

**Report to  
Rapport au:**

**Ottawa Board of Health  
Conseil de santé d'Ottawa  
15 September 2025 / 15 septembre 2025**

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**Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE      File Number: ACS2025-OPH-EHI-0002**

**SUBJECT: Ottawa Public Health Beach Water Quality**

**OBJET: Qualité de l'eau des plages de Santé publique Ottawa**

## **REPORT RECOMMENDATIONS**

**That the Board of Health for the City of Ottawa Public Health Unit:**

- 1. Receive this report for information, including the accompanying comparative analysis which compares the historical accuracy of daily versus weekly water testing on Ottawa Public Health's past process of issuing swim recommendations of the five City of Ottawa supervised beaches;**
- 2. Direct Ottawa Public Health to continue to conduct weekly water quality testing at the five City of Ottawa supervised beaches, which aligns with the**

**Ontario Public Health Standards, and most other Ontario Public Health Units, as well as best practice guidelines for urban and rural cities;**

- 3. Direct Ottawa Public Health to continue working collaboratively with partners to inform the public about water safety when swimming in natural bodies of water, including Ottawa's five Municipal beaches. This includes promoting drowning prevention, assessing water quality, and raising awareness of other associated risks.**

## **RECOMMANDATIONS DU RAPPORT**

**Que le Conseil de santé de l'Unité de santé publique de la ville d'Ottawa:**

- 1. Prend acte de ce rapport à titre d'information, y compris l'analyse comparative jointe qui compare l'exactitude historique des tests d'eau quotidiens par rapport aux tests hebdomadaires sur le processus précédent de l'Unité de santé publique d'Ottawa pour émettre des recommandations de baignade pour les cinq plages supervisées de la ville d'Ottawa;**
- 2. Ordonne à l'Unité de santé publique d'Ottawa de continuer à effectuer des tests de qualité de l'eau hebdomadaires dans les cinq plages supervisées de la ville d'Ottawa, ce qui est conforme aux normes de santé publique de l'Ontario et à la plupart des autres unités de santé publique de l'Ontario, ainsi qu'aux lignes directrices des meilleures pratiques pour les villes urbaines et rurales;**
- 3. Ordonne à l'Unité de santé publique d'Ottawa de continuer à travailler en collaboration avec ses partenaires pour informer le public sur la sécurité de l'eau lors de la baignade dans des plans d'eau naturels, y compris les cinq plages municipales d'Ottawa. Cela inclut la promotion de la prévention de la noyade, l'évaluation de la qualité de l'eau et la sensibilisation à d'autres risques associés.**

## **EXECUTIVE SUMMARY**

### **Assumption and Analysis**

Ottawa Public Health (OPH) is presenting this report in response to a Board of Health motion requesting a comparative analysis of daily versus weekly beach water sampling. The issue is timely due to a shift in OPH's beach monitoring strategy, which now

emphasizes real-time environmental indicators alongside retrospective lab results of *E. Coli*. Historically, OPH conducted daily sampling at five supervised municipal beaches, but this approach led to public misinterpretation of delayed lab results as real-time water quality indicators.

The revised strategy aligns with the Ontario Public Health Standards and best practices across Ontario Public Health Units. A comparative analysis found minimal difference in accuracy for predicting current day water quality between daily (80.3%) and weekly (78.5%) testing, with both methods showing low positive predictive value (low ability to correctly predict when the current day's results will have high *E. coli* levels after the previous result was high). Weekly testing is supported by provincial guidelines, national recommendations, and international benchmarks (e.g., EPA and EU standards), which emphasize trend analysis over immediate decision-making.

This change supports a more comprehensive public health risk approach by focusing on environmental conditions and physical safety risks—such as beach supervision, rainfall, wind, and wildlife activity—that better reflect current swimming risks, while still providing similar levels of information on water fecal contamination. It also enables clearer public messaging about risks and reduces inaccurate swim and no swim recommendations.

### **Financial Implications**

The transition to weekly sampling is not driven by budgetary constraints. No new funding is required, and existing resources are sufficient to support the revised program. There is no direct financial impact on the public. The change may reduce operational costs marginally, but the primary motivation is improved public health communication and alignment with provincial standards.

