

Design Professionals Training

May 10th, 2018



Chris Clapp
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Long Island is Defined By Water

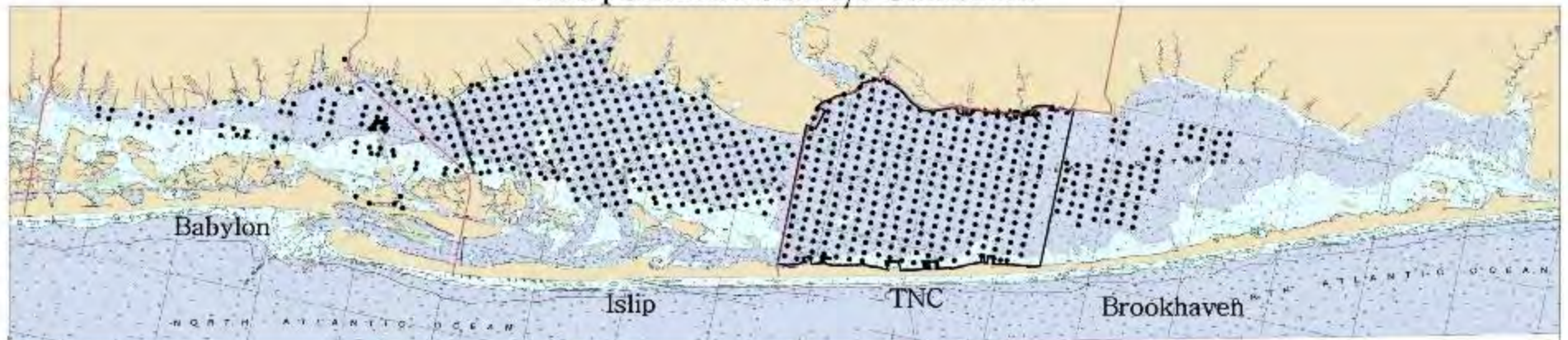


Our way of life is enriched by coastal habitats



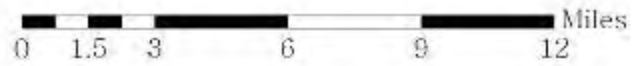


2004 Shellfish Surveys Combined



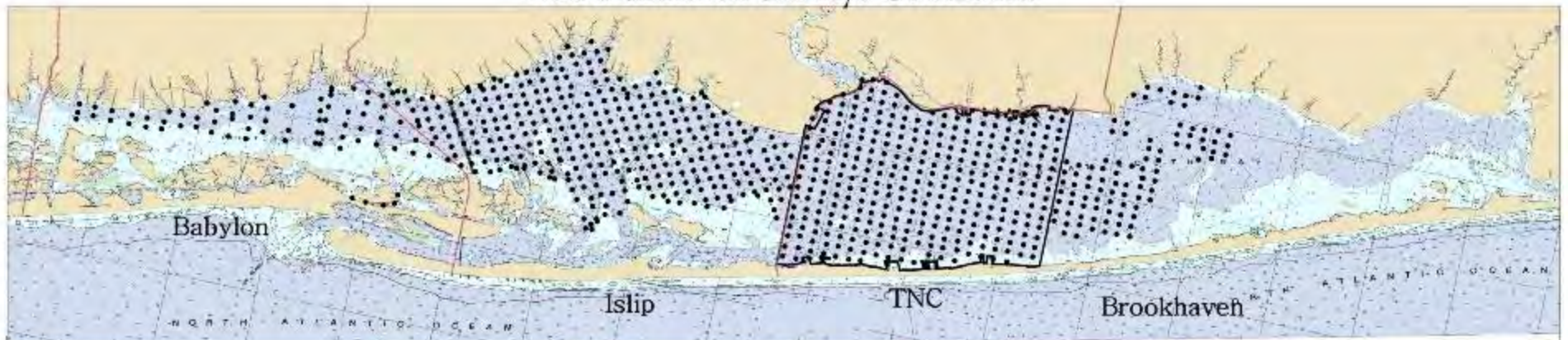
Legend

Clams/m2



Source: The Marine Laboratory, Town of Brookhaven, Town of Islip, Town of Babylon, Suffolk County, 2004.

