



Long Island Sound Study

A Partnership to Restore and Protect the Sound



Long Island Sound Policy Committee Meeting

NYSDEC Marine Resources Division Headquarters, Kings Park, NY

July 13, 2023





- 1. Welcome and introductions**
- 2. Overview of program accomplishments and future objectives**
- 3. Advisory Committee perspectives**
- 4. Governance Document**
 - A. Action: PC approval**
- 5. Report on BIL investments, equity strategy, and Justice40 evaluation**
- 6. Opportunities for action under Nitrogen Reduction Strategies**
 - A. Advancing nutrient reduction implementation**
 - B. Embayment targets and systemwide evaluation**
- 7. Management Conference Planning**
 - A. Proposed 2025 CCMP Revision**
 - B. Developing renaming options**
- 8. Discussion**

Long Island Sound: The Urban Sea (or America's Mediterranean, or first 21st Century Estuary), named an Estuary of National Significance in 1987



Home to more than 1,200 invertebrates, 170 fish species, and dozens of migratory birds; 9 million people in the watershed.

Natural and economic resource worth billions to the region from fishing, boating, beachgoing, recreation, and ecosystem services from wetlands.

More than 4 million people live in coastal communities around the Sound; more than 23 million people live within 50 miles

Accomplishments and Future Objectives



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Accomplishment: Where we started



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Accomplishment: The Plan



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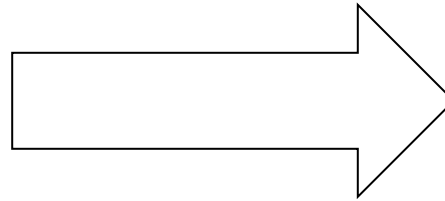


THE
LONG
ISLAND
SOUND
STUDY

THE
COMPREHENSIVE
CONSERVATION AND
MANAGEMENT PLAN

March 1994

2015 Revision of 1994 Management Plan



2020–2024 Long Island Sound Comprehensive Conservation and Management Plan Update

This update contains new and revised Implementation Actions (IAs) for the 2020-2024 planning cycle. The full CCMP with the original IAs is at: longislandsoundstudy.net/2015/09/2015-comprehensive-conservation-and-management-plan.

- **Continues** focus on water quality and habitat protection and restoration
- **Sets** 20 ecosystem targets to be achieved in 20 years with five-year action plans
- **Integrates** climate resiliency, sustainability, and environmental justice



January 2021

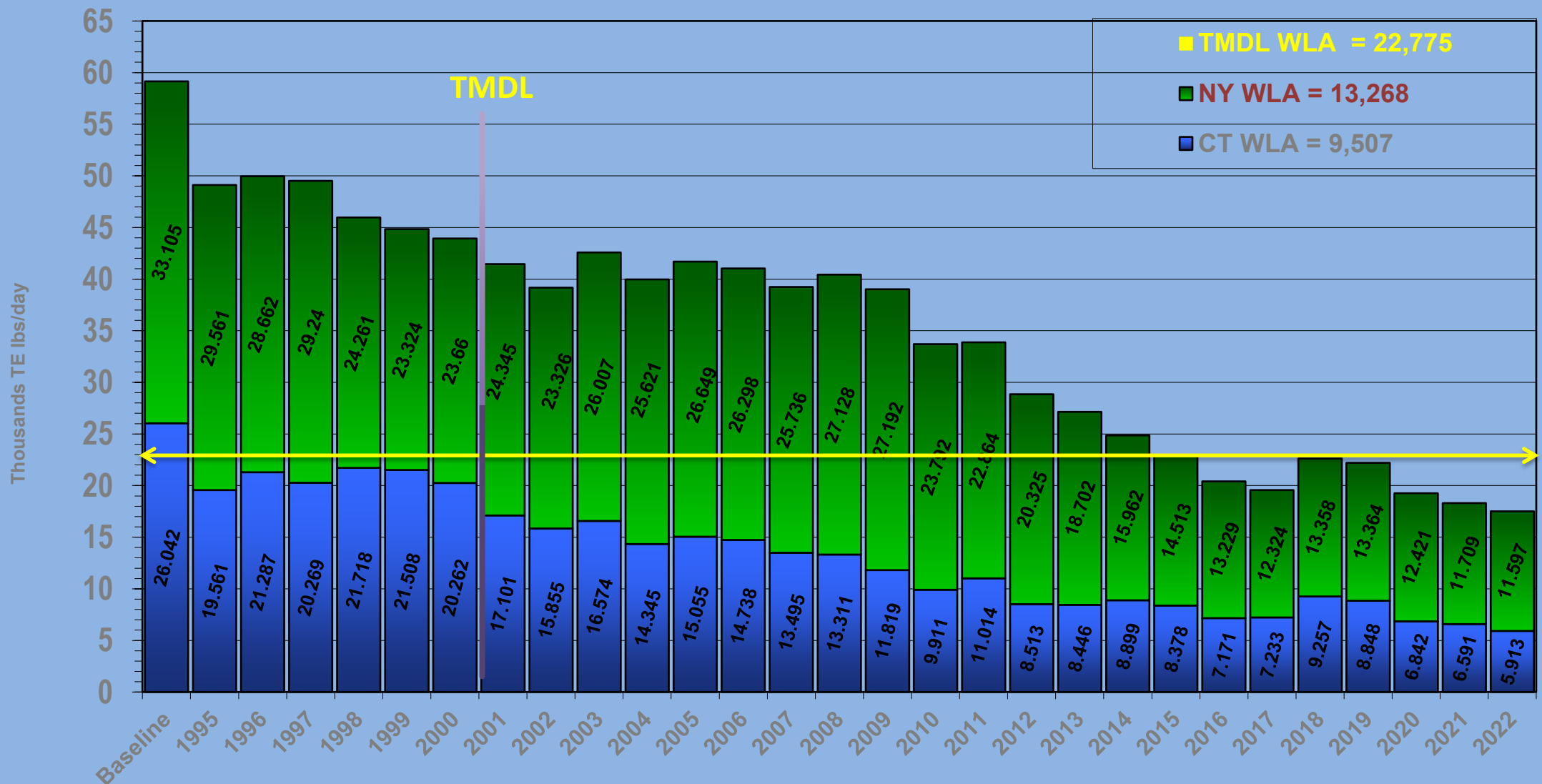


Accomplishment: ↓ N Pollution



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Point Source Nitrogen Trade-Equalized Loads vs. Total Maximum Daily Load Waste Load Allocations 1995-2022 NY/CT STPs

