Agriculture and Nutrient Management Planning and Outreach**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	NRCS	Total Estimate Budget	$313,739.00
Responsible Partners:	N/A	Federal Amount:	$313,739.00
		Match Amount:	$0.00
Objectives:	Connect agricultural producers and landowners with NRCS technical and financial assistance programs that benefit Long Island Sound		
Description:	NRCS will fund three staff positions to connect agricultural producers and landowners throughout the Connecticut-portion of the Long Island Sound with NRCS technical and financial assistance programs to further the LISS vision of a Sound with clean, clear, and safe water, and thriving habitats. This project couples outreach activities with conservation planning to maximize conservation practice delivery and implementation in an equitable and inclusive way.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
General Outreach	3-1.	SC-7; SC-14
Dissemination of LIS Agricultural Information and Outreach	3-1.	SC-2; SC-7; SC-14
Public Education and Outreach	3-1; 3-3	SC-7; SC-21
Coordinate Meetings, Workshops, and Resources	3-1; 3-4	SC-4; SC-11; SC-28

NEIWPCC LISS Program Implementation Support FY23: Task 1 – Outreach and Education Support

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 1 - Outreach & Education Support**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$213,079.00
Responsible Partners:	N/A	Federal Amount:	$213,079.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	NEIWPCC will assist with the development, coordination, and implementation of bi-state public involvement, education, outreach, and communication activities for LIS.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
LISS Website Management and Congressional Report - Maintain and regularly update LISS website pages and its component databases and micro-sites to communicate LISS program & partner efforts to restore and protect the Sound	3-1.	SC-7; SC-9; SC-10
LISS Website Management and Congressional Report - Maintain CCMP tracking/reporting on the LISS website to communicate progress in restoring and protecting the Sound.	4-3.	SM-32; SM-34
LISS Website Management and Congressional Report - Produce story map with videos for new CCMP update and/or congressional report	4-3.	SM-32; SM-34
Sound Matters and Social Media Content - Produce e-news and social media content to communicate efforts to restore and protect the Sound: Publish at least 3 issues of Sound Matters e-newsletter on LISS related news; and post 8 social media items per month	3-1.	SC-9; SC-10; SC-16
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes.	4-3.	SM-35
LISS Population and Demographic Story Map - Create an interactive story map about the population living within the Long Island Sound Watershed	2-4; 3-1; 4-3	HW-23; SC-7; SM-34
Communications Coordination -Participate in 3-4 virtual meetings with the Communications and Outreach Team; Updating the step by step: curbing stormwater pollution brochure; Hire a full-time science writer and the equivalent of halftime contract and or in	3-1; 3-5	SC-6; SC-7; SC-9
LISS Ecosystem Target and Indicators - Compile, interpret, and update LISS's 20 ecosystem targets (ET) and over 35 supporting indicators and continue to update the website; create Story Map on demographics and land use in LIS watershed.	3-1; 4-3	SM-30; SM-34; SC-9

Connecticut Watershed Model – Outreach, Co-Creation, and Capacity Building

Title:	**Connecticut Watershed Model- Outreach, Co-Creation, and Capacity Building**		
Activity Type:	Public Education and Outreach	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$654,333.00
Responsible Partners:	N/A	Federal Amount:	$392,600.00
		Match Amount:	$261,733.00
Objectives:	To engage and support local partners to utilize CTWM and enable implementation of nutrient reduction strategies.		
Description:	CT DEEP proposes to conduct an outreach, education, and capacity building effort to support the next phase of the Connecticut Watershed Model (CTWM). This phase will include an intensive outreach program to transfer knowledge and tools from State partners to local partners and support local capacity building. Additionally, this project creates the bridge between modeling water quality benefits to implementation of strategies that realize water quality benefits		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Outreach Video (Background of CTWM)	1-3.	WW-2; SC-5; SC-1
Four workshops	4-2; 4-3	WW-2; WW-1; SM-17
Technical Support	1-3.	WW-2; SM-1
Online SAM Portal	1-3.	WW-39; WW-40

LISS New York City/Western Basin Public Outreach Program FY23

Title:	**LISS New York City/Western Basin Public Outreach Program FY23**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	New York Sea Grant	Total Estimate Budget	$193,814.00
Responsible Partners:	N/A	Federal Amount:	$184,123.00
		Match Amount:	$9,691.00
Objectives:	The coordinator will develop programs to educate NYC and other western basin residents about Long Island Sound and encourage environmental stewardship focusing on environmental justice communities.		
Description:	The LISS NYC-Western Basin Outreach Coordinator will be based in NYC and focus on providing outreach support and programming materials, primarily in environmental justice communities, as well as in other areas of the western Basin in NY. The goals and activities will combine community needs with LISS outcomes, objectives and measures in a manner that demonstrates the relevance of the Sound to these communities.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Environmental Justice Work Group - Join quarterly EJWG meetings to inform COE workgroup; Enhancement Grant Proposals to support EJ in LISS: EJ Needs Assessment, and EJ Small Grants Program.	3-1; 4-2	SC-4; SC-5; SM-17
Sound Stewards Program - Continue Sound Stewards Program to involve students and teachers in research projects in LISS stewardship and habitat restoration sites.	3-2.	SC-3; SC-5; SC-19
Volunteer Opportunities - Involve community members in hands-on activities to increase understanding, appreciation, and stewardship. Tasks include updating the "Volunteer Opportunities" webpage on the LISS website and organizing volunteer opportunities	3-1.	SC-11; HW-13; HW-21
Stewardship Days - This project is centered around providing volunteer opportunities in LIS's Stewardship Sites.	3-1.	SC-12
Research and Enhancement - Review LISS Enhancement grant proposals, including collecting input from the new EJ Work Group members. Review for NYSG Research grant pre-proposals	3-1.	SC-8
Lead the Communications, Outreach, and Engagement Workgroup	3-1.	SC-1; SC-6; SC-7
Citizens Advisory Committee (CAC) - CAC meetings coordination and planning, EJ work group update, meeting minutes produced and made available online	3-1; 4-2	SC-13; SM-15; SM-17
Habitat Restoration and Stewardship Work Group - Participation and coordination with work group will help to inform COE work group and identify opportunities for collaboration, outreach products, and assist with public participation with NY projects	2-3; 4-2	HW-22; SM-15
National Fish and Wildlife Foundation's LIS Futures Fund - Provide support and technical assistance to LISFF applicants during application process and if funded. Identify possible outreach opportunities within proposals and to promote funded projects.	3-1; 4-2	SC-8; SM-25; SC-15
General Outreach - Respond to requests for information, including dissemination of written materials, handling requests for information, making public presentations about the LISS to community and business groups, and staffing LISS displays	3-1.	SC-2; SC-7
Professional Development - Identify and attend professional development activities to improve programs	4-2.	SM-15
LISS Web Page- Work with the Communications Team and the Web Page Contractor to update the LISS web site.	3-1.	SC-7; SC-11
LISS Social Media - Social media posts on Facebook, Twitter, and Instagram	3-1.	SC-1; SC-2; SC-8; SC-7

NEIWPCC Long Island Sound Study Program Implementation Support

Title:	**NEIWPCC Long Island Sound Study Program Implementation Support**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$532,851.00
Responsible Partners:	N/A	Federal Amount:	$532,851.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	NEIWPCC is proposing to perform work in service to implement the Communications, Outreach, and Engagement Plan (COE plan). Specifically, our proposal is geared towards increasing the staff directly involved in generating communications products through 1 FTE Scientific writer, as well as a summer intern position. The staff positions will serve as direct support to the Communications and Outreach Coordinator, as well as contributing and refining the products generated by the contractor support in implementing the COE plan		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Staff support for implementation of COE - Science writers to support communications and public outreach materials	2-3; 3-1	SC-6; SC-7; SC-9
Implementation of the COE - Generate increased awareness of LISS projects/goals/mission in service to CCMP	2-3; 3-1	SC-6; SC-7; SC-9
Implementation of the COE - Explore Renaming of LISS	4-3.	SM-32; SM-34
Implementation of the COE - LISS Website 3.0 Upgrades	2-3; 3-1	SC-6; SC-7; SC-9
New or revised CCMP Report	2-3; 3-1	SC-10; SC-7; SC-9
Implementation of the COE - Climate Change website	2-3; 3-1	SC-6; SC-7; SC-9
Implementation of the COE - Step by Step: Curbing Stormwater Pollution	2-3; 3-1	SC-6; SC-7; SC-9

Long Island Sound Study (LISS) New York Public Outreach Program – Public Outreach Coordinator FY23

Title:	**Long Island Sound Study (LISS) New York Public Outreach Program - Public Outreach Coordinator FY23**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	New York Sea Grant	Total Estimate Budget	$254,932.00
Responsible Partners:	N/A	Federal Amount:	$242,185.00
		Match Amount:	$12,747.00
Objectives:	To continue to develop programs to educate NY residents about LIS and encourage environmental stewardship; to fill requests for information from the public and extent publications.		
Description:	Continue the NY Public Outreach Program through 2024, which will fund a full-time public outreach coordinator to oversee the dissemination of accurate, up-to-date, research-based information about the LIS, LISS, and implementation activities of the partnership; and some of the funds will be allocated for a administrative assistant to help carry out the program.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
General Outreach - Respond to requests for information, including dissemination of written materials, handling requests for information, making public presentations about the LISS to community and business groups, and staffing LISS displays	3-1.	SC-2; SC-7
LIS Mentor Teacher Program	3-2.	SC-17
Communications, Outreach, and Engagement Team	3-1.	SC-1; SC-6; SC-7
Public Involvement and Education Work Group	3-1.	SC-6
Citizens Advisory Committee (CAC) - CAC meetings coordination and planning, meeting minutes produced and distributed, maintaining contact lists and attendance tracking	3-1; 4-2	SC-13; SM-15; SM-17
Habitat Restoration and Stewardship Work Group - provide advice and technical assistance to work group meetings and identify outreach products, assist with public participation with NY projects	2-3; 4-2	HW-22; SM-15
Public Involvement and Education Work Group: group currently inactive; adapt if/as necessary according to results of Strategic Communications Plan	3-1.	SC-6

Watersheds and Embayment Work Group - provide advice and technical assistance to work group meetings and identify outreach products, assist with public participation with NY projects as appropriate (e.g. LIS futures Fund projects), provide the public with	3-1; 4-2	SC-14; SM-15
Communications, Outreach, and Engagement: Coordinate with the Communications, Outreach, and Engagement team and create social media posts, campaigns, website updates, news releases, communications products, etc.	3-1.	SC-1; SC-6; SC-7
Environmental Justice Work Group - Hold quarterly EJWG meetings; facilitate development and implementation of EJWG work plan; facilitate creation of new programming and tools in response to results of EJ Needs Assessment	3-1; 4-2	SC-4; SC-5; SM-17
Other Meetings - May include attending Sustainable and Resilient Communities Meetings; STAC Meetings, I-Team Meetings, Management Committee Meetings, etc.	4-2; 4-3	SM-15; SM-37
Volunteer and Stewardship Opportunities - Involve community members in hands-on activities to increase understanding, appreciation, and stewardship.	3-1.	SC-11
Sound Stewards Program - Continue Sound Stewards Program to involve students and teachers in research projects in LISS stewardship and habitat restoration sites.	3-2.	SC-19
Teacher Workshops and Resources - To coordinate, host, and promote NY workshops as needed. Continue to promote and distribute LIS educational resources to teachers and informal educators. Adapt resources, programing, workshops, and webinars as needed.	3-2.	SC-17, SC-18, SC-19
Sound Update Newsletter - One issue of Sound Update is produced each year.	3-1.	SC-7
Research and Enhancement - Review LISS Enhancement grant proposals and NYSG Research Grant proposals when appropriate, including collecting input from the EJWG members when necessary. Contribute ideas and resources for grant proposals.	3-1.	SC-8
National Fish and Wildlife Foundation's LIS Futures Fund - Provide support and technical assistance to LISFF applicants during application process and if funded. Identify possible outreach opportunities within proposals and to promote funded projects.	3-1; 4-2	SC-8; SM-25; SC-15
Professional Development - Identify and attend professional development activities to improve programs	4-2.	SM-15

Coordinated NEPs - Assist and coordinate activities with the NY-NJ Harbor Estuary Program, the Peconic Estuary Program Outreach Coordinator, and the SSER Science and Outreach Coordinator. Organize NY outreach staff meetings.	3-1.	SC-1
Future programming: Provide assistance to the Outreach Coordinator as new programs are developed and implemented.	3-1.	SC-2; SC-7
Sound Update Newsletter: Manage the mailing list database, manage contractor invoices, assist with other aspects as needed.	3-1.	SC-7
Mailings: Handle all mail (incoming and outgoing) for program. Responsible for updating mailing lists and producing mailing labels. Track mailings and responses to inquiries.	3-1.	SC-2; SC-7
Travel: Manage all aspects of the fleet vehicle (reports mileage, registration, and proper maintenance).	3-1.	SC-2; SC-7
Basic Outreach: Respond to requests for information when the Outreach Coordinator is out of office. Respond to media inquiries or direct calls to appropriate staff member.	3-1.	SC-2; SC-7

