

Item 10.3.1

A Model CSO Alert

Environment and Sustainability Standing Committee
Halifax City Council Presentation
September, 2nd 2021



Presenters:
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Or Denmark, Swim Drink Fish

Reference [Report](#)

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Why a model CSO alert?

Model alert meant to:

- Support the public's right to know about the health of their local waterways so they can make informed decisions about how they want to use those spaces for recreation
- assist other organizations/community groups to advocate for real-time CSO notification in their cities and towns
- constitute a helpful tool in raising public awareness about CSOs and their environmental impact
- Show municipalities and other local authorities how potentially simple it can be to design and implement proactive public alert systems

Advocating for other municipalities to report: Developing the model CSO alert