2006 Shellfish Surveys Combined



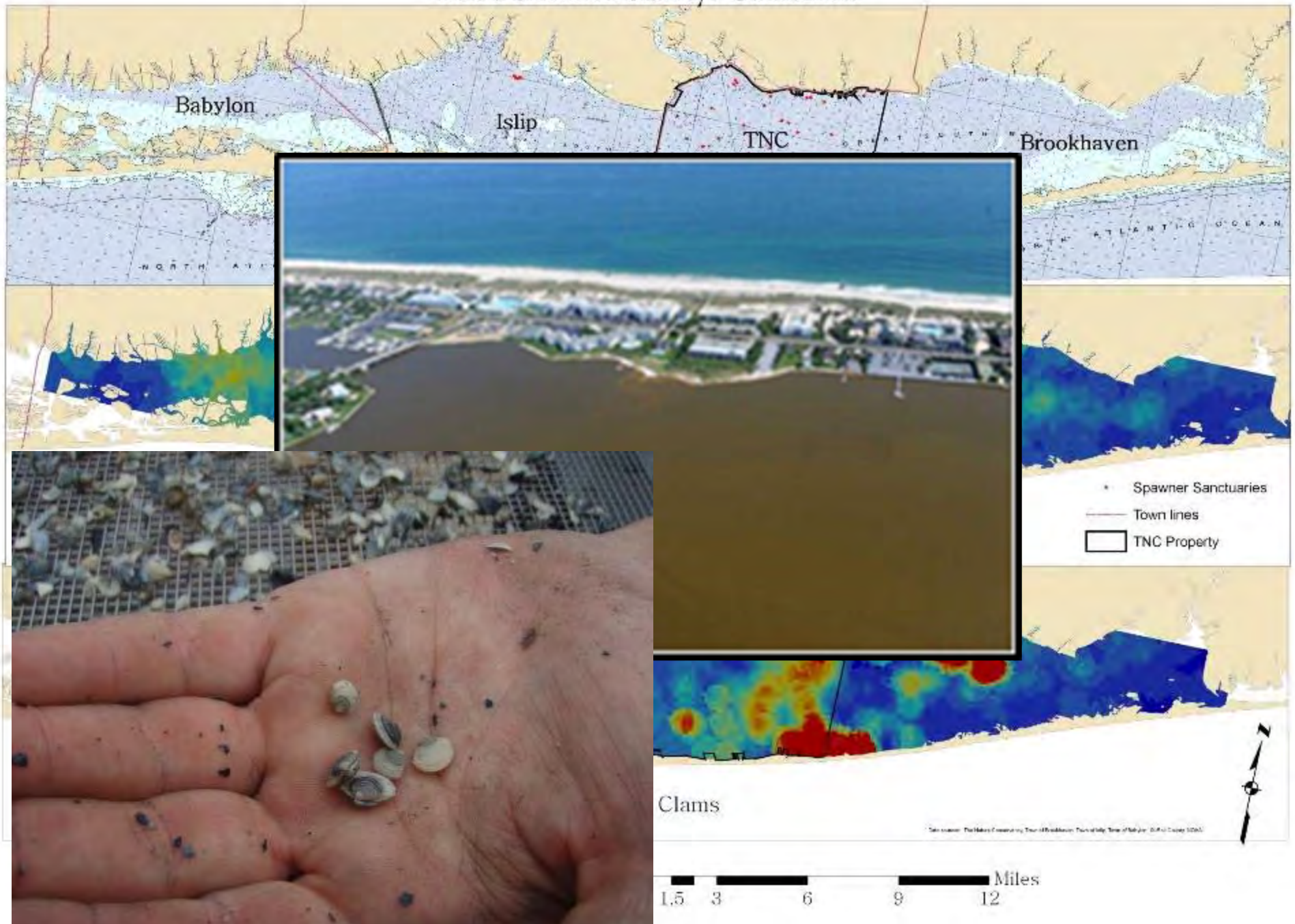
Legend
Clams/m2



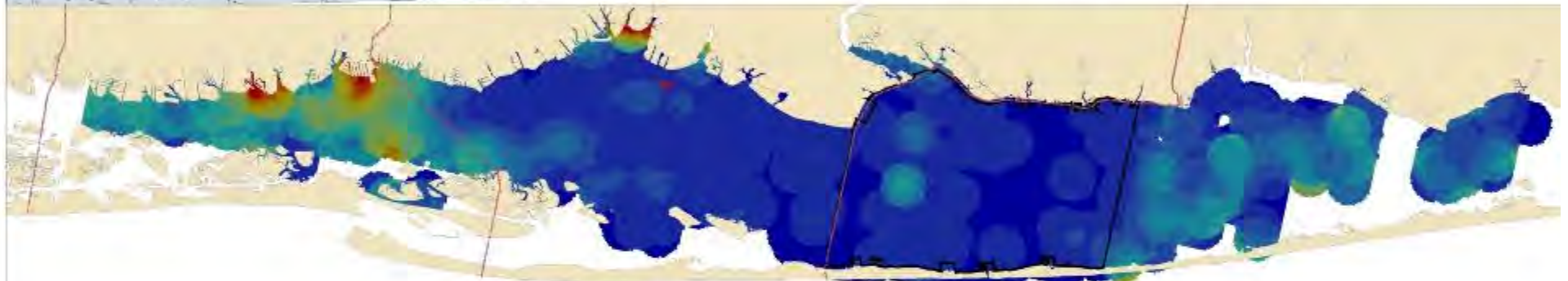
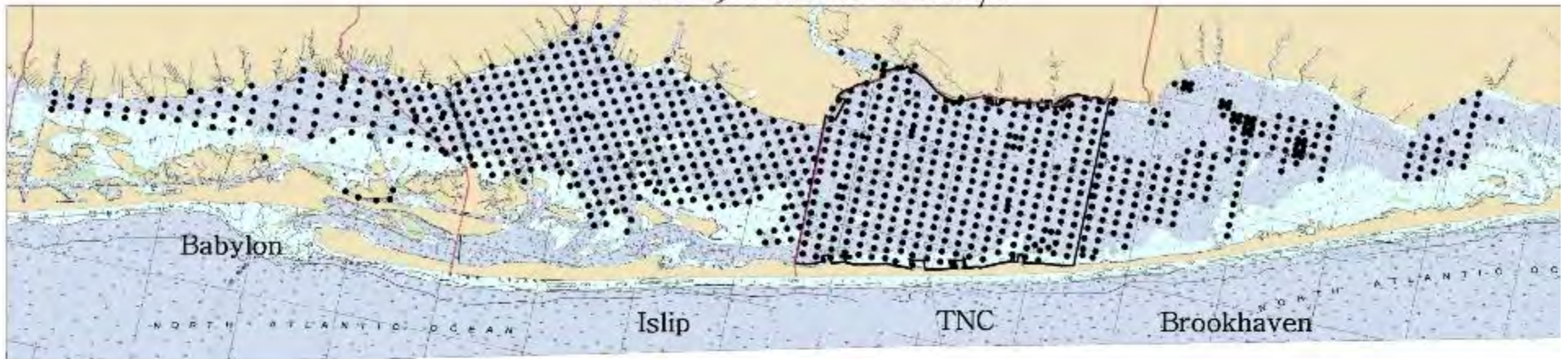
0 1.5 3 6 9 12 Miles

Map created: The Marine Conservation Trust of Brookhaven, Thursday, June 15, 2006, 10:40 AM

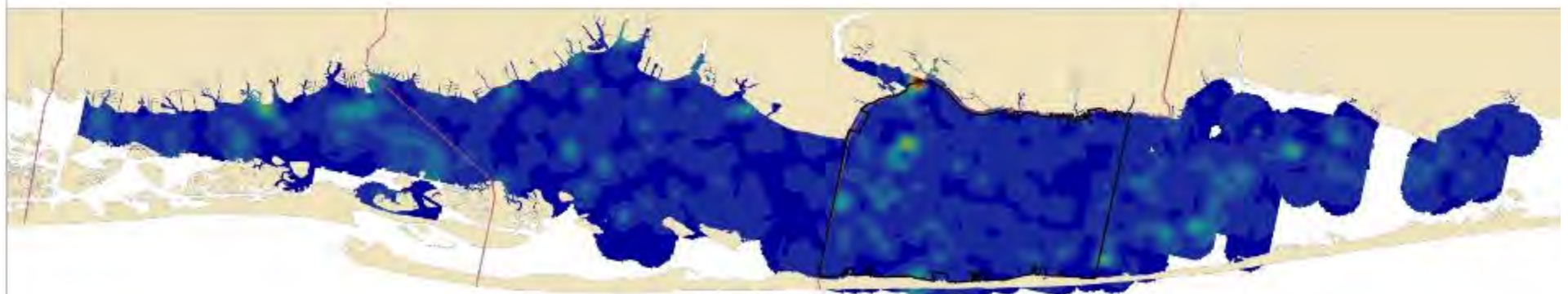
2008 Shellfish Surveys Combined



2009 Shellfish Surveys



Legal Clams



Sub-Legal Clams

Legend

Clams/m²

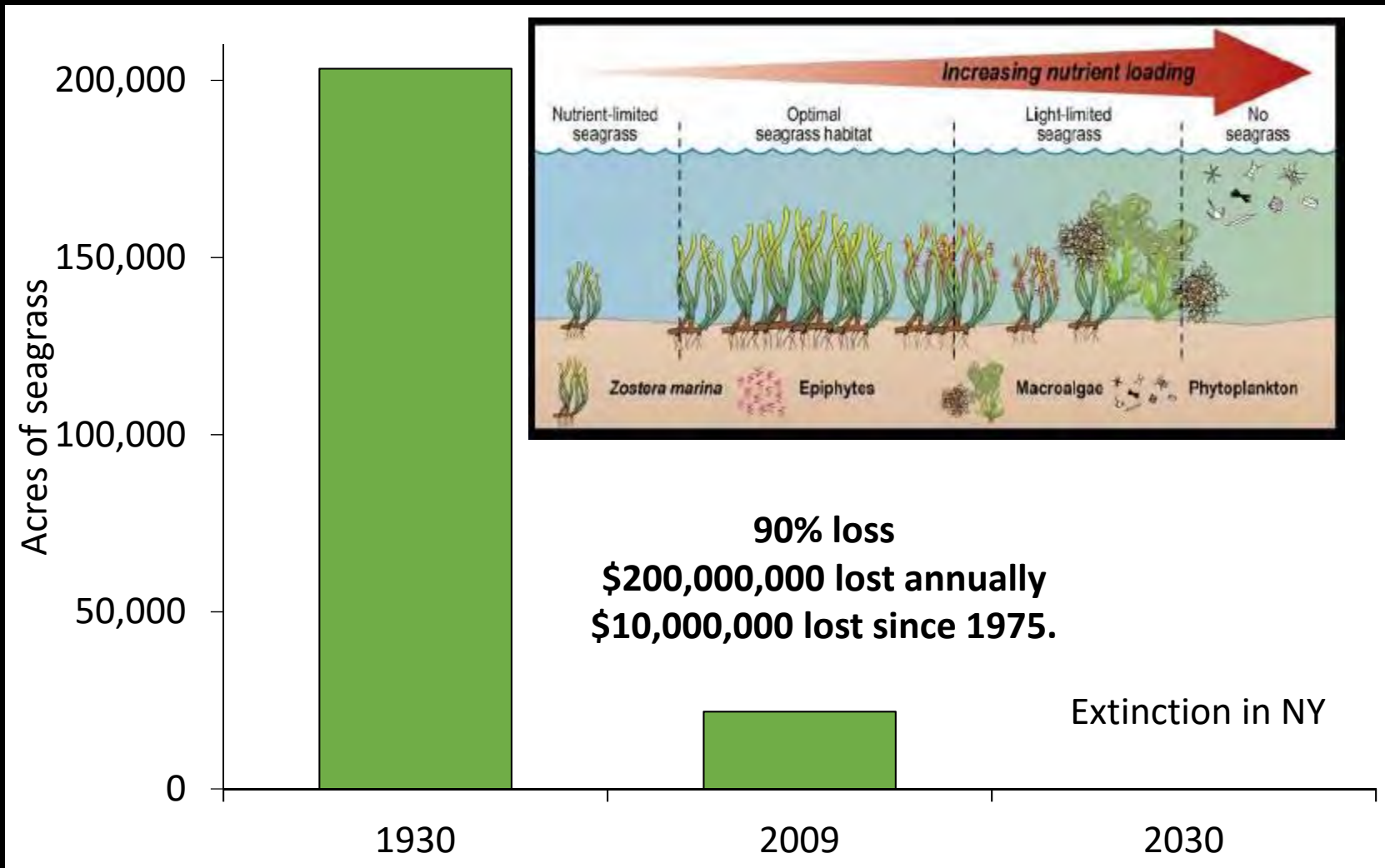


• Sample Stations

— Town Lines

0 1.5 3 6 9 12 Miles

NYS Seagrass, 1930 - 2030



NYSDEC Seagrass Taskforce Final Report, 2010; Suffolk County assessment, 2014

“Coastal eutrophication as a driver of salt marsh loss”