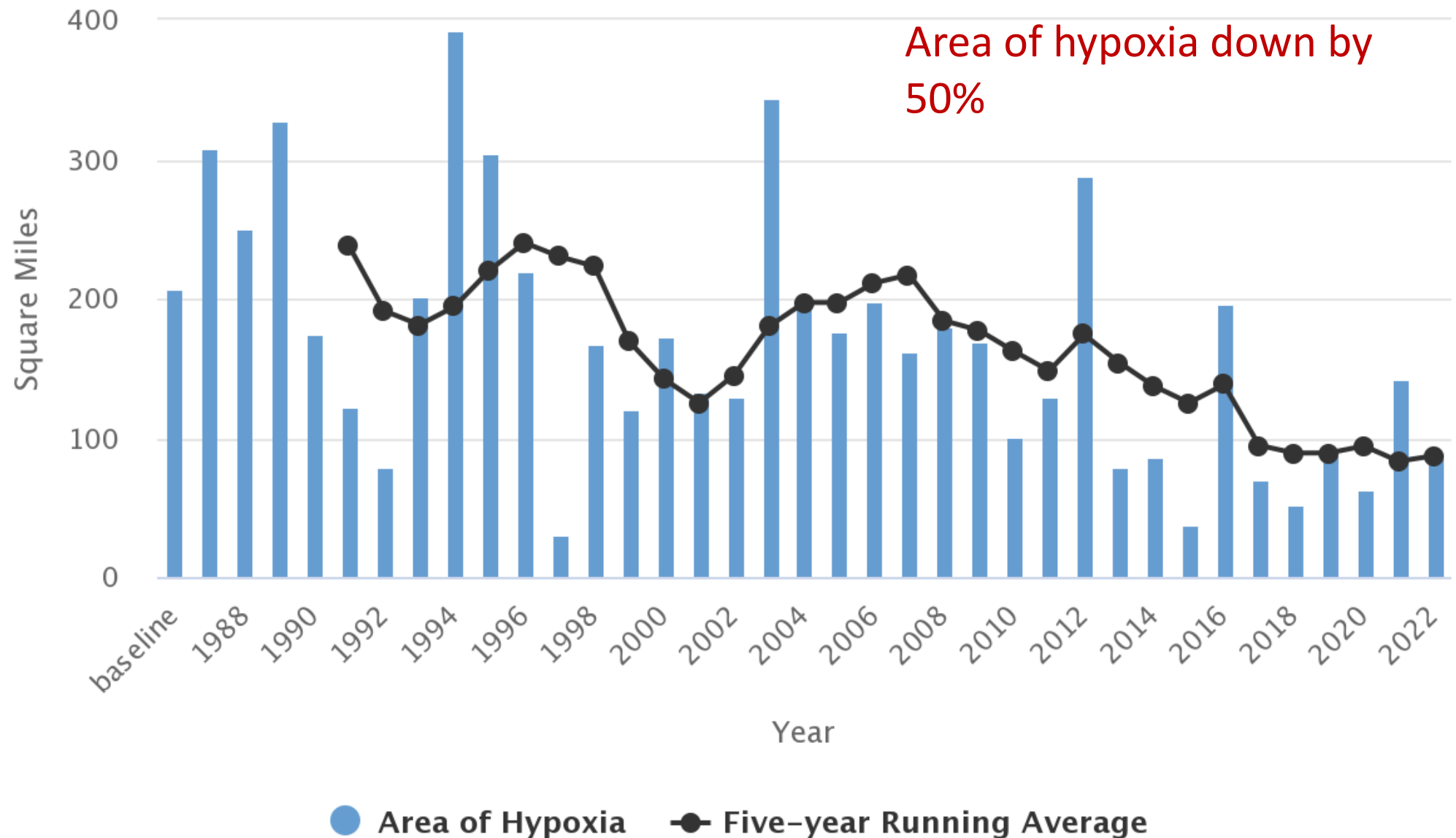


Accomplishment: Shrinking Hypoxia



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Hypoxia (Dissolved Oxygen ≤ 3 mg/L) in Long Island Sound

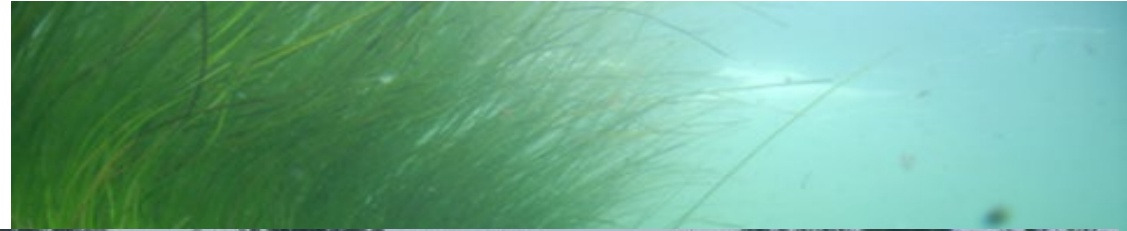


Highcharts.com

Accomplishment: Expanding Focus



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Thriving wildlife and recreation!

Accomplishment: Habitat



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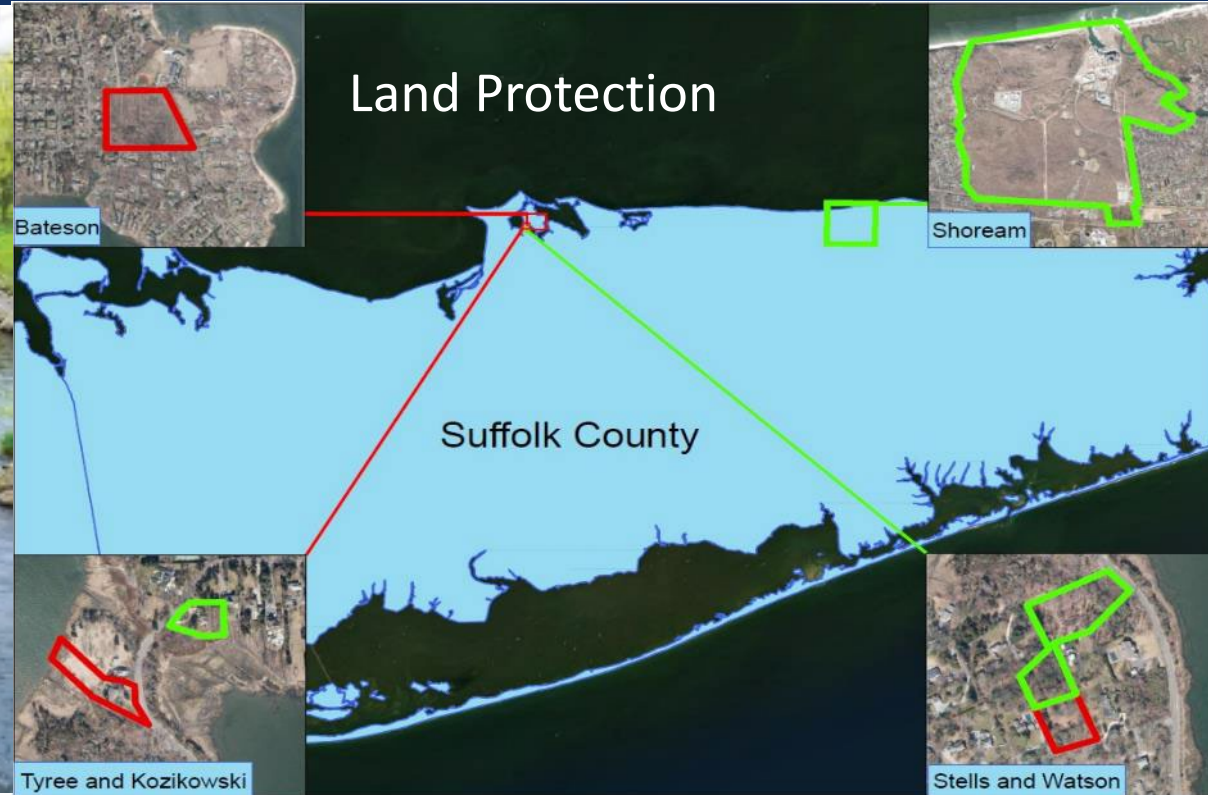
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Fish Passage



LISS prioritizes coastal habitat restoration and land protection, while considering *climate change impacts*

Land Protection



Wetland Restoration and Living Shorelines



Eelgrass Aerial Surveys



Accomplishment: Habitat



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Restored 1,157 acres of tidal wetlands since 1998



Opened 433 miles of riverine migratory corridors to diadromous fish since 1998



Protected 8,100 acres of land since 2006

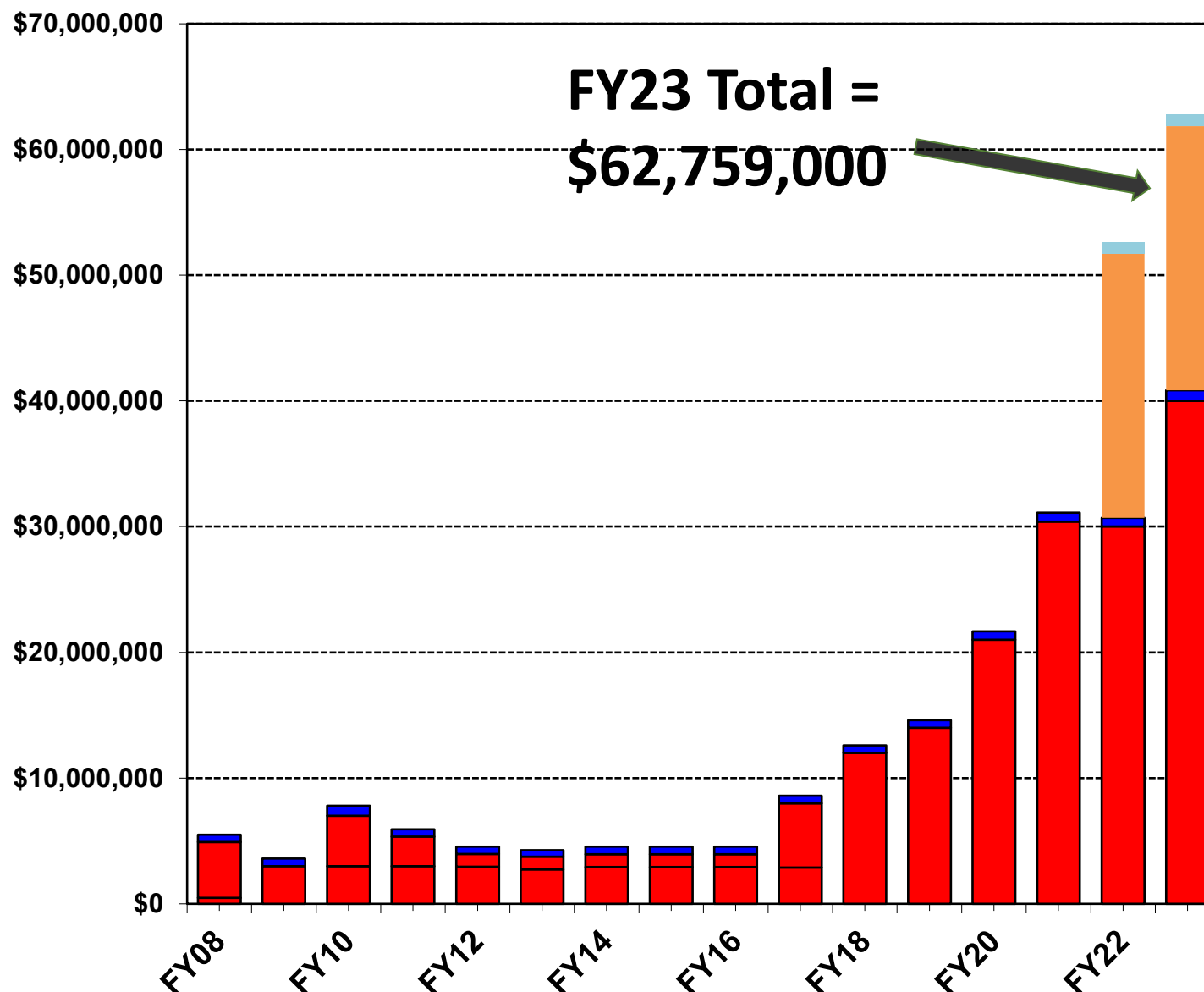
Accomplishment: Budget



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FY23 LISS Clean Water Act funding sources:

