

**Commentary/ Editorial
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RE: Toxic Waters

With recent heavy rains in the Northeast there is concern about wastewater flowing untreated directly into our lakes and rivers. Growth, aging infrastructure and increased storm intensity are resulting in wastewater spilling and leaching untreated sewage into waterways. This has included both raw sewage and graywater. Outdated and inadequate infrastructure both public and private are lending to the potential increase in toxic waters, containing harmful algal blooms and pathogens within the waters we drink from and recreate in.

When wastewater spills or is dumped into a body of water, it contains pharmaceuticals, sodium chloride, synthetic hormones, pollutants and nutrients that can feed algal growth. There is an impact to the aquatic ecosystem from raw sewage or partially treated effluent that makes their way into our freshwater resources.

In most cases it is not the treatment process that is faulty, but the collection system and capacity. Excessive amounts of nutrients in the form of phosphorus and nitrogen can trigger Toxic Harmful Algal Blooms. As wastewater treatment plants are regulated by the state, all overflow events are documented and reported. Plants regionally are in the process of upgrading and repairing identified issues, as they understand the impact. The upgrades and repairs to outdated infrastructure come with a hefty price tag.

Wastewater treatment plants are not the only source of sewage making its way into waterways. The average lifespan of a properly maintained septic system or onsite wastewater treatment system (OWTS) is 30 years. Failing or inefficient OWTS add excessive nutrients to our waterways feeding macrophytes (aquatic plants) and algae, causing excessive growth and nearshore algal blooms. Many camps and older homes near streams and lakes have old, undersized or inefficient OWTS. These can leach nutrients and other pollutants into surface water and groundwater.

Raw sewage is untreated septic from toilets. Graywater comes from showers, sinks and washers. Both contain nutrients that will feed algal growth. Raw sewage contains more nitrogen, while graywater contains more phosphorus. Depending on the limited nutrient in a body of water, the sewage spill has the potential of causing a cyanobacteria toxic harmful algal bloom.

Any algal bloom can alter water quality and have an impact to a body of water. As organic pollutant tolerant forms of algae dominate, they force out typical nutritional forms of algae that zooplankton and fish populations prefer. These same forms of algae can reduce sunlight that is needed for healthy macroalgae (*Nitella* sp) and macrophytes (aquatic plants) to grow. During the day an algal bloom will alter the pH of a water body and elevate the oxygen levels. At night the oxygen levels can plummet causing fish kills. Within the littoral zone (nearshore area), the excessive algal growth can smother feeding and breeding habitat for fish. Following an algal bloom, when the algae die and decompose, the bacteria that feed on them will deplete the oxygen causing hypoxic conditions. This can kill fish and other aquatic organisms

We can all do our part by being septic conscious. Out of sight, should not be out of mind. With our local waterbodies already experiencing toxic algal blooms and being impaired for e.coli, we know that dilution is not a solution to the problem. What can we do?

Septic System Best Management Practices

- If you have your own system, pump it every 2-3 years and have it inspected by a professional,
- Use water efficiently,
- Beware of additives; they can cause more harm than good,
- Don't pour grease or oil down the drain,
- Don't rinse coffee grounds down the sink,
- Don't pour household chemicals or pharmaceuticals down the drain,
- Eliminate or limit use of garbage disposals and
- Don't flush non-degradable products.

For further helpful information on proper septic system maintenance, please visit the WNRCD website at: www.winooskinrcd.org The WNRCD is currently working with partners on the use of algae biomonitoring to determine sources of organic pollution. To learn more please watch the video at: <http://winooskinrcd.org/services/>

The Winooski Natural Resources Conservation District is one of 14 conservation districts throughout Vermont. It encompasses all of Chittenden and Washington County as well as parts of Orange County (Orange, Williamstown and Washington). The district relies on grants and individual donations to complete its conservation work. The WNRCD focuses its resources on completing conservation projects within the areas of agricultural assistance, forestland enhancement, urban conservation and watershed stewardship.

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