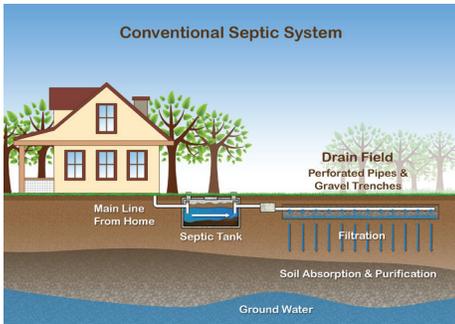


When Your Wastewater Meets Your Lake

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If you live outside of a sewer district, this article is for you. Your home's septic tank is playing a bigger role in the health of your nearby waterbody than you may realize.

Traditional, single-home septic systems treat wastewater in two steps. First, the wastewater leaves your house and spends time in a buried septic tank. While in the tank, the solids will slowly sink to the bottom and the fats and oils float to the top. Second, the partially treated wastewater left in the middle is then released into an absorption field (also called a leaching field or a drainfield). The absorption field is simply a series of pipes that releases the wastewater into a designated area in the soil. Once released into the soil, the wastewater is filtered and "cleaned" by bacteria living underground.



What gets filtered out by the soil?

During this second step, nutrients like nitrogen and phosphorus are taken up by the soil and can be used by plants. Additionally, and most importantly for your health, harmful bacteria like E. coli and other fecal coliforms remain behind in the soil as the wastewater trickles downward.

Why is this important?

Eventually, the wastewater from your home is going to reach an underground aquifer or bedrock. If the wastewater is not properly filtered and cleaned when it meets the groundwater, it will contaminate it with excess nutrients or bacteria. Often groundwater is a source for lakes, rivers and even drinking water, so contaminated groundwater will impact any waterbody it enters. If the

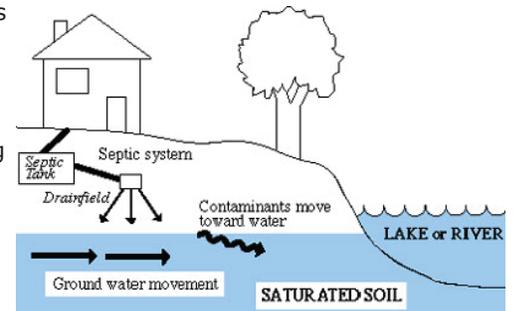
wastewater hits bedrock, it will flow across the layer of rock traveling until it comes to the surface on a hillside or flows into a nearby waterbody. Bacteria in the groundwater, appearing on a hillside, or running into waterbodies can pose a health hazard. At the same time, improperly treated wastewater that reaches waterbodies can lead to harmful algal blooms due to the excess nitrogen and phosphorus it contains. Signs that the soils beneath a septic system aren't doing their job include: exposed bedrock or soggy soils leading downhill from your septic system that may have an unpleasant smell to them; a rise in bacterial infections after swimming; and increased growth of aquatic plants and algae near your shoreline.

In order to properly treat wastewater entering the absorption field, the soils underneath the field need to possess specific qualities including how fast the wastewater moves downward through the soil (permeability); and depth of soil over any feature that might restrict water's downward flow (such as bedrock or a water table). These characteristics are measured and rated by the Natural Resource Conservation Service based on soil type, local geology, and topography. The New York State Department of Health sets specific guidelines for these soil characteristics and how to rate them for suitability for traditional septic systems. Almost all of the soils within the Indian River Lakes Region have been rated as "very limited" for septic systems while the remaining few have been rated as "somewhat limited".

What can you do?

There are a few tests that can determine whether this is happening on your property. First, you can put an indicator dye into your septic system. If your system has a glaring failure you may see the dye appear on the water's surface near your shore. A second option is to have the water in front

of your property tested for common bacteria or viruses that are associated with household wastes. These tests will only reflect major issues with septic systems. Systems that have minor failures may present less obvious immediate effects, with symptoms appearing over a longer period of time that may ultimately be more difficult to



alleviate.

If your septic system isn't performing there are options available to you. On the market are different types of advanced treatments that you can add onto your traditional septic system. These include an added stage of filters made of textiles or foam that provide additional treatment if your soils are unsuitable. You could also switch to a waterless toilet, which would reduce the volume of waste generated. Alternatives like composting toilets are entirely contained within your home and have no need for soil as a filter.

In addition to any of these methods, you can avoid using and disposing of harsh chemicals and large quantities of oil or grease. You can also improve the function of your system from the surface by landscaping the area uphill in order to divert surface waters and avoid unnecessary flow into the absorption field. Landscaping below your system by planting grasses, wildflowers, or shrubs downhill of your absorption field will help to maintain the integrity of your shoreline and slow the flow of any water traveling horizontally through soils. It is important to plant in appropriate places because the roots of plants will interfere with the pipes in the absorption field.