



# Restorative Lake Sciences Update

April, 2021



*Dr. Jennifer  
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## Thoughts from the President...

Hello everyone! It has been a challenging time for all of us and our precious inland lakes! Thankfully in 2020, RLS worked with legislators to allow for lake work during the pandemic. In addition, RLS was able to make multiple visits to each lake and will do so again in 2021. RLS is developing new tools and metrics that are innovative and practical for today's lake issues. Below are some of the hot topics being addressed in the lake science field today.



### Rise in Global Blue-green Algae

Blue-green algae (cyanobacteria) were among the first organisms on the planet and thus have adapted to harsh environmental conditions. There is strong scientific evidence that these blooms are being enriched by not only nutrients but also atmospheric carbon dioxide! Lakes as far north as Sweden and Lake Baikal in Russia are having blue-green algal blooms. Fortunately, there are tools such as aeration, bioaugmentation, and phosphorus inactivation solutions. RLS is evaluating many of these solutions for use in lakes with blue-green algae problems.



### PFAS in Inland Lakes

PFAS chemicals have been found in drinking water supplies and some inland lakes. It creates a foam that is different from the usual dissolved organic carbon (DOC) foam that is nearly all white or light brown and occurs most commonly in the spring and fall during high winds. The PFAS foam is usually yellowish in color and has an odor. In addition, it occurs on lakes with inlets that transfer the pollutant into the lake or lakes that are in an urban setting. Identified culprits have included air fields, paint plants, and other chemical manufacturing plants.



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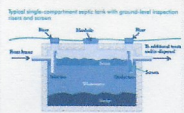
April, 2021, Page 2



**Invasive Starry  
Stonewort**

## Aquatic Vegetation Survey Methods: Key to Management Success

The successful management of invasive species on Houghton Lake (all 20,044 acres!) requires extensive vegetation surveying to find the majority of problem areas for urgent treatment. All shallow lakes require hundreds to thousands of GPS sampling points to accurately determine the locations of all invasive aquatic plants and to precisely create treatment polygon maps. This methodology is heavily used by RLS scientists and allows for all lake programs to have a successful management outcome.



## Septic Systems and Lake Nutrients

RLS is actively engaged in research on the effects of nutrients from septic drain fields and tanks on submersed aquatic plant and algae growth. Nitrogen is especially mobile in the groundwater and can move over 10 feet per decade. This means that within a 50-year period, this water can move over 500 feet! This is why we are seeing increased lake eutrophication today on lakes with antiquated septic systems. Inspections and maintenance are recommended every 2 years or sooner if the system is used on a daily or weekly basis. There are tools that can be used to improve septic systems.



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