

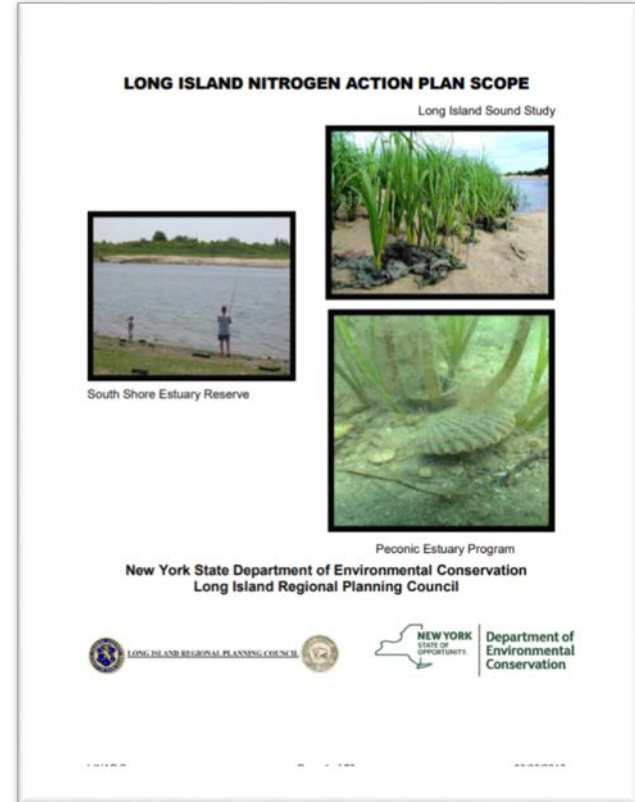
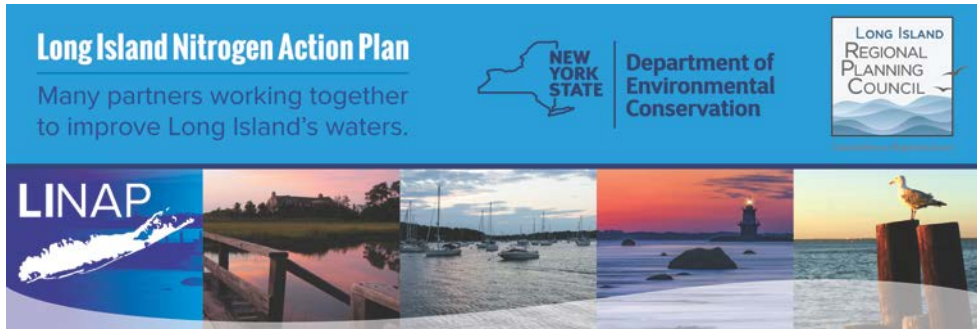
# Long Island Nitrogen Action Plan (LINAP)

June 17, 2022



# LINAP is a Governor's Initiative

- Started 2015
- \$5 million in state funding + over \$1.5 billion to support implementation
- Developed LINAP Scope to guide multiple initiative



# The Long Island Nitrogen Action Plan

*A broad, multi-year initiative to reduce nitrogen impacts on water quality*

## Goals:

- Assess nitrogen pollution in LI waters
- Identify sources of nitrogen to surface and ground waters
- Establish nitrogen reduction endpoints
- Develop implementation plans to achieve reductions