- ➔ CWA 320 Infrastructure Funds (BIL)
- ➔ CWA 119 Infrastructure Funds (BIL)
- ➔ CWA Section 320 National Estuary Program for LIS
- ➔ CWA Section 119 Long Island Sound Geographic Program



Accomplishment: New initiatives



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Funding increased from about \$15M to \$41M (non-BIL)

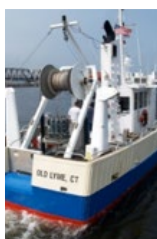
LISS at annually \$62M incl BIL.

- Expanded existing programs
- Created new initiatives
- Increased LISS Staff



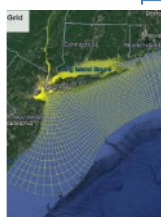
Environmental Justice

- Community Impact Fund
- Internal & External expansion
- Workgroup Support



Monitoring

- Expanded existing monitoring
- Including new embayments
- New initiatives – coastal acidification



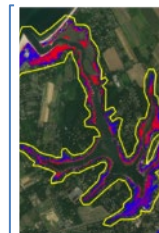
Modeling

- Next generation water quality model
- Tools to support scenarios



Federal Coordination

Interagency Agreements



Coastal Resiliency

- Increased funding for SRC initiatives
- Living shorelines



Futures Fund

- Increased funding
- Reduced match requirements



Research

- Increased funding



Habitat Restoration & Protection

- Land acquisition
- Increased habitat restoration

Future: Cross-Cutting Principles



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- **Sustainability**
- **Climate Resiliency**
- **Environmental Justice**



Groton Photos, Town of Groton Planning Dept

Five-Year Strategic Communications, Outreach, and Engagement Plan for the Long Island Sound Study



Inspiring Collaboration and Action to Restore and Protect Long Island Sound



July 2022





Agenda: Advisory Committee Input

Citizen Advisory Committee

Holly Drinkuth, The Nature Conservancy

Nancy Seligson, Town of Mamaroneck

Science and Technical Advisory Committee

Penny Vlahos, PhD, University of Connecticut

Kamazima Lwiza, PhD, Stony Brook University



Agenda: LISS Governance Document



Development and Maintenance

- Consistent with authorizations under Clean Water Act §320 and §119.
- Adaptive Management approach reflected in the document; revisions can be made as needed.
- Draws on similar documents including:
 - *The Chesapeake Bay Program*
 - *Peconic Estuary Partnership*
 - Other NEP's CCMPs.

Approval

- Some sections refer to National Estuary Program Guidance. We do NOT repeat the specific guidance in the document to avoid repetitive updates.
- Describes program core, current structure.
- Does not include items in constant flux. (ex. does NOT list current workgroups.)
- Approved by Executive Steering Committee February 2023



- I. Introduction
- II. Background
- III. Long Island Sound Study Vision, Goals, and Principles
- IV. Commitment to Environmental Justice
- V. Ethical Behavior Guidelines
- VI. Organizational Structure
 - a. Policy Committee
 - b. Executive Steering Committee
 - c. Management Committee
 - d. STAC & CAC
 - e. Implementation Team
 - f. Workgroups (as a whole)
- VII. Process for Decision Making
 - a. General Guidance for Decision Making
 - b. Results of Decisions
 - c. Consensus-Building Process
 - d. Process for Modification or Reversal of Previous Consensus Decisions.
 - e. Amendment to the Governance Document
- VIII. Process for Changes to the CCMP
- IX. Tracking and Reporting



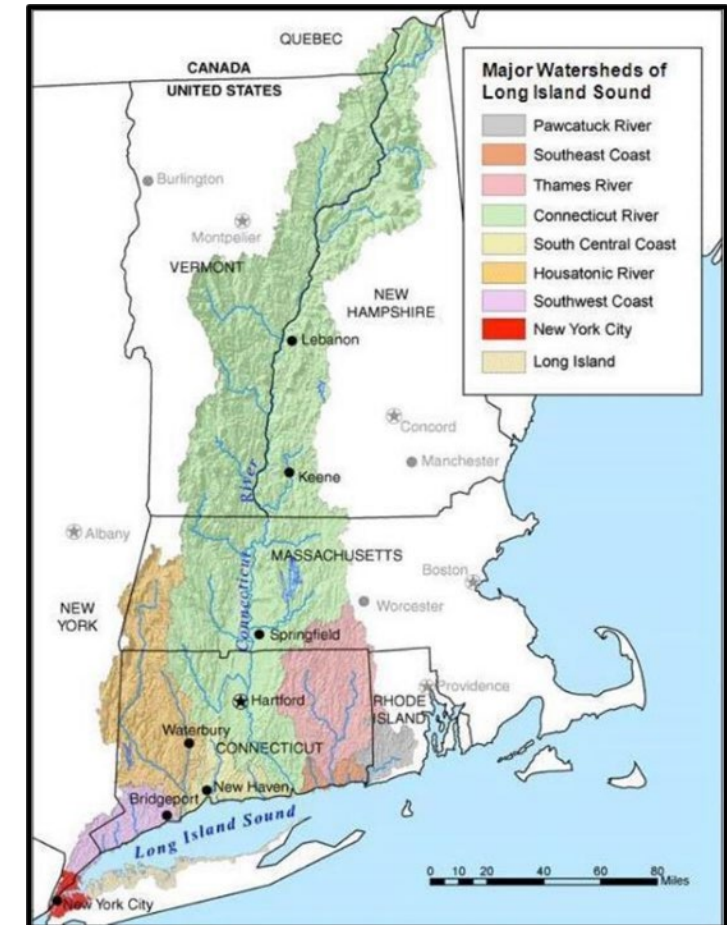
Agenda: Report of BIL Investments

\$106 million total (\$21 million/year)

- Integrate **environmental justice** goals with all LIS watershed protection and restoration activities
- Implement **infrastructure improvement** projects in Connecticut, New York, and the upper watershed state of Massachusetts to enhance water and habitat quality.

Examples: green infrastructure, transition to innovative septic systems and nitrogen reduction upgrades to WWTPs.

- Enhance **climate resilience and sustainability** through community planning, living shorelines, wetland restoration, and flood mitigation.
- BIL funding adds **new reporting** requirements, including equity strategy for Justice40 planning



BIL Funded Projects to Date (incl. FY22-23)

New York

- Support for Stewardship Land Acquisition
- NYS Water Quality Improvement Projects*
- NYS Long Island Sound Septic System Replacement Program*



Connecticut

- Middle Street Pond Dam Removal*
- Strong Pond Dam Removal Support on the Norwalk River*
- Addressing Language Barriers with Coastal Anglers*
- Living Shorelines and Habitat Restoration Projects
- Vessel to enhance LIS monitoring
- LiDAR & multi-spectral imaging for baseline saltmarsh monitoring



Massachusetts

- Nitrogen Upgrades to Wastewater Treatment Plants*

Restore America's Estuaries

- Long Island Sound Community Impact Fund*



** Indicates funding/benefits going towards disadvantaged community*



Environmental Justice & Justice40: Key Activities

Long Island Sound Community Impact Fund (LISCIF)

- New subaward and technical assistance program focused on underserved communities
- Cooperative agreement with Restore America's Estuaries

LISS Equity Strategy for Justice40 Reporting (BIL only)

- Approved by EPA headquarters
- Equity strategy required to continue match waiver on all BIL-funded awards

How LISS Partners can help:

- Help get the word out when pass through funding opportunities open.
- Continue to integrate BIL project planning with equity strategy approach to benefit disadvantaged communities.