Deegan et al 2012, Nature

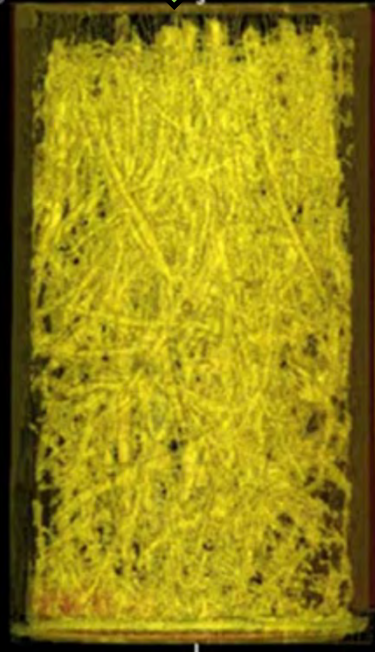


Healthy marsh



Nitrogen loaded marsh

Dense,
strong
roots



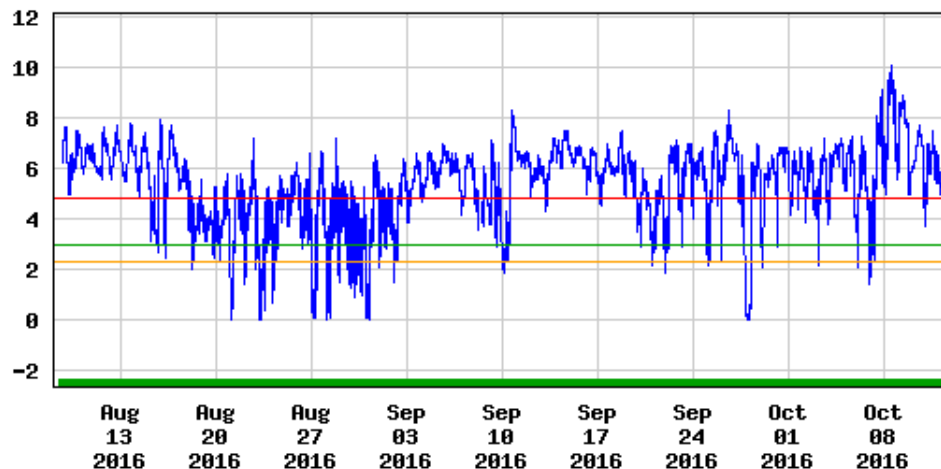
Nutrient-
weakened roots





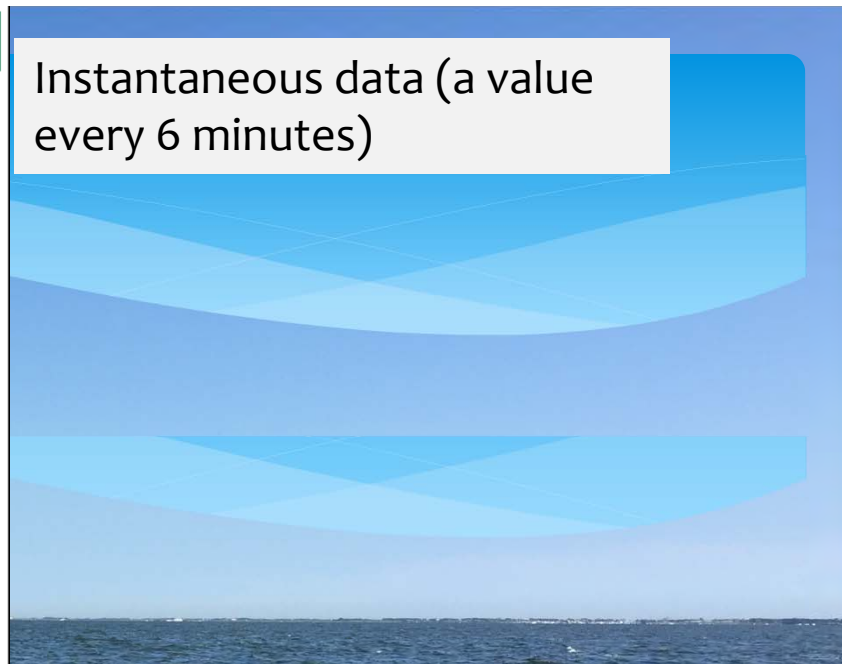
Dissolved oxygen, water, unfiltered,
milligrams per liter

USGS 404200073034301 Great South Bay 8 near Browns River, NY

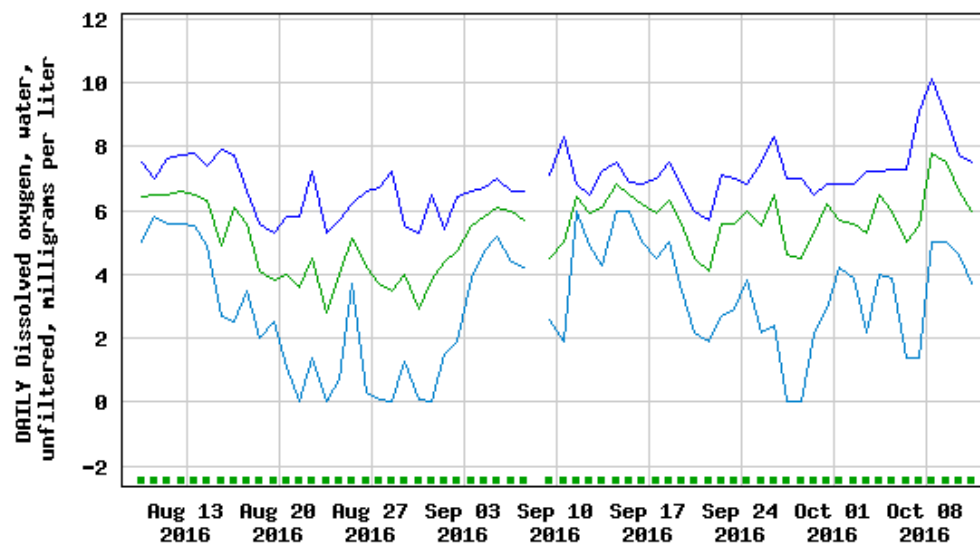


- Dissolved oxygen
- Period of approved data
- NYS Chronic Water Quality Standard
- NYS Acute Water Quality Standard
- EPA Juvenile/Adult Survival Criterion

Instantaneous data (a value every 6 minutes)



USGS 404200073034301 Great South Bay 8 near Browns River, NY



- Daily maximum dissolved oxygen
- Daily mean dissolved oxygen
- Daily minimum dissolved oxygen
- Period of approved data

Daily statistics (average of instantaneous data, maximum, and minimum)