Long Island sound Connecticut Outreach Program FY23

Title:	**Long Island Sound Connecticut Outreach Program FY23**		
Activity Type:	Public Education and Outreach	Project Type:	Ongoing
Implementing Agency:	Connecticut Sea Grant	Total Estimate Budget	$180,284.00
Responsible Partners:	N/A	Federal Amount:	$170,486.00
		Match Amount:	$9,798.00
Objectives:	CT LISS Public Outreach Coordinator will increase appreciation, stewardship, awareness and understanding of Long Island Sound and efforts to restore and protect it; Emphasize educational programs for diverse communities and stakeholders that lead to the protection and restoration of Long Island Sound's natural resources; Work with teams to enhance public relations, develop innovative programs and materials to enhance environmental/ocean literacy and respond to requests for information about LIS/LISS; Enhance the stewardship of Long Island Sound, using the Long Island Sound Study Stewardship Sites to share an appreciation for the impacts of investments on the restoration of Long Island Sound.		
Description:	LISS Outreach Coordinator will serve as Co-PI on this task, collaborating with other Long Island Sound Study (LISS) partners in Connecticut and New York to increase appreciation, stewardship, awareness and understanding of Long Island Sound and efforts to restore and protect it.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Outreach support for LISS CAC	3-1; 4-2	SC-13; SM-15; SM-17
Participation in LISS committee and workgroup meetings	3-1.	SC-7
Expand opportunities for individuals to engage as LIS/watershed environmental stewards or citizen scientists	3-1; 3-2	SC-2; SC-7; SC-12
Outreach support for CT NERR	3-1; 3-2; 4-2	SC-8; SC-19; SM-25
Contribute to implementation of LIS Marine Debris Action Plan	1-2.	WW-20; WW-21
Professional development and Sea Grant responsibilities	4-2.	SM-15
LISS Communications, Outreach, and Engagement Work Group	3-1.	SC-1; SC-6; SC-7
Outreach programs, education and tools for traditional and multicultural audiences	3-1; 4-2	SC-1; SC-4; SM-17
Outreach support for LISS work groups and teams	3-1.	SC-7; SC-10
Outreach support for funding opportunities (LISFF, etc.)	3-1.	SC-8; SC-15
General outreach as primary contact in CT for info on LIS/LISS	3-1.	SC-7

b. Stewardship and Resiliency. In FY2021, LISS developed two new working groups to progress this Stewardship and Resiliency, in which LISS has set out the following goals: Adopt and support the five-year action plan, created by the new Sustainable and Resilient Communities Work Group, to help communities plan for climate change impacts while strengthening ecological health and protecting local economies; foster and support public engagement and knowledge with added emphasis on environmental justice initiatives; and increase environmental justice considerations in implementation and decision-making through the new Long Island Sound Study Environmental Justice Work Group.

- Sustainable and Resilient Communities Work Group: In FY2020, the LISS funded CT and NY SEA to support a year-long process to develop a focused and strategic five-year work

plan for the Sustainable and Resilient Working Group. The work group was charged with improving implementation of CCMP goals related to the Sustainable and Resilient Communities theme. Through a transparent and inclusive process, the work plan identifies five priorities: 1) better coordinated regional response, 2) better trained community decision makers, 3) infrastructure improvements planning, 4) viability of government services, and 5) facilitated implementation. The first year of the work plan was approved for funding in FY2021. In FY2021, CT and NY SEA published the completed five-year work plan on the LISS website and hired five Sustainable and Resilient Communities Extension Professionals to support local communities. The Extension Professionals finished conducting a Needs Assessment in November 2022 to improve understanding of Long Island Sound coastal communities needs to increase resiliency. In November 2022, CT and NY Sea Grant launched a grant writing assistance program, Breaking Down Barriers, to assist NY and CT entities in writing grant applications. To date, the program has assisted 14 applicants in writing grants to programs such as the Long Island Sound Futures Fund. This work will continue to be funded in FY23.

- Environmental Justice (EJ) Work Group: In October 2020, the Management Committee formally approved the EJ Work Group, which brings together people in the watershed to help LISS advance EJ implementation work and better serve the needs of marginalized and underrepresented communities who are disproportionately affected by environmental hazards. In January 2022, the EJ Work Group presented a five-year work plan to its members. The work plan outlines the activities the work group will implement to achieve the EJ goals of the program. The EJ Work Group is updating the five-year work plan to reflect progress made and iterative learning over the summer of 2023.
- LIS Sentinel Monitoring Program: Initiated in 2017, the LISS Sentinel Monitoring strategy included three pilot projects to informed the Sentinel Monitoring work team to update the strategy. The report, *Sentinel Monitoring for Climate Change in the Long Island Sound Estuarine and Coastal Ecosystems of New York and Connecticut (Vol 2)*, was completed and posted on the LISS website in 2018. The work team also reviewed drafts of the LIS Climate Vulnerability Assessment conducted by Dr. Juliana Barrett of Connecticut Sea Grant. Dr. Juliana Barrett presented the completed LIS Climate Vulnerability Assessment at the July 18, 2019, Management Committee Meeting. Using FY2020 funds, NEIWPCC held a workshop in June 2022 to engage Long Island Sound stakeholders to help identify monitoring gaps and develop a LISS sentinel monitoring network. As a result of the workshop, the Climate Change and Sentinel Monitoring Work Group is working with LISS partners to address data gaps (i.e., tidal marshes indicators).
- Climate Ready Estuaries: Under an agreement, UCONN acquired, deployed, and tested the pH and total CO2 sensors for monitoring acidification in Long Island Sound. These systems require additional development to reduce operations and maintenance effort and to improve data quality. In addition, remote sensing reflectance and derived products from several sensors and methodologies were tested. Algorithms to retrieve chlorophyll concentrations were tested. The evaluation of data suggests that data from new sensors, such as Sentinel, may allow the distribution of near real-time Chl products for LIS in the future. This work allowed for a more thorough application of a local algorithm relating optical patterns and environmental forcing that may drive their variability over time and space. LISS assisted in the development of EPA's *Measuring Coastal Acidification Using In Situ Sensors in the National Estuary Program* report, which discusses LISS' experiences, and nine other NEPs, in conducting coastal acidification monitoring using these sensors. LISS has initiated their own extensive coastal acidification monitoring program (see Monitoring for more details).

The following Stewardship and Resiliency projects were approved to be funded in FY2023 to further our progress:

DEIJ Trainings for LISS Partnership

Title:	**DEIJ Trainings for LISS Partnership**		
Activity Type:	Stewardship and Resiliency	Project Type:	New
Implementing Agency:	New York Sea Grant	Total Estimate Budget	$31,500.00
Responsible Partners:	N/A	Federal Amount:	$31,500.00
		Match Amount:	$0.00
Objectives:	Provide opportunity for members of the LISS partnership to gain a better understanding of diversity, equity, inclusion, and justice terminology, history, and practices.		
Description:	Basic Trainings on Diversity, Equity, Inclusion, and Justice for the Long Island Sound Study Partnership, including sessions for the Citizens Advisory Committee and the Management Committee.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	N/A		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Virtual and 2 in-person trainings	4-2.	SM-17

Resilient and Sustainable Communities Work Plan FY23

Title:	**Resilient and Sustainable Communities Work Plan FY23**		
Activity Type:	Stewardship and Resiliency	Project Type:	Continuing
Implementing Agency:	New York and Connecticut Sea Gra	Total Estimate Budget	$1,113,594.00
Responsible Partners:	N/A	Federal Amount:	$1,057,615.00
		Match Amount:	$55,979.00
Objectives:	The overall objective of this proposal is to implement the third year of the work plan developed by the Sustainable and Resilient Communities Working Group to advance the Sustainable and Resilient Communities theme of the CCMP.		
Description:	The LISS Sustainable and Resilient Work Group developed a 5-year work plan, in which this proposal will implement year 3. The work plan has the following desired outcomes: coordinated regional response; trained decision-makers; planned infrastructure improvement; viable government services; and facilitated implementation of Long Island Sound sustainability and resilience projects.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Supporting Sustainable Wastewater Infrastructure**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Improve coordination among levels of government	3-3; 3-4	SC-20; SC-23; SC-24
Continue the development of a project pipeline	3-3; 3-4	SC-20; SC-24; SC-27
Continue Breaking Down Barriers to Implementation Program	3-3; 3-4	SC-20; SC-23; SC-24; SC-27
Hold annual bi-state workshop	3-3; 3-4	SC-20; SC-23; SC-24; SC-27
Maintain a clearinghouse of tools and resources	3-3; 3-4	SC-20; SC-23
Support Sustainable and Resilient Communities work group and other administrative tasks	3-3; 3-4	SC-20; SC-23
Develop training programs to improve the use of tools	3-4.	SC-23

Implementation of the LISS Sustainable and Resilient Communities Working Group Work Plan: Breaking Down Barriers to Implementation Phase 2

Title:	**Implementation of the LISS Sustainable and Resilient Communities working group work plan: Breaking down barriers to implementation Phase 2**		
Activity Type:	Stewardship and Resiliency	Project Type:	Continuing
Implementing Agency:	New York and Connecticut Sea Gra	Total Estimate Budget	$1,362,064.00
Responsible Partners:	N/A	Federal Amount:	$1,296,000.00
		Match Amount:	$66,064.00
Objectives:	To implement the second year of the SRC BDB Program and to address the most pressing needs in the Long Island Sound region, while advancing the goals of the LISS CCMP. The objective of the BDB grant writing assistance Program is to provide grant preparation and writing assistance to enhance the capacity of a community to apply for funding sources to support sustainability and resilience focused projects		
Description:	The SRC Needs Assessment, conducted throughout 2022, guided the development of the pilot phase of the BDB program (detail below). The FY23 BDB Program (planned to be announced in Fall 2023) will continue to address the most important barriers to sustainability and resilience focused project implementation in the region. The request for program support in FY23 will enable the SRC Extension Professionals to extend support to more communities within the Long Island Sound Study coastal boundary and help communities to capitalize on available federal and state funding opportunities.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Supporting Sustainable Wastewater Infrastructure**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Develop and roll out programs to address barriers to implementation	3-3; 3-4	SC-20; SC-23; SC-24; SC-27

Environmental Justice – Internal Assessment

Title:	**Environmental Justice - Internal Assessment**		
Activity Type:	Stewardship and Resiliency	Project Type:	New
Implementing Agency:	EPA	Total Estimate Budget	$43,000.00
Responsible Partners:	TBD	Federal Amount:	$43,000.00
		Match Amount:	$0.00
Objectives:	To hire a contractor to conduct an internal assessment of the LISS partners' understanding of environmental justice.		
Description:	To hire a contractor to conduct an internal assessment of the LISS partners' understanding of environmental justice.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

4. **Sound Science & Inclusive Management** sets out the mission to manage Long Island Sound using sound science and cross-jurisdictional governance that is inclusive, adaptive, innovative, and accountable. The following program activities are used as subsections to highlight our FY2022 accomplishments and introduce planned FY2023 activities, including project details: Coordination, and Research.
   a. **Coordination.** As mentioned throughout the workplan, LISS has funded staff positions to carry out the program, in addition to the EPA staff. Please refer to Attachment 1 for a full list of staff positions that better our coordination.
      - Federal Partners Coordination Work Group: In FY2022, EPA coordinated and lead the Federal Partners Coordination Work Group to advance collaboration among participating agencies, expand involvement to new agencies as needed. Synchronize the development of

consistent Federal policies, priorities, strategies, and projects for addressing the CCMP and assisting in the appropriate management of the related federal resources by capitalizing and focusing on utilizing existing federal resources. The group will work to ensure that our collective efforts will energize ongoing programs, bridge new cross-agency partnerships, engage new federal partners, and leverage existing resources.