### **Public Consultation/Input**

OPH conducted extensive partner engagement prior to implementing the program change. Consultations included:

- **Recreation, Culture and Facility Services (RCFS):** Regular meetings focused on operational planning and signage updates.
- **Legal Services:** Ensured compliance with the Ministry of Health's *Recreational Water Protocol*.
- **City Councillors:** All councillors with beaches in their wards were briefed and invited to provide feedback.

- **Public Education:** OPH deployed inspectors for on-site education, updated multilingual signage and handouts, launched a new online dashboard showing the most recent results and historical water quality trends, and conducted media interviews to explain the rationale for the change.

Feedback from partners and the public emphasized the need for clearer communication and real-time relevance, which the revised strategy addresses.

## **BACKGROUND**

Following a comprehensive program review in 2024, Ottawa Public Health (OPH) identified a persistent public misunderstanding: daily water sample results for *E. coli* were often interpreted by Ottawa residents as real-time indicators of water quality. In other words, water quality testing results were being used by the public as a forecast to predict the next day's water quality rather than as long-term trends about fecal contamination levels at city beaches. In addition, a number of high-profile and tragic drowning and near-drowning incidents in Ottawa highlighted the need for better communication about the overall safety risks of swimming in Ottawa rivers. To address these issues, OPH revised its beach monitoring approach. Rather than relying solely on retrospective data of a single measure of *E. coli*, which is delayed by at least 18 hours, the new strategy emphasizes real-time environmental indicators like rainfall, wind, wildlife activity, and water clarity alongside water quality results to better reflect current swimming conditions and support more informed and accurate choices. Additionally, OPH sought to better inform the public about swimming safety beyond this single indicator to include what to know before, during, and after swimming to reduce hazards with the primary intention to promote swimming at public beaches in supervised areas, during the supervised hours. There was also a renewed focus on other protective behaviours from water-borne illness which protect not only against the pathogens associated with fecal contamination, but other hazards such as cyanobacteria (blue-green algae) blooms and cercarial dermatitis (swimmer's itch). These measures include observing the area prior to swimming, keeping the mouth closed while swimming and showering/hand hygiene after swimming.

In Ontario, Public Health Units (PHUs) operate Seasonal Beach Monitoring Programs as mandated by the Ministry of Health's [Recreational Water Protocol](#) and [Operational Approaches for Recreational Water Guideline, 2018 \(or as current\)](#). These programs typically include annual assessments, routine surveillance, and public communication regarding the status of public beaches. These guidelines mandate collection of water

samples, as applicable and as deemed necessary in accordance with the Canadian Recreational Water Quality guidelines.

The current (2019) *Protocol* stipulates that beaches must be inspected at least once per week which can be reduced to once per month based on a risk assessment as described in the Operational Approaches for Recreational Water Guideline, 2018 (or as current), where historical data of the geometric mean (of *E. coli* samples) and environmental surveys indicate water quality was consistently within the water quality threshold for the previous bathing season and confirmed through the pre-season sampling results.

While historically OPH has had a daily testing approach for *E. Coli* levels, the test results are not available in real time. Owing to the time it takes to grow the bacteria in a laboratory— the Ontario Public Health Lab requires a minimum of 18 hours to process results. Consequently, in previous seasons, swim recommendations at Ottawa beaches were based on the previous day's *E. coli* results and used in combination with rainfall and other identified hazardous environmental conditions, to provide swim advisories based on an estimate of water quality. In the past, OPH issued swim recommendations when:

- The geometric mean of five water samples from the previous day exceeded 200 *E. coli* per 100 mL (Ontario's water quality standard);
- A significant rainfall event occurred;
- Other known factors were identified which could impact water quality.