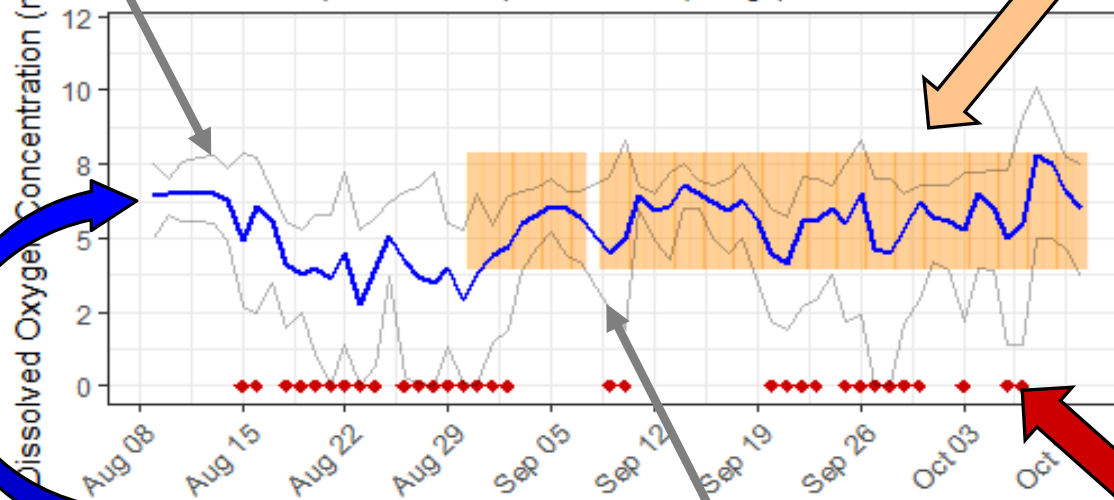
Data Analysis

EXPLANATION OF PLOT AND VIOLATIONS

Chronic violations
Occur when DO is
below 4.8 mg/L for
an extended
period

Daily maximum
DO
concentration

Dissolved Oxygen Monitoring Results
(diamonds) and chronic (orange) violations



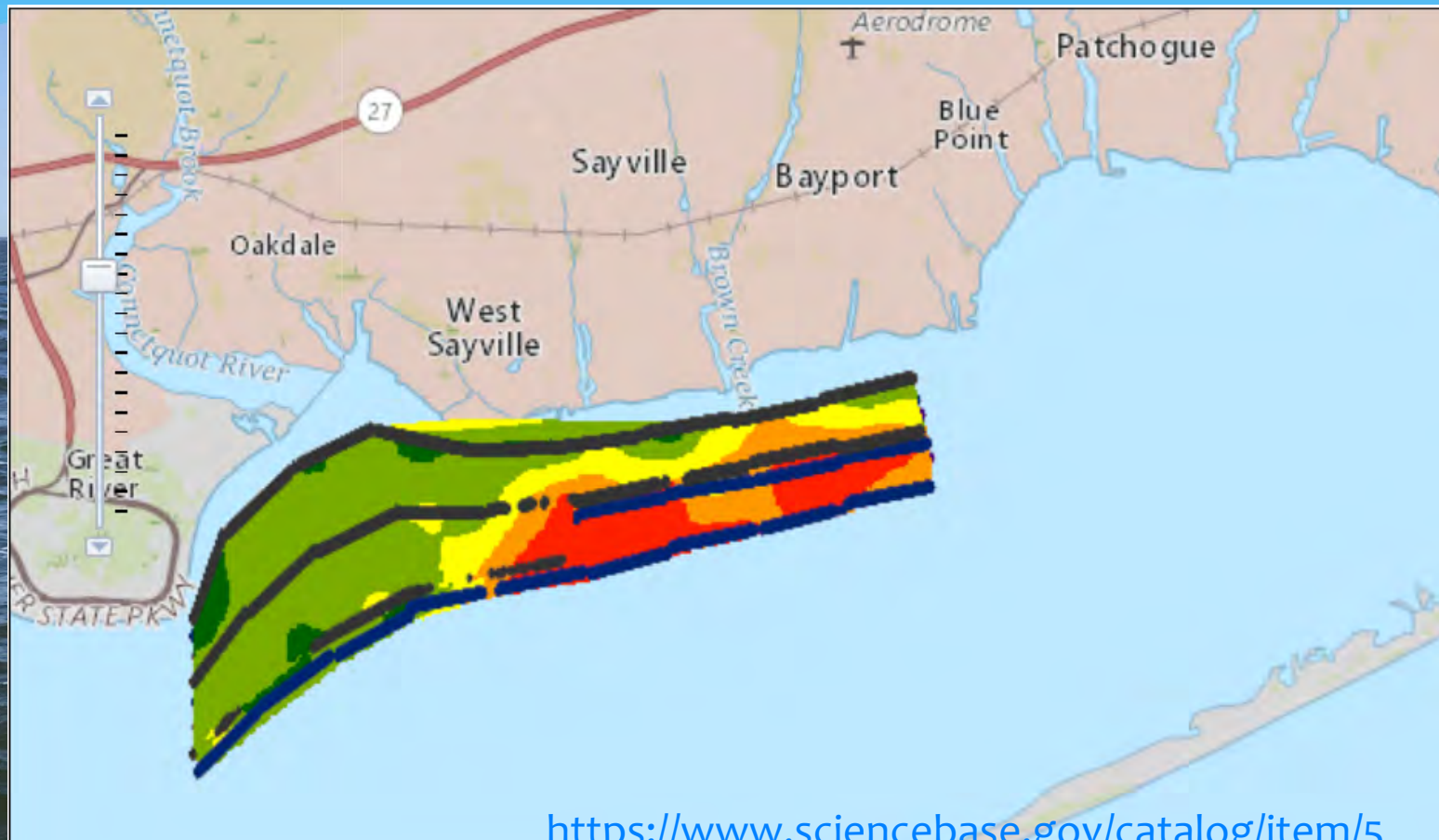
Great South Bay 8 near Browns River, NY

Daily average
dissolved
oxygen
concentration

Daily minimum
DO
concentration

Acute violations
Any time DO is < 3.0 mg/L

Autonomous Underwater Vehicle (AUV)



<https://www.sciencebase.gov/catalog/item/59284998e4b0c6c925587b35>

Great Peconic Bay

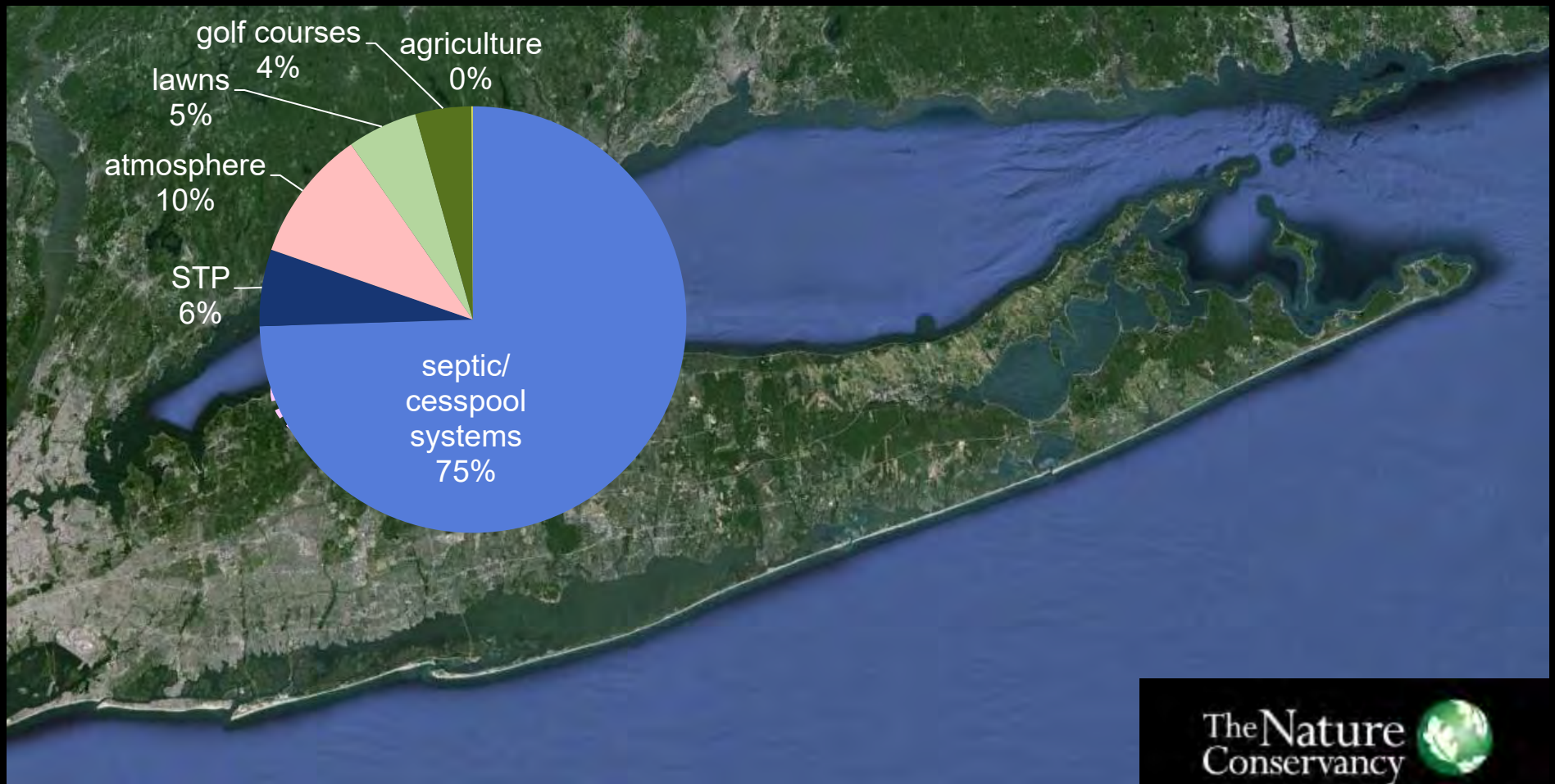




Photo: Carl LoBue (TNC)