- Tracking and Reporting: As the only Federally led NEP, EPA's authority to require and collect information is limited to that contained in enabling statutes and regulations. CWA §320 and §119 indicate specific reporting requirements and EPA regulations, under 40 CFR Parts 30 and 31, provide further reporting requirements for grantees. Finally, EPA grant regulations provide several reporting requirements (e.g., quarterly or semi-annual reporting on grant progress). EPA LISNPO is responsible for the overall LISS tracking and reporting systems for the NEP. In 2011 the LISS Management Conference partners agreed to a process to revise and update the 1994 CCMP, which was completed and issued in Spring 2015. The 2015 CCMP also sets 20 ambitious, but achievable, long-term targets for the ecosystem. These ecosystem targets are intended to drive progress toward attaining CCMP goals. Measuring, tracking, and reporting environmental indicators of each ecosystem target will provide information to assess progress and refine and adapt management as needed. Some of the targets include intermediate goals. For example, the ecosystem target to reduce effective impervious cover by ten percent in twenty years would assume a pace of 0.5 percent per year. Progress at any point in time would be assessed against the rate needed to attain the long-term target. In July 2018, the Government Accountability Office (GAO) completed a review of the LISS, Long Island Sound Restoration: Improved Reporting and Cost Estimates Could Help Guide Future Efforts (GAO-18-410). The GAO recommended that the EPA work with the LISS to ensure that it fully incorporates leading practices into performance reporting efforts. The LISS supported contractor work to enhance performance tracking and reporting of implementation actions and progress, most likely through web-based platforms. This new system will replace the annual e-Sound CCMP Implementation Tracking Report, which was organized around the 1994 CCMP.

  To better coordination efforts, the EPA LISNPO developed a LISS SharePoint Tracking and Reporting Tool to better track the progress of the 2020-2024 CCMP Implementation Actions. This tool fulfills the GAO recommendation to ensure that as the Study finalizes its reporting format, it fully incorporates leading practices of performance reporting by mid-year 2021. As we developed this tool, we recognized that there are many overlaps between all of our tracking and reporting efforts, and therefore collecting all information into a centralized location and creating linkages will streamlines our efforts. The tool consists of three interconnected data tables: 1) Implementation Actions Table, 2) Projects Table, and 3) Progress Reporting Table.

  By linking these three tables, we are able to use grant progress reporting to fulfill our Implementation Action reporting requirement since the progress of Implementation Actions directly relies upon the progress of LISS funded projects. The tool helps guide our annual cycle including providing financial assistance to partners to complete projects that address the CCMP, in which semi-annual Progress Reports, linked to the CCMP, are used to populate the Tool. We then utilize SharePoint and associated apps like Power Business Intelligence (BI) to build reports to drive future informed decision making and investments which is then communicated with LISS partners and the public. Additionally, LISS has developed a Program Progress and Implementation webpage which includes selected fields from the tool. This will enable the program to communicate in a transparent way how investments of public funds are achieving desired outcomes in the condition of the Long Island Sound ecosystem.

The Tool holds the program accountable by linking our investments back to the CCMP and effectively measuring program implementation and progress.

The following Coordination projects were approved to be funded in FY2023 to further our progress:

Connecticut State Coordination

Title:	**Connecticut State Coordination**		
Activity Type:	Coordination	Project Type:	Ongoing
Implementing Agency:	CT DEEP	Total Estimate Budget	$1,243,693.00
Responsible Partners:	N/A	Federal Amount:	$746,216.00
		Match Amount:	$497,477.00
Objectives:	Provide support for CT DEEP's LISS Reporting Coordinator (LISSRC), Technical Coordinator (LISSTC), and 3 Project Coordinators (LISSPC) to plan, implement, coordinate, manage, and progress projects that support the CCMP.		
Description:	These positions are wholly devoted to the LISS; by bringing devoted CT DEEP resources to the table we assure that both Connecticut and the greater LISS will achieve the full benefits of the partnership.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
LISSPC 2 - Manage CT State water quality projects funded with LISS funds	4-2.	SM-13
LISSPC 2 - Work with other CT DEEP divisions sponsoring LISS funded projects	4-2.	SM-13
LISSPC 3 - Support work groups	4-3.	SM-14; SM-35
LISSPC 2 - Support work groups	4-2; 4-3	SM-14; SM-35
LISSPC 3 - Manage CT State water quality projects funded with LISS funds	4-2.	SM-13
LISSPC 3 - Work with other CT DEEP divisions sponsoring LISS funded projects	4-2.	SM-13
LISSTC - Dissemination of LIS Information and Outreach	3-2; 3-3	WW-2; SC-11; SC-21
LISSTC - Implement the LIS Nitrogen TMDL and CT DEEP's Second Generation Nitrogen Strategy (nutrient reduction programs)	1-1; 4-2; 4-3	WW-2; WW-4; WW-7
LISSTC - Technical coordination of science and management for nitrogen reduction efforts.	1-1.	WW-1; WW-27; WW-28

LISSTC - Watershed planning and stormwater/nonpoint source implementation; Participate in EPA's LIS Nitrogen Reduction Strategy	1-1; 1-3	WW-7; WW-14; WW-27
LISSRC - Participation in LISS workgroups and tasks	4-2.	SM-13
LISSRC - Implementing the LIS 2015 CCMP	4-2.	SM-15; SM-36
LISSRC - Tracking and Reporting	4-2.	SM-32; SM-33; SM-34
LISSTC - Coordinate CT DEEP review of grant proposals for LISS	4-2.	WW-2; WW-8; SM-19
LISSTC - Participation in LISS workgroups and tasks	4-2.	SM-11; SM-35
LISSPC 1 - Coordinate and manage Connecticut watershed model update	1-1; 1-3	WW-14; WW-27; WW-28
LISSPC 1 - Committee and workgroup support	1-1; 4-3	SM-35; WW-3; SM-34
LISSPC 1 - Coordinate and manage partner and workgroup tasks	1-1; 2-3; 3-1	WW-1; WW-2; SC-4
LISSPC 1 - Coordinate and planning for CT DEEP LISS needs	2-3; 3-1; 4-2	SC-4; SM-14
LISSRC - Coordinate and support diverse participation of state agency staff in activities relevant to the LISS partnership and implementation of the CCMP that meet state commitments to LISS	4-2.	SM-18; SM-29

USGS Staff Support for the Long Island Sound Study

Title:	**USGS Staff Support for the Long Island Sound Study**		
Activity Type:	Coordination	Project Type:	New
Implementing Agency:	USGS	Total Estimate Budget	$250,000.00
Responsible Partners:	N/A	Federal Amount:	$250,000.00
		Match Amount:	$0.00
Objectives:	To provide technical support to the LISS		
Description:	USGS will hire staff to provide technical support to LISS		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
USGS coordination (Point of Contact)	4-2.	SM-13
Technical Support, Systemwide model	4-2.	SM-13
Open Science Planning	4-2.	SM-13

CCMP Revision Support and Facilitation Contract

Title:	**CCMP Revision Support and Facilitation Contract**		
Activity Type:	Coordination	Project Type:	New
Implementing Agency:	EPA	Total Estimate Budget	$100,000.00
Responsible Partners:	TBD	Federal Amount:	$100,000.00
		Match Amount:	$0.00
Objectives:	To hire a contractor to provide support and faciliation as LISS undergoes a CCMP Revision.		
Description:	To hire a contractor to provide support and faciliation as LISS undergoes a CCMP Revision.		
Estimated Milestones:	October 1, 2023 - September 30, 2024		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

NEIWPCC LISS Program Implementation Support FY23: Task 2 – Program Management and Travel Support

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 2 - Program Management & Travel Support**		
Activity Type:	Coordination	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$243,847.00
Responsible Partners:	N/A	Federal Amount:	$243,847.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	NEIWPCC will complete the following sub-tasks: Meeting Support, ANEP Support, Participant Support, Program Management		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
LISS Meeting Coordination - Coordinate logistical support for quarterly in-person MC and CAC Meetings.	4-2.	SM-13
Participant Support - Provide participant support (financial assistance) for LISS CAC & MC members, state, and other LISS partners to participate in LISS or NEP meetings/workshops/trainings in order to engage stakeholders in LISS activities.	4-2.	SM-13
Program Management & LISS Participation - Supervise NEIWPCC staff located at LIS and NYS offices; Provide program management for NEIWPCC partnership with LISS; Provide NEP support as requested by EPA or LISO; Staff participates in workgroup and meetings.	4-2.	SM-13
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes.	4-3.	SM-35
CCMP Revision Support - Facilitate the revision of the LISS CCMP through staff-led discussions and working group participation to consider successes of the latest iteration of the CCMP and make recommendations for improving implementation	4-3.	SM-35

b. Research. The LISS STAC met three times in FY2022, with primary investigators of funded projects and others making presentations to report on progress. The three meetings focused on shellfish, eelgrass, and macroalgae restoration, wind energy, hypoxia and climate change, modeling efforts, invertebrate monitoring, and open science, respectively. STAC meeting minutes are posted on the LISS website.

- Long Island Sound Research Program: Scientific research provides a key to better understanding and more effectively managing Long Island Sound. Recognizing the important role that research plays in decision-making, the EPA, CTSEA, and NYSEA developed a cooperative program to fund research in support of the LISS. Initiated in 1999, the Long Island Sound Research Grant Program awards funds to researchers whose work helps meet the needs of decision-makers to improve the management of Long Island Sound. Generally, the LISS has held competitions biennially, combining funds from two fiscal years. Research projects funded from prior cycles of the Research Program are ongoing. In FY2022, CT and NYSEA released an RFP for preliminary proposals to select research projects. Nine projects were selected for funding and will take place from 2023-2025.
- Ecosystem Status and Trends: The LISS federal, state, local and academia partners monitor ecosystem status and trends for a suite of environmental indicators. The indicators are linked back to CCMP ecosystem targets and provide information on the abundance, diversity, distribution, viability, and/or quality and trends of the resource being monitored. As noted previously, the 2015 CCMP sets 20 ecosystem targets. Measuring, tracking, and reporting the ecosystem targets and indicators provides information to assess progress and refine and adapt management as needed. Reporting on targets and indicators on a periodic basis is a complex process, because the LISS does not directly pay for or support the data collection efforts for many of them. These are the province of other entities that are either directly responsible for that data collection by law, statute, regulation or by history or organizational preference. Instead, LISS works to use existing data when available, and collect new data as needed. In October 2021, the Indicators Team developed an EPA-approved Quality Assurance Project Plan to management the Ecosystem Target and Supporting Indicators Microsite.

The following Research projects were approved to be funded in FY2023 to further our progress:

NEIWPCC LISS Program Implementation Support FY23: Task 5 – Science Coordinator

Title:	**NEIWPCC LISS Program Implementation Support FY23: Task 5 - Science Coordination**		
Activity Type:	Research	Project Type:	Ongoing
Implementing Agency:	NEIWPCC	Total Estimate Budget	$181,974.00
Responsible Partners:	N/A	Federal Amount:	$181,974.00
		Match Amount:	$0.00
Objectives:	NEIWPCC will continue promoting efforts to restore and protect the Sound and its resources; highlight the LISS role in the protection of the Sound; promote an understanding and appreciation of the Sound as a regional ecosystem and a national treasure; and encourage action to restore and protect the Sound.		
Description:	The NEIWPCC LISS Science Coordinator will develop and maintain professional scientific and technical contacts among the LISS partners, as well as among local/regional/national/international scientific communities, as the issues or topics warrant. NEIWPCC's Science Coordinator will manage the scientific resources of the LISS, including collecting and organizing relevant references; and organizing and conducting conferences, meetings, symposia, or other web-based discussions on topics of relevance or concern to the science of the LIS ecosystem.		
Estimated Milestones:	October 1, 2023 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Coordinate scientific research activities - Coordinate and integrate science and research activities with state and federal partners and other scientists/scientific bodies via staff participation in LISS MC and I-Team meetings; Report to LISS MC at least	1-3; 4-3	WW-28; SM-25; WW-39
Science liaison to partner groups and agencies - Represent LISS at one regional or national event annually; Assist Sea Grant programs with competitive research grant programs and biennial LIS research conference; Participate in development and assessment	4-1; 1-1	SM-5; SM-11; WW-8
Coordination of the STAC and Water Quality Monitoring Workgroup - Hold regular meetings (3 times annually) of the STAC and Water Quality Monitoring workgroups. Distribute meeting agendas and minutes; Compile & document scientific research needs assessment	4-1; 1-3	SM-1; WW-28
Reporting - Develop and report progress on NEIWPCC's sections of the annual Long Island Sound Study work plans to consider progress made and recommendations for improving implementation to achieve desired outcomes.	4-3.	SM-35
CCMP Revision Support - Facilitate the revision of the LISS CCMP through staff-led discussions and working group participation to consider successes of the latest iteration of the CCMP and to then make recommendations for improving implementation to inclu	4-3.	SM-35

Long Island Sound Research Grant Program FY23

Title:	**Long Island Sound Research Grant Program FY23**		
Activity Type:	Research	Project Type:	Ongoing
Implementing Agency:	New York and Connecticut Sea Gra	Total Estimate Budget	$4,300,000.00
Responsible Partners:	N/A	Federal Amount:	$3,000,000.00
		Match Amount:	$1,300,000.00
Objectives:	The first objective is to identify and fund high priority, high quality research needed to best achieve the vision, goals, and targets of LISS CCMP. The second objective is to promptly share the results of the research and assessment work, providing critical, new, science-based information that can inform decision-making and actions towards reaching the vision and goals for the Long Island Sound laid out in the CCMP.		
Description:	The NY and CT Sea Grant programs propose to jointly administer a competitive research program to address the needs of the LISS. These needs are derived from the LISS CCMP and prioritized for developing a request for proposals (RFP) with input from the LISS Science & Technical Advisory Committee and the Science Coordinator.		
Estimated Milestones:			
CWA Program Elements	N/A		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Share results at the LISS Research Conference	4-1.	SM-1
Select research projects through an open, competitive, peer review process.	4-1.	SM-1
Fund and administer the selected projects	4-1.	SM-1

c. Implementation Assistance. The LISFF Grant program is the primary LISS vehicle for funding implementation projects to address CCMP and other program priorities at a local scale. The LISFF is administered by NFWF who provide technical Assistance to communities of practice in developing project proposals for their communities, including environmental justice, urban waters, youth and underserved communities and areas designated as distressed communities in Connecticut.

