GREENWorks

Ideas for a Cleaner Environment

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Look before you leap… into the lake – What you should know about Cyanobacteria

With Dartmouth Hitchcock Medical Center scientists studying the possible connection between ALS (Lou Gehrig's disease) and a specific amino acid (known as BMAA) associated with cyanobacteria, many New Hampshire residents have begun to wonder about the bacteria and how it's affecting our lakes and ponds. What is it? Is it still safe to swim? What's being done about this? What can I do to help?

When present in low numbers, cyanobacteria generally do not cause problems, but in large groups, some of these bacteria can become harmful when they release toxins. These "cyanotoxins" can have a number of adverse effects, including nausea, vomiting, diarrhea, skin irritation, paralysis, and severe thirst. Cyanotoxins are released when the bacteria die or are consumed by other organisms. Most human health impacts have resulted from ingestion of contaminated water, though some cases have been related to swimming in the affected waters. At this time, there have been no known cyanotoxin-related illnesses in New Hampshire.

It's important to note that cyanobacteria are not unique to New Hampshire. Formerly known as blue-green algae, cyanobacteria exist in virtually all natural environments, even in natural hot springs and arctic ice. Perhaps one of the reasons cyanobacteria are getting so much attention in New Hampshire is because, unlike most other states, New Hampshire tests its lakes on a statewide basis. DES has continuously played an active role in preventing, controlling and educating the public about cyanobacteria blooms. The Beach Program samples public beaches regularly, paying particularly close attention to waterbodies that have exhibited increased levels of cyanobacteria in the past. A beach advisory is posted when a potentially toxic cyanobacteria species is present and identified as the dominant algae in a sample cell count.

So what causes these cyanobacteria to thrive? They do particularly well in nutrient-rich waters that are calm (stagnant) and warm – think of hot summer days. They also require sunlight, and phosphorus and nitrogen help them to reproduce. Sources of these nutrients include stormwater runoff, waterfowl, pets, septic systems, fertilizers, and agricultural and construction sites.

You can help DES monitor and prevent these problems in a number of ways. A cyanobacteria bloom may turn the water a bright green (pea-soup) or bluish-green color and/or produce septic or grassy odor. Cyanobacteria can appear in the form of a scum or film on the surface of the water. A bloom may have the appearance of spilled paint on the water's surface, car antifreeze, or bluish green chunks floating throughout the water column. A bloom may cover an entire water body or be confined to a cove area and often congregates along the windward shoreline from

wind and wave action. So if you spot these tell-tale signs of cyanobacteria, notify DES at (603) 271-2457 or beaches@des.nh.gov and we will conduct a site visit. But more importantly, you can take steps to help prevent cyanobacteria from forming in the first place.

Research indicates that cyanobacteria numbers increase as the nutrients in the water increase. To reduce the chances of a bloom occurring, reduce the amount of nutrients, such as phosphates, that enter the water. You can help by testing your soil before applying fertilizers and, if you must apply a fertilizer, make sure you apply only what you need. The NH Shoreland Protection Act prohibits the use of fertilizer closer than 25 feet from shore; between 25 and 250 feet from shore, only low phosphate, slow release nitrogen fertilizer may be used.

Maintaining your septic system will also help keep nutrients from leaching through the soil into nearby streams or lakes. Pump it out every three to five years, or when sludge levels exceed one-third of the tank capacity. You should also keep land clearing to a minimum to limit bare areas that encourage erosion. Avoid dumping or burning leaves or grass clippings near waterbodies, as this can add nutrients to the water.

As more and more information is uncovered about cyanobacteria, DES will be sure to keep you updated on the potential dangers associated with recreating in affected waters. But for now, be aware of the status of your water bodies. Watch for warnings and advisories, keep your eyes peeled for blue-green scum, and don't let your children or pets swim in the water. But most importantly, remember that New Hampshire is renowned for its great water quality- so get out there and enjoy it.