



Protecting Our Waterways from Pollution

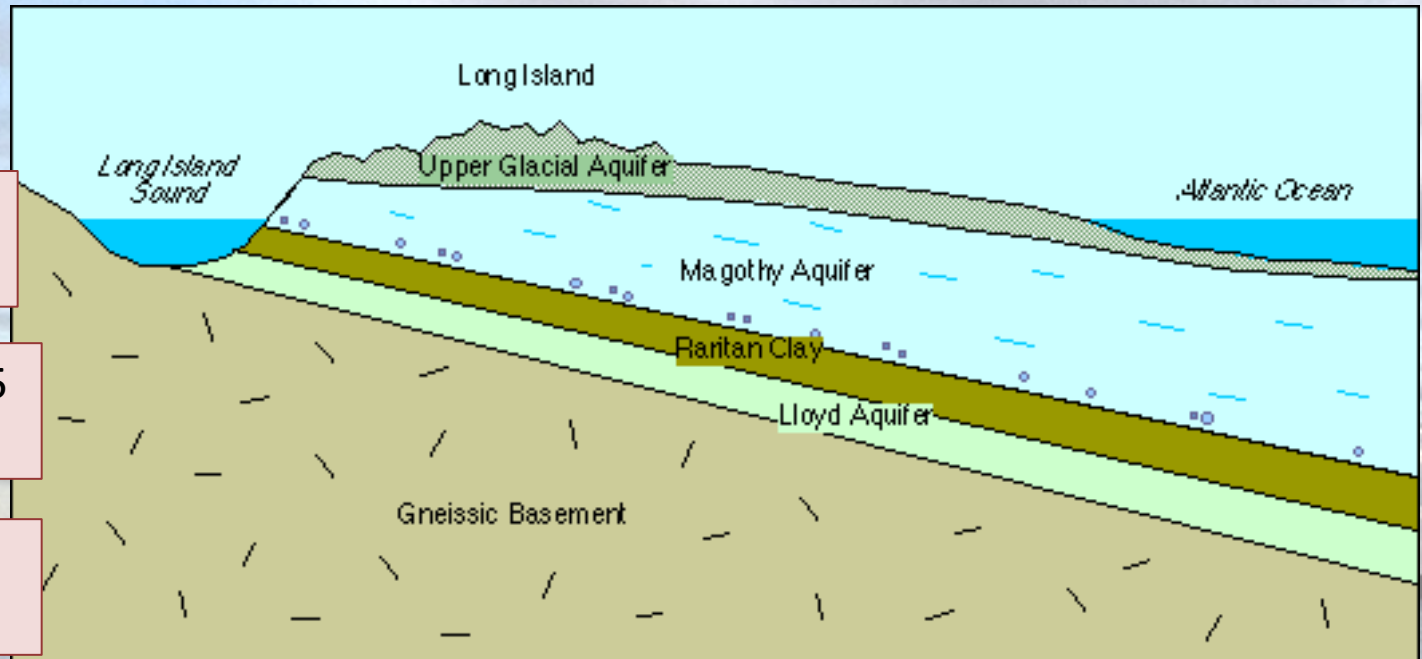
Adrienne Esposito
Executive Director
Citizens Campaign for the Environment

Where do Long Islanders get our drinking water?