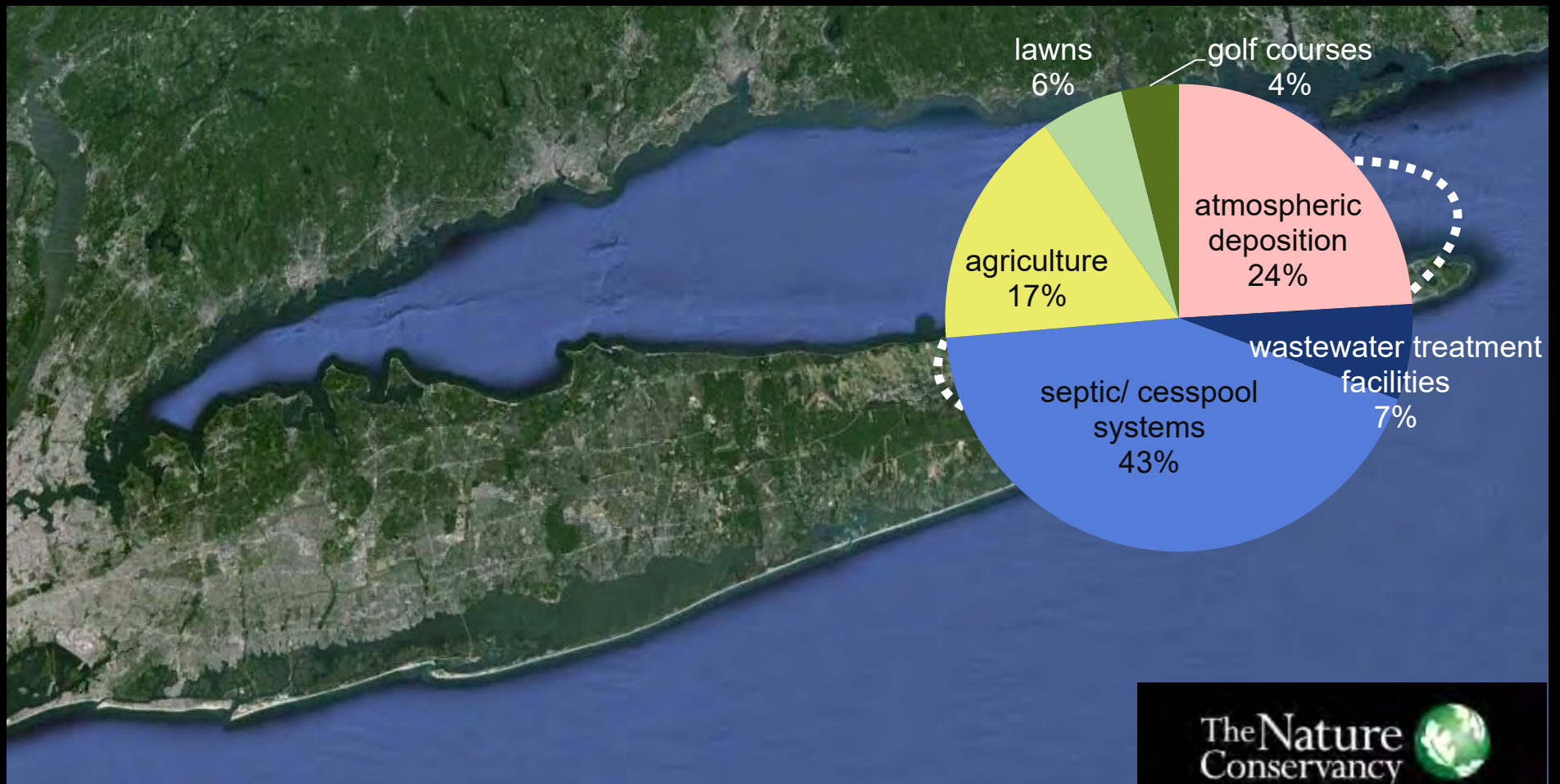
Total Nitrogen Loads from watersheds

Huntington/Oyster Bays: 331,000 kg N/yr



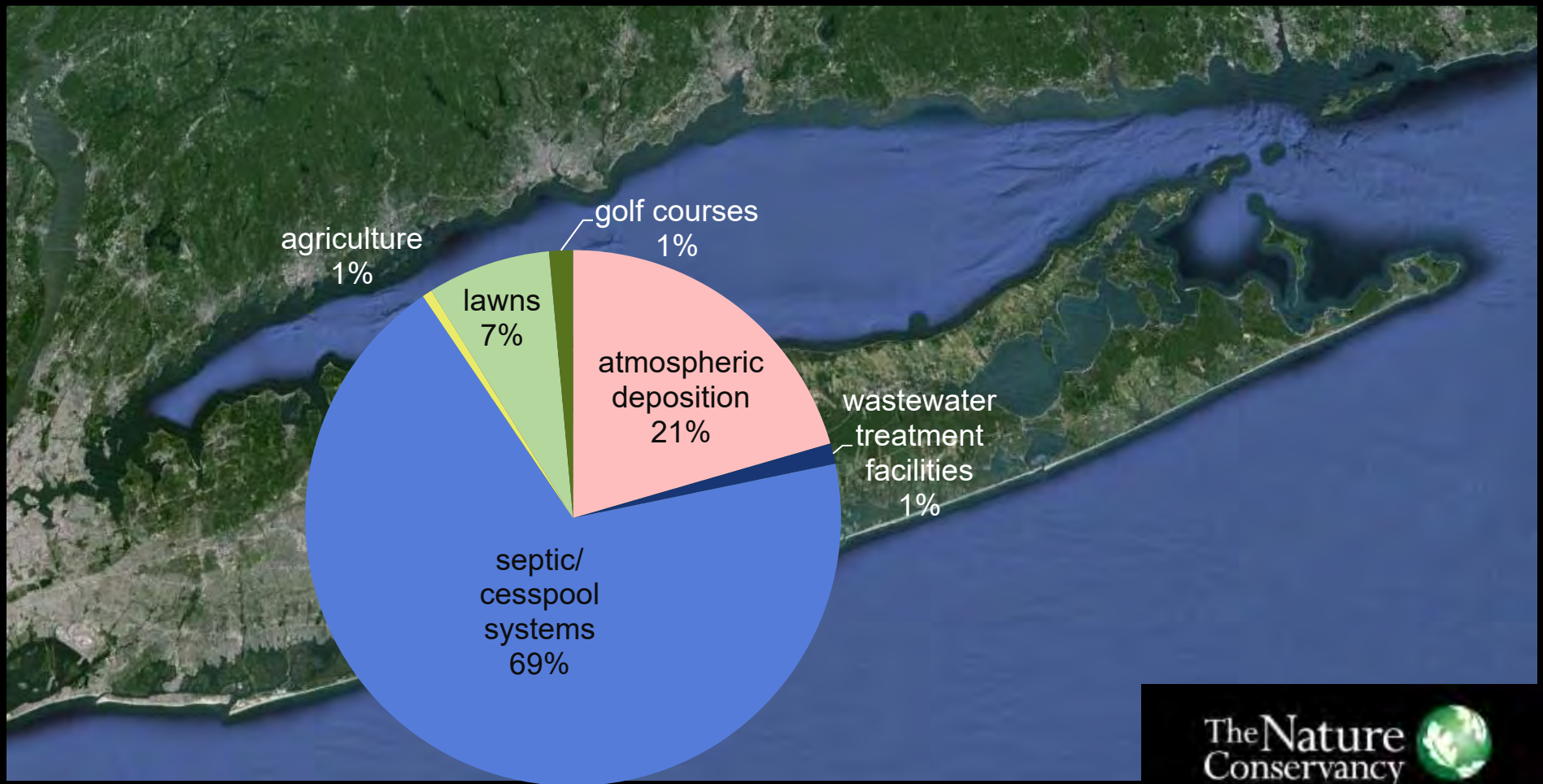
Total Nitrogen Loads from watersheds

Peconic Estuary: 267,000 kg N/yr



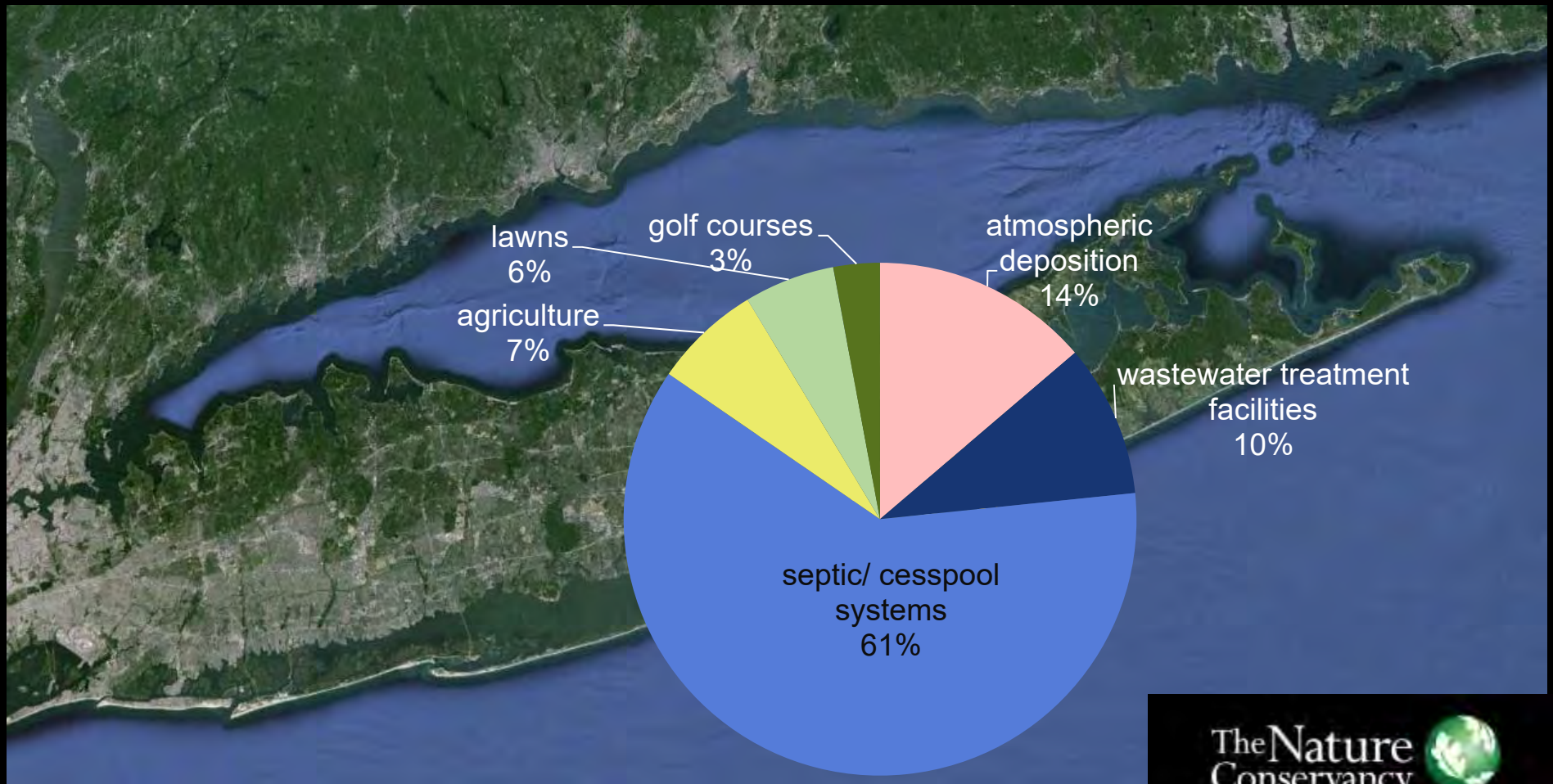
Total Nitrogen Loads from watersheds

