



# LAHAVE RIVER 2020 WATER QUALITY REPORT CARD



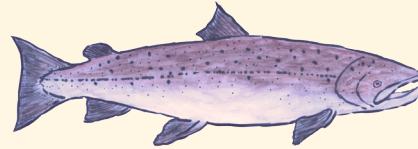
## LAHAVE RIVER WATERSHED PROJECT

Coastal Action initiated the LaHave River Watershed Project (LRWP) in 2007, in response to increasing public concern over the health of the river. The purpose of the project is to identify and reduce harmful environmental impacts within the LaHave River watershed. Goals of the project include the development of a watershed management plan and a long-term monitoring program to assess the river's health. Project activities include monthly water quality monitoring, habitat assessments, restoration projects, and community outreach and education. The LRWP is guided by an advisory committee representing various government departments, academia, industry, non-profit organizations, and community members.



## THE LAHAVE RIVER WATERSHED

The watershed is used for recreation, agriculture, silviculture, and forestry, as well as rural and urban development. These land-use activities affect the LaHave River watershed's water quality and overall health. Now in its 15th year, the LaHave River Monitoring Program has gained valuable knowledge on the natural variability within the watershed, in addition to a deeper understanding of the environmental impacts that human activities can have on the system.



## WHY MEASURE?

Each month Coastal Action monitors the chemical, physical, and biological aspects of the water at 18 sites across the watershed by collecting water samples and using a water quality measurement instrument (YSI Professional Plus water meter).

### ECOSYSTEM

- 💧 Forests
- 💧 Wetlands
- 💧 Water
- 💧 Soil
- 💧 Plants
- 💧 Animals

### BENEFITS

- 💧 Clean air and water
- 💧 Important natural and wildlife habitat
- 💧 Less pollution, drought, and heat
- 💧 Less mental anxiety
- 💧 More social interactions
- 💧 More opportunities for physical activity

### HEALTHY PEOPLE

- 💧 Improved mental and physical wellbeing
- 💧 Livable communities

## WE RELY ON NATURE FOR MULTIPLE BENEFITS FOR BOTH A HEALTHY ENVIRONMENT AND HEALTHY PEOPLE

## WHAT IS A WATERSHED REPORT CARD?

The Water Quality Index (WQI) is a rating used to assess the health of waterbodies. The WQI is calculated using the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines and incorporates several parameters. The index is calculated based on the number of parameters that do not meet CCME Water Quality Guidelines, the number of times each parameter fails to meet guidelines, and the amount by which the guidelines are exceeded. To account for the complex differences between estuaries and freshwaters, different parameters are used to calculate the WQI for freshwater sites versus marine and estuary sites.

- **Excellent (95 - 100%):** All water quality indicators meet desired levels. Quality of water in these locations tends to be very good, most often leading to preferred habitat conditions for aquatic life.
- **Good (80 - 94%):** Most water quality indicators meet desired levels. Quality of water in these locations tends to be good, often leading to acceptable habitat conditions for aquatic life.
- **Fair (65 - 79%):** There is a mix of good and poor levels of water quality indicators. Quality of water in these locations tends to be fair, leading to sufficient habitat conditions for aquatic life.
- **Marginal (45 - 64%):** Some or few water quality indicators meet desired levels. Quality of water in these locations tends to be poor, often leading to degraded habitat conditions for aquatic life.
- **Poor (0 - 44%):** Very few or no water quality indicators meet desired levels. Quality of water in these locations tends to be very poor, most often leading to unacceptable habitat conditions for aquatic life.



## THE RESULTS

### GOOD NEWS!

Two sites moved from the FAIR category to the GOOD category! The freshwater sites of Centennial Trail and Franey Corner moved categories with an improvement in their WQI score. Other sites that showed improvement were West Branch, Meisners Bridge, and the saltwater site in Bridgewater.

Exceedances were low this year with NO FRESHWATER SITES failing their water quality thresholds for iron, total nitrogen, or dissolved oxygen and NO ESTUARY SITES failing their total nitrogen, dissolved oxygen, iron, or pH thresholds.