Glacial Aquifer:
10,000 years old

Magothy Aquifer: 65
million years old

Lloyd Aquifer: 70+
million years old

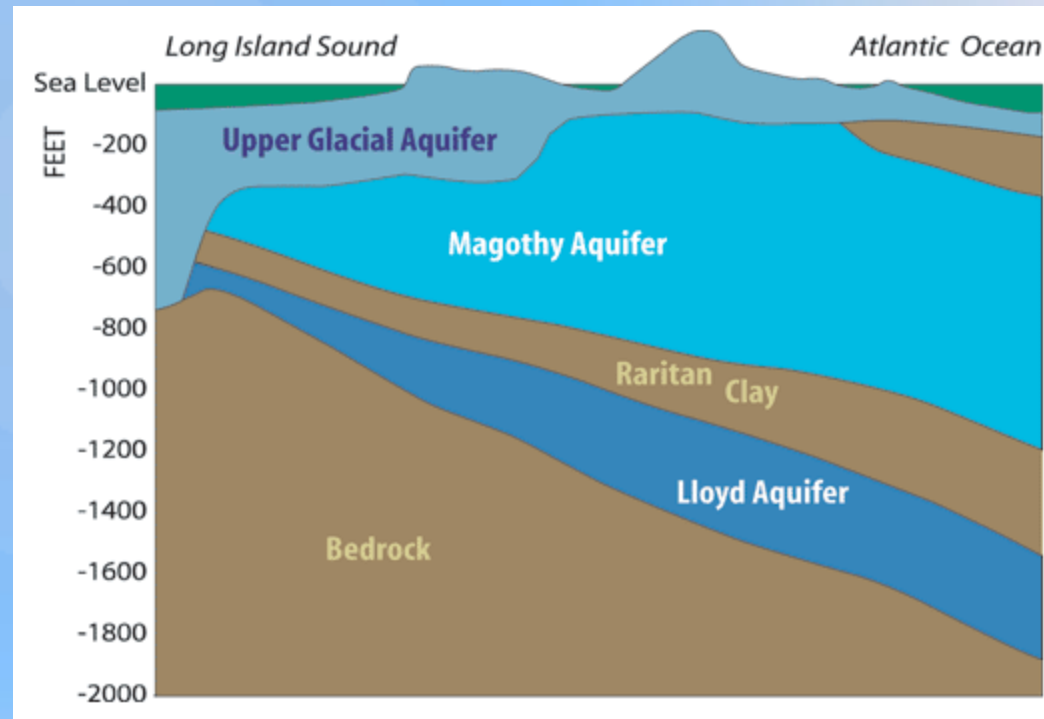


Long Island is a sole-source aquifer region, which means we rely on groundwater for 100% of our drinking water. A clean, healthy aquifer system is also vital to maintaining Long Island's surface waters and our overall quality-of-life. Contamination of groundwater negatively impacts public health, our environment and pollutes surface waters including streams, rivers, lakes and estuaries.

All of Long Island's drinking water comes from underground.
Groundwater also feeds all our lakes, streams, bays and harbors throughout our island.

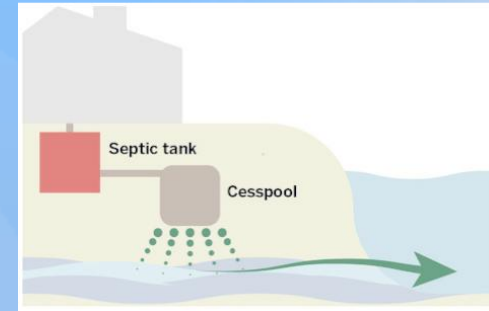
Groundwater contamination is worsening, threatening drinking water quality and our beloved waterways.

Hundreds of contaminants have been detected in areas of the aquifer system and in our drinking water wells. Contaminants include pesticides, pharmaceutical drugs, Household Hazardous Waste, MTBE and other Volatile Organic Chemicals, petroleum products and other toxics. **One of the biggest concerns for water resources: Excessive nitrogen from sewage.**



Suffolk and Septics

- In Suffolk, 360,000 homes (74% of all homes) are unsewered.
- Of the nitrogen entering local water resources, 70% comes from septics and cesspools.



In order to protect our drinking water and the Great South Bay for future generations, we must reduce nitrogen, VOCs and pharmaceutical drug pollution from sewage/septics.