Historically *E. coli* levels have been used as a measure of water quality because it provides an estimate of the level of fecal contamination in the water. The *E. coli* measured in routine sampling is not meant to measure disease-causing *E. coli* (e.g., verotoxin producing *E. coli*) but rather normal bacteria that lives in the intestines of mammals and birds. It is a proxy indicator of fecal contamination from sources such as discharge or drainage that may contain sewage which was historically a major concern for suitability of a site for recreational water use. In more recent times, *E. coli* levels likely reflect stormwater runoff that is contaminated with fecal waste, which may come from stormwater drainage pipes into the river or diffuse sources such as domestic and wild animals and birds, runoff from the beach and contamination directly from swimmers themselves. There is no universally "safe" *E. coli* level for recreational swimming and there is a gradient of risk of illnesses related to fecal contamination in beach water which cannot be eliminated entirely.

A 2024 survey conducted by OPH on water sampling frequencies, which included 35 agencies such as Ontario Parks as well as Ontario PHUs, found that most PHUs follow a weekly sampling schedule. However, some either do not participate in the program or respond only to complaints. Notably, OPH and Toronto Public Health were the only PHUs in Ontario that were conducting daily sampling at all of their municipal beaches. It is important to note that most health unit beaches including all of Toronto's public beaches are on lakes, whereas all of the city of Ottawa public beaches are located on rivers which have greater flow and movement of water which has an impact on water quality testing results.

While international and federal approaches do not set the requirements for Ontario PHUs, OPH conducted a review of international evidence and literature along with the Canadian Guidelines for understanding and managing risks in recreational waters. The U.S. Environmental Protection Agency (EPA) has two recreational water quality beach action values (values for making precautionary beach notification decisions) that states may choose to institute, one at 235 *E. coli* per 100 mL which has an estimated illness rate of 36 per 1000 primary contact recreators, or alternatively at 190 *E. coli* per 100 mL which translates to an estimated illness rate of 32 per 1000 primary contact recreators. In contrast, the European Union's Bathing Water Directive classifies water quality into four categories—excellent, good, sufficient, and poor—based on levels of *E. coli* and intestinal enterococci. For an inland beach to be rated “excellent,” 95% of *E. coli* samples collected over four years must be below 500 *E. coli* per 100 mL. and for “good,” 95% of samples collected over four years must be below 1000 *E. coli* per 100 mL. All of Ottawa's supervised beaches would meet the EU's excellent or good statuses. These thresholds demonstrate the varying levels of acceptable illness risk and show that any particular value is not a definitive indicator of safety as it relates to water quality. Ontario's standard of 200 *E. coli* per 100 mL similarly seeks to balance public health protection with recreational access. Health Canada's [Guidelines for understanding and managing risk in recreational waters: Water quality assessment](#) state “In general, waters regularly used for primary contact recreational activities should be monitored for fecal indicators at a minimum frequency of one sampling event per week during the swimming season. Each sampling event may require the collection of multiple samples. A weekly monitoring strategy allows comparison of the water quality results to the guideline values.

There is no formal scientific consensus or regulatory directive stating that urban beaches require a higher threshold than the provincial standard.

As background information and in addition to the review of OPH's beach water sampling program OPH reviewed local epidemiological data over the past decade (2014-2023) on reported enteric diseases of public health significance that are commonly waterborne, including giardiasis, cryptosporidiosis, salmonellosis and verotoxin-producing *E.coli*. Approximately 4% (205/5075) reported swimming or contact with water from lakes, rivers or streams in Ontario, while less than 0.5% of the reported cases were linked to the City's supervised beaches. A total of 14 Ottawa residents (between 0 and 3 per year) were reported with a lab-confirmed infection with an enteric illness where the most likely source of infection was identified as a City beach. Infections reported to OPH underrepresent the true number of infections due to factors such as mild, self-limited illness, lack of access to a healthcare provider, recall bias, and illness due to pathogens that are not reportable to public health (e.g., norovirus). For example, it is estimated for every one giardiasis report that public health receives, there are 40 additional people infected ([Thomas et al, 2013](#)). Enteric viruses (e.g. norovirus) are the most common pathogen responsible for recreational water illness ([Young, Sanchez & Tustin, 2022](#)), and these are not reportable to public health. Similarly, other symptoms potentially associated with recreational water exposure (respiratory, skin, ear and eye irritations) are not reportable to public health. However, the association between *E. coli* levels and these other symptoms is less well established than the association with enteric illness ([Wade et al, 2022](#)). The same study suggested skin rashes following swimming might be due to issues unrelated to fecal contamination such as physical irritation or avian schistosomes ("swimmer's itch").