Phosphorous at the freshwater sites exceeded guidelines once at New Germany in August and once at Simpson's Corner in November.

Fecal enterococci improved at the two estuary sites with exceedances occurring on three occasions at the Bridgewater site and once at Upper LaHave. There were no exceedances for fecal bacteria at a freshwater site.

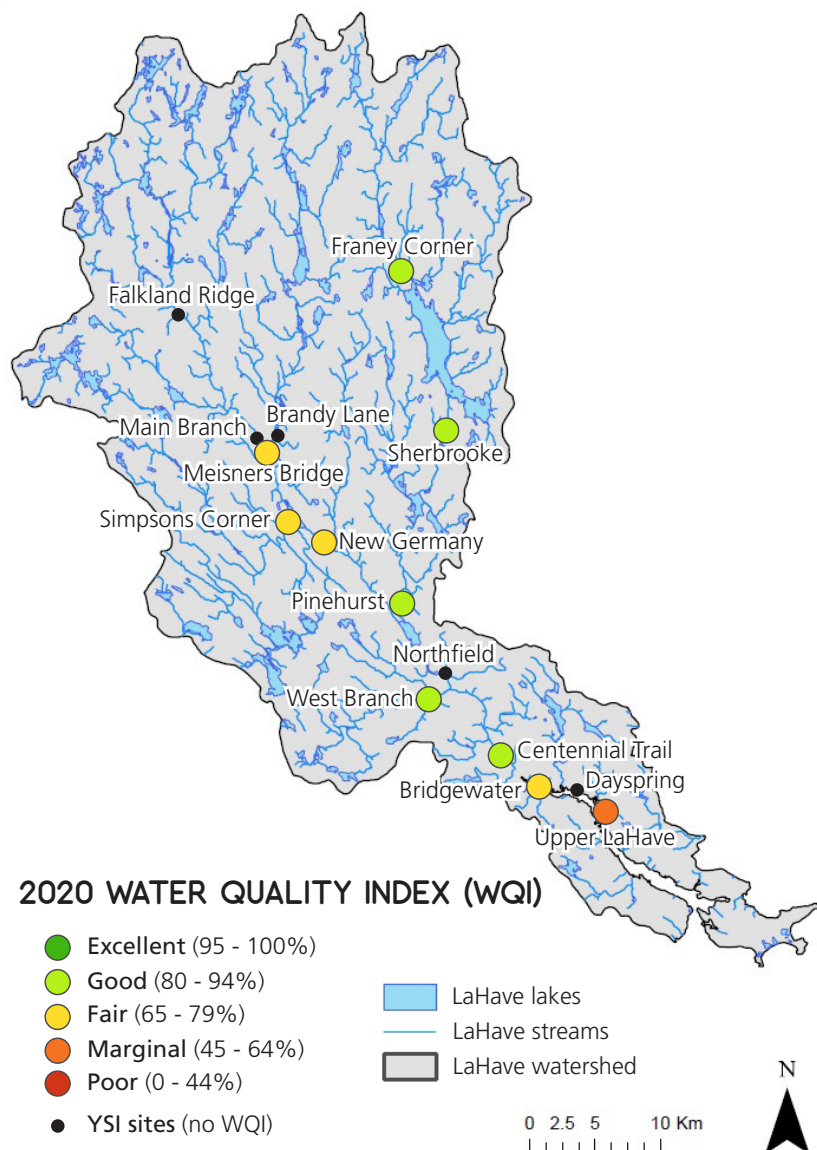


Figure 1: Map of monitoring sites in LaHave River watershed in 2020.

### BAD NEWS!

The occurrences of water temperature exceeding the threshold are increasing. Every site used in the WQI had temperatures exceeding guidelines at least once in the year. Increasing temperatures above 20°C can be detrimental to aquatic species.

Acidity is an ongoing issue throughout the LaHave River watershed. Despite the pH at the saltwater sites not exceeding guidelines in 2020, five of the freshwater sites had pH exceedances at some point during the year. If pH is too high or too low, the aquatic organisms living within it can become stressed, reducing hatching and survival rates of fish. pH can also affect the solubility and toxicity of chemicals and heavy metals in the water.