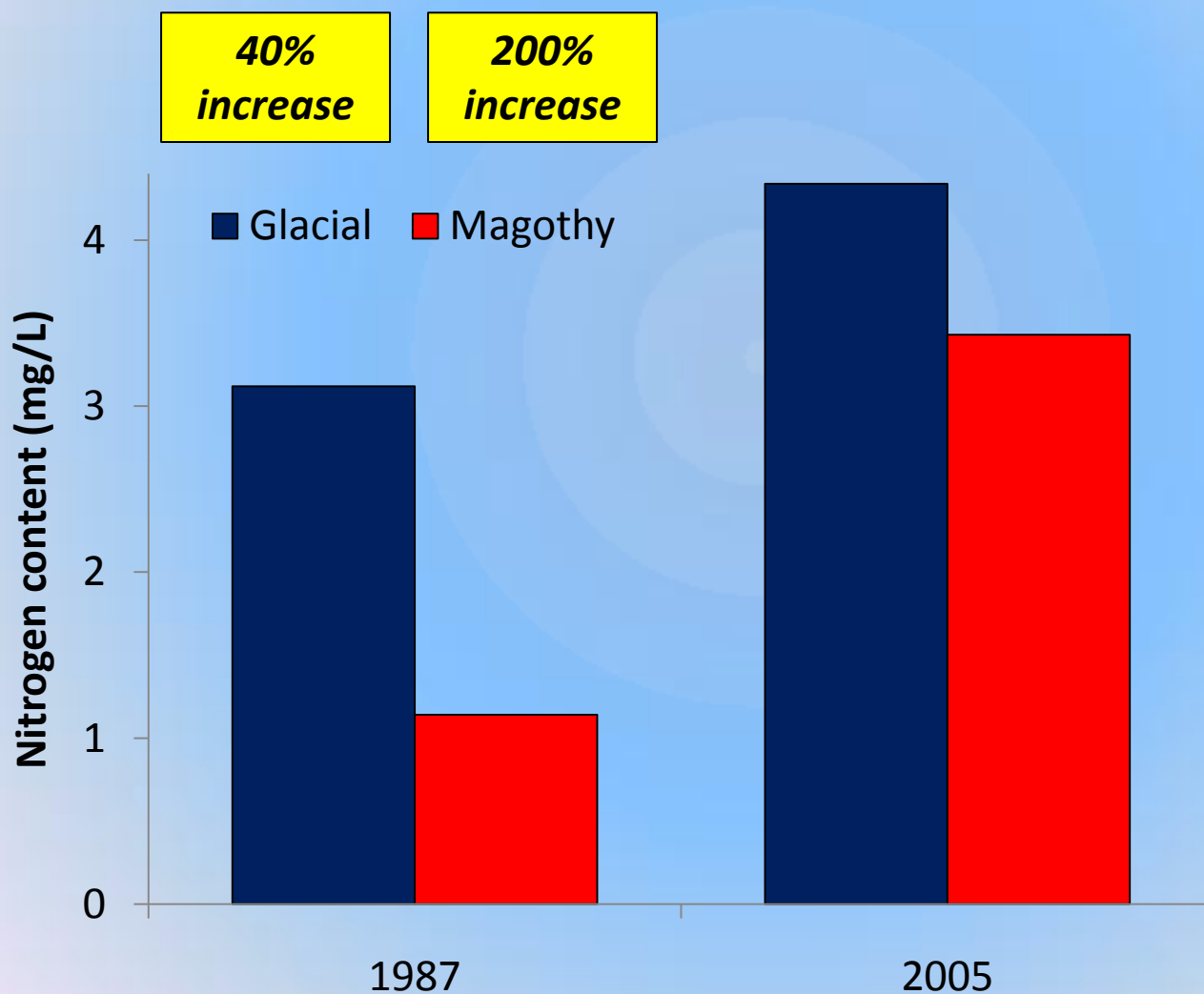
Blue- Green Algae due to excess nitrogen

Suffolk County Draft Water Management Plan Summary Position

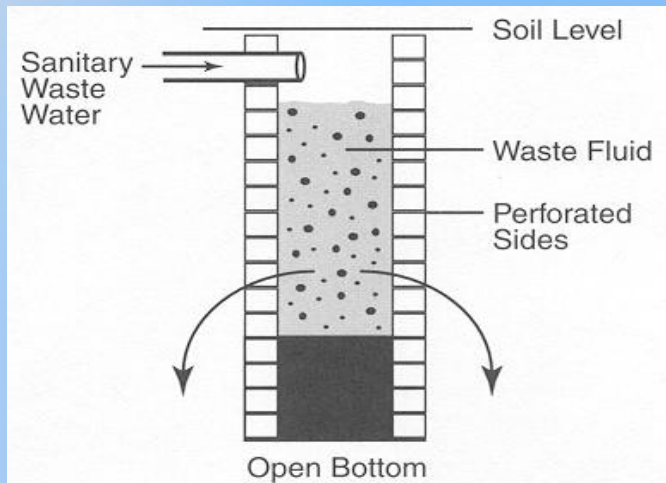
From Draft Comprehensive Plan Introduction of 12/7/2010

- “Much of the County’s ground and surface water resources continue to meet the water quality criteria established to assess resource suitability for its best intended uses.”
- “Nevertheless, the data also shows a continued and gradual decline of water quality. Unfortunately, these concerning trends identify the need for increased water protection efforts at the County level (ES-1) .”