# LINAP's Current Initiatives

# Current Initiatives

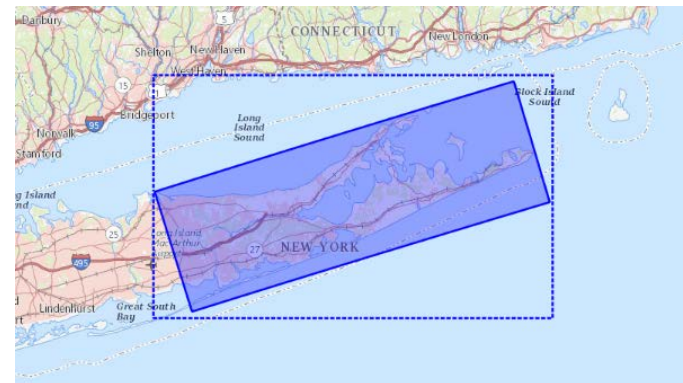
- Over 30 initiatives
- Conducted by
  - DEC
  - Long Island Regional Planning Council
  - Suffolk County
  - Nassau County
  - Center for Clean Water Technology
  - Long Island Sound Study
  - Peconic Estuary Partnership
  - South Shore Estuary Reserve
  - USGS





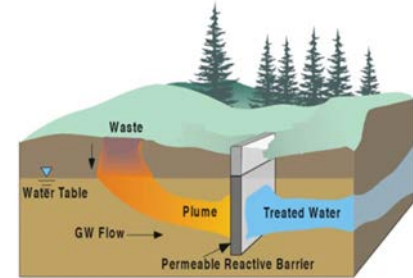
# Solute Transport Model

- Tool to help managers make better decisions about timing and placement of best management practices to address nitrogen in the groundwater
- Predicts discharge of nitrogen in the groundwater to fresh and coastal waters.
- Nitrogen a result of historical nitrogen loads back to 1900s



# Groundwater Interceptor Technology aka PRBs

- Proven technology to remediate groundwater contamination
- Not widely used in NY for N removal
- Municipalities need assistance to determine if PRB is appropriate for their situation
- CCWT DEC's partner:
  - Permeable Reactive Barrier Guide for Municipalities
  - Assistance to WQIP grant recipients
  - Address secondary by-product concern
  - Determine best design for N removal



# More than Just Landside

- Nassau and Suffolk Counties' Subwatershed studies quantify percentage of nitrogen needed to be removed to improve water quality
- Not enough removal through wastewater improvements (septic replacements, wastewater treatment plants)
- In-waterbody practices needed to provide additional nitrogen reductions
  - Nutrient Bioextraction Initiative
  - Hydrodynamic Modifications (aka Water Exchange Projects)





# Nutrient Bioextraction Initiative: Overview

Mission: To improve water quality in NY and CT marine and coastal waters by removing excess nitrogen through the cultivation and harvest of seaweed and shellfish.

The initiative will provide information to help decision makers with the guidelines needed to facilitate public and private seaweed and shellfish farming and harvest operations in their coastal waters.



# Nutrient Bioextraction Initiative: Projects

## Pilot Projects

- Sugar Kelp (*Saccharina latissima*)
- Ribbed Mussel (*Geukensia demissa*)
- New York and Connecticut Shellfish and Seaweed Aquaculture Viewer (GIS mapping application)
- Long Island Sound Seaweed Bioextraction Symposium
- Economic Feasibility of Commercial Bioextraction Study
- A Guide to Marine Shellfish Aquaculture Permitting in New York



Caterina Panzeca



Caterina Panzeca



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# Water Exchange

- Water exchange projects alter the flow of water to flush out nitrogen buildup in embayments