In FY2022, the LIS Futures Fund was funded at $10,650,000. The LISFF announced 41 grants totaling $10.3 million to local government and community groups to improve the health and ecosystem of Long Island Sound. The LISFF 2022 projects will reach more than 290,000 residents through environmental and conservation education programs. Water quality improvement projects will treat over 4 million gallons of stormwater, install over 5,400-square-feet of green infrastructure and engage people in environmental education from all over the Long Island Sound watershed. The projects will also restore over 5 acres of coastal habitat for fish and wildlife. The funds will be matched by $5.8 million from the recipients, resulting in $16.1 million in funding for on-the-ground conservation projects.

The LISS initiated the Long Island Sound Futures Fund in 2005 through the U.S. EPA's Long Island Sound Office and NFWF. Since then, the LISFF invested over $42 million in 570 projects. The program has generated an additional $54 million in grantee match, for a total conservation impact of $97 million for regional and local projects. The projects have added 115 river miles for fish passage, restored 842 acres of critical fish and wildlife habitat, treated 206 million gallons of pollution, and educated and engaged over 4.2 million people in protection and restoration of the Sound. These projects are responsive to the new Long Island Sound CCMP and other LISS priorities.

For FY2022, the funding categories have changed to Implementation Project ($50,000-$1,500,000), Design/Planning Projects ($50,000-$500,000), Community Science/Water Quality

Monitoring ($50,000-$100,000), and Education and Public Participation Grants ($50,000-$250,000). When the projects are selected and awards are administered, they will be categorized into one of the following program activities for tracking and reporting purposes: 1) Coordination, 2) Water Quality Planning and Implementation, 3) Modeling, 4) Monitoring, 5) Research, 6) Habitat Restoration and Protection, 7) Public Education and Outreach, or 8) Stewardship and Resiliency. These categories were again used for FY2023. The following table shows the level of FY2023 funding to LISFF:

Title:	**Long Island Sound Futures Fund 2023**		
Activity Type:	Implementation	Project Type:	Ongoing
Implementing Agency:	NFWF	Total Estimate Budget	$16,866,667.00
Responsible Partners:	N/A	Federal Amount:	$12,650,000.00
		Match Amount:	$4,216,667.00
Objectives:	To help accelerate the restoration and protection of Long Island Sound through support of implementation activities that address the specific commitments and recommendations of the 2020-2024 CCMP.		
Description:	This project will 1) provide support for management of the Long Island Sound Futures Fund (LISFF) grant program NFWF, the direct recipient of the EPA Co-op funds; 2) provide individual grants to subrecipients with EPA Co-op monies towards projects that contribute to the protection and restoration of the health and living resources of Long Island Sound; and 3) make investments in on-the-ground actions in communities to improve water quality, protect habitat and living resources, educate and involve the public, improve the long-term understanding of how to manage the Sound, monitor progress, and redirect management efforts as described in the 2020 CCMP.		
Estimated Milestones:	October 1, 2022 - September 30, 2023		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Conduct proposal evaluations	4-2.	SM-13
Deliver technical networking and grant announcement event	4-2.	SM-13
Adapt the LISFF to strategically address the CCMP Update, increased funding and changing scope of work	4-2.	SM-13
Develop LISFF RFP and associated application materials	4-2.	SM-13
Disseminate RFP through partners and multiple formats	4-2.	SM-13
Deliver multiple forms of applicant and subrecipient technical assistance	4-2.	SM-13
Deliver multiple forms of education about LISFF investments and impact	4-2.	SM-13
Engage federal and nonfederal partnerships and networks	4-2.	SM-13
Administer subrecipient grants and recipient cooperative agreements	4-2.	SM-13
Finalize investment business planning	4-2.	SM-13

C. FY2023 BIL Projects

The Biden-Harris Administration has memorialized the priority to ensure that the benefits of the BIL reach all communities through the provision of technical and financial assistance. The BIL identifies EPA's Geographic Programs and NEPs as key partners to enhance implementation projects and assistance to communities.

The LISS's goal for BIL funding is to significantly improve Long Island Sound's environmental health, climate resilience, and economic vitality in an equitable manner in communities across the Sound's watershed. Stated in the F*Y2022-2026 Bipartisan Infrastructure Law National Estuary Program Interim Funding Guidance*, BIL funding is to implement the CCMP that significantly support environmental justice and climate resilience. Furthermore, BIL funding should meet the following elements: 1) accelerate and more extensively implement the CCMP, 2) prioritize projects in, and benefits to, underserved and disadvantaged communities, 3) build the adaptive capacity of ecosystems and communities, and 4) leverage and support additional resources. The Study will abide to all guidance as it is developed. Match for all BIL funds has been waived for LISS via the approval of the LISS equity strategy, which was received in 2023. Within this strategy LISS outlines ways it is investing in projects that meet our Justice 40 goal in which 40 percent of BIL investments' benefits will accrue to disadvantaged communities.

LISS has taken the opportunity of guaranteed funding and waived match to fund multi-year projects, such as NYSDEC WQIP and MassDEP wastewater treatment plant upgrades, that began in FY22.

Similar to Section B, this section outlines the BIL projects in which are 'broken up' by the following categories:

1. Clean Waters
2. Healthy Ecosystems
3. Strong Communities
4. Sound Science and Inclusive Management

The following is the format we present our FY2023 projects:

Title:	*Title of project or task*		*New: first year of project for LISS* *Continuing: prior year funded project*
Activity Type:	*Identified LISS Program Activity*	Project Type:	*On-going: multi-year or base program project*
Implementing Agency:	*LISS Grantee Name*	Estimated Budget:	*Total estimated budget of project or task*
Responsible Partners:	*Other responsible partners of the project or task*	Federal Amount:	*LISS funded amount*
		Match Amount:	*Grantee match amount*
Objectives:	*Objective of the project or task*		
Description:	*Description of the project or task*		
Estimated Milestones:	*Project start and completion date (EPA Grant/IAG Date(s))*		
CWA Program Elements	*Identified CWA Core Elements*		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Anticipated outputs or deliverables of project	*Anticipated and/or completed accomplishments (Identified Environmental Outcomes)*	*Link to LISS CCMP by identified project's addressed IAs*

1. **Clean Waters.**
   The first year and futures years of BIL funding will focus on infrastructure improvement projects in Connecticut, New York, and the upper watershed state of Massachusetts to enhance water quality. This will include funding toward green infrastructure, transition to innovative septic systems, and nitrogen reduction upgrades to wastewater treatment plants. Additionally, to better understand the embayment conditions and implement site-specific infrastructure improvement

projects, the LISS will invest in a new vessel to be used for CT DEEP's Long Island Sound Water Quality Monitoring program and associated research projects.

a. **Water Infrastructure**

- Water Quality Improvement Projects: NYSDEC has released the first RFA for the LISS WQIP program in June 2023. Projects will be announced in December and begin work in January 2024.

NYS Water Quality Improvement Projects (WQIP)

Title:	**NYS Water Quality Improvement Projects (WQIP)**		
Activity Type:	Infrastructure	Project Type:	Ongoing
Implementing Agency:	NYSDEC	Total Estimate Budget	$3,000,000.00
Responsible Partners:	N/A	Federal Amount:	$3,000,000.00
		Match Amount:	$0.00
Objectives:	The objective of adding funds to NYS's WQIP Program is to assist municipalities in the implementation of projects that would lead to improving the water quality of Long Island Sound.		
Description:	The Water Quality Improvement Projects (WQIP) Program is a competitive, reimbursement grant program that funds projects that directly address documented water quality impairments or protect a drinking water source. The program is managed by NYSDEC Division of Water staff and has funded hundreds of projects over 17 rounds of funding. It has been successful at assisting eligible applicants and at completing construction/implementation projects in categories such as wastewater treatment improvement, non-agricultural nonpoint source abatement and control, aquatic connectivity restoration. The WQIP program is on avenue for the NYS DEC to implement projects that advance implementation recommendations in TMDLs or Nine Element Plans for State waters.		
Estimated Milestones:	October 1, 2022 - September 30, 2025		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Grant Management	1-1; 1-3	WW-2; WW-35

NYS Long Island Sound Watershed Septic System Replacement

Title:	**NYS Long Island Sound Watershed Septic System Replacement**		
Activity Type:	Infrastructure	Project Type:	Ongoing
Implementing Agency:	NYSDEC	Total Estimate Budget	$3,000,000.00
Responsible Partners:	N/A	Federal Amount:	$3,000,000.00
		Match Amount:	$0.00
Objectives:	The objective of this funding would be to grow the current septic replacement programs established in the two counties. The funds would be exclusively for the Long Island Sound watershed, as delineated by USGS in 2021. These additional funds will increase the rate and number of replacements in the watershed, leading to a reduction in the nitrogen entering the groundwater.		
Description:	NYS's Septic System Replacement Fund Program provides critical funding to counties to assist homeowners with replacing cesspools, or inadequate septic systems that impair water quality. Suffolk County with 380,000 systems, and Nassau County with 100,000 systems have the highest number of septic systems, per county, in New York State. Using state funding Each county has built a local grant programs to allow homeowners to upgrade their systems with innovative/alternative on-site treatment systems (I/A OWTS) that treat nitrogen to at least 19 mg/L. The level of nitrogen in the effluent from a conventional septic system is 40 mg/L.		
Estimated Milestones:	October 1, 2022 - September 30, 2024		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Grant Management	1-1.	WW-12; WW-7

Nitrogen Reduction Upgrades to WWTPs

Title:	**Nitrogen reduction upgrades to WWTPs**		
Activity Type:	Infrastructure	Project Type:	Ongoing
Implementing Agency:	MA DEP	Total Estimate Budget	$4,000,000.00
Responsible Partners:	N/A	Federal Amount:	$4,000,000.00
		Match Amount:	$0.00
Objectives:	The objective of this project is to implement the recommendations for nitrogen removal at the WPCF, which involves a variable operating model approach, and therefore achieve nitrogen reductions to the Long Island Sound.		
Description:	The Chicopee WPCF is a wet-weather treatment facility with an average flow of 15.5 million gallons per day (MGD) and a peak hourly flow of 47 MGD, serving a population of approximately 55,000. The WPCF utilizes a high purity oxygen (HPO) secondary treatment system that discharges to the Connecticut River, and ultimately Long Island Sound. The City has been issued a final permit that includes a mass-based annual average total nitrogen limit of 647 lbs/day (5 mg/L at 15.5 MGD). In 2017, Woodard & Curran began a high-level evaluation to study the feasibility and requirements to achieve this nitrogen limit at the Chicopee WPCF. In 2021, with the permit requirements becoming clearer coupled with a better understanding of the WPCF processes, performance and land/space available for improvements, Woodard & Curran updated the 2017 report culminating in a formal recommendation and refined cost estimates for upgrades to achieve the new total nitrogen permit limit at the WPCF.		
Estimated Milestones:	October 1, 2022 – September 30, 2027		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Design of necessary improvements to the WPCF	1-1.	WW-4; WW-2
Construction of the necessary improvements to the WPCF	1-1.	WW-4; WW-2

