



Ottawa RIVERKEEPER®
GARDE-RIVIÈRE *des Outaouais*

Citizen Science in Action!



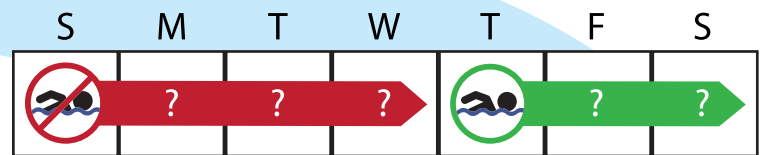
Ottawa Riverkeeper's Community-Based Water Monitoring Program

Introduction

Why water quality monitoring is important

Water quality changes daily and can be influenced by a variety of factors, which is one of the reasons why regular testing is so important.

When water quality is tested infrequently, recreational water users are only given a brief snapshot of the water quality at their local beaches.



As such, it is possible that people are swimming in contaminated water or avoiding swimming unnecessarily due to water quality results that are no longer accurate.

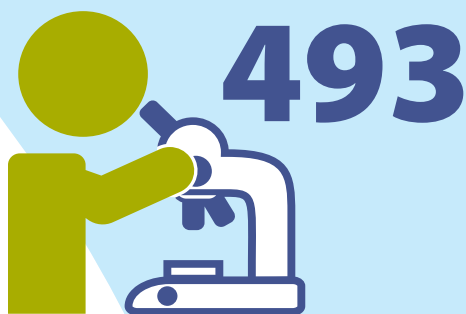
A community-based water monitoring program

Ottawa Riverkeeper is working to develop community-based water quality monitoring programs at local beaches so that residents could learn about how recreational water quality is monitored where they swim and access the water. Results are also posted on the Swim Guide app, so they can be available to anyone, not just those who participated directly in monitoring.

By engaging citizen scientists, the community becomes more involved in the protection of their local beach and are encouraged to participate in other stewardship activities, such as shoreline cleanups.



Summary of the monitoring program in 2019



Water samples analyzed in the Ottawa Riverkeeper Citizen Science Lab



3 in Ontario



5 in Quebec

Locations within the Ottawa River watershed where monitoring occurred

at Parc Moussette



Why Parc Moussette?

Parc Moussette is a popular destination for residents in the Hull sector of Gatineau. Its beach on the Ottawa River is the only place where local residents can go to enjoy a swim during the summer months.

In 2018, the beach was **closed for most of August**. Ottawa Riverkeeper wanted to better understand what factors contributed to these closures and began monitoring water quality at this beach to increase the frequency of water quality data collection.

The water quality story at Parc Moussette

In 2019, Ville de Gatineau increased its water monitoring frequency from the previous year to **1-2 tests per week** (consistently 2/wk in July and August) at this beach. Ottawa Riverkeeper was able to sample three or more times per week for a combined total of over **4 tests per week** on average. This additional monitoring provided a stronger understanding of water quality at Parc Moussette

Max consecutive days water was considered unsafe



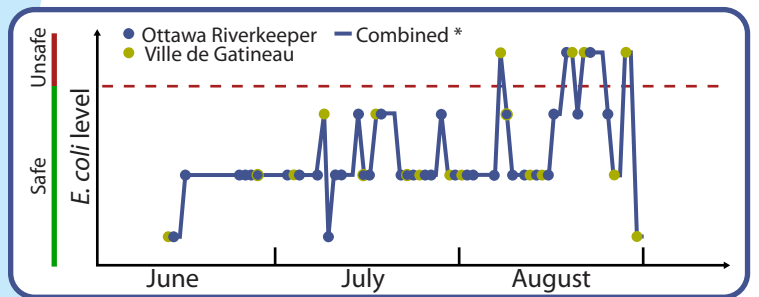
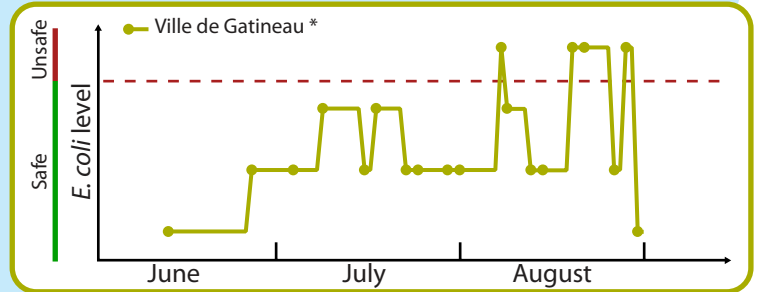
Days Ville de Gatineau closed the beach when water was tested as safe by Ottawa Riverkeeper