Great South Bay: 668,000 kg N/yr



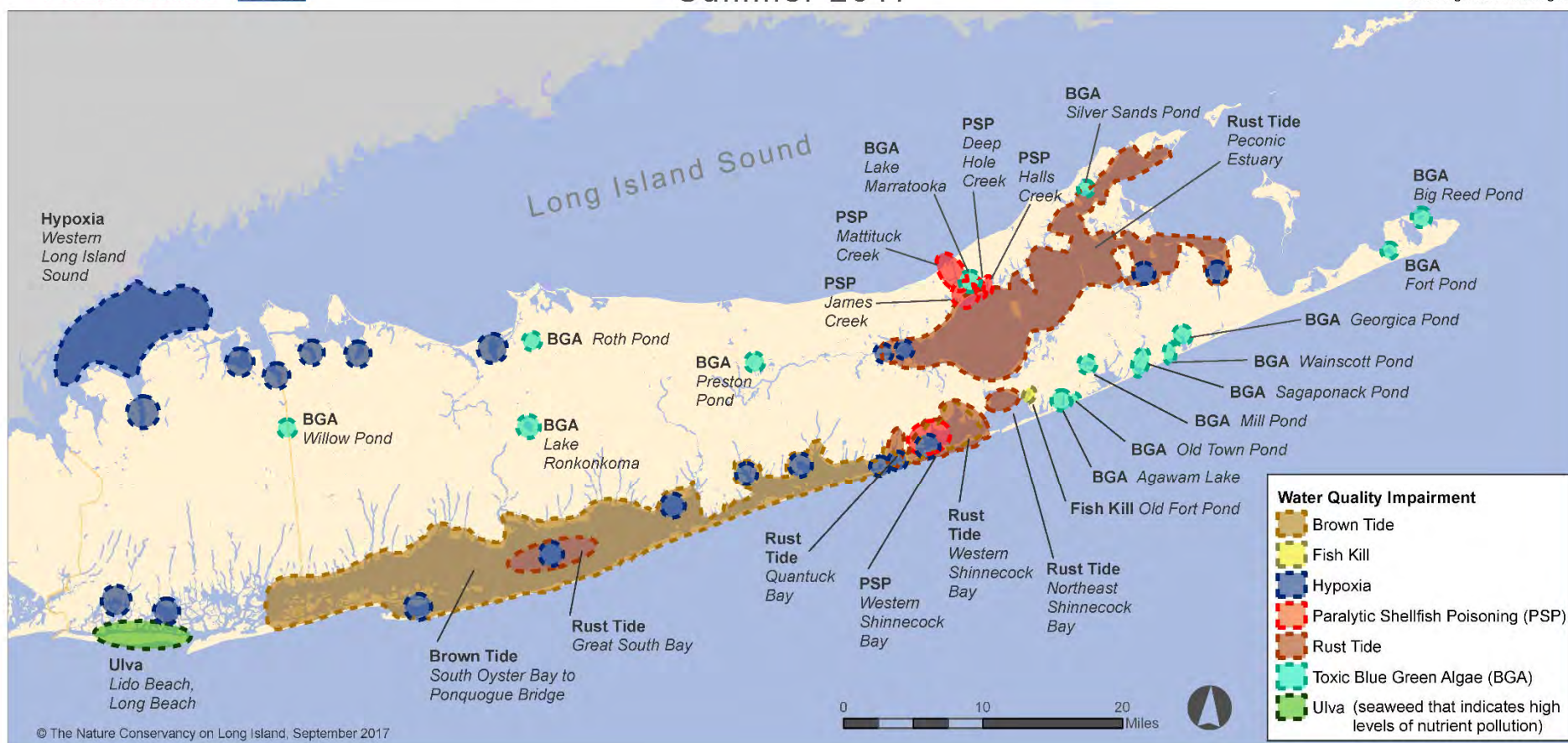
Total Nitrogen Loads from watersheds

Moriches/Shinnecock Bays: 562,000kg N/yr

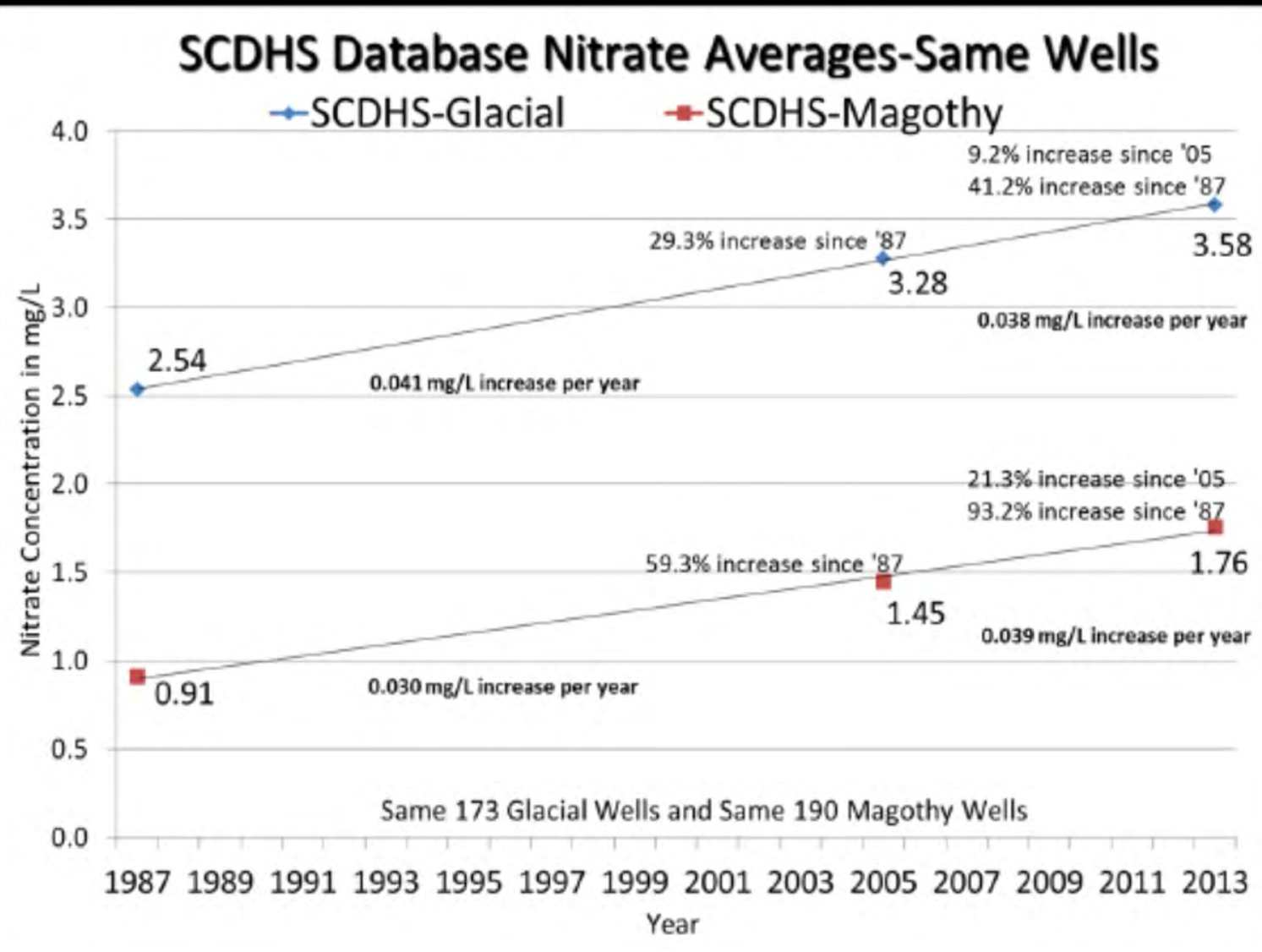


All of our Waters are Impacted

Long Island Water Quality Impairments Summer 2017



Nitrates Steadily Increasing In GW





