



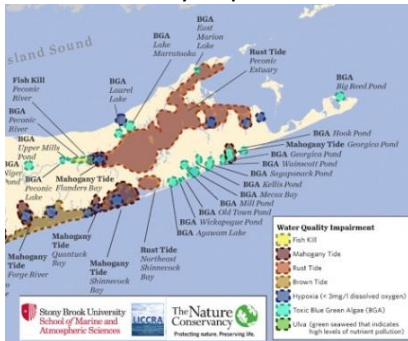
PECONIC GREEN GROWTH

RIVERHEAD (hamlet) Fact Sheet

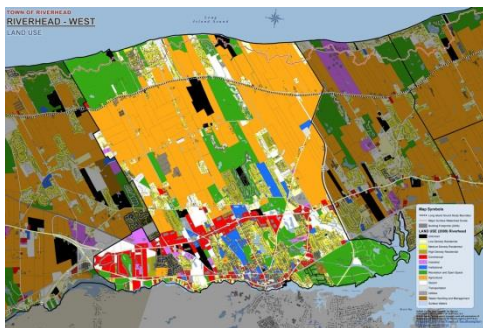
Water sustains life and symbolizes purity. But water quality is degrading. Our ground and surface waters need protection. The aquifers are not only sources of drinking water, but flow horizontally to surface waters, impacting the marine health of our bays. Excess nitrogen compounds are a critical cause 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.

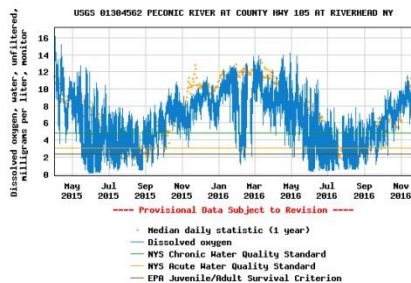
LI Water Quality Impairments 2016



Land Use



Dissolved Oxygen Monitoring



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.

SOURCES OF EXCESS NITROGEN

Riverhead lies in the large subwatershed that encompasses the northern watershed of the Peconic River. This subwatershed is responsible for 20 % of all the nitrogen loading in the Peconic Estuary (of 43 subwatersheds). Sources are estimated as coming from:

- 29% sewage treatment plant (upgrade in process)
- 24% agriculture
- 22% septic/cesspool systems
- 18% atmospheric deposition
- 4% fertilizer from golf courses
- 3% fertilizer from lawns

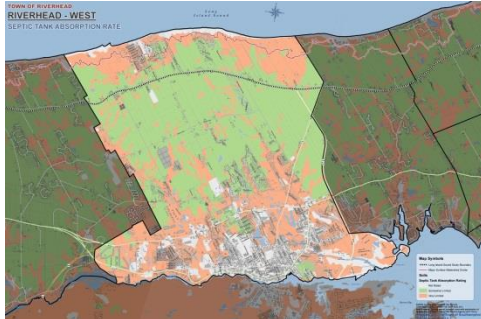
RIVERHEAD (hamlet) WATER QUALITY

- All waters in the Peconic Estuary are closed to shellfishing.
- Hypoxia and anoxia are issues, incurring a TMDL for Nitrogen for the Peconic River, western Flanders Bay, Lower Saw Mill Creek, Meetinghouse Creek and Terry's Creek.
- Rust Tide (algae) (repeatedly), Mahogany tide (2016), as well as turtle (2015) and fish kills (2015, 2016) occurred in the Peconic River and Flanders Bay.
- The Peconic River had toxic Blue/Green Algae in 2016.

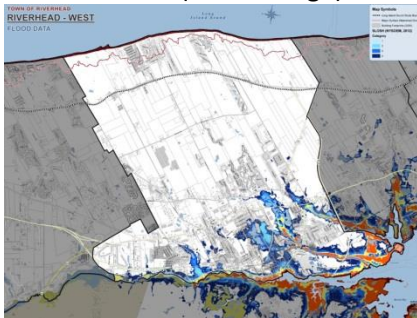


PECONIC GREEN GROWTH

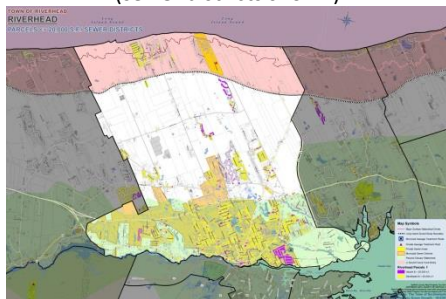
Soils Suitable for Septic Treatment



Flood + SLOSH (Storm Surge) Zones



Riverhead Nonconforming Lots (sewer districts shown)



By 2080 we estimate that 15 buildings in Riverhead will be inundated.



RIVERHEAD (hamlet) Fact Sheet

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 10% of nitrogen mitigated. New, enhanced systems can lower nitrogen levels by 50 – 90%. 40% (1,979) of buildings in Riverhead are on soils considered unsuitable for onsite septic treatment as most drain too quickly.

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 Riverhead 1,482 buildings (30%) have depths to groundwater of less than 13 feet 1,122 (23%) are in a SLOSH (storm surge) zone.

SMALL LOT SIZES

In Riverhead **75%** (3,768) of the developed lots 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. The contaminant concentrations discharged from these systems are higher than code. These small parcels become priorities for upgrades, where they are not sewered. There are still 826 (26%) developed parcels sized ¼ acre or less in the PE Estuary and 207 (40%) in the LIS watershed that are unsewered.

CLIMATE CHANGE

By 2080 an estimated 135 buildings in Riverhead will most likely have their wastewater treatment systems compromised due to inadequate horizontal distances to surface waters.

INFLUENCE ZONES

Denoting the Time it Takes Groundwater to Reach Surface Waters

1,924 or **39%** of the buildings in Riverhead are in the “Pink Zone,” where it only takes 0-2 years for groundwater and contaminants to reach surface waters. It makes sense to prioritize improvements in the “pink” zone, as the beneficial impacts will be felt more quickly.