Days Ville de Gatineau opened the beach when water was tested as unsafe by Ottawa Riverkeeper



Water quality over time



* Horizontal sections without sample points represent days when no sample was taken and water quality values were assumed based on the most recent sample

Even with Ville de Gatineau's increased monitoring frequency since 2018, the beach was still closed 10 days in August 2019, despite only 4 of those days confirmed unsafe by testing.

There were at least 3 days when Ville de Gatineau's decision to open or close the beach should have been reversed, according to the combined testing results.

More frequent monitoring at Parc Moussette would be especially valuable during the month of August, when water quality tends to be worst.

at Parc des Cèdres



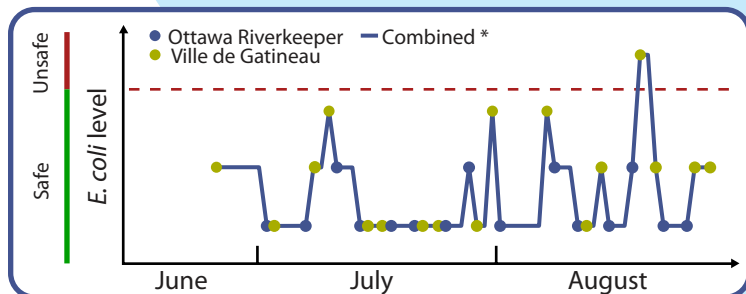
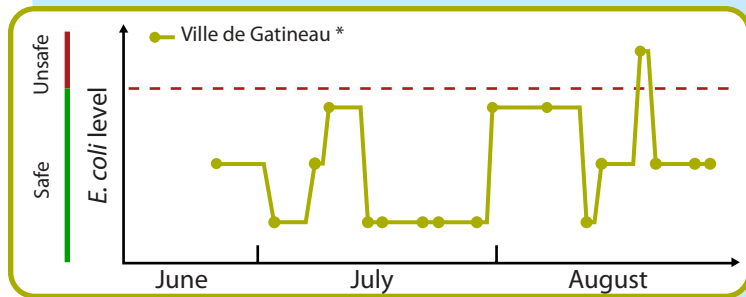
Why Parc des Cèdres

Parc des Cèdres is another popular waterfront park in Gatineau where water quality is also only tested 1-2 times per week. This beach **failed water quality tests 30% of the time in 2018**.

Therefore, Parc des Cèdres was another key location for Ottawa Riverkeeper's monitoring efforts to improve understanding of how frequency of water quality testing influences public beach access.

- Ville de Gatineau (<2/wk)
- Combined: Ville de Gatineau + Ottawa Riverkeeper (>3/wk)

Water quality over time



* Horizontal sections without sample points represent days when no sample was taken and water quality values were assumed based on the most recent sample

The water quality story at Parc des Cèdres

Ottawa Riverkeeper and Ville de Gatineau each measured water quality at Parc des Cèdres with **1-2 tests per week**, but on different days, for a combined total of over **3 tests per week**.

Max consecutive days considered unsafe



There were at least 11 changes in water quality that went unnoticed by Ville de Gatineau.

Parc des Cèdres appeared to have good water quality overall in 2019, but with infrequent testing, recreational water users only get part of the story.

at Westboro Beach



Why Westboro Beach?