Clean Water for People and Nature



74% Non-Performing Wastewater Treatment



- Approximately 360,000 onsite sewage disposal system
- 209,000 systems in priority areas
- Approximately 252,530 pre-date requirement for septic tank



Conventional Disposal System

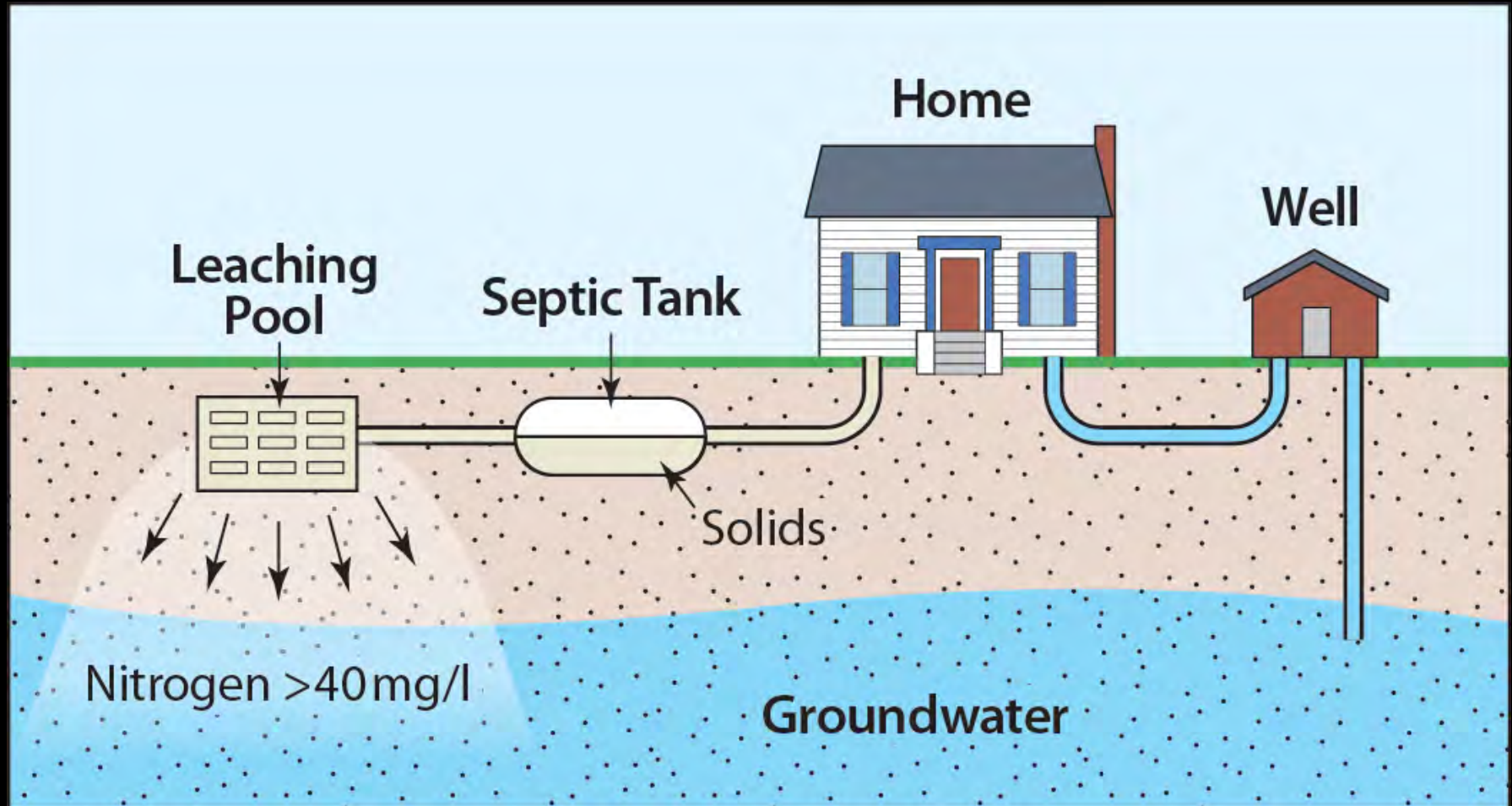
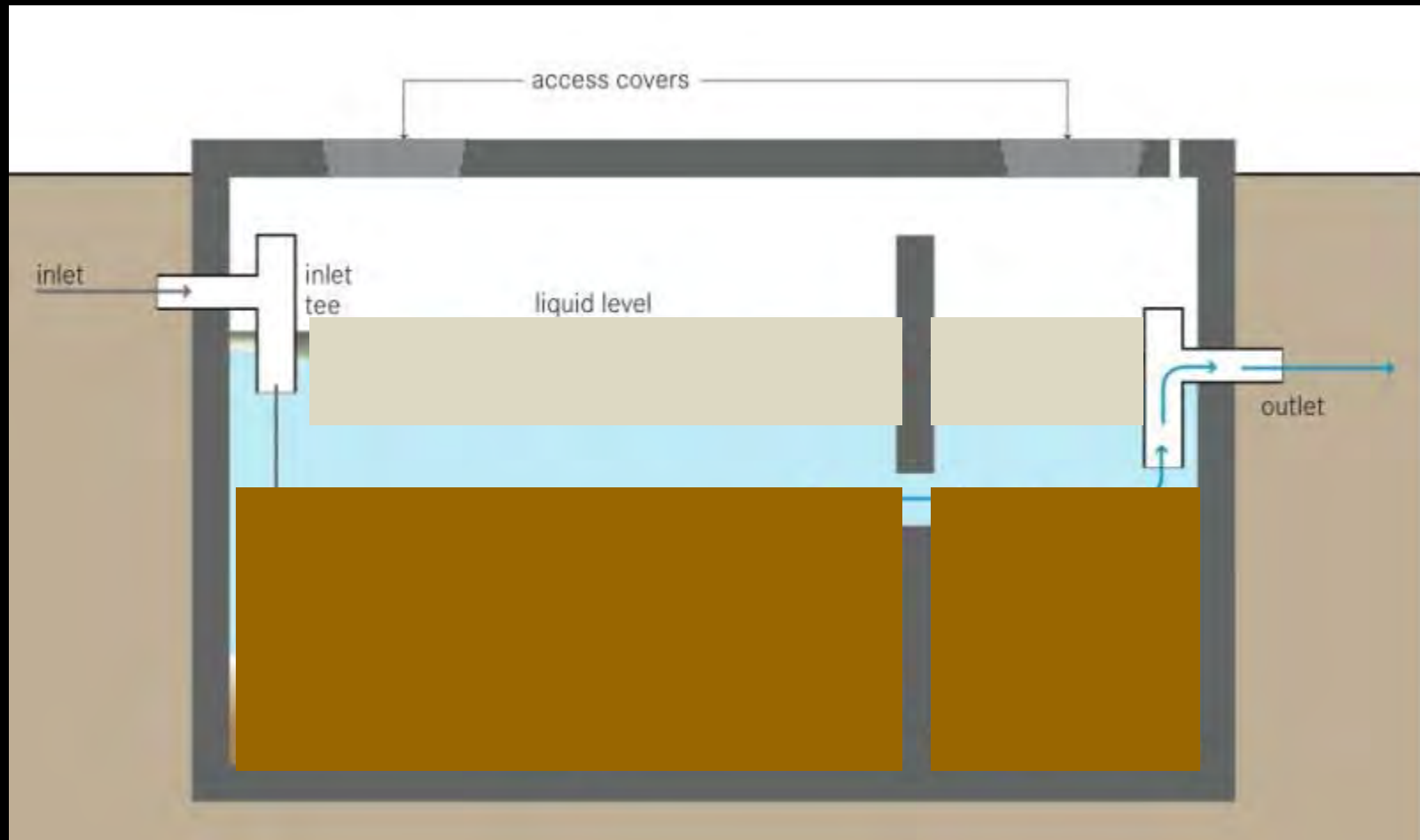


