

# Sherbrooke Lake 2022 Water Quality Report Card

## Sherbrooke Lake STEWARDSHIP Committee

Monitoring of Sherbrooke Lake's water quality is led by the Sherbrooke Lake Stewardship Committee (SLSC). This committee is comprised of citizen representatives appointed by the Municipality of Chester, and the Municipality of the District of Lunenburg, in addition to a water quality expert, and officials from both Municipalities. The group receives technical support from Coastal Action, who have been monitoring water quality throughout the LaHave River Watershed since 2007. Both municipalities provide funding to support the program, while trained property-owners around the lake conduct the monitoring activities with support from Coastal Action.

## Sherbrooke Lake Sampling

Water samples are collected from lake and stream sites bimonthly and tested for total suspended solids, total nitrogen, total phosphorus, E. coli, and chlorophyll  $\alpha$ . Additionally, seven streams around the lake are tested after a large rain event to monitor water quality changes related to high runoff events. Bottom sediment samples are also collected at three lake sites and one river site, to assess the long-term accumulation of nutrients and metals which can also influence the lake's water chemistry. In 2021, the Municipality of the District of Lunenburg purchased a Total Algae Probe which was fixed to the YSI sampling device used to obtain on-site water quality readings. This probe actively measures the amount of Chlorophyll, a compound present in algae, and Phycocyanin, which is a specific color found in potentially toxic blue-green algae.

## How is Sherbrooke Lake's water quality?

### Bacteria

All lake sites are consistently below Health Canada's 400 CFU/100 mL recreational limits for E. coli – the highest lake concentration was 2 CFU/100 mL, well below the threshold. Lake sites were consistently lower than stream sites. Health Canada guidelines were also not exceeded for stream samples, except one – 550CFU/100 mL at Peter Veinot Brook on December 1st, 2022. Associated with this exceedance, and spikes in bacteria concentrations at other streams, was a large rainfall event. A spike in bacteria after rainfall is common and was also observed in last year's 2021 Sherbrooke Lake data. Although it does not appear to affect the lake quality, swimming in rivers should be avoided for 24-hours after a rainfall event. Water from the lake and the rivers should always be treated prior to consumption (i.e. bathing, washing, drinking).

### Algal Blooms

One algae bloom was reported in 2022 at Sherbrooke Lake, at the North-East section of the lake, along the shoreline of Sherbrooke Forest. The bloom dissipated before volunteers could sample it. All

blooms should be treated with caution. Blooms are caused by a complex interaction of biological, chemical, atmospheric, and hydrographic conditions; many of which are uncontrollable. However, excessive nutrient inputs are one of the most influential factors in promoting a bloom and one of the most controllable.

### Nutrients

During the 2022 sampling season, nitrogen and phosphorus concentrations fell within their respective guidelines for freshwater rivers and lakes; however, both nutrients have the potential to spike during rainfall events. The increase in nutrients comes from rain washing nutrients into nearby waterbodies from surrounding sources, including roads, lawns, gardens, manure, etc. Currently, Sherbrooke Lake's nutrient status is at the low end for freshwater lakes. This is encouraging news, but only through continued vigilance will that situation continue in the face of increasing development and alteration of the lake's shoreline and surrounding watershed. Nutrient inputs from human activities should be minimized as much as possible.



Figure 1: 2022 map of Sherbrooke sampling sites.

## Overall Lake Health

Overall, the 2022 sampling program indicates that Sherbrooke Lake is healthy but vulnerable to the same pressures as other lakes such as climate change and development. Activities such as fertilizing lawns, removing shoreline vegetation, and improper management of septic fields and greywater can all impact the lake's water quality. A more detailed report on the 2022 sampling program is available upon request from the Municipality of Chester and the Municipality of the District of Lunenburg.

### Did you know?

Algal blooms are a natural part of lake ecology but can be enhanced in size and frequency if pollution sources add extra nutrients into the environment. In a balanced ecosystem, algae and other organisms' growth is limited by the availability of nutrients; however, if nutrients become available in excess (both naturally through fall and spring turnover and sediment resuspension, or from human-caused pollution), algal blooms can occur. Not all blooms are algae (i.e., pine tree pollen forms a film on the water's surface), and not all algae blooms are toxic. Blooms should be treated with caution and should be reported with a photo to the Nova Scotia Environment Office in Bridgewater (902-543-4685).

### Take Charge of your Environment!

Limit your footprint with these at-home tips:



Try this



Avoid this

#### Vegetated Buffers

Leave a section of natural vegetation between any lawns and the lake to filter runoff.

#### Pick Up Pet Waste

Put pet waste in its place: the garbage bin.

#### Fenced Livestock

Keep livestock out of the water with fences (provide livestock with alternate sources of drinking water).

#### Manure Liners

Line manure piles to prevent bacteria and nutrients from leaching into adjacent waterways.

#### Straight Pipes

Replace illegal straight pipes with septic systems and keep your systems properly maintained.

#### Fertilizing before rain

Avoid fertilizing your lawn before a storm, as excess nutrients will be washed into nearby waterways.

#### Dish soaps with phosphate

Avoid using dish soaps with phosphates, especially at the cottage, as the nutrients can cause harmful algal blooms in the water.



Coastal Action is a charitable organization on the south shore of Nova Scotia that believes in safeguarding a healthy environment for future generations. For over 25 years, our goal has been to promote the restoration and conservation of our environment through research, education, and action. We work in four core areas: Watersheds & Water Quality, Species at Risk & Biodiversity, Climate Change, Environmental Education, and Coastal & Marine.