Estimates of LISS Investments in Disadvantaged Communities

- **FY17-21 (pre-BIL): Average of 18% of annual LISS budget reaching disadvantaged communities (conservative estimate)**
- **FY22 (year 1 of BIL): Approximately 40% of funds benefitting disadvantaged communities**
 - Will continue to evolve as multi-year projects details are finalized and progress reports submitted
- **FY23 (year 2 of BIL): planning underway, TBD as projects are confirmed**

FY22-26 (duration of BIL): Goal of 40%+ of project benefits/investments reaching disadvantaged communities

BIL Projects Benefitting Disadvantaged Communities



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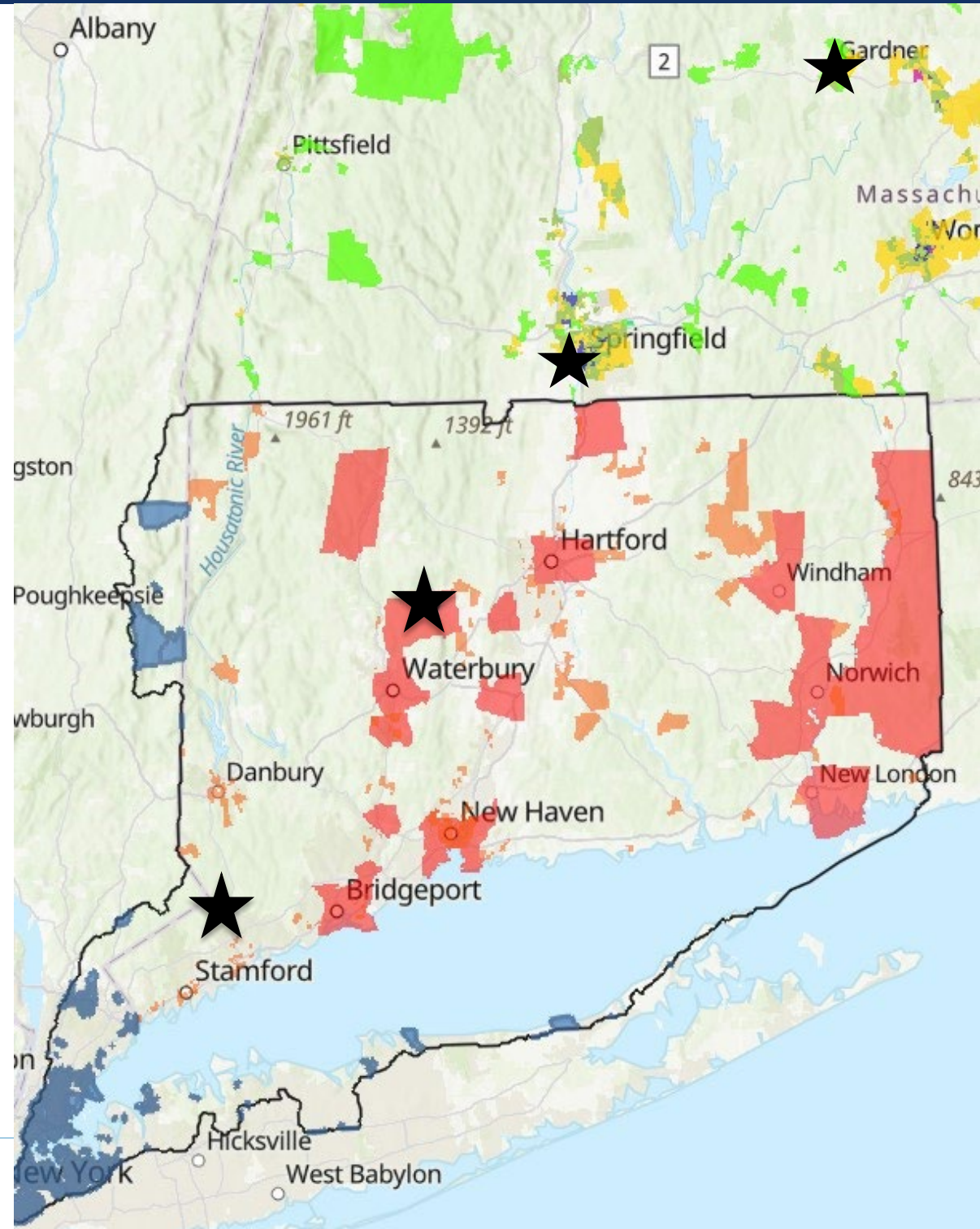
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Map shows LISS BIL FY22-23 project sites benefitting disadvantaged communities

Additional projects benefitting disadvantaged communities include:

- Long Island Sound Community Impact Fund (covers CT & NY)
- CT DEEP angler survey (multiple coastal sites)
- NYDEC water quality and septic replacement subawards

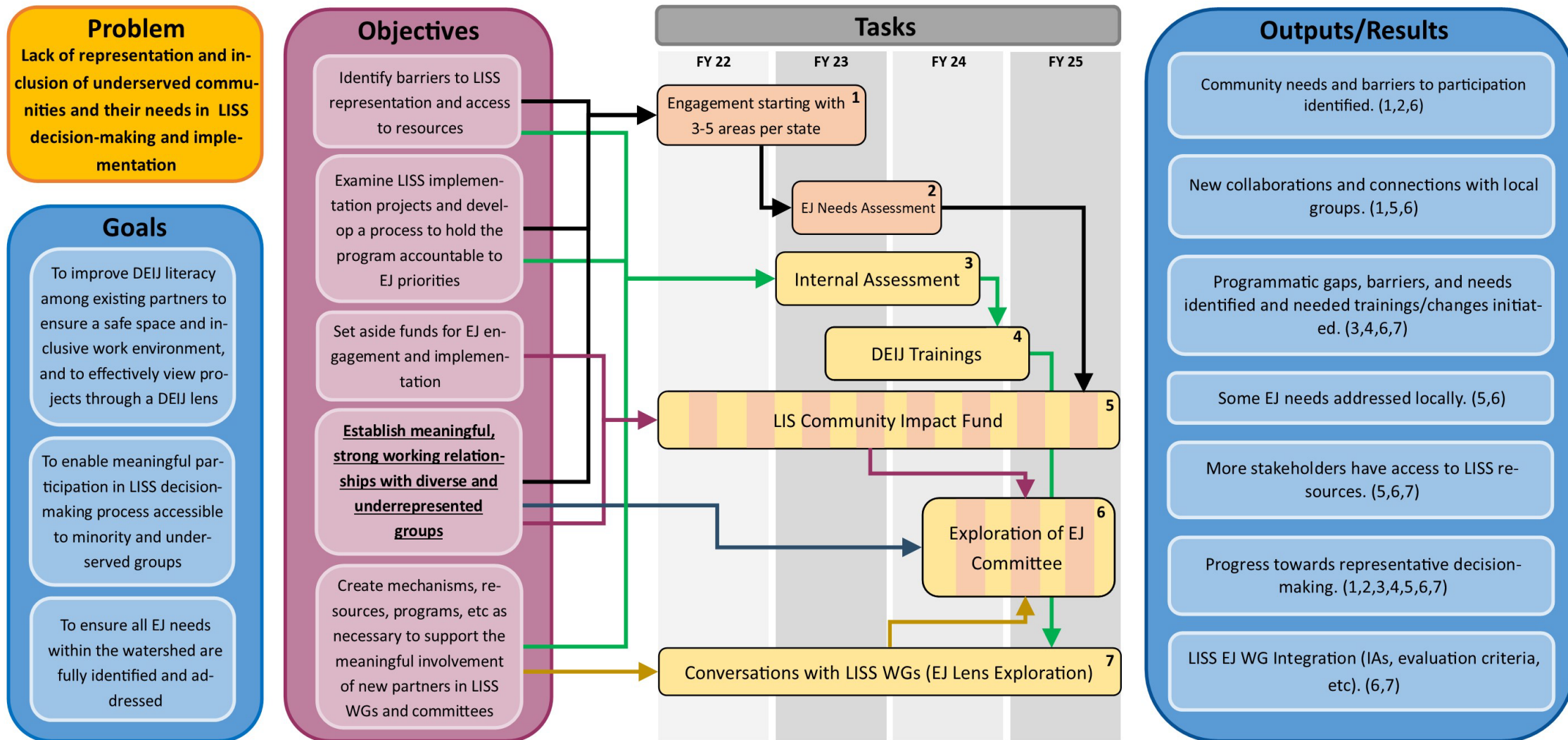
More to come as BIL funds are awarded and grantees report on project benefits



EJWG 5-Year Workplan Diagram



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LISS EJWG 5-Year Workplan Diagram: Arrows are color-coded to indicate which objectives are being met by each task and how tasks are contributing to other tasks. Tasks are color-coded by strategy. Salmon indicates tasks that address the outward-facing strategy and yellow indicates tasks addressing the inward-facing strategy. Tasks that have both colors address both strategies. The numbers in parentheses link outputs/results to tasks. This current workplan represents a multi-faceted approach in a linear format; the process of integrating EJ into LISS will be iterative and this workplan will be regularly reviewed.