Green Infrastructure

Title:	**Green Infrastructure**		
Activity Type:	Infrastructure	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$150,000.00
Responsible Partners:	N/A	Federal Amount:	$150,000.00
		Match Amount:	$0.00
Objectives:	One of the primary objectives of this project is to mitigate pollution and runoff from stormwater by implementing green infrastructure that reduces the impact of impervious surfaces. By implementing green infrastructure practices such as rain gardens, bioswales, and permeable pavements, the amount of pollutants entering waterways can be reduced, improving the overall health of ecosystems that drain to LIS. Another objective is to increase outreach about the benefits of green infrastructure practices. By providing educational materials, workshops, and community events, individuals and communities can learn about the importance of green infrastructure and how they can contribute to its implementation.		
Description:	CT DEEP is seeking funding for planning, outreach and implementation of Green Infrastructure projects. These projects shall be prioritized to address the needs of climate resiliency, flooding, stormwater runoff and Environmental Justice (EJ) Communities		
Estimated Milestones:	October 1, 2023 - September 30, 2028		
CWA Program Elements	Strengthening WQ Standards, Improving WQ Monitoring, Developing TMDLs, Controlling NPS Pollution on a Watershed Basis, Strengthening NPDES Permits, Supporting Sustainable Wastewater Infrastructure, Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Identify and install green infrastructure projects	1-1.	WW-2; WW-12; WW-15
Education materials and programs developed and disseminated	3-4; 3-5	SC-23; SC-30

2. **Healthy Ecosystems**.
In addition to water quality, the LISS will focus on enhancing habitat quality through water infrastructure improvements. Specifically, the Study will work to restore existing or implement new fishways and remove dams. Additionally, LISS is restoring, protecting, and monitoring habitat to enhance climate resilience and sustainability. This will include living shorelines, wetland restoration, and flood mitigation.

a. Environmental Justice

Habitat Restoration, Riverine Connectivity, and Living Shorelines Implementation

Title:	**Habitat Restoration, Riverine Connectivity, and Living Shorelines Implementation**		
Activity Type:	Environmental Justice	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$2,750,000.00
Responsible Partners:	N/A	Federal Amount:	$2,750,000.00
		Match Amount:	$0.00
Objectives:	The primary objective is to facilitate the design and implementation of habitat restoration, habitat connectivity and living shoreline projects that will benefit EJ Communities and that have either been identified or may emerge as a priority opportunity.		
Description:	This project will provide a ready source of funding to be used for identified and potential emergent living shoreline projects that can advance naturebased approaches to mitigate erosion and support healthy coastal habitats. Another goal of this project is to restore stream connectivity in the state by developing fishways, fixing restrictive culverts, and removing outdated dams.		
Estimated Milestones:	October 1, 2023 - September 30, 2028		
CWA Program Elements	Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
QAPPs, project identification, planning, permitting, construction, and monitoring of habitat restoration, riverine connectivity, and living shorelines projects	2-1; 2-2	HW-1; HW-11; HW-12

b. Climate Resiliency

Support for Stewardship Land Acquisition by NYSDEC

Title:	**Support for Stewardship Land Acquisition by the New York State Department of Environmental Conservation**		
Activity Type:	Climate Resiliency	Project Type:	Ongoing
Implementing Agency:	NYSDEC	Total Estimate Budget	$2,909,800.00
Responsible Partners:	N/A	Federal Amount:	$2,909,800.00
		Match Amount:	$0.00
Objectives:	The objective of this project is to continue NYSDEC efforts, in partnership with the LISS Stewardship Initiative, to provide water quality, tidal wetland, and coastal habitat protection to Long Island Sound through preservation of land in its watershed.		
Description:	NYSDEC is requesting funds to provide support for the acquisition of three properties: Two acquisitions (Watson and Kozikowski) would be additions to NYSDEC's Conscience Bay- Little Bay State Tidal Wetland Area in the Conscience Bay-Little Bay- Setauket Harbor Significant Coastal Fish and Wildlife Habitat; and the third acquisition (Bateson) lies between and is in the watershed of both Little Bay and Port Jefferson Harbor, an LISS Inaugural Stewardship Area.		
Estimated Milestones:	October 1, 2022 – September 30, 2025		
CWA Program Elements	**Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Purchase and protection of the Watson Property	2-1.	HW-3; HW-9
Purchase and protection of the Kozikowski Property	2-1.	HW-3; HW-9
Purchase and protection of the Bateson Property	2-1.	HW-3; HW-9

c. Water Infrastructure

Habitat Characterization

Title:	**Habitat Characterization**		
Activity Type:	Infrastructure	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$0.00
Responsible Partners:	N/A	Federal Amount:	$0.00
		Match Amount:	$0.00
Objectives:	CT DEEP will use this funding to conduct efforts that collect data across acoustic, geologic, ecologic, and physical oceanographic theme areas and develop these data into analytic products (including but not limited to thematically-based individual and integrated habitat maps/similar spatial data products, sensitivity analyses, spreadsheets/graphs, project reports, assessments, and recommendations) useable for managers and stakeholders to understand and assess the various benthic environments of Long Island Sound.		
Description:	CT DEEP is requesting funds to provide support for environmental characterizations in Long Island Sound that can support science-based management decision making processes, particularly those involving the potential future placement strategies of energy transmission infrastructure.		
Estimated Milestones:	October 1, 2023 - September 30, 2028		
CWA Program Elements	**Strengthening WQ Standards, Improving WQ Monitoring, Wetlands Program Support/Implementation**		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
LIS Risk Assessments / Sensitivity Analyses	4-1.	SM-1; SM-3
Sediment data collection and characterization (LISCF Phase 4 area)	4-1.	SM-2; SM-3
Integrated habitat data products (LISCF Phase 4 area)	4-1.	SM-1; SM-2
Conduct project planning for future prioritization	4-1.	SM-1; SM-3
Data collection, analysis, and delivery for at least one prioritized area	4-1.	SM-1; SM-3

3. Strong Communities.

As highlighted in Section B, the integration of environmental justice goals with all Long Island Sound watershed protection and restoration activities is being met through implementation of the LISS 5-year Environmental Justice Work Plan. The plan includes public involvement, coastal public access, and human and ecosystem health goals. A key component is EPA's release of a RFA to select an organization to support and build community capacity to address EJ within communities; Restore America's Estuaries was selected in December 2022. Additionally, the Study is also working to better understand barriers – more specifically, language barriers with Connecticut's coastal anglers to better communicate and educate about environmental health issues associated with fishing.

a. Environmental Justice

- **Long Island Sound Community Impact Fund:** In response to the RFA LISS released in summer 2022, Restore America's Estuaries (RAE) received an award to implement LISS's new EJ program, the Long Island Sound Community Impact Fund (LISCIF). LISCIF was created to involve communities experiencing or affected by adverse and disproportionate environmental and human health risks or harms, including affected underserved communities within the scope of the Long Island Sound CCMP. Under this award, RAE will develop and administer a competitive subaward program and a technical assistance program. Since being selected, RAE hired a LISCIF Program Director to develop and oversee this five-year project. RAE will issue a RFA for subawards under LISCIF in fall 2023 and is coordinating closely

with the LISS EJ Work Group on project deliverables, including community outreach.

Long Island Sound Community Impact Fund

Title:	**Long Island Sound Community Impact Program**		
Activity Type:	Environmental Justice	Project Type:	Ongoing
Implementing Agency:	Restore America's Estuaries	Total Estimate Budget	$0.00
Responsible Partners:	N/A	Federal Amount:	$0.00
		Match Amount:	$0.00
Objectives:	The objective is to select an organization to 1. Develop and administer a competitive grant program focused on activities that address challenges and opportunities facing underserved communities within the scope of the LISS CCMP; and 2. Develop and implement an outreach and support program focused on involving underserved communities and providing them technical support as necessary.		
Description:	This RFA to select an organization to manage the Long Island Sound Community Impact Fund (LISCIF) is key to meeting LISS's EJ goals. EPA will provide funds to the LISCIF annually to be used for awards under this competitive opportunity. EPA expects to provide up to $5 million to cover 3 years for the development of the competitive grant program, two rounds of pass-through funds in years two and three of the award, and the technical assistance and support program for underserved communities.		
Estimated Milestones:	October 1, 2022 – September 30, 2027		
CWA Program Elements	N/A		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Select an organization to develop and administer a competitive grant program focused on activities that address challenges and opportunities facing underserved communities within the scope of the LISS CCMP	3-1.	SC-4
Selected organization develops and implements an outreach and support program focused on involving underserved communities and providing them technical support as necessary.	3-1.	SC-4

Coastal Access Improvement Support

Title:	**Coastal Access Improvement Support**		
Activity Type:	Environmental Justice	Project Type:	New
Implementing Agency:	CT DEEP	Total Estimate Budget	$3,600,000.00
Responsible Partners:	N/A	Federal Amount:	$3,600,000.00
		Match Amount:	$0.00
Objectives:	CT DEEP will use this funding to protect land that has been identified or may emerge as a priority opportunity for coastal land conservation and expand and create more equitable access to coastal areas.		
Description:	CT DEEP is seeking funding to acquire land and improve access along the Connecticut coast in a way that prioritizes Environmental Justice Communities and enhances climate resiliency. The requested funds will help ensure that these communities are prioritized in land acquisition and coastal access efforts and that the acquired land will improve overall climate resiliency		
Estimated Milestones:	October 1, 2023 - September 30, 2028		
CWA Program Elements	Wetlands Program Support/Implementation		

Anticipated Outputs or Deliverables	Anticipated Long-term Outcomes	IA #
Land conservation idenitification and Acquisition of LIS coastal property	2-1.	HW-3; HW-9
Enhancement of access to coastal areas for recreation and fishing	3-1; 3-5	SC-4; SC-31; SC-2

D. Previous Year's (FY2022) Projects/Activities Highlights

1. **GOALS AND ACCOMPLISHMENTS.** ***Describe goals that the program met and highlight programmatic accomplishments as well as project/activity short-term and intermediate outcomes. Highlight long-term environmental results achieved wherever possible. Include outcome and/or environmental results information about projects that required substantial NEP staff time, but which were sponsored/funded by others, e.g., foundations, Federal or state partners.***

   The following goals and accomplishments focus on the areas of special interested mentioned in the NEP Program Evaluation Guidance: a) Reduction in Nutrient Pollution, b) Water Reuse and Conservation, c) Marine Litter Reduction, and d) Green Infrastructure and Resiliency. In Section B, we highlight FY2023 activities and accomplishments related to 1. Clean Waters, 2. Healthy Ecosystems, 3. Strong Communities, and 4. Sound Science and Inclusive Management. The LISS is willing to discuss any of its ongoing programs and activities with NEP staff that were felt to be worthy of technology transfer to other NEPs; this can be done in conjunction with this Work Plan. The LISS website, the nitrogen TMDL, the bioextraction projects funded in prior years, the LISS environmental indicators, *Sound Health* and *Protection & Progress* are all examples of successful and transferable products and activities from which the other NEPs may benefit**.**

a. Reduction in Nutrient Pollution

Point Source Load Reduction. The LISS partners continued the point source nitrogen reduction program in Long Island Sound in 2021. The total Trade-Equalized (TE) point source nitrogen load for 2021 was 18,338 TE lbs/day. This is below the wasteload allocation set in the 2000 Nitrogen TMDL. In total, the 100 NY and CT wastewater treatment plants (WWTPs) discharging to Long Island Sound have reduced nitrogen by 49 million pounds annually compared to baseline levels established in the 2000 TMDL. In 2021, discharges decreased by 4.8% compared to 2020, and remained below the final TMDL targets. In both 2018 and 2019, the annual total nitrogen discharged from wastewater treatment plants (WWTP) in CT and NY increased for the first time since 2011 but remained below the Total Maximum Daily Load (TMDL) allocation and permit limits. The observed increase was likely caused by a greater than normal amount of precipitation in both years. Rainfall entering a wastewater treatment plant, either through the sewage pipe system or by depositing directly onto sewage storage tanks, can reduce the efficiency of the plant's ability to treat and remove nitrogen before discharging into Long Island Sound. However, the annual total nitrogen discharged from WWTPs has been the lowest on record for CT and NY. While the LISS does not directly fund this goal area and important CCMP activity, funds for STP nitrogen upgrades result from a combination of EPA State Revolving Funds, Connecticut's state Clean Water Fund and Bond Acts, and New York State's Clean Water/Clean Air Bond Act funds and other sources, including NYC bonds and funding for NYC STP upgrades. Attachment 6 depicts the reductions in Trade-equalized point source loadings from 1995-2022.