Phosphorous levels have become a concern as well. Upper LaHave phosphorous levels exceeded guidelines five times and Bridgewater twice in 2020 while exceedances occurred twice at the freshwater sites. Nutrient pollution, primarily in the form of nitrogen and phosphorous, enters our waterways from several sources including farm and lawn runoff (fertilizer), failing septic systems, and outdated or failing wastewater treatment plants, which can lead to harmful algal blooms.

Table 1: The change in WQI ratings and categories from 2017 to 2020 in the LaHave River watershed.

Site	2017	2018	2019	2020
Franey Corner	76.8	78.0	77.2	85.3
Sherbrooke	83.3	85.3	85.0	84.8
Meisners Bridge	76.0	70.7	69.5	78.1
Simpson's Corner	75.9	55.7	90.1	70.6
New Germany	76.6	77.8	77.6	78.1
Pinehurst	84.2	78.0	92.8	85.2
West Branch	76.0	78.0	84.8	92.8
Centennial Trail	77.4	70.7	78.1	92.5
Bridgewater	70.0	53.3	68.4	77.0
Upper LaHave	56.1	46.5	62.5	58.7

- Excellent (95 - 100%)
- Good (80 - 94%)
- Fair (65 - 79%)
- Marginal (45 - 64%)
- Poor (0 - 44%)



There is an overall improvement in the LaHave River watershed since 2017. Sites to keep an eye on include Simpson's Corner, which had a change in its rating from Good to Fair, and Pinehurst, which had its rating decrease by 7.6 (Table 1). It is encouraging to see Franey Corner and Centennial Trail improve in their ratings category from Fair to Good. Bridgewater also continues to improve. Unfortunately, Upper LaHave consistently has the lowest rating of all the sites (Table 1).

## WHAT YOU CAN DO TO HELP

**N** = Nitrogen    **P** = Phosphorous    **S** = Sediment

What you can do	Who benefits	What is reduced
Leave a natural area along a stream or ditch.	Grass or wood buffers help filter pollutants and reduce flood damage.	N P S
Remember to inspect and pump your septic system every 3-5 years.	A properly maintained septic system prevents costly repairs and untreated sewage discharge into our streams.	N P S
Help your community develop a plan that supports low impact development.	Smart development fosters growth and protects the local resources and character of the community.	N P S
Follow the 4 Rs of fertilizer use: right source, right amount, right place, and right time.	The 4 Rs approach promotes the wise use of fertilizer by farmers, residents, and landscapers to reduce costly nutrient loss that pollutes our streams.	N P
Plant cover crops.	Cover crops build healthy soils that help hold back nutrients and water and increase crop yields.	N P S
Plant a rain garden or install a rain barrel.	Rain gardens and rain barrels help reduce stormwater runoff and can cut down on landscaping costs.	N P S
Install a drainage management system.	Managing field drainage reduces nutrient loss while saving water for when your crops need it most.	N P
Properly manage livestock and pet waste.	Storing and disposing of animal waste properly reduces nutrients and prevents harmful bacteria from fouling local waters.	N P

This table is adapted from the March 2014 Mills Creek Report Card, Erie Soil and Water Conservation District



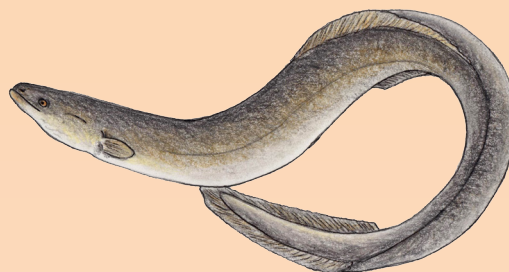


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## WHO ARE WE?

Coastal Action is a community-based charitable organization with a mandate to address environmental concerns throughout the South Shore region of Nova Scotia. For the past 25 years, Coastal Action's goal has been to promote and conserve the environment through research, education, and action. Coastal Action works in five key areas: Coastal & Marine, Watersheds & Water Quality, Climate Change, Environmental Education, and Species at Risk & Biodiversity.



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