MAGGIE SMITH, NG STAFF. SOURCE: NATIONAL PARK SERVICE



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# Water Exchange Study

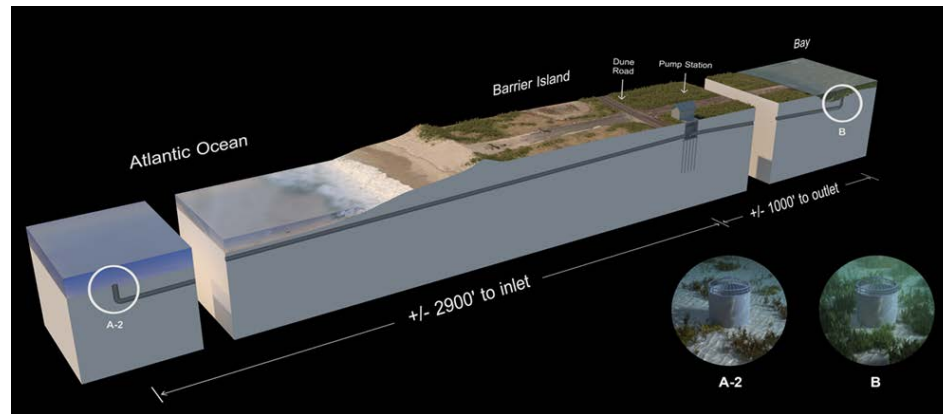
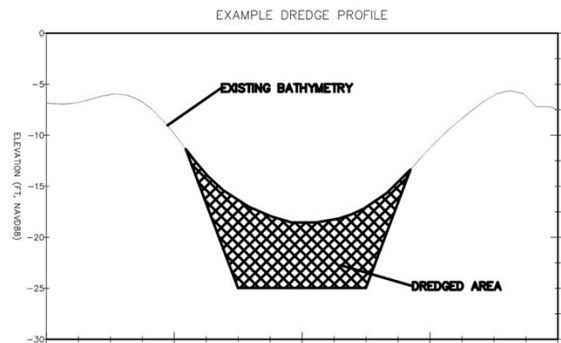
GOAL: Improve the health of Long Island embayments by exploring potential technologies to exchange more sea water into embayments to help reduce the accumulation of nitrogen

DELVIERABLE: Develop a document that provides local decision makers with guidance and considerations to communities considering water exchange projects



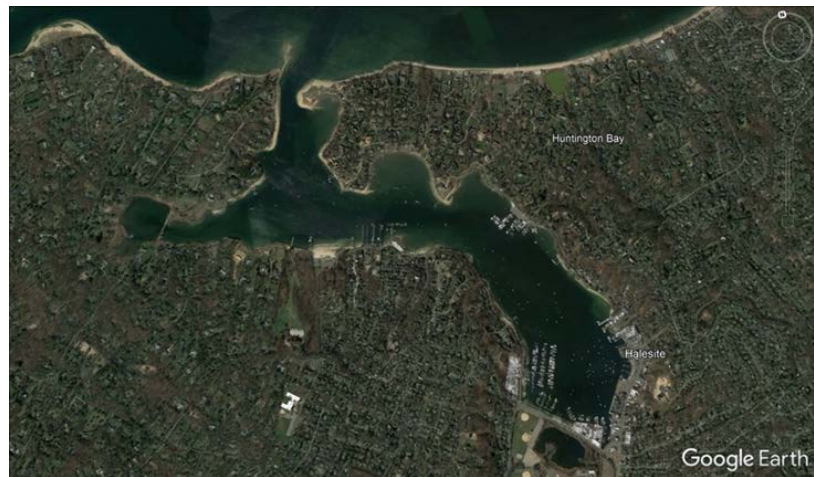
# Types of Exchange Projects

- A. Environmental dredging
- B. Underground pipe with a pump
- C. Underground culvert



# Types of Embayments

- Open harbor with a sand spit
- Shallow, open harbor
- Tidal stream, inlet





# Study Considerations



Water Quality



Constructability



Environmental  
Impact



Social  
Acceptance



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# Where to Go for More Information on LINAP

- Visit the LINAP website to view important documents  
<http://www.dec.ny.gov/lands/103654.html>  
At DEC website, search on 'LINAP' in the search function in the green banner
- Join the LINAP e-Newsletter to hear about updates and new developments  
[https://public.govdelivery.com/accounts/NYSDEC/subscriber/new?topic\\_id=NYSDEC\\_174](https://public.govdelivery.com/accounts/NYSDEC/subscriber/new?topic_id=NYSDEC_174)  
Also in the blue DEC Delivers box on the LINAP website in first bullet
- Questions still not answered? Send us an email  
[llwaterquality@dec.ny.gov](mailto:llwaterquality@dec.ny.gov)



# Thank You

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