While it was acknowledged that illness is often underreported, the consistently low number of reported cases, in which recreational water exposure is mentioned as a risk factor, supported OPH's assessment that the overall risk of illness from recreational water exposure was low with the generally high-quality water at City beaches.

In addition, and aligned with the OPHS, OPH emphasized the importance of shifting public focus toward general water safety measures, including drowning prevention. Between 2010 and 2023, an average of 6 Ottawa residents died each year in a drowning incident. Approximately 50% of drowning deaths among Ottawa residents occurred in natural bodies of water (e.g., lakes, ponds, rivers).

In preparation for the transition to weekly beach water sampling, OPH undertook extensive partner consultation to ensure the change was well-informed, collaborative, and compliant with provincial requirements.

OPH met regularly with Recreation, Culture and Facility Services (RCFS)—the owner and operator of the City’s beaches—for several months leading up to the change. These meetings focused on operational planning, communication strategies, and ensuring RCFS had the necessary tools and information to support real-time assessments of water quality. OPH also advised RCFS on updating beach signage and provided public health messaging to support consistent and clear communication at beach sites.

To ensure regulatory compliance, OPH consulted with Legal Services to confirm that the proposed changes aligned with the requirements set out in the Ministry of Health’s *Recreational Water Protocol*. This step was essential in validating that the revised approach met all provincial standards while allowing for greater flexibility and responsiveness in public health messaging.

In addition, OPH scheduled and held meetings with all City Councillors whose wards include public beaches. These meetings were conducted prior to the start of the beach season and served to inform Councillors of the planned changes, provide background on the rationale, and solicit feedback. This proactive engagement helped ensure that elected officials were well-informed and able to respond to constituent inquiries with confidence.

Beach water sampling was discussed at the June 16<sup>th</sup>, 2025 Board of Health meeting, and the Board of Health accepted a motion that states:

*Whereas the public beaches of Ottawa provide residents and visitors exceptional recreational and tourism opportunities, supporting both physical and mental health, and play a critical role in the mitigation of ever more frequent heat-related emergencies;*

*Whereas the City of Ottawa has long been a leader in taking water quality seriously, and has provided daily water quality results so that every person accessing one of the 5 City beaches could make informed decisions about swimming;*

*Whereas testing of urban beaches requires a higher threshold than the provincial standard, and that public confidence in our beach water quality is already low;*

*Be it resolved that Ottawa Public Health, in collaboration with the Ottawa Riverkeeper and other stakeholders, undertake a comparative analysis of the relative risk of daily vs weekly water testing for the season and in parallel*

*promote the safe and healthy use of our beaches, and report back to the Board at its September meeting with recommendations on service standards.*

## **DISCUSSION**

**Recommendation 1 - Receive this report for information, including the accompanying comparative analysis which compares the historical accuracy of daily versus weekly water testing on OPH's past process of issuing swim advisories at the five supervised City of Ottawa beaches;**

**Recommendation 2 – Direct Ottawa Public Health to maintain weekly water quality testing at the five Ottawa supervised beaches, as it aligns with the Ontario Public Health Standards, reflects best practice across Ontario (including urban and rural cities), and supports effective public health communication in addition to assessing real-time environmental conditions;**

The recommendation to transition OPH beach monitoring program from daily to weekly sampling was informed by a thorough review of public health evidence, in alignment with provincial guidance and best practices across jurisdictions. It is also important to clarify that the decision to move to weekly testing was not due to budgetary constraints. While daily sampling had previously been implemented to provide more frequent data, its limitations—particularly the delay in receiving lab results—led to public misinterpretation and inaccurate no swim advisories.