CT DEEP PROJECTS FUNDED BY BIPARTISAN INFRASTRUCTURE LAW

Habitat Restoration, Riverine Connectivity, and Living Shorelines Implementation

- Purchase of new research vessel to increase efficiency of water quality monitoring sound-wide and enhance monitoring opportunities in embayments
- Implement living shoreline projects aimed at reducing erosion, preserving the salt marsh, and increasing the climate resiliency of Ash Creek and Hammonasset State Park.
- Dam Removals:
 - Strong Pond Dam, Norwalk River; Middle Street Dam, Pequabuck River

Green Infrastructure:

- Grants to support final design/engineering and construction of the stormwater retrofit projects in Hartford and Bridgeport.
- If successful, adapt program to other disadvantaged communities
- Coordinate with other programs (external/internal) to implement green infrastructure projects statewide



CT DEEP PROJECTS FUNDED BY BIPARTISAN INFRASTRUCTURE LAW

Coastal Access Improvement Support

- Targeting coastal land acquisition opportunities, which may include:
 - 50 acre parcel adjacent Candlewood Hill Wildlife Management Area, Groton
 - 26 acres in Westbrook, adjacent to (and can provide access to) a landlocked parcel of the Cockaponset State Forest
- Design and planning of improvements to fishing access areas in Rocky Neck and Hammonasset State Parks

Environmental Characterization of Long Island Sound

- acoustic, geologic, ecologic, and physical oceanographic theme areas and develop these data into analytic products to support science-based management decision making, particularly those involving the potential future placement strategies of energy transmission infrastructure



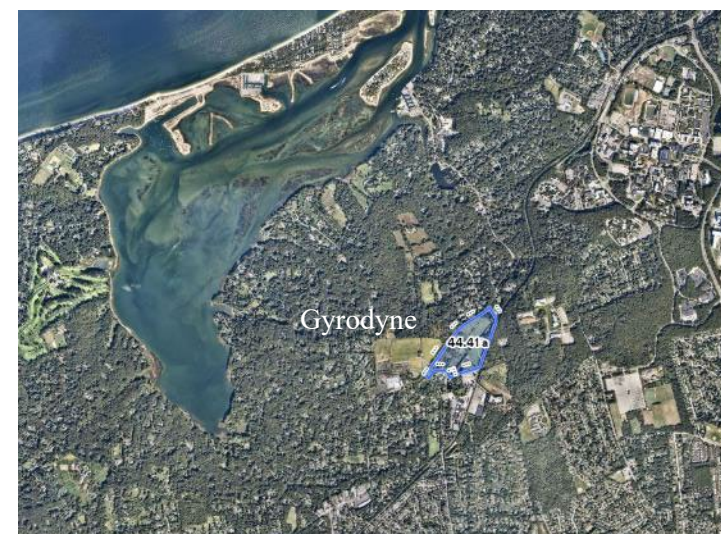
Investments in New York State - Septics and WQIP

- \$8.25 M: Septic system replacement for Suffolk and Nassau Counties with systems that treat nitrogen
 - FFY 22: \$2.25 M
 - FFY 23: \$3 M
 - FFY 24: \$3 M
- \$8.25 M: WQIP projects in the Long Island Sound Watershed
 - FFY 22: \$2.25 M
 - FFY 23: \$3 M
 - FFY 24: \$3 M



Investments in New York State - Land Acquisitions

- **Watson**
 - 1+/- acres
 - Strongs Neck, NY
 - Estimated market value is \$350-\$400,000
- **Kozikowski**
 - 1.5+/- acres
 - Strongs Neck, NY
 - Estimated market value is \$900,000
- **Gyrodyne**
 - 43 +/- acres
 - St. James, NY
 - Estimated market value is ~ \$25,000,000
- **Additional properties as opportunities arise**

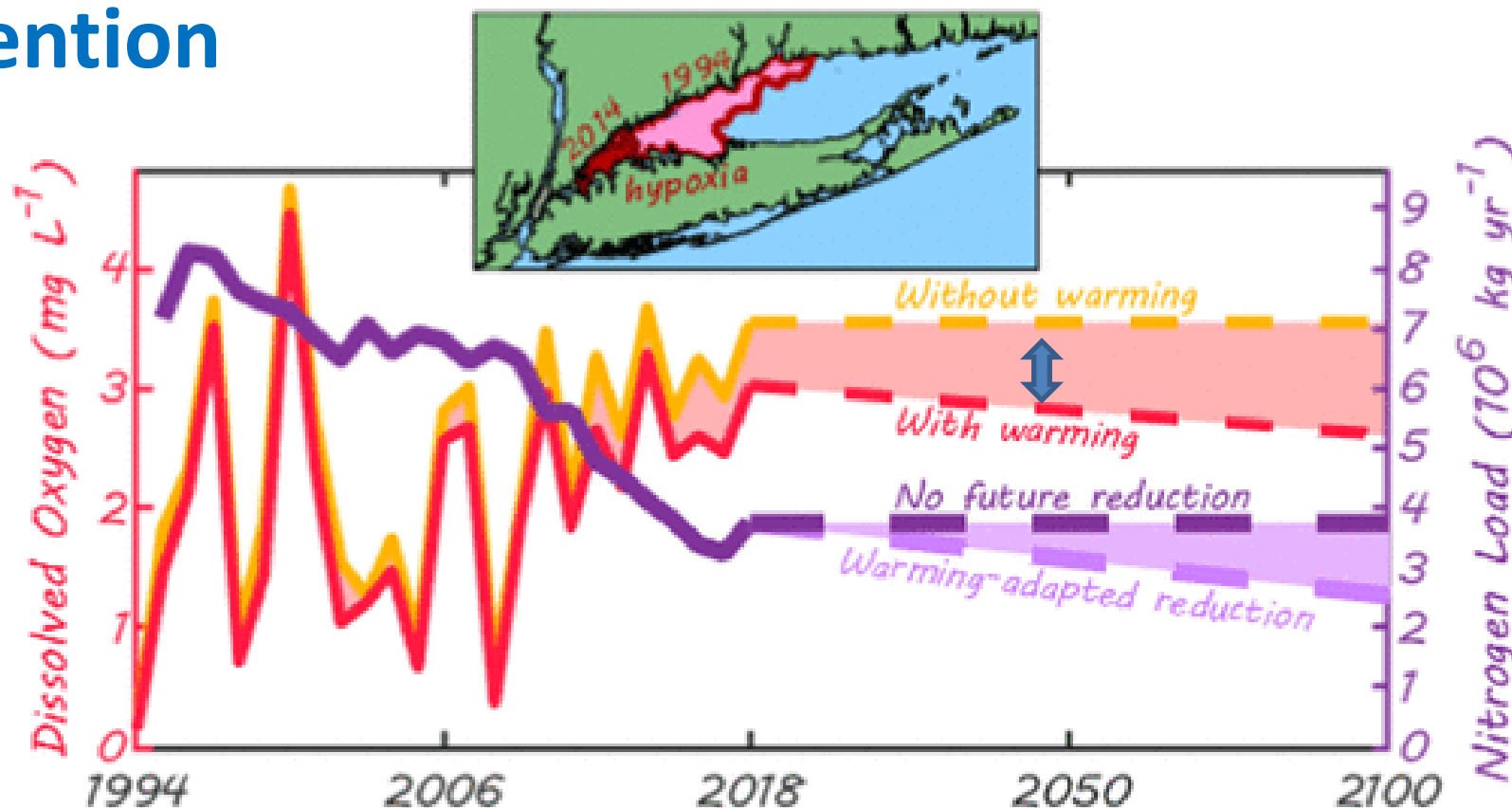




Agenda: Opportunities for Action under Nitrogen Reduction Strategies

Improvements will not be sustained in the warming climate without further intervention

- Warming-induced oxygen solubility loss has dampened the observed increase in dissolved oxygen in LIS by 27%.
- By 2099 (0.4 mg L⁻¹) projected to erode another 35% of the observed oxygen gains achieved to date. ([Whitney and Vlahos 2021](#)).



Management Questions & Expanded Investments

- Are further N load reductions needed to meet WQS for DO?
- How are N loads affecting embayment water quality?