18 year change in groundwater nitrogen levels



Septic, Sewage Plants, Fertilizers



- Many sewage plants (STP's) reduce nitrates, but SCDHS faces “challenges” getting nitrate compliance from STP's
 - Proliferation of smaller plants more difficult to monitor & maintain
- Suffolk has 340,000 on-site wastewater systems
 - Nitrate reduction very limited & highly variable (10-50%)
- 40,000 on-site systems are 5 feet from groundwater on the south shore

Red Tide-PSP

- In the past, the Village of Northport has been the epicenter of the red tide phenomenon on Long Island. Northport Harbor's toxin levels were the highest recorded locally, due to annual algal blooms. High amounts of nitrogen have been found in the harbor with extremely high concentrations around outflow pipes from the village's sewage treatment plant. Toxins from algae that feed on nitrogen have been shown to poison shellfish, sickening those who consume the affected fish in large amounts. Can cause paralysis or death



Red Tide-DSP

- Diarrhetic Shellfish Poisoning (DSP) produces gastrointestinal symptoms, usually beginning within 30 minutes to a few hours after consumption of toxic shellfish. The illness, which is not fatal, is characterized by incapacitating diarrhea, nausea, vomiting, abdominal cramps, and chills. Recovery occurs within three days, with or without medical treatment.



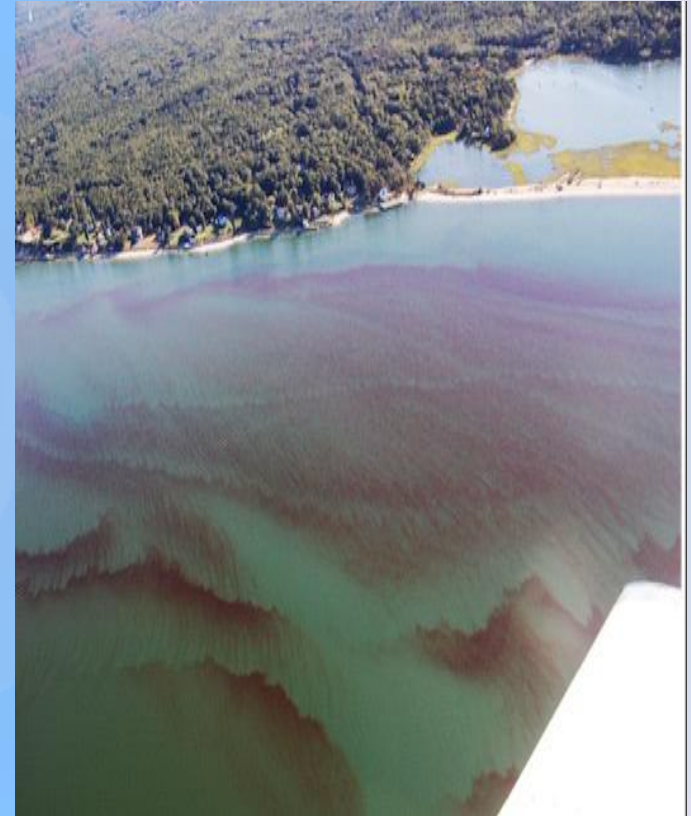
Green Seaweed-Ulva

- Point Look-Out experienced massive amounts of seaweed, the Town of Hempstead plowed beaches 2x a day.
- Hydrogen Sulfide: can cause damage to the brain and nervous system when inhaled.



Rust Tide

- “Toxic rust tide spreads across entire Peconic estuary, could be lethal to estuary’s fish, marine life”, August 23, 2016, Riverhead Local
- This algae has plagued East End waters for the last 13 years and is thought to be linked to a massive die-off of scallops in Peconic and Gardiners bays and along the North Fork.



Rust Tide, Flanders Bay 2013

Brown Tide



Brown tide returns to Great South Bay

Posted: Jun 04, 2018 3:37 PM EDT
Updated: Jun 04, 2018 5:54 PM EDT



BABYLON - Damaging brown tide has returned to the Great South Bay for the sixth year.