Image Credit Stony Brook CCWT

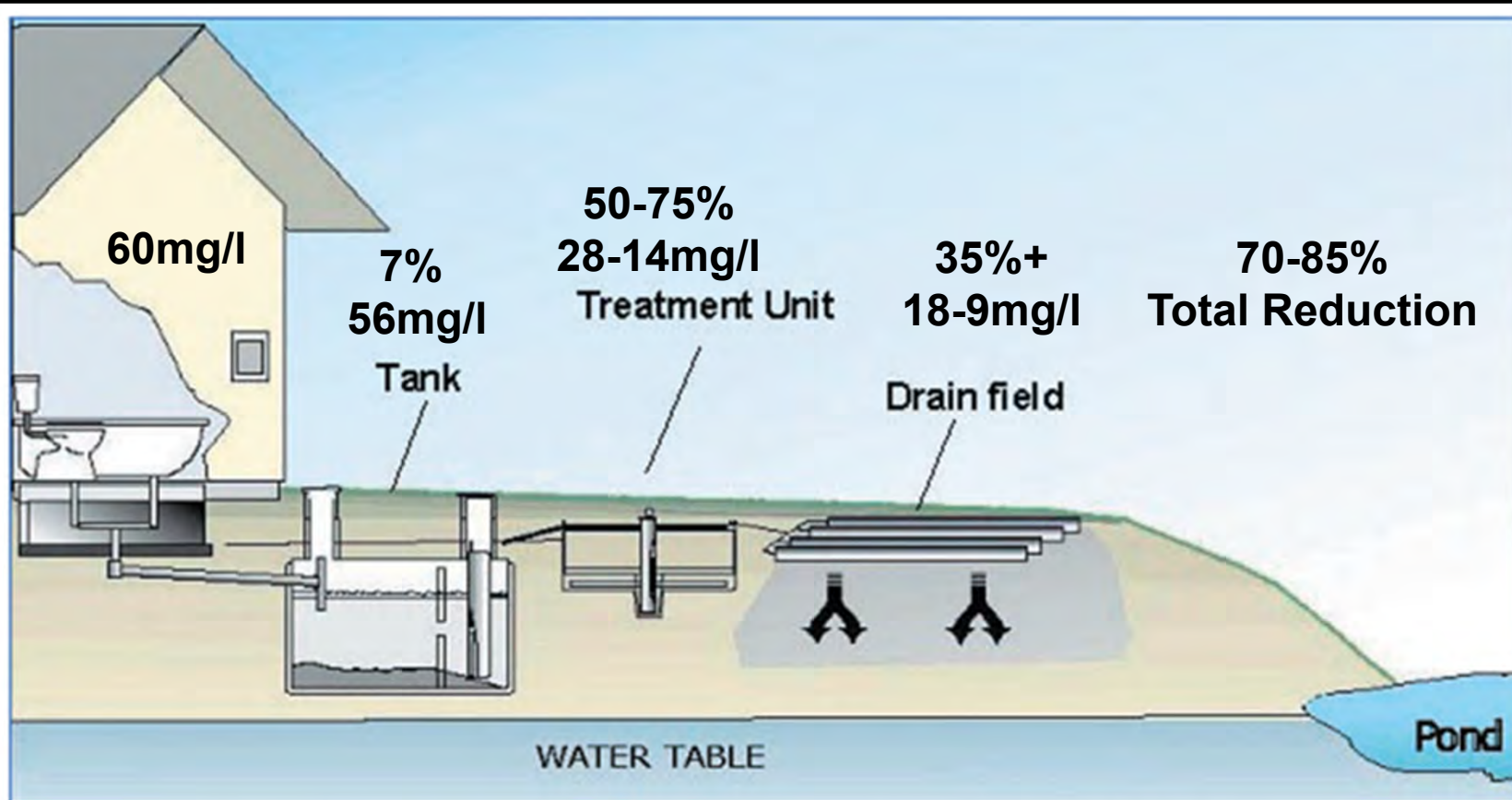
Septic System and Leaching Pools



Septic Tank Maintenance



Advanced Septic Systems and Reduced Nitrogen Loads



Alternative and innovative systems add a component between the septic tank and drainfield.

Image Credit URI

Shallow Narrow Drainfields



Soil and Sawdust System

Soil Absorption Could Be Breakthrough For Wastewater Treatment

By RYAN BRAY Jan 21, 2016

Home / Falmouth / Falmouth News

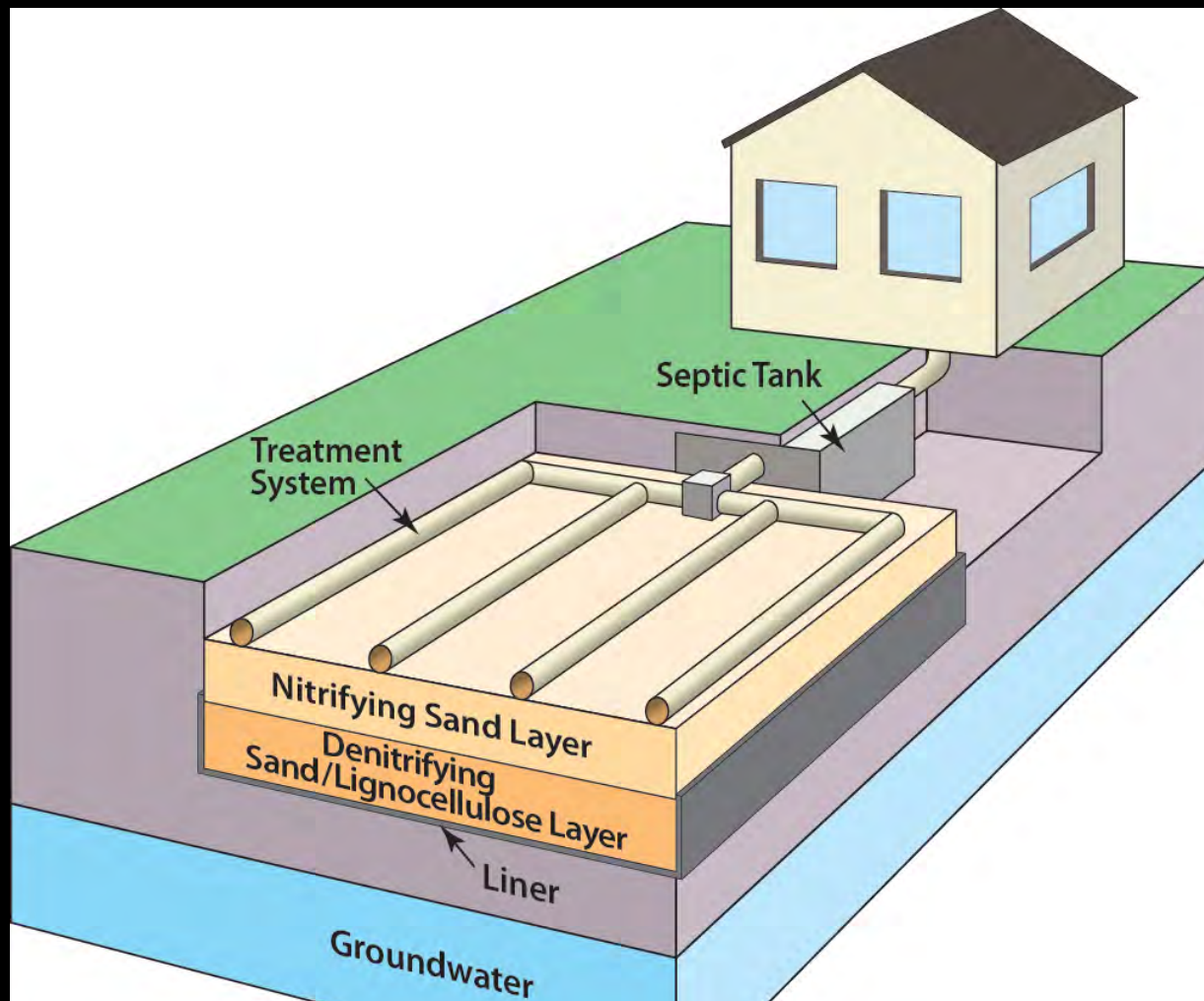


Image Credit
Stony Brook CCWT

“Created Wetlands”



My Pitch

- Educate yourselves and ask hard questions
- Educate your clients
- Become stewards of our island
- Become advocates for this industry and the end result
- With all of your help we will succeed

Thank you



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