



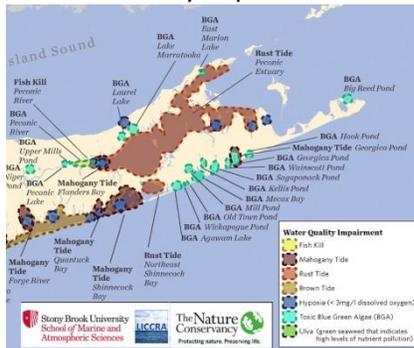
PECONIC GREEN GROWTH

## SOUTHOLD (Hamlet) Fact Sheet

Water sustains life and symbolizes purity. But water quality is degrading. Our ground and surface waters need protection. The aquifers are not only sources of drinking water, but flow horizontally to surface waters, impacting the marine health of our bays. Excess nitrogen compounds are a critical cause of algal blooms, which lower oxygen levels, create toxins, and ultimately cause fish kills. Contaminants of emerging concern, such as pharmaceuticals and personal care products, need to be treated before being released to ground and surface waters. Poor water quality will ultimately impact community character and vitality, which are especially relevant for our coastal and tourist economies.

The following is a snapshot of local issues that impact excess nitrogen loading. More detailed maps are available at <http://peconicgreengrowth.org/community-maps-2014/> where you can find the areas needing priority action, as well as identify conditions relevant to your home. Visit our website to learn about options for upgrading your wastewater system to help protect your environment.

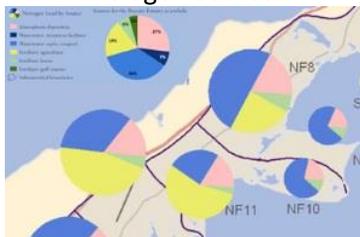
### LI Water Quality Impairments 2016



### EXCESS NITROGEN (N) LOADING

- Excess nitrogen compounds can be harmful to human health.
- Our surface waters are 20 times more susceptible to N loads than maximum contaminant levels for drinking water.
- Excess N feeds algal blooms, which in turn create toxins. These impact fish and shellfish formation and survival rates.
- Excess nitrogen contributes to declines in eel grass and wetland grass beds. Their loss impacts marine habitats and reduces their usefulness as property buffers in storms.
- The algal blooms are becoming more numerous and more potent.

### Nitrogen Sources



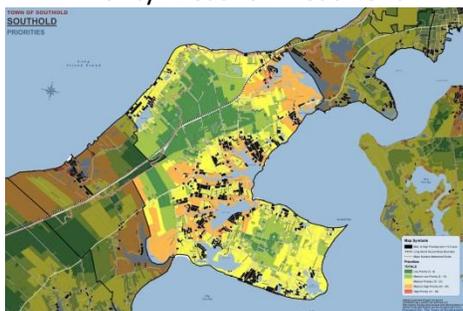
Courtesy TNC and Prof. Christopher Gobler

### SOURCES OF EXCESS NITROGEN

The 3 subwatersheds in the hamlet of Southold are responsible for 6% of all the nitrogen loading in the Peconic Estuary (43 subwatersheds). Sources are estimated as coming from:

- 62% septic/cesspool systems
- 16% atmospheric deposition
- 15% agriculture
- 7% fertilizer from lawns

### Priority Areas for Treatment



### SOUTHOLD WATER QUALITY

- Waters off the coast of Southold in the Peconic Estuary show high ratios of dissolved organic nitrogen to inorganic nitrogen, an indicator of poor water quality contributing to brown tides.
- Hashamomuck Pond, Town, Jockey and Goose Creeks have TMDLs for pathogens and seasonal restrictions on shellfish harvesting. Parts of Jockey Creek and Petty's Pond are not certified for shellfish harvesting.
- Rust Tide (algae) occurred in PE in 2016 off of Southold in the Peconic Estuary.



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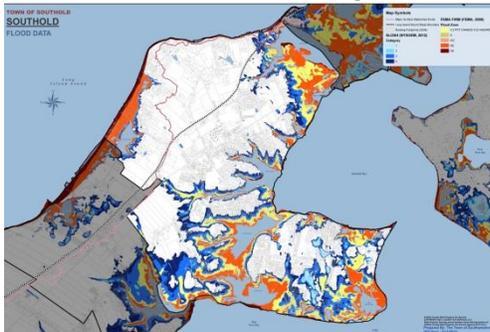
Is this a Cesspool or Part of a Septic System? Answer: Could be either

## CESSPOOLS VS. SEPTIC SYSTEMS

CESSPOOLS, which are often found on properties developed before 1973, dispense all wastewater with no treatment directly to the ground. Dissolved solids, contaminants and pathogens can percolate to groundwater.

The current code requires SEPTIC SYSTEMS, which places an enclosed tank before the leaching pits (which resembles a cesspool) or field. In the tank, fats rise and solids settle to the bottom, where microbes treat the solids. Clarified effluent is dispensed, with roughly 10% of the nitrogen mitigated. New, enhanced systems can lower nitrogen levels by 50 – 90%.

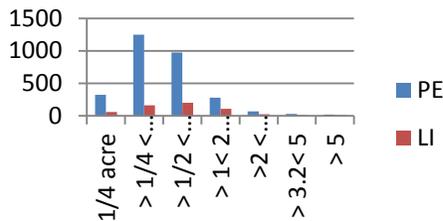
## Flood and SLOSH (Storm Surge) Zones



## DEPTH TO GROUNDWATER and FLOOD/SLOSH ZONES

The Suffolk County Sanitation Code (SCSC) requires a 3-foot separation distance from the bottom of wastewater systems to groundwater to allow for natural treatment and filtering of effluent. When groundwater is less than 7 feet below grade, there can be difficulties siting the system. Where depths to groundwater are less than 13 feet, systems are likely to become noncompliant as groundwater elevations rise due to climate change. In the hamlet of Southold 1,465 buildings (32%) have depths to groundwater of less than 13 feet. 853 buildings are in a SLOSH zone (storm surge).

Southold # Developed by Lot Size  
(not in a sewer district)



## SMALL LOT SIZES

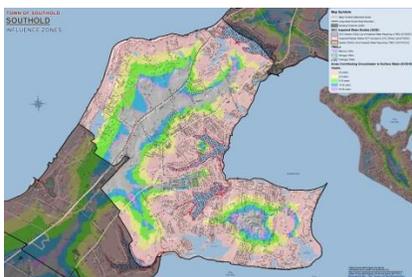
In Southold (hamlet) **43%** (1,289) of the developed lots in the PE and **33%** (193) in the LI Sound watershed are **nonconforming** to the 20,000 SF (nominal half-acre) minimum lot sizes SCDHS requires to dilute wastewater to acceptable contamination levels for drinking water. If a community relies on individual wells, this minimum lot size is even larger – a nominal one acre.

By 2080 we estimate that 141 buildings in Southold will be inundated.

This means that contaminant concentrations discharged from these systems are higher than code.

## CLIMATE CHANGE

By 2080 an estimated 960 buildings in Southold will most likely have their wastewater treatment systems compromised due to inadequate horizontal distances to surface waters. Of all hamlets in the Peconic Estuary, Southold is one of the most vulnerable to the impacts of climate change.



## INFLUENCE ZONES

*Denoting the Time it Takes Groundwater to Reach Surface Waters* 2442 or **64%** of the buildings in Southold in the Peconic Estuary 366 or **53%** of the buildings in Southold in the LI Sound watershed are in the “Pink Zone,” where it only takes 0-2 years for groundwater and contaminants to reach surface waters. Of all hamlets in the Peconic Estuary, Southold has the highest