This year's harmful algae bloom has been spotted even earlier than in past seasons.

Dr. Chris Gobler, a Stony Brook University professor, studies harmful algae blooms and says the brown tide, which first appeared in the mid-1980s, is only getting worse.

"Brown tide is toxic to shellfish," he explains. "It's responsible for the collapse of the scallop industry on Long Island and contributed to the decline in clam landings since 1985."

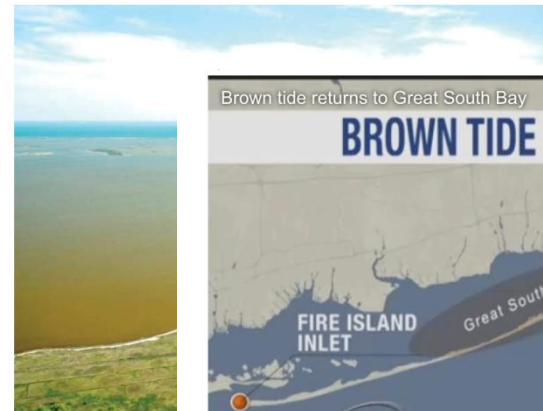
Community Corner

Damaging Brown Tide Emerges Across Great South Bay

Experts say the pattern of this year's brown tide bloom is particularly troubling as it is a full month ahead of most prior years.

By Ryan Bonner, Patch National Staff | May 30, 2018 9:01 am ET

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- In May, monitoring by The Gobler Laboratory of Stony Brook University has revealed that a brown tide that began to develop earlier in May has intensified to more than 600,000 cells per milliliter in Patchogue Bay and more than 200,000 cells per milliliter in Bay Shore. The pattern of this year's brown tide bloom is particularly troubling as it is a full month ahead of most prior years. It is paralleling 2017 when the bloom also began in May and persisted into the fall.

Brown Tide in the Great South Bay- 2018

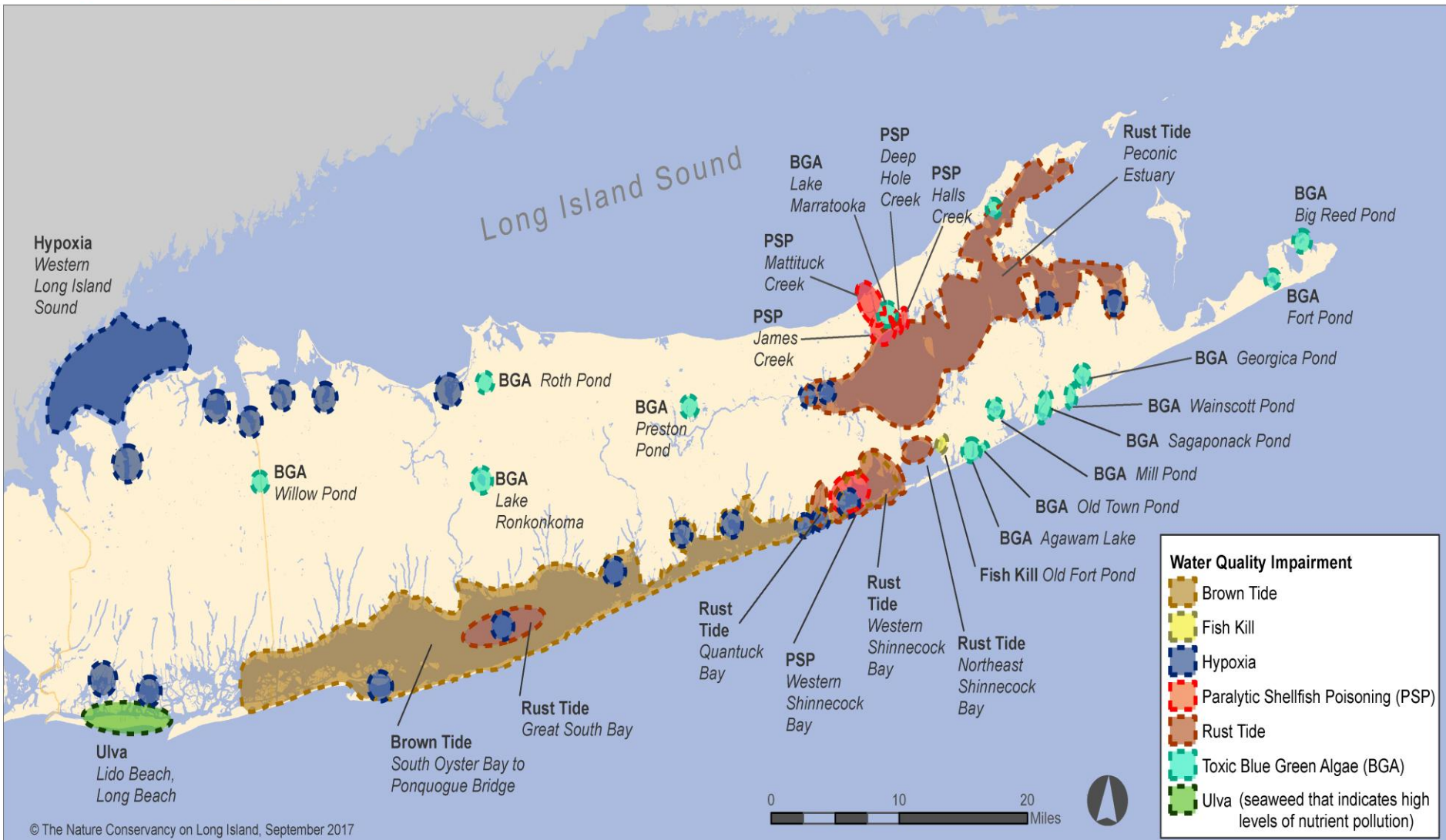
- “The outbreak of brown tide in this early in the season is a troubling sign for Long Island.” said Dr. Christopher Gobler, Professor of Marine Science at Stony Brook University. “These early events often last a long time and are, in turn, very damaging to marine life.”