The City of Ottawa measures water quality daily at several public waterfront areas, such as Westboro Beach. That means there were no assumptions about the safety of the water at the beach.

Ottawa Riverkeeper wanted to see how the use of this beach might have been affected if water monitoring was less frequent (e.g. 1-2/wk).

How monitoring frequency changes the water quality story

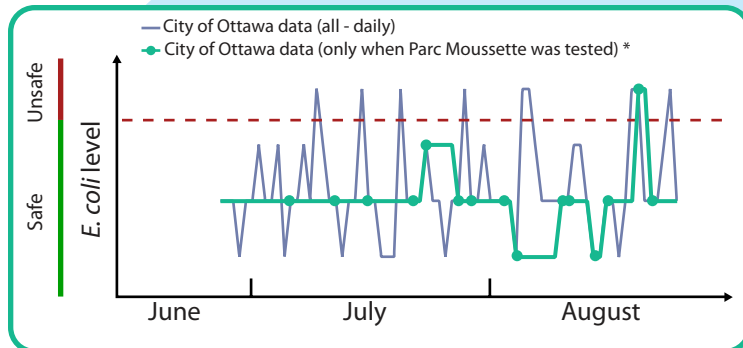
Ottawa Riverkeeper **did not take any water samples here**. Instead, a retrospective analysis was performed using actual water quality data collected daily by the City of Ottawa, but only including the days when Ville de Gaitneau tested at Parc Moussette.

This allowed a **direct comparison between daily and 1-2/wk** monitoring schedules, and provided some very valuable insight into why daily water quality monitoring is so important for recreational water users to safely and confidently connect with their river.

Water tested daily

Water tested <2/wk

Water quality over time

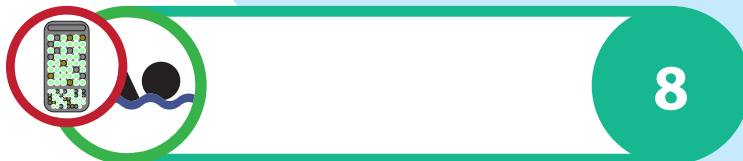


* Horizontal sections without sample points represent days when no sample was taken and water quality values were assumed based on the most recent sample

Days beach **would** have been closed when water was in fact safe



Days beach **would** have been open when water was in fact unsafe



Daily monitoring at Westboro Beach captured daily changes in water quality that would have been missed with less frequent testing.

With daily monitoring, maximum consecutive closed days was only 2, meaning citizens were given every possible opportunity to use the beach.

Conclusion



When water quality is only measured 1-2 times per week, whether or not a beach is safe for recreational use on any given day is often based on assumptions. By increasing the frequency of water quality monitoring, Ottawa Riverkeeper filled in some of the gaps in the water quality story at popular public beaches like Parc Moussette and Parc des Cèdres.

With infrequent monitoring, changes in water quality are often missed, which can lead to recreational water users unnecessarily avoiding safe water, or unknowingly exposing themselves to unsafe water. When water monitoring happens daily, this uncertainty is eliminated, and recreational water users can be fully confident about the safety of their beaches.



Municipalities should monitor water quality at public beaches as often as possible, particularly during periods where water quality is frequently poor, to decrease uncertainty about beach safety and give citizens more confidence for safely connecting with their river.

Acknowledgements



Swim Guide

Ottawa Riverkeeper is an affiliate of Swim Guide, a website and smartphone app created and managed by Swim Drink Fish. It helps you easily find your closest beaches, know at a glance which ones are safe for swimming, and share your love of beaches with friends and family. www.theswimguide.org

Through posting water quality results on Swim Guide, Ottawa Riverkeeper's Community-Based Water Monitoring Program helped recreational water users make informed decisions about visiting their local beach over 8500 times in 2019!



Thank you to our partners!

Ottawa Riverkeeper thanks **T-Gear Foundation, Ontario Trillium Foundation, Patagonia, Lush** and **Barry Sims** whose contributions made this work possible.