Area/Duration of Hypoxia. The maximum area of hypoxia (less than 3 milliliters (ml) of DO per liter of bottom water) in 2022 was 87 square miles. The 2022 5-year rolling average for the maximum summertime area of low dissolved oxygen (hypoxia) in Long Island Sound was estimated at 87 square miles. This represents a 57.5 percent decline in the five-year rolling average compared to the pre-2000 average of 205 square miles (i.e., before the Total Maximum Daily Load was put in place by EPA and the states). The five-year average hypoxic area increased slightly by four square miles from last year's five-year average of 83 square miles (for 2017-2021) even though the maximum area of hypoxia decreased – from 142 square miles in 2021 to 87 square miles in 2022. Dry summer conditions during summer 2022 likely reduced nutrient loading to the Sound from the watershed, likely contributing to the observed reduction in hypoxic area. The LISS provides funding to CT DEEP to conduct the LIS WQ monitoring program year-round, with additional monitoring runs during the summer months. Other ambient factors affect the formation of the hypoxic zone in the Sound, including water and air temperature, rainfall, solar radiation, wind direction and velocity, currents, storm events and any resulting biological effects such as algae formation. Attachment 7 depicts the area/duration of the maximum hypoxia event in Long Island Sound since 1987 as measured by CT DEEP.

NPS Load Reductions/On-Site Treatment. The CCMP calls for actions to address NPS (NPS) pollution to the Sound, including actions to address on-site waste treatment systems (OWTS), or septic systems. The LIS TMDL addresses NPS pollution, requiring a 10 percent reduction through direct projects or best management practices and other methodologies. CT DEEP also is engaged in the Second-Generation Nitrogen Strategy, which endeavors to complement the sound wide TMDL by assessing local impairments and local nitrogen sources contributing to them.

b. Water Reuse and Conservation

The LISS does not particularly fund projects focused on this special interest as it is not a prominent issue in our region.

c. Marine Litter Reduction

Typically, LISS partners have addressed marine litter reduction primarily through the LISFF program where projects focus on marine litter reduction, prevention, and education.; however, there were no projects closed in FY2021. However, LISS partners, under the guidance of the NOAA Marine Debris Program and leadership of the CT and NY SEA programs, worked to develop a bi-state action plan for Long Island Sound. The Long Island Sound Marine Debris Action Plan, published in May 2022, represents a comprehensive framework of strategic actions to mitigate the impacts of marine debris in Long Island Sound over the next five years (2022-2027). The plan is organized under three main goals: 1) Understand, Prevent and Mitigate the Impacts of Single-Use Plastic and Other Water/Land-based Consumer Debris; 2) Understand, Prevent and Mitigate the Impacts of Abandoned and Lost Fishing/Aquaculture Gear; and 3) Understand, Prevent and Mitigate the Impacts of Microplastics and Microfibers. Over the next five years, tracking and monitoring of identified actions will help assess collective progress in achieving the goals for Long Island Sound.

d. Green Infrastructure and Resiliency

The LISS partners have addressed green infrastructure primarily through the LISFF program. The following projects closed in FY2022 which estimated 41,212 square feet of green infrastructure installed, 25,829 square feet of impervious surface removed, 10.75 pounds of nitrogen prevented annually, and 4,069,605 gallons of stormwater prevented annually:

- Nassau County Soil and Water Conservation District – Planting for Clean Water Communities where the district created three green infrastructure sites and conducted educational workshops for residents.
- Green Infrastructure at Webster Street Parking Lot to Improve Water Quality in Norwalk Harbor (CT) in which the city of Norwalk installed green infrastructure as part of repaving a 5.4-acre public parking lot near the Norwalk Harbor.
- A Green Schoolyard at PS 107X: Providing Community Green Space and Improving Water Quality in which The Trust for Public Lands built green infrastructure at Public School 107X in the Bronx.
- Green Infrastructure to Improve Water Quality in Northport Harbor and Long Island Sound where the Citizens Campaign Fund for the Environment installed a bioretention rain garden in Northport, NY.

2. COMPLETED PROJECTS. ***For completed projects that were funded by a CWA §320 sub-award, indicate: project purpose; entity that led project implementation; final grant amount – if project came in under budget, describe how remaining funds will be reallocated to ensure expenditure during the project period; project deliverable(s) and project completion date.***

The LISS is an ongoing partnership of Federal, state and local organizations implementing the cleanup and restoration plan for Long Island Sound. The LISS is not organized by 'project' and its program functions are distributed across its partners. Therefore, unless there are specific and discrete sub-grant projects that have been completed, this reporting category does not adequately represent the LISS organizational and reporting structure. However, in FY2022, one partner's assistance award funded in prior fiscal years have been completed and their EPA awards closed out:

- LI96259818-1, $2,281,284, Unified Water Study: Nitrogen Impacts on Long Island Sound
- LI96261317, $804,309.73, Research Foundation of SUNY
- LI00A00168, $824,835.44, UCONN Supplement to Research to Accomplish the LIS Study
- DW-014-92550201, $500,000, USGS NY Interagency Agreement
- DW-014-92534601, $103,700, USGS Woods Hole Interagency Agreement

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ATTACHMENT 1

LONG ISLAND SOUND STUDY
NATIONAL ESTUARY PROGRAM WORK PLAN
LIST OF FY2023 LISS-FUNDED STAFF

ORGANIZATION/NAME	LISS TITLE	DESCRIPTION OF RESPONSIBILITIES/ACTIVITIES
EPA		
Mark Tedesco	Director, LIS Office	Direction of office and program
Leah O'Neill	EPA R1 Deputy Director	Overall Budget Lead
Nikki Tachiki	EPA R2 Strategic Planning Coordinator	CCMP 2025, EJ Lead, SRC integration with EJ
Cayla Sullivan	EPA R2 Habitat & Reporting Coordinator	Lead eelgrass efforts throughout LIS
Bessie Wright (0.5 FTE)	EPA R1 Community & Tribal Coordinator	Community & Tribal Coordinator
Esther Nelson	EPA R2 Federal Partnerships Coordinator	Coordinate collaboration with other federal agencies
Casey Abel	EPA R1 Communication & Outreach Coordinator	NEPORT Lead
Melissa Duvall	EPA R2 Research & Modeling Lead	Data Analysis & Synthesis
Kristen Laccetti	EPA R2 BIL Coordinator	NY State projects with NYSDEC, Wetlands & Climate resiliency
Ashley Desrosiers	EPA R1 BIL Coordinator	BIL Coordinator & Justice40 lead
Evelyn Spencer	EPA R1 Monitoring & Reporting Coordinator	CT state projects with CTDEEP
Ben Lawton	ORISE Research Fellow	Open science, data management and reporting
CT DEEP		
Tim Hunter	Environmental Analyst 3	Coordinates overall LIS program in CT
Kelly Streich	Environmental Analyst 3	TMDL and technical support lead
Kathleen Knight	Environmental Analyst 2	Modeling lead
Katie Clayton-O'Brien	Environmental Analyst 2	Water quality sampling/analysis
Matthew Lyman	Environmental Analyst 3	Water quality sampling/analysis
Tommy Seda	Boat Captain	RV John Dempsey CT DEEP WQ Monitoring.
Christine Olsen	Environmental Analyst 3	Water quality sampling/analysis
Harry Yamalis	Environmental Analyst 2	Coordinates habitat restoration plans/projects in CT
NYSDEC		
Samarra Scantlebury (state funded)	LIS Coordinator	Coordinates overall LIS program in New York
Mary Arnold	DW Coordinator	Coordinates Division of Water programs
NY Sea Grant		
Jimena Beatriz-Perez Viscasillas	NY Outreach Coordinator	Develops and implements communications plans and public information/education program in NY
Karen Palmeri	Administrative Support	Supports Extension Specialist. (33%)
Sara Powell	NY Sustainable and Resilient Community Extension Professional	Support local communities in implementing the Sustainable and Resilient Communities work plan.

Sarah Schaefer-Brown	NY Sustainable and Resilient Community Extension Professional	Support local communities in implementing the Sustainable and Resilient Communities work plan.
Elizabeth Hornstein	NY Sustainable and Resilient Community Extension Professional	Support local communities in implementing the Sustainable and Resilient Communities work plan.
Lillit Genovesi	NY WLIS Outreach Coordinator	Develops and implements communications plans and public information/education program in NYC and Westchester, NY.
NEIWPCC		
Robert Burg	LISS Outreach Coordinator	Coordinates the overall LISS communications program
James Ammerman	Science Coordinator	Coordinates LISS science and research program
Jordan Bishop (0.5 FTE)	Environmental Analyst I	Overall LIS coordination and support
Victoria O'Neill	NYSDEC Habitat Restoration Coordinator	Coordinates habitat restoration plans/projects in the NY
Vacant	Bioextraction Coordinator	Coordinate shellfish and kelp bioextraction planning and projects
CTSEA		
Vacant	CT Outreach Coordinator	Provides PI&E support and coordination in CT
Sarah Schechter	CT Sustainable and Resilient Community Extension Professional	Support local communities in implementing the Sustainable and Resilient Communities work plan
Deborah Abibou	CT Sustainable and Resilient Community Extension Professional	Support local communities in implementing the Sustainable and Resilient Communities work plan

Organization & Base Program Activity	2023 Projected Budget	2023 Calculated Match	2023 Projected Actual Match
1. EPA Long Island Sound Office	**$1,002,000**	**$0**	**$0**
2. CT Dept. of Energy & Environmental Protection	**$8,923,817**	**$5,949,878**	**$10,749,878**
a. CT State Coordination	$746,216	$497,477	
b. LIS Water Quality Monitoring Program	$1,592,642	$1,061,761	
c. CT Stewardship & Habitat Restoration Coordination	$236,535	$157,690	
d. Embayment Data Collection for Modeling	$740,000	$493,333	
e. Watershed Model - Outreach, Creation & Capacity Building	$392,600	$261,733	
g. Acoustic Telemetry Array - Phase 2	$54,489	$36,326	
State Over match			$10,749,878
Land Acquisition & Public Access	$1,500,000	$1,000,000	
Land Cover Analysis, Phase 2	$107,000	$71,333	
Environmental Characterization of the LIS Cable Fund Priority Area III	$2,088,335	$1,392,223	
Development of Benthic Macroinvertebrate Sampling Methodology Phase 2	$100,000	$66,667	
Integrated Environmental Characterization of LIS (Yrs 1 & 2 of 4yr project)	$1,250,000	$834,000	
Alkalinity Analyses Intercalibration	$116,000	$77,333	
3. NY State Dept. of Environmental Conservation (Land)	**$1,425,000**	**$950,000**	**$1,457,791**
a. NY Habitat Coordination [via NEIWPCC]	See NEIWPCC	$0	$114,394
Habitat Restoration & Stewardship Coordination	See NEIWPCC	$0	$393,397
Support for Habitat Restoration Flax Pond & Titus Mill	$1,425,000	$950,000	$950,000
4. NY State Dept. of Environmental Conservation (Water)	**$250,000**	**$166,667**	**$633,255**
a. LIS Nitrogen Reduction Coordination [via NEIWPCC]	See NEIWPCC	$0	$54,585
b. LIS Nutrient Bioextraction Coordination [via NEIWPCC]	See NEIWPCC	$0	$112,003
Residential Fertilizer Community Based Social Marketing Project	$250,000	$166,667	$166,667
Nutrient Bioextraction Coordination Supplemental Projects	See NEIWPCC	$0	$300,000
5. Univ. of Connecticut/ CT Sea Grant Public Outreach	**$1,546,986**	**$737,544**	**$61,552**
a. CT PI&E Coordination & STAC support	$170,486	$8,973	$9,982
b. K-12 Mentor Teacher Program	$35,797	$1,884	$2,496
c. Ongoing Sustainable & Resilient Communities tasks	$550,031	$366,687	$22,306
FY23 LISS SRC Breaking Down Barriers Program -CT	$540,000	$360,000	$26,768
A Network of LIS Schools: Protecting the Sound One School at a Time	$250,672	$13,193	$13,138
6. NY Sea Grant Cornell U. Public Outreach	**$1,978,366**	**$1,076,409**	**$94,258**
a. NY Public Outreach Program	$213,530	$11,238	$11,238
b. LISS Outreach Coordination in NYC and the Western Basin	$181,402	$9,547	$14,000
c. Sustainable & Resilient Communities	$795,934	$530,623	$29,230
FY23 LISS SRC Breaking Down Barriers Program -NY	$756,000	$504,000	$39,790
DEIJ Trainings for the LISS Partnership	$31,500	$21,000	$0
7. NE Interstate Water Pollution Control Commission	**$3,104,333**	**$1,393,802**	**$0**
a. Task 1 Outreach/Education Support	$567,662	$29,877	$0
b. Task 2 Meeting/Travel Coordination Support	$209,446	$139,631	$0
c. Task 3 Habitat Restoration Coordination	$171,591	$114,394	$0
d. Task 4 LIS Regional Coordinator	$153,106	$102,071	$0
e. Task 5 Science Coordination	$179,699	$119,799	$0
f. Task 7 LIS Nitrogen Reduction Coordination	$81,878	$54,585	$0
g. Task 8 LIS Nutrient Bioextraction Coordination	$168,004	$112,003	$0
Outreach & Education Coordination (COE staff, LISS website upgrades & renaming, climate change website, Step by Step: brochure, CCMP report)	$532,851	$28,045	$0
Habitat Restoration & Stewardship Coordination (NYSDEC LIS Real Property Coordinator,& enhancement of the GIS-based LIS Eelgrass Suitability Index)	$590,096	$393,397	$0
Nutrient Bioextraction Coordination Supplemental Projects	$450,000	$300,000	$0
8. Interstate Environmental Commission	**$1,700,056**	**$1,133,371**	**$1,100,000**
Ongoing Monitoring	$598,361	$398,907	
Pathogen Monitoring Network in LIS Watershed (Years 2 & 3 of 3-yr project)	$1,101,695	$734,463	
9. Univ. of Connecticut Water Quality monitoring	**$593,959**	**$395,973**	**$151,387**
10. National Fish & Wildlife Foundation	**$12,650,000**	**$8,433,333**	**$4,216,667**
11. Save the Sound- Unified Water Study	**$1,250,829**	**$833,886**	**$833,886**
Ongoing monitoring	$1,201,859	$801,239	
Continuous water temp & light pilot	$13,280	$8,853	
Adding a New Group Monitoring Two Embayments with Eelgrass	$35,690	$23,793	
12. UConn/ CT Sea Grant Research Program	**$1,500,000**	**$1,000,000**	**$650,000**
13. Research Foundation SUNY/NY SeaGrant Program	**$1,500,000**	**$1,000,000**	**$650,000**
14. CTNERR - Eelgrass Collaborative	**$235,058**	**$156,705**	**$0**
15. EPA/ORD RBEROST contract support	**$104,249**	**$0**	**$0**
16. Environmental Justice	**$43,000**	**$0**	**$0**
a. Internal Assessment	$43,000	NA	NA
17. USGS Interagency Agreement	**$2,084,243**	**$0**	**$0**
a. Major Tributaries to LIS Monitoring	$305,000	NA	NA
b. Lower CT River Monitoring, Flax Pond & Oyster Bay Monitoring	$250,000	NA	NA
c. CT River at Middle Haddam Nutrient Load Monitoring Station	$82,000	NA	NA
d. Upper CT River Monitoring (Year 2 of 4)	$545,000	NA	NA
e. USGS Coastal Acidification monitoring	$300,000	NA	NA
Coordination Support * final amount TBD	$150,000	NA	NA
Connecticut River at Northfield	$65,000	NA	NA
Eelgrass Aerial and Intercomparison	$40,243	NA	NA
Continuous Water Quality Monitoring in Norwalk River	$125,000	NA	NA
Summary report of water-quality and streamflow data collected to support the CTWM HSPF Model.	$140,000	NA	NA
Report to update Nutrient Loads from the CT River at Middle Haddam.	$82,000	NA	NA