Results of the comparative analysis between weekly and daily testing demonstrate that the accuracy of weekly testing is not meaningfully lower than daily testing (78.5% vs. 80.3% respectively), and that the accuracy of testing varies by beach and year. The chance of the previous test result correctly predicting when the water quality does not meet the standard (“positive predictive value”) is low (less than 50%) in both daily and weekly testing. When “no-swim” was recommended, the previous test results triggered unnecessary “no-swim” recommendations 8.8% of the time (“false positive”) with daily testing and 11.7% of the time with weekly testing. Thus, when the previous test result does not meet standard at the City of Ottawa supervised beaches, it is not a good predictor of current day’s water quality with either daily or weekly testing. On 8.8% of the beach-days with daily testing, the previous culture results would have resulted in a “false negative”, when a “no-swim” recommendation was needed based on the current day’s results not meeting the standard but was not issued. The false negatives increased to 11.4% with weekly testing. These corresponded with daily and weekly “negative predictive values” of 88.0% and 87.8%, respectively, indicating that in either scenario when the previous test result met the standard, it was a good predictor of

current day's water quality. Both daily and weekly results are useful for understanding the trends in water quality over a season at a beach, and useful for comparing the water quality between beaches and years. Beach-level data illustrate variability. For example, Britannia Beach, despite having high overall accuracy and negative predictive value, shows a very low positive predictive value, meaning instances where water quality exceeds provincial standards were rarely flagged correctly. Similarly, Petrie East, which is somewhat better at identifying poor water quality, demonstrates lower overall accuracy. (See Appendix A for Comparative Analysis Results.)

Neither daily nor weekly testing methods reliably reflect real-time water conditions. As test results are only available the following day, both approaches do not reliably capture fluctuations in water quality.

In addition to the previous review of OPH's beach water sampling program, these findings support OPH's decision to transition from daily to weekly testing. Given that Ottawa's beach water quality is generally good, weekly sampling provides a sufficient overview of long-term trends while allowing the focus to be redirected toward real-time risk communication. Additional emphasis is needed to shift the public to make more informed swimming decisions based on the water quality results plus current environmental conditions such as rainfall and runoff, which are more indicative of short-term water quality changes than lab results alone. Issuing swim recommendations based on incomplete or inaccurate data—such as from daily testing—can unnecessarily discourage beach use, limiting access to a cooling option during a heat event. As Ottawa faces more extreme heat due to climate change, it's essential that public health messaging supports confident and safe use of these resources.

OPH remains committed to the prevention and reduction of water-borne illness and injury related to recreational water and will continue to provide surveillance of municipal beaches, investigate and respond to adverse events and complaints, and promote safe use of City beaches.

Under the OPHS, OPH's epidemiology and surveillance team is required to monitor trends in diseases of public health significance. OPH will continue to monitor for water-related illnesses that are reported to OPH.

OPH's recreational water team is also required to investigate and respond to adverse events and complaints related to beaches. This includes working with partners such as the Ministry of the Environment, Conservation and Parks, to investigate potential hazards such as blue-green algae blooms when reported. All Ottawa residents are encouraged to report sighting of possible blue-green algae blooms to the Ontario Ministry of the

Environment, Conservation and Parks who will investigate and may take water samples to confirm if the algae is one of the species that produces harmful toxins. Residents can do this by phoning the Spills Action Centre at 1-866-663-8477 or visit [the Ontario Ministry of the Environment, Conservation and Parks website for more information on how to report a possible blue-green algae bloom](#).

**Recommendation 3 – Direct Ottawa Public Health to continue working collaboratively with partners to inform the public about water safety when swimming in natural bodies of water, including Ottawa’s five Municipal beaches. This includes promoting drowning prevention, assessing water quality, and raising awareness of other associated risks.**

OPH’s communications strategy focuses on water safety and promoting informed decision making when choosing to swim in natural bodies of water. There are many actions that can be taken to reduce the risk of injury or infection when swimming. This year, prior to the start of the swim season, OPH implemented several measures to enhance public education and engagement and inform them of the improvements in our approach and messaging regarding water safety. This included refreshed web content, and a public service announcement, supported by earned media and our social media networks. Equity and accessibility were prioritized through multilingual materials shared online and with community groups. The strategy used a multi-channel approach, including web; social media; print; new signage, audio recordings and in-person support at beach locations; and partner engagement.

