

Nitrogen Pollution: A Long Island Environmental Hazard that Begins In Your Backyard

By Christopher Clapp

It has been 15 years since scientists and conservationists began making the link between nitrogen pollution and the loss of eelgrass, shellfish, and saltmarshes on the East End of Long Island.

Through their work, it has become clear that the biggest source of nitrogen pollution is our reliance on cesspools and outdated septic systems to dispose of our wastewater. These systems were never designed to remove substances such as nitrogen from the waste stream.

There are serious health impacts associated with conventional septic systems and cesspools. Many cesspools built prior to 1970 were built from concrete blocks and have far exceeded their structural life span. If left ignored these aging pieces of infrastructure can “catastrophically fail,” which often results in a large sewage filled sinkhole in the yard which people and pets can fall into.

There is also the risk of non-catastrophic or “hydraulic failures,” which can happen when the ground becomes saturated with sewage related materials, and wastewater begins to surface on a homeowner’s yard, or worse back up into their homes. Early signs of hydraulic failure are gurgling drains, a circle of lawn that is always soggy, and more green than the rest of the yard. In winter these areas may take longer for snow to accumulate as the warm wastewater just below the surface melts the falling snow. Hydraulic failures typically require the homeowner to pump their system several times per year.

The final health hazard related to cesspools is the contamination of our groundwaters and ultimately surface waters. While much of Quogue receives treated county water for use throughout the home, on-site well contamination has also occurred. For those homes closest to the water there may not be adequate filtration time in the sand to remove the pathogens from the wastewater, making surface waters unsafe for shell-fishing and swimming. Most of the waters around Quogue are not certified for the consumption of shellfish or

swimming for this reason, according to the NY State Department of Environmental Conservation.

This decline is particularly evident in our waters where the tidal exchange is minimal due to Quogue's location near the midpoint between Shinnecock and Moriches inlets. This lack of water circulation creates warm stagnant conditions that can trap pollutants. The accumulation of pollutants like nitrogen is what causes harmful algae blooms such as brown tide, which turns the waters a coffee-like color. These conditions are harmful to fish and shellfish and also create low oxygen conditions that further make the bays hostile to marine life. Degraded surface waters also negatively impact fishing, tourism, and ultimately our quality of life.

[Chris Clapp](#) is a marine scientist who spent his early career managing shellfish and eelgrass research and restoration projects in the waters around Long Island with The Nature Conservancy. More recently he has focused on achieving policy changes at the County, Town, and Village level to drive the nitrogen reduction needed to restore coastal marine habitat and improve public health. Chris serves on several local advisory committees and is the founder of Clean Water Advisors, which helps homeowners and municipalities navigate their way through these complex processes.

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