Gobler noted that intense and extended blooms in Great South Bay have been associated with the mass-die-off of seed clams and thus have prevented the recovery of these populations.



Brown Tide- May 2018

Long Island Water Quality Impairments Summer 2017



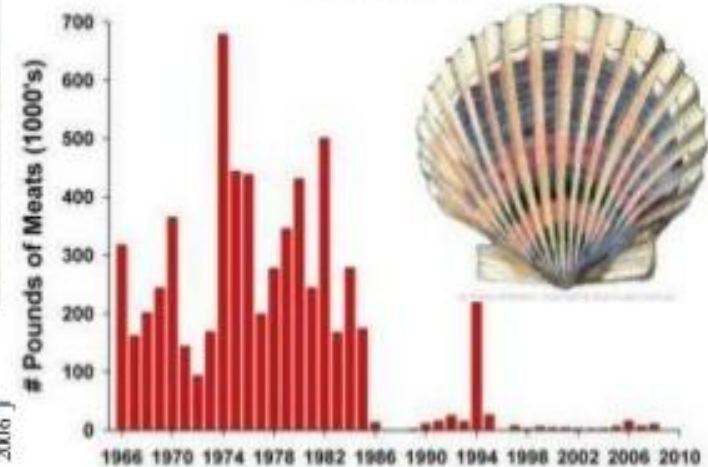
Nitrogen: Loss of Resources

Harmful algal blooms devastate shellfish populations by killing off juvenile clams and scallops, seriously impacting the livelihoods of local baymen and fishermen. Landings of bay scallops and hard clams have diminished 99%, almost entirely due to nitrogen-caused algal blooms.

Hard clam landings (bushels) in Great South Bay



New York Bay Scallop Landings - Commercial -



Protecting the Coastline

- Salt marshes and wetlands protect coastal communities and property, preventing flooding, and reducing property damage from storm surges, but they are threatened by N pollution.
- Scientists predict 4-8 in sea level rise by 2030, and up to 50in by 2100 in this area.
- 600 acres (750 properties) lie in the 100-year flood zone and are particularly susceptible to storm surges.

We need to preserve the salt marshes and wetlands that protect us and our homes.



Nitrogen Pollution Leads to Fish and Turtle Die-Offs

In May 2015, over 100 dead diamondback turtles washed up on the east end of LI

Stony Brook and Cornell said water samples from the bays showed concentrations of Saxitoxin producing algae that was ten times above normal. A result of too much nitrogen.

Twice in June 2015, tens of thousands of dead bunker fish washed up on the shores of the Peconic Estuary.

