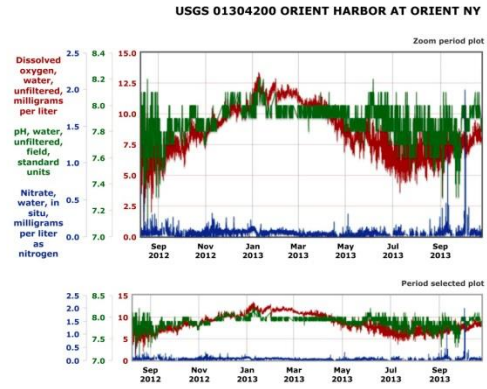
PECONIC GREEN GROWTH

EAST MARION Fact Sheet

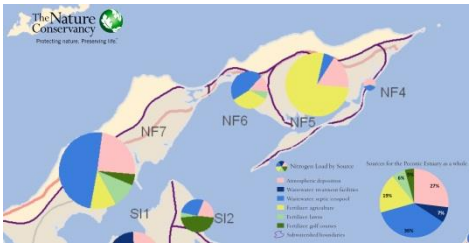
EXCESS NITROGEN (N) LOADING

- Excess nitrogen compounds can be harmful to human health.
- Our surface waters are 25 times more susceptible to N loads than drinking water maximums.
- Excess N feeds algal blooms that in turn reduce dissolved oxygen levels and contribute to the acidification of the waters, impacting fish and shellfish formation and survival rates.
- Excess nitrogen also impacts eel grass survival and weakens the root systems of wetland grasses. Their decline impacts marine life habitats their usefulness as buffers to storms.



EAST MARION WATER QUALITY

- East Marion groundwater and drinking water source has high levels of Nitrogen compounds.
- Spring Pond is impaired and closed to shell fishing year-round.
- Dissolved Oxygen in Orient Harbor reaches chronic levels (4.8 mg/L) in the summer and early fall.
- Waters in Orient Harbor are becoming more acidic over time, with season dips in pH levels in Aug/Sept, paralleling N spikes.
- N levels in Orient Harbor are rising. (PEP)
- Eel grass has declined over 50% since 2000 in Peconic Estuary.
- Orient Harbor is a site of significant shellfish restoration efforts and commercial operations
- LI Sound waters have recommended N reduction goal of 19%
- PGG calculations show 90 % N reduction needed to address source loading in the EM/Orient subwatershed.



Courtesy TNC and Prof. Christopher Gobler

SOURCES OF EXCESS NITROGEN

Peconic Estuary, NF7 Subwatershed

53% septic/cesspool systems
10% agriculture
22% atmospheric deposition
10% fertilizer from lawns
4% golf course

NF7 Subwatershed responsible for 7% of all the nitrogen loading in the Peconic Estuary (there are 43 subwatersheds)


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

CESSPOOLS VS. SEPTIC SYSTEMS

CESSPOOL: Pit(s) with open joints. Allows all collected wastewater to flow to surrounding soils. All homes older than 1973 are likely to have CESSPOOLS.
Issues: contaminants/pathogens travel to the soil and waters; pores filled with waste solids making less oxygen available

SEPTIC SYSTEM: an enclosed tank receives wastewater. Solids settle to the bottom. Microbes treat the solids. Liquid effluent flows to leaching pits (which resemble cesspools) or fields for discharge to soils. Only 10% nitrogen mitigated.

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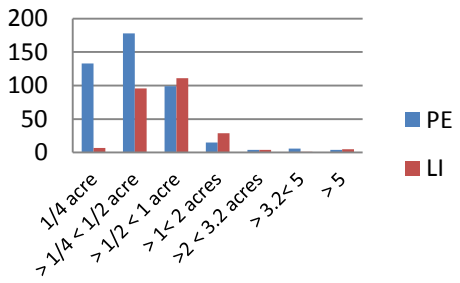
DEPTH TO GROUNDWATER

The Suffolk County Sanitation Code (SCSC) requires a 3' separation distance from the bottom of septic systems to groundwater. Air in the soil aids natural treatment. Pathogens are filtered before entering groundwater. Depths less than 7' create difficulties in siting the system. Depths less than 13 feet are likely to experience failure due to rising groundwater elevations due to climate change. Cesspools pose a higher threat to water quality, as all of the wastewater leaches to the soil and can enter groundwater. In EAST MARION 168 (32%) of Buildings in the PE have depths less than 13 feet.

EM # Developed Lots by Size
(not in a sewer district)



SMALL LOT SIZES

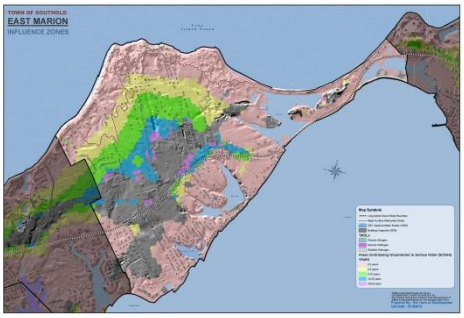
In East Marion **65%** (283) of the developed lots in the PE and **18%** (45) in the LI Sound watershed are **nonconforming** to the 20,000 SF (nominal half-acre) minimum lot sizes SCDHS requires to dilute wastewater to acceptable contamination levels for drinking water. If a community relies on individual wells, this minimum lot size is even larger – a nominal one acre.

30% of developed parcels in the Peconic Estuary in EM are less than ¼ acre. This means that contaminant concentrations discharged from these systems are higher than code.

By 2080 as estimated 50 building in East Marion will be inundated

CLIMATE CHANGE

By 2080 an estimated 193 buildings in East Marion will most likely have their wastewater treatment systems compromised due to inadequate horizontal distances to surface waters.



INFLUENCE ZONES

Time it Takes Groundwater to Reach Surface Waters

404 or **77%** of the buildings in the Peconic Estuary

and

158 or **53%** of the buildings in the LI Sound Watershed

Are in the 0-2 year influence zone.
It makes sense to start improvements here as the beneficial impacts will be felt more quickly.