➔ Nutrient impacts to embayments

Expanded monitoring and modeling

Data analysis (Tetra Tech) on protective nitrogen targets

Stressor–Response Model

Literature Review Median

Distribution-Based (Reference) Approach

Review of Onsite Wastewater Systems

➔ Improving nutrient load estimates

Groundwater and nutrient transport

Tributary monitoring

CT Statewide HSPF modeling

Dynamic SPARROW (USGS) and decision support

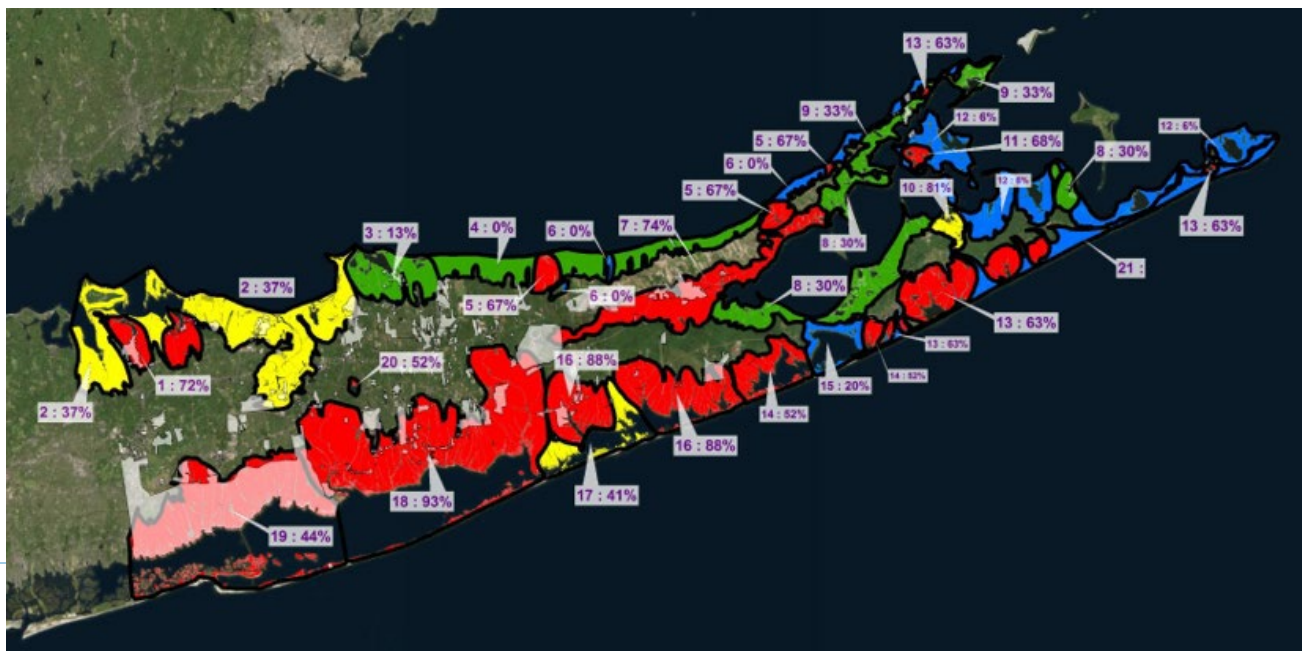
➔ Expanded open water assessments

Research, monitoring

Integrated hydrodynamic and water quality modeling

Systemwide and Embayment Evaluations

- Systemwide Coupled Hydrodynamic and Water Quality Model
NYCDEP contract with HDR, Review by Management Advisory Group and technical review by independent Model Evaluation Group
- CT Second Generation Nitrogen Strategy
8 embayment complexes: Pawcatuck River, Mystic River, Niantic River, Farm River (in planning), Sasco Brook, Saugatuck River, and Norwalk Harbor
- LINAP: Suffolk and Nassau County 9-element watershed Plans
Reduction targets set for : Manhasset Bay (39%), Hempstead Harbor (28%), Oyster Bay (60%), Cold Spring (27%), Northport and Huntington Harbor (72%), Smithtown Bay (37%), Port Jefferson Harbor (13%), Mattituck Creek (67%)





CT DEEP SECOND-GENERATION NITROGEN STRATEGY UPDATE

1) Wastewater Treatment Plants

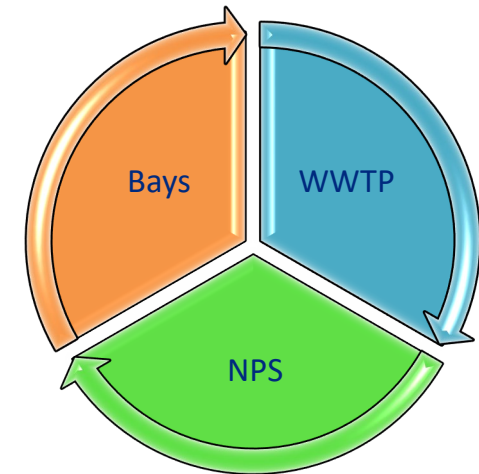
- Complete new planned upgrades
- Continue to operate N trading program

2) Enhance NPS/Stormwater Management

- Regulatory and non-regulatory measures

3) Focus on Embayments

- Outreach and Education
- Prioritize embayments for analysis and TMDLs (or alternative action plans)
- Assess priority embayments (data collection/modeling)
- Study to assess OWTS nitrogen loading in Coastal watersheds/management options





CT DEEP SECOND-GENERATION NITROGEN STRATEGY UPDATE

1) Statewide Water Quality Model Work

- Pawcatuck River Watershed Model- completed
- CTWM Planning - completed
- CTWM Development - in progress

2) Embayment Water Quality Model Work

- Model Plans for Two Embayments - completed
- Data Collection - completed two embayments/in progress for three
- Pawcatuck River Estuary Model - in progress

3) Groundwater Quality Model Work

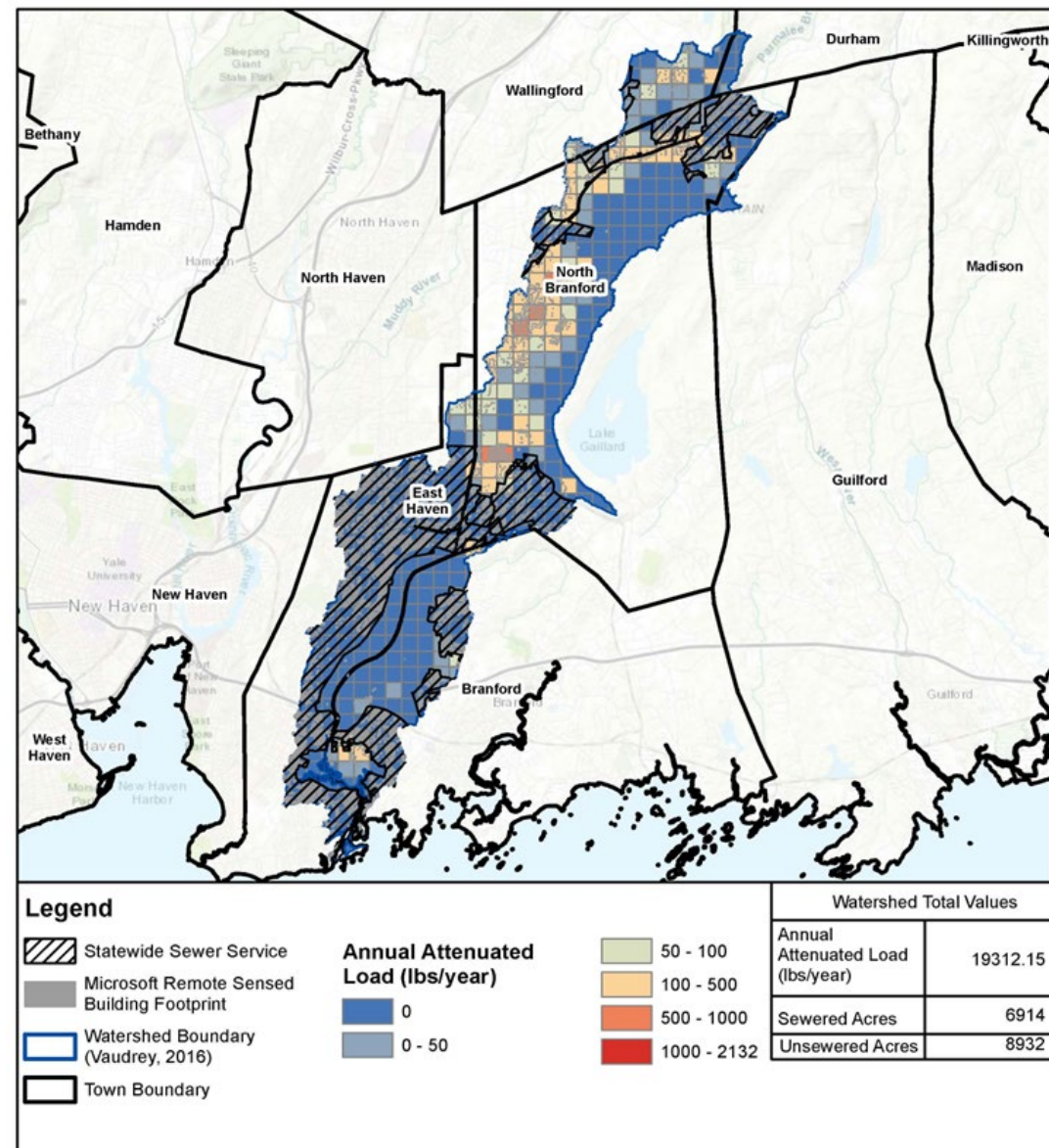
- Model water budget and travel time - completed
- Model groundwater nitrogen - in progress
- Method to estimate OWTS nitrogen loads - completed
- Apply to lower CT model boundary - in progress