19. NRCS Interagency Agreement - Severable	**$318,311**	**$0**	**$0**
20. USFWS Interagency Agreement	**$441,750**	**$0**	**$0**
Ongoing severable work	$268,721	NA	NA
Eelgrass Aerial and Intercomparison	$173,029	NA	NA
Total:	**$40,651,957**	**$23,227,567**	**$20,598,674**
Fiduciary Reserve	$200,043		
Final Total:	**$40,852,000**		

Long Island Sound Study					Attachment 3	As of August 8, 2023
	2022	2023	2024	2025	2026	Projected Award
Organization & Program Activity	CWA 119 & 320 Budget	CWA 119 & 320 Budget	Combined Projection	Combined Projection	Combined Projection	Total Funds Requested
1. EPA Long Island Sound Office	**$409,294**	**$471,600**	**$525,000**	**$525,000**	**$525,000**	**$2,455,894**
a. R1 Program Support & travel	$266,300	$263,600	$275,000	$275,000	$275,000	$1,354,900
b. R2 Program Support	$88,000	$140,000	$150,000	$150,000	$150,000	$678,000
c. EPA HQ Administration	$54,994	$68,000	$100,000	$100,000	$100,000	$422,994
2. Connecticut Dept. of Energy & Environmental Protection	**$6,545,916**	**$6,500,000**	**$6,500,000**	**$6,500,000**	**$6,500,000**	**$32,545,916**
BIL FY22 Award (Habitat, EJ, Vessel, monitoring)	$6,545,916	$0	$0	$0	$0	$6,545,916
Habitat restoration, river connectivity, living shorelines	$0	$2,750,000	$3,525,000	$3,275,000	$3,025,000	$12,575,000
Coastal access improvements	$0	$3,600,000	$2,475,000	$2,225,000	$2,225,000	$10,525,000
Seafloor environmental characterization	$0	$0	$0	$500,000	$750,000	$1,250,000
Green infrastructure	$0	$150,000	$500,000	$500,000	$50,000	$1,650,000
3. NY State Dept. of Environmental Conservation (Land)	**$2,909,800**	**$2,909,800**	**$3,409,800**	**$3,409,800**	**$3,409,800**	**$16,049,000**
a. Land Acquisition (FY22 & FY23)	$2,909,800	$2,909,800	$3,409,800	$3,409,800	$3,409,800	$16,049,000

4. NY State Dept. of Environmental Conservation (Water)	**$4,500,000**	**$6,000,000**	**$6,000,000**	**$6,000,000**	**$6,000,000**	**$28,500,000**
a. NYS Water Quality Improvement Projects (WQIP)	$2,250,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$14,250,000
b. NYS Long Island Sound Watershed Septic System Replacement	$2,250,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$14,250,000
5. MA Dept of Environmental Protection	**$4,500,000**	**$4,000,000**	**$2,000,000**			**$10,500,000**
a. Nitrogen reduction upgrades to WWTPs (FY22 & FY23)	$4,500,000	$4,000,000	$2,000,000			$10,500,000
6. LIS Community Impact Fund - Restore America's Estuaries	**$2,364,527**	**$0**	**$2,000,000**	**$2,000,000**	**$2,000,000**	**$8,364,527**
a. Outreach & Implementation RFP	$2,364,527	$0	$2,000,000	$2,000,000	$2,000,000	$8,364,527
Total:	**$21,229,537**	**$19,881,400**	**$20,434,800**	**$18,434,800**	**$18,434,800**	$98,415,337
Planning Target	**$21,909,800**	**$21,909,800**	**$21,909,800**	**$21,909,800**	**$21,909,800**	**$109,549,000**

Unallocated Funds:	$680,263	$2,028,400	$1,475,000	$3,475,000	$3,475,000	$11,133,663

Attachment 4

Program Code/Grant #	Lead Project Officer	Awarding Region	Grants Specialist	Recipient	Description	EPA hold Fed Award Amount (000B67) CWA 119	R1 Fed Award Amount (000B67) CWA 119	R2 Fed Award Amount (000B67) CWA 119	Fed Award Amount (000B89) CWA 320	HQ BIL CWA 119	R1 BIL CWA 119	R2 BIL CWA 119	BIL CWA 320
LI-New	Kristen Laccetti	2	Janeime Castro	NYSDEC/DOW	Residential Fertilizer Community Based Social Marketing Project (Bioextraction match)			$250,000					
LI-96248820-1	Kristen Laccetti	2	Janeime Castro	NYSDEC/DMR	Will need to modify this award to add match & overmatch			$1,425,000					
4S-96237522-1	Kristen Laccetti	2	Janeime Castro	NYSDEC/DOW	Support for WQIP and Septic System Improvement programs in NY State.							$4,500,000	
4S-96237922-1	Kristen Laccetti	2	Janeime Castro	NYSDEC/DMR	Land acquisition under the LISS Stewardship Initiative,							$2,000,000	$909,800
LI-96244521-1	Nikki Tachiki	2	Nicholas Porsborg	Cornell University Office of Sponsored Programs	This cooperative agreement has two elements: 1) Conduct the planning, organization and			$1,861,390	$0				

					implementation of public environmental education and involvement programs, including those from environmental justice communities, for the Long Island Sound in the State of New York. 2) Provide technical assistance to support Sustainable and Resilient Communities, consistent with the Long Island Sound Comprehensive Conservation and Management Plan.								
LI-96244421-2	Melissa Duvall	2	Janeime Castro	SUNY Research Foundation (Sea Grant)	This agreement provides assistance to the State University of New York - Research Foundation (SUNY Research Foundation) to administer the Long Island Sound Research Grant program to identify			$1,500,000	$0				

					scientific research needs and priorities, solicit and manage scientific peer review of proposals, and manage the selection and completion of the highest priority proposals.								
LI-96244221-1	Aimee Boucher	2	Nicholas Porsborg	Interstate Environmental Commission	1) conduct water quality monitoring of summer hypoxic conditions in western Long Island Sound and its embayments; 2) continue coordinated monthly, weekly and bi-weekly long-term monitoring of a suite of in-situ parameters at a network of 22 historical monitoring stations; and 3) coordinate with the Connecticut Department of Energy and Environmental Protection and other Long Island			$1,695,249	$0				

					Sound Study partners.								
LI-96244321-1	Liz Tanzi	2	?	Save The Sound	No Cost Time Extension								
LI-New	Liz Tanzi	2	?	Save The Sound	This agreement provides assistance to Save the Sound to coordinate and implement the Unified Water Study, which establishes a comparable bay-to-bay dataset describing the eutrophic conditions and environmental health of bays and harbors around the Long Island Sound. Additionally, this agreement will design a living shoreline resiliency project at Chittenden Park, CT.			$1,250,829	$0				

LI-00A00954-2	Melissa Duvall R2	2	Robert Smith	CT Sea Grant Research	This agreement provides assistance to the University of Connecticut to administer the Long Island Sound Research Grant program to identify scientific research needs and priorities, solicit and manage scientific peer review of proposals, and manage the selection and completion of the highest priority proposals. The project will result in at least one sub-award for research to improve understanding of Long Island Sound critical to improving water and habitat quality.		$1,500,000		$0				

LI-New	Cayla Sullivan	2	Robert Smith	UConn	Eelgrass collaborative		$235,046						
LI-New	Nikki Tachiki	2	Robert Smith	CT Sea Grant PI &E	This project will 1) plan, organize, coordinate and implement public environmental education programs, including the K-12 Mentor Teacher Program, for the LIS program in the State of Connecticut by working with the LISS Management Conference partners in assessing needs and developing priorities, and 2) promote citizen involvement and citizen education to protect coastal resources in the LISS watershed. Additionally,		$1,406,113		$0				

					this agreement will work to implement the Sustainable and Resilient Communities Work Plan.								
4S-00A00885-1	Ashley Desrosiers	1	Katonya Parker	MassDEP	This agreement is to fund upgrades to the Chicopee WPCF (which discharges to the CT River and LIS), to help the city meet its final permit that includes a mass-based annual average total nitrogen limit of 647 lbs/day.						$4,500,000		
LI-00A01223	Bessie Wright	1	Katonya Parker	National Fish & Wildlife Foundation	NFWF LIS Futures Fund 2021----As directed by Sections 119(d) and 320 of the Clean Water Act, this project implements recommendations of the CCMP. The grant supports activities to support community-based efforts to restore Long Island Sound by		$12,650,000		$0				

					providing sub-grants, through the NFWF, on a competitive basis through the Long Island Sound Futures Fund. Funded projects will educate and involve the public, protect and restore habitat, and reduce polluted runoff.								
LI-00A00953-1	Evelyn Spencer	1	Robert Smith	Univ. of Connecticut -WQ Monitoring	Supplemental Amendment for ongoing water quality monitoring.		$645,024						
LI-00A01413-0	Evelyn Spencer	1	Robert Smith	CTDEEP	This agreement provides assistance to the Connecticut Department of Energy and Environmental Protection to implement its project to support the CCMP to protect and restore the chemical, physical and biological integrity of LIS.		$8,073,817		$850,000				
4S-00A01431	Evelyn Spencer	1	Robert Smith	CTDEEP	CTDEEP BIL Funding		$0				$119,000 (ORG 01DAN01) $6,381,0		

											00 (ORG 01)		
LI-00A0159-2	Casey Abel	1	Monique Lloyd	NEIWPCC	This agreement provides assistance to the New England Interstate Water Pollution Control Commission to implement its project to support the CCMP to protect and restore the chemical, physical and biological integrity of LIS and to assist the states of CT and NY, and other public or nonprofit entities in conducting research, experiments, investigations, training, demonstration, surveys, or studies related to reducing pollution and improving the quality of the environment to sustain living		$2,793,739						

					resources in LIS.								
Interagency Agreement	Casey Abel	1	Leon Smith	USGS CT NE	Severable. a. Major Tributaries to LIS Monitoring; b. Lower CT River Monitoring; c. CT River at Middle Haddam; d. Upper Connecticut River Monitoring (Yr 1 of 4) e. USGS Coastal Acidification Monitoring; f. Nitrogen concentrations and loads and seasonal nitrogen loads in tributaries		$2,211,596						
Interagency Agreement	Casey Abel	1	Leon Smith	USGS CT NE	Non-severable		$262,243						
Interagency Agreement	Casey Abel	1	Leon Smith	USGS CT NE	Non-severable, G-Invoicing inflight order (no new funding)		$0						