In addition, a working group was established early in the year in collaboration with Recreation, Culture and Facility Services (RCFS) to support planning and communications. OPH recommended that RCFS adopt a general advisory at all municipal beaches, encouraging personal health precautions **before, during and after** swimming such as avoiding swimming with open wounds, refraining from swallowing water, and showering after swimming.

To support public awareness, Public Health Inspectors were deployed during early-season weekends to provide on-site education and support. New beach signage was produced to reflect the new approach, and the OPH website was revised to increase the focus on the importance of personal health precautions at all times when swimming in natural bodies of water. This included graphics and multilingual information outlining the changes. A new online dashboard was launched, allowing residents to view ten years of water quality data and trends at each of Ottawa’s beaches. In light of feedback from partners, OPH will work to improve the accessibility and ease of interpretation of the available water quality information in advance of the next beach season.

Multilingual one-page handouts explaining the rationale for the changes and outlining key health risks were made available at all beaches. OPH's Community Engagement Team also shared these materials through their community networks to maximize our reach. In addition, OPH conducted several media interviews to inform the public and respond to questions about the improved measures and informed decision making for residents when swimming in natural bodies of water.

Shifting the focus to personal health protection in all natural water conditions as your best way to minimize risk presents challenges, particularly as past experience shows some residents relied solely on delayed lab results as real-time indicators of water quality. This made behaviour change difficult. To strengthen future messaging and approach, OPH collected feedback throughout the beach season from residents, RCFS, elected officials, and community partners, including the Ottawa Riverkeeper, academia, and the Rideau Valley Conservation Authority. These insights will inform improvements to next season's communications strategy.

## **RURAL IMPLICATIONS**

There are no rural implications of this report.

## **CONSULTATION**

As described above, OPH held meetings with all City Councillors whose wards include public beaches. These meetings were conducted prior to the start of the beach season and served to inform Councillors of the planned changes, provide background on the rationale, and solicit feedback. This proactive engagement helped ensure that elected officials were well-informed and able to respond to constituent inquiries with confidence.

In addition, a working group was established early in the year in collaboration with Recreation, Culture and Facility Services (RCFS) to support planning and communications efforts.

As directed by the Board of Health motion, OPH met with partners on August 21<sup>st</sup>, 2025 to discuss the draft findings of the comparative analysis of the relative risk of daily vs weekly water testing. Attendees included employees from OPH and RCFS, Carleton University Professor Banu Ormeci, the Rideau Valley Conservation Authority, the Ottawa Riverkeeper and Board of Health Chair Councillor Kitts. Partners provided OPH with valuable feedback on the comparative analysis as well as OPH's communications approach to inform Ottawa residents about water safety.

**LEGAL IMPLICATIONS**

There are no legal impediments to receiving the information in this report and implementing the recommendations in this report.

**RISK MANAGEMENT IMPLICATIONS**

OPH's beach water sampling program complies with the Ontario Public Health Standards. Historical sampling at Ottawa municipal beaches demonstrates that Ottawa's beach water is generally good and the risk of water-borne illness remains low. The revised strategy focuses on educating residents about water safety and promoting informed decision making when choosing to swim in natural bodies of water.

**FINANCIAL IMPLICATIONS**

There are no financial implications associated with this report.

**ENVIRONMENTAL IMPLICATIONS**

**There are no known environmental implications.**

**ALIGNMENT WITH OTTAWA PUBLIC HEALTH STRATEGIC PRIORITIES**

This report aligns with Ottawa Public Health's strategic priorities by promoting health equity through improved access to safe recreational spaces, enhancing public health surveillance with real-time environmental monitoring, engaging the community through multilingual education and outreach, and preventing illness and injury by shifting focus toward broader water safety measures like drowning prevention and personal health precautions.

**DISPOSITION**

Ottawa Public Health will continue to lead the weekly beach water sampling program and public education efforts. A communications plan will support ongoing updates to residents through signage, media, and the OPH website. The City Clerk will be advised of the Board's decision, and no by-law is required to implement the recommendations.