CT DEEP SECOND-GENERATION NITROGEN STRATEGY UPDATE

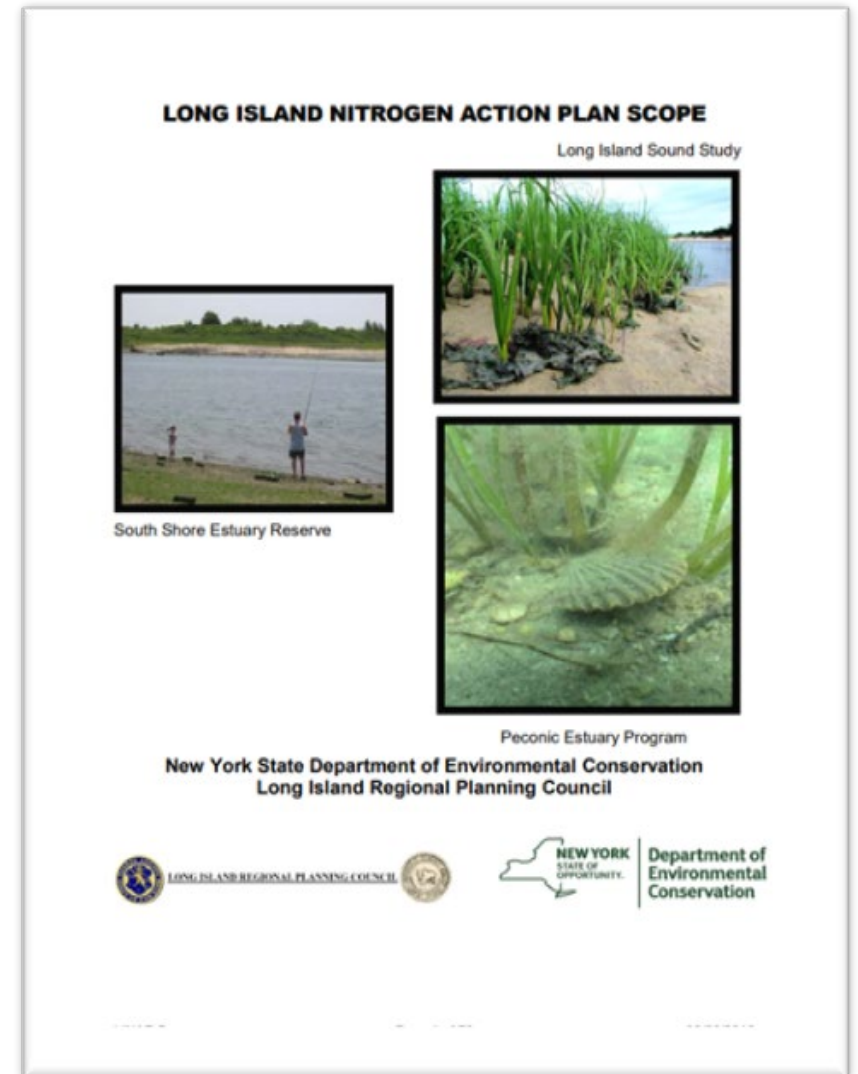
Estimating OWTS Nitrogen Loads

Figure C-18: Farm River Annual Attenuated Load Including Seasonal Loads (lbs/year)



NYS Long Island Nitrogen Action Plan (LINAP)

- Governor's Initiative
- Broad, multi-year program to reduce nitrogen impacts on water quality
- Developed LINAP Scope based on public input to guide early actions and multiple initiatives



NYS Long Island Nitrogen Action Plan (LINAP)

- Partnership driven program
- Facilitate, leverage and coordinate with and for partners
- Partners on every level of government

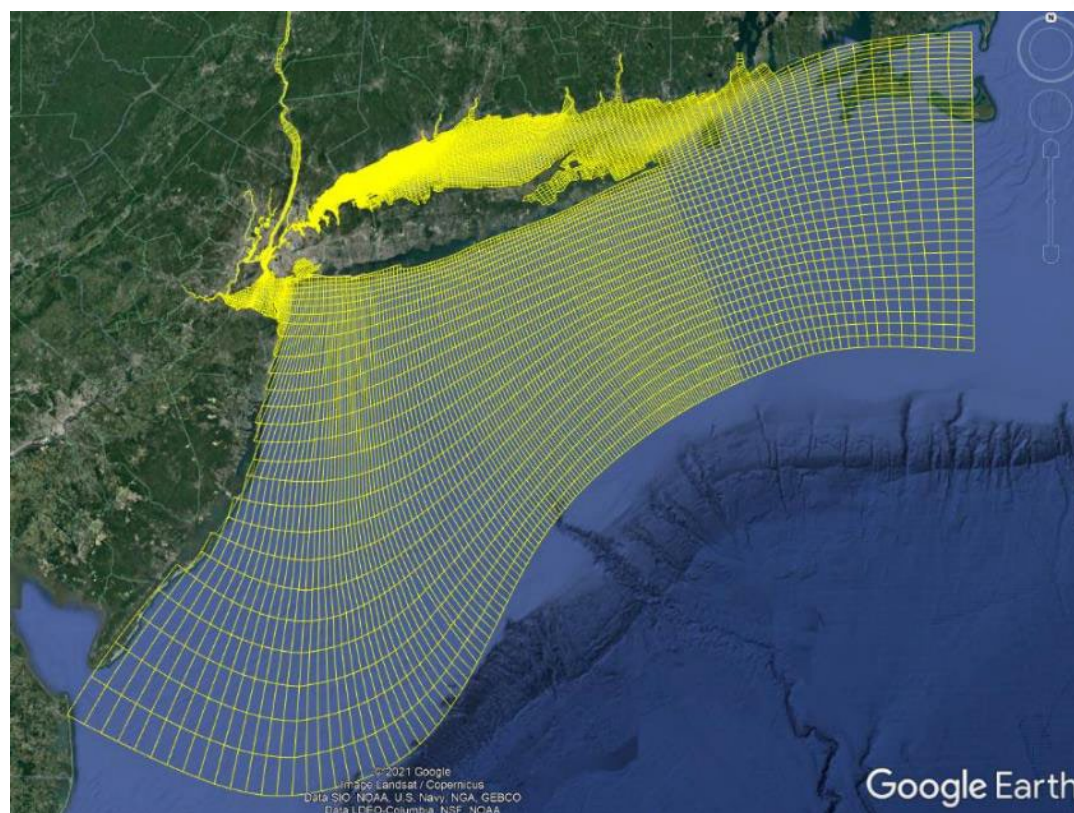




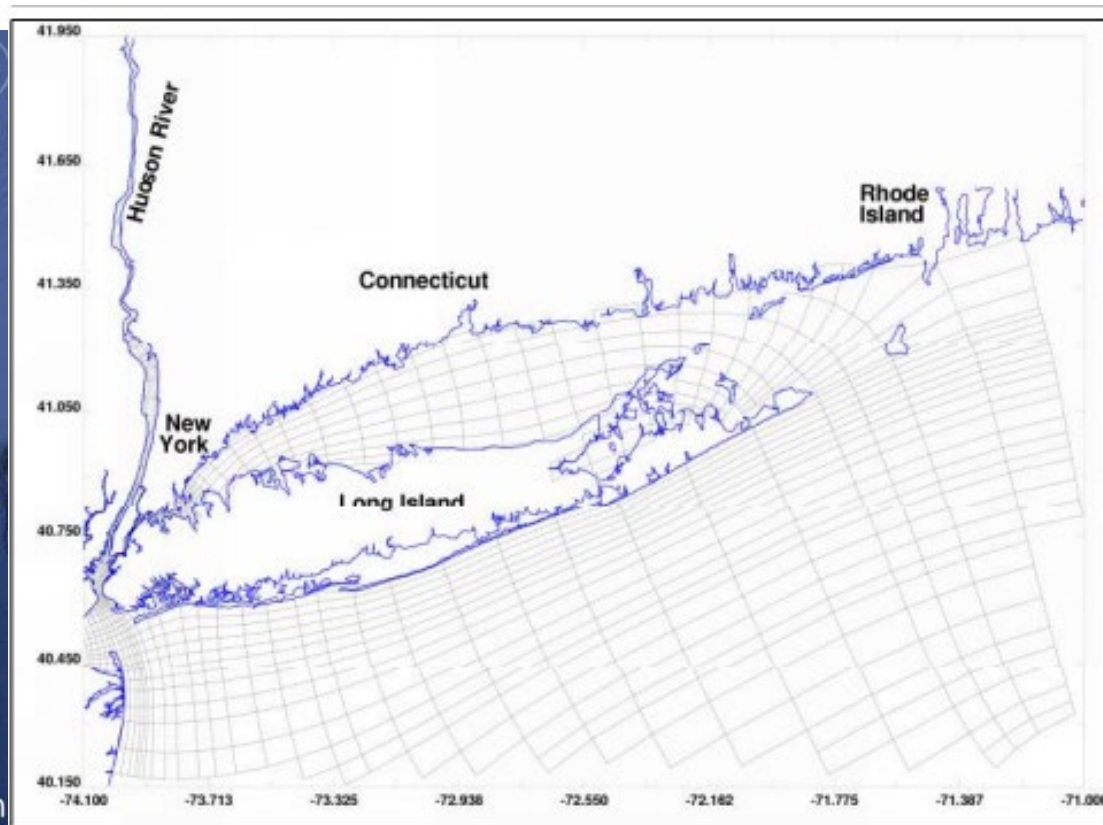
NYS LINAP Initiatives

- Countywide 9 Element watershed plans for both Suffolk and Nassau Counties
- Septic replacement programs in Suffolk and Nassau Counties
- Long Island specific turf fertilizer recommendations
- Water exchange project to study embayment flushing technology
- Bioextraction of seaweed or shellfish to remove excess nitrogen
- Creation of Nitrogen Smart Communities program to empower communities to reduce nitrogen in their jurisdiction