Interagency Agreement DW-086-92567501	Esther Nelson	2	Walker ONeil	NRCS	Severable. Nutrient Management Outreach and Planning for Animal Operations in Connecticut. Outreach and Planning for Agricultural Operations in CT			$313,739					
Interagency Agreement DW-014-92566701	Esther Nelson	2	Leon Smith	USFWS	Severable. Long Island Sound Collaborative Coastal Habitat Assessment, Restoration and Monitoring (formerly Tidal Marsh Restoration Implementation at Priority Sites Through Increased Capacity)			$441,951					
Contract	Bessie Wright	1	Casey Abel	EPA	EPA EJ Contract		$43,000						
Contract	Nikki Tachiki	1	Ray Cody	BPA	CCMP Revision Support & Facilitation			$100,000					
Contract	Mark Tedesco	2		EPA ORD	RBEROST ORD contract Detenbeck			$104,249					
EPA R1	Leah O'Neill	1		EPA	FTE assistance for R1 Staff Support (PC&B)	$298,000					$243,000		
EPA R1	Leah O'Neill	1		EPA	WCF	$7,000					$18,000		

EPA R1	Leah O'Neill	1		EPA	Travel	$0							
EPA R2	Mark Tedesco	2		EPA	FTE assistance for R2 Staff Support (PC&B)	$568,000						$122,000	
EPA R2	Mark Tedesco	2		EPA	General Expenses	$8,000						$0	
EPA R2	Mark Tedesco	2		EPA	Travel	$3,000						$0	
EPA R2	Mark Tedesco	2		EPA	WCF	$7,000						$6,000	
EPA R2	Mark Tedesco	2		EPA	BOC = Contracts (Is this for ORISE, LISO & QAPP Support?)	$300,000						$154,000	
EPA HQ		HQ		EPA	EPA HQ Administration	$ 4,000							
EPA HQ		HQ		EPA	EPA HQ Administration BIL					$ 68,000			
					Budget Total:	$1,195,000	$29,820,578	$8,942,407	$850,000	$68,000	$4,761,000	$6,782,000	$909,800
					Final Budget total:			**$40,807,985**				**CWA 119 BIL TOTAL:**	$11,543,000
					Unallocated:			**$44,015**					

Attachment 5

Long Island Sound Study

Travel Documentation for LIS NEP Work Plan

July 1, 2022 - June 30, 2023

Long Island Sound Study
Participant Support Documentation for NEIWPCC Work Plan
July 1, 2022 to June 30, 2023

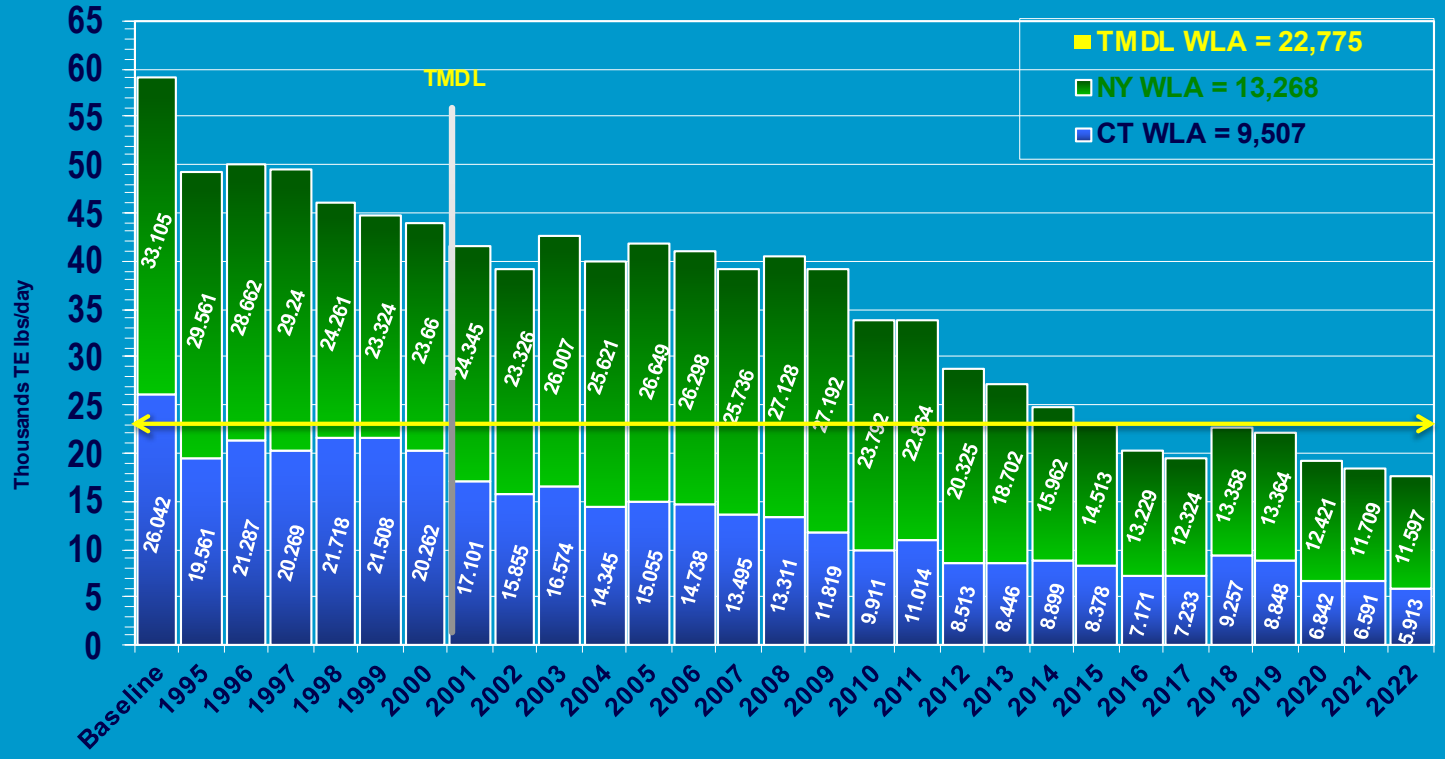
*Reimbursement transaction posted date (meeting date may be outside this timeframe)

LISS PARTNER PARTICIPANT SUPPORT						
Meeting Date(s)	Meeting Title	Starting Location	Meeting Location (Destination)	Agency/Committee Affiliation	Expense ($)	Grant Number
Q4 2022 (July 2022-Sep 2022)						
7/5/2022	July Reimbursements-Mileage-1 trip-CO Team Meeting	Stamford, CT	Bridgeport, CT	NEIWPCC	$ 55.50	LI-00A00384
7/6/2022	July Reimbursements-1trip	Berlin, CT	Waterford, CT	CTDEEP	$ 33.13	LI-00A00384
7/21/2022	July Reimbursements-Mileage-1 trip	Bay Shore, NY	Port Washington, NY	NEIWPCC	$ 37.50	LI-00A00384
8/2/2022	Site Visit & Carpool (Roundtrip from office to carpool site)	Colchester, Ct	Stonington, CT	CTDEEP	$ 33.13	LI-00A00384
8/2/2022	Site Visit & Carpool	Wallingford, CT	Bridgeport, CT	CTDEEP	$ 33.75	LI-00A00384
8/3/2022	LISS Futures Fund Review Meeting	Brooklyn, NY	Bridgeport, CT	NYSDEC	$ 116.22	LI-00A00688
8/11/2022	August Reimbursements (1 Site Visit & 1 LIS FF Grant Review-Port Jeff-Bridgeport, 8/3/22)	23 Wesley St, Center Moriches, NY 11	10 Vanderbilt Dr Port Washington, NY 11050	NEIWPCC	$ 136.56	LI-00A00384
8/11 &8/30	August Reimbursements (2 site visits)	Bay Shore, NY	1)Sandy Points Village8/11 (2)Beekman Beach 8/30	NEIWPCC	$ 99.75	LI-00A00384
8/17/2022	Supply pickup	Stony Brook, NY	Riverhead, NY	NEIWPCC	$ 42.50	LI-00A00384
8/31/2022	Ribbed mussel pickup	Stony Brook, NY	Huntington, NY	NEIWPCC	$ 31.00	LI-00A00384
8/5/2022	August Reimbursements (NERR Meeting)	White Plains, NY	Avery Point, Groton, CT	NEIWPCC	$ 135.63	LI-00A00384
9/12/2022	HRS Meeting Mileage & Ferry	Orient Point, NY	New London	NEIWPCC	$ 87.87	LI-00A00688
9/28/2022	September Reimbursements (RAE Conference Registration & Society of Ecological Restorations)			NEIWPCC	$ 481.00	LI-00A00688
9/28/2022	September Reimbursements (Staff Appraisals-CT/NY, HRSWG-CT, ACWA-WQ Modeling-Chicago)			NEIWPCC	$ 1,600.30	LI-00A00688
9/8/2022	Land & Water Resources Staff Meeting & Retreat	Colchester, Ct	New London	CTDEEP	$ 33.13	LI-00A00688
9/13/2022	LISS HRSWG at Connecticut College	Berlin, CT	New London	CTDEEP	$ 63.13	LI-00A00688
9/7/2022	September mileage +Overnight FedEx Shipment of Ribbed Mussels	Stony Brook, NY	Hauppague, NY	NEIWPCC	$ 265.77	LI-00A00384
Q1 2023(Oct 2022-Dec 2022)						
December 4-8, 2022	RAE Meeting Registration	New Haven, CT	New Orleans	TNC/ LISS CAC	$ 690.00	LI 00A00688
	RAE Meeting	New Haven, CT	New Orleans	TNC/ LISS CAC	$ 866.06	LI 00A00688
December 2-7, 2022	RAE Meeting	Larchmont, NY	New Orleans	LICC CAC	$ 1,494.25	LI 00A00688
9/15/2022	RAE Meeting Registration	* claimed & accounted & reimbursed in this quarter (fy23)		NEIWPCC	$ 725.00	LI 00A00688
December 4-8, 2022	RAE Meeting	Centerport, NY	New Orleans	NEIWPCC	$ 1,136.61	LI 00A00688
9/28/2022	NYSG Meeting (Setauket-E. Setauket)	Satauket	East Setauket, NY	NEIWPCC	$ 6.25	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Larchmont, NY	Port Jefferson, NY	LISS CAC	$ 404.25	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting		Port Jefferson, NY	NEIWPCC	$ 267.96	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Bay Shore, NY	Port Jefferson, NY	NEIWPCC	$ 63.26	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Centerport, NY	Port Jefferson, NY	NEIWPCC	$ 97.75	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Coventry, CT	Port Jefferson, NY	UCONN/CTSG	$ 315.00	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Avon, CT	Port Jefferson, NY	CTDEEP	$ 342.76	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Niantic, CT	Port Jefferson, NY	CTDEEP	$ 540.21	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Manchster, CT	Port Jefferson, NY	CTDEEP	$ 563.23	LI 00A00688
October 18-19, 2022	LISS Management Committee Meeting	Avon, CT	Port Jefferson, NY	CTDEEP	$ 600.41	LI 00A00688
October 18-19, 2023	LISS Management Committee Meeting	Wallingford, CT	Port Jefferson, NY	CTDEEP	$ 307.25	LI 00A00688
October 18-19, 2023	LISS Management Committee Meeting	Somers, CT	Port Jefferson, NY	CTDEEP	$ 419.59	LI 00A00688
October 18-19, 2023	LISS Management Committee Meeting	Willington, CT	Port Jefferson, NY	CTDEEP	$ 616.95	LI 00A00688
October 23-30, 2022	HAB (Hotel, per diem, parking)	Bay Shore, NY	Albany, NY	NEIWPCC	$ 1,557.86	LI 00A00688
10/31/2022	Ribbed Mussel Sampling Site Visits	Huntington, NY & Northport, NY	Stonny Brook, NY	NEIWPCC	$ 30.00	LI 00A00688
11/1/2022	Shiping Ribbed Mussels	Stony Brook, NY	Hauppague, NY	NEIWPCC	$ 7.61	LI 00A00688

LONG ISLAND SOUND STUDY

A PARTNERSHIP TO RESTORE AND PROTECT THE SOUND

Point Source Nitrogen Trade-Equalized Loads vs. Total Maximum Daily Load Waste Load Allocations 1995-2020 NY/CT STPs



Maximum Area of Hypoxia
1987-2022 (June-September)