Nitrogen Reduction Strategies

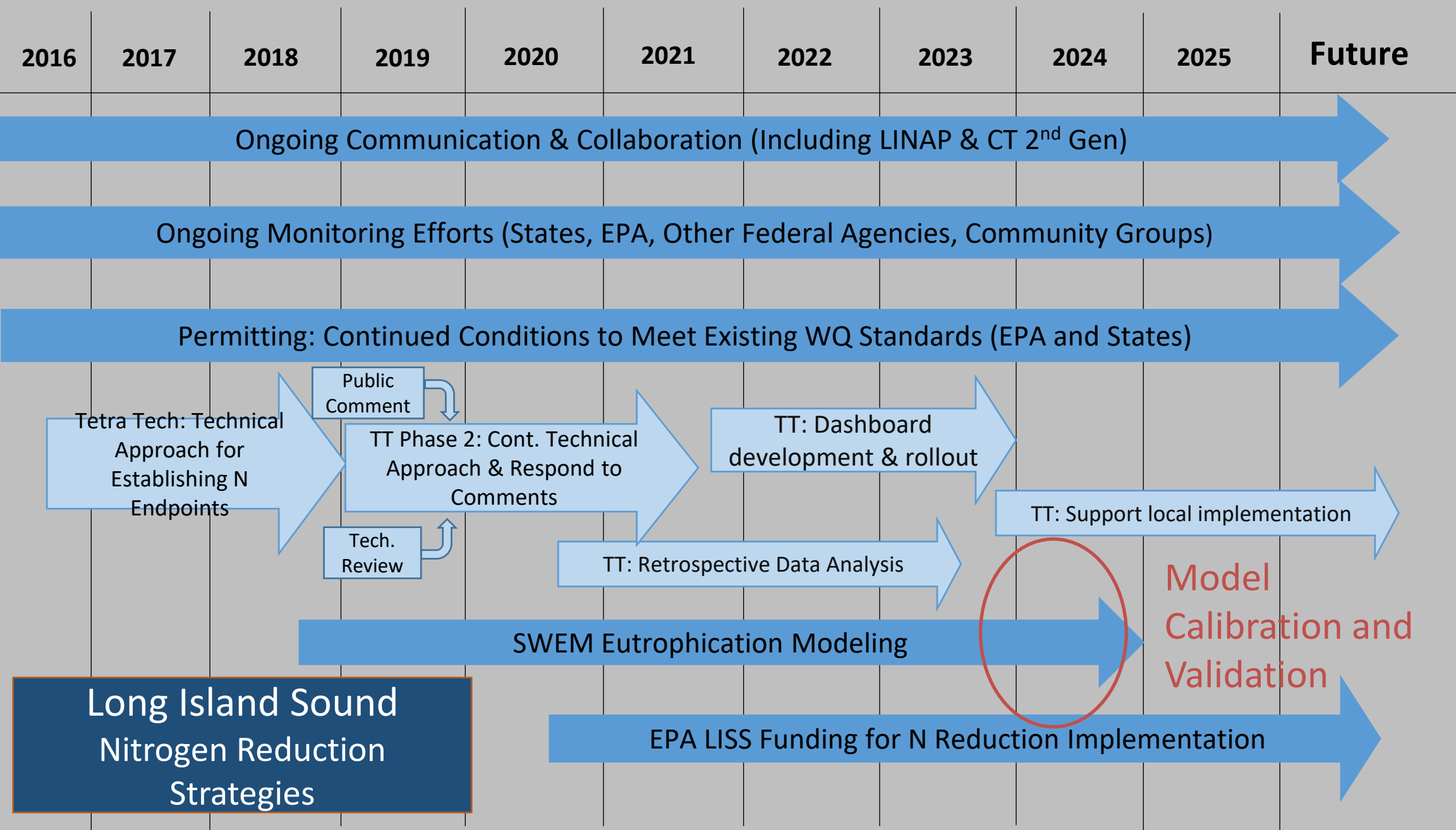


Refined ROMS/RCA coupled model being developed under EPA/NYCDEP \$5.2 M Cooperative Agreement



Old systemwide eutrophication model grid structure

New Integrated Hydrodynamic and Water Quality Models





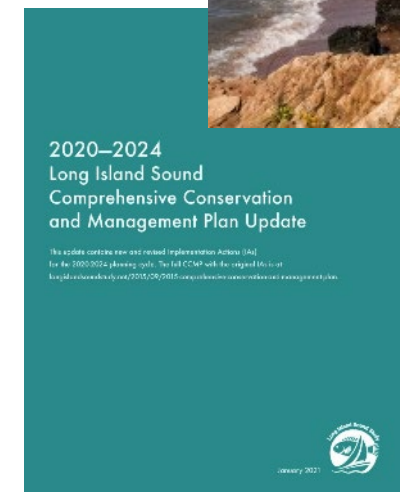
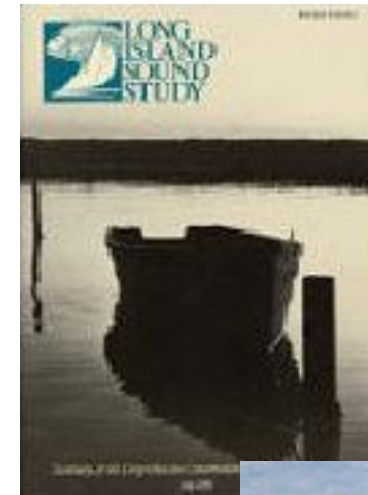
Agenda: Management Conference Planning

2025 Comprehensive Conservation and Management Plan (CCMP)

Background

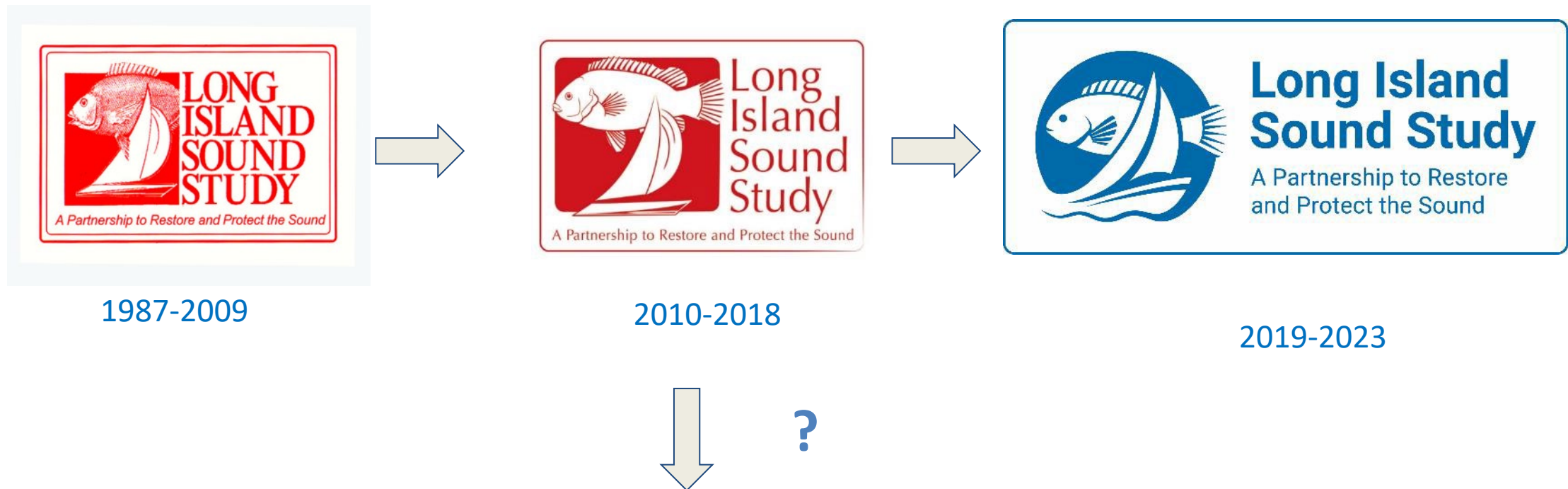
- 1994 CCMP - establishes goals and ecosystem targets to restore and protect Long Island Sound
- 2015 CCMP - Revised plan for next 20 years, set 20 ecosystem targets
- 2020 Update - update contains new and revised Implementation Actions (IAs) for 2020-2024 cycle
- Next due in 2025! 40th anniversary of the program.

Evaluating 2025 Full Revision





Consider change from “Study” to emphasize implementation



Long Island Sound Estuary Partnership

Long Island Sound Estuary Program

Management Conference Planning



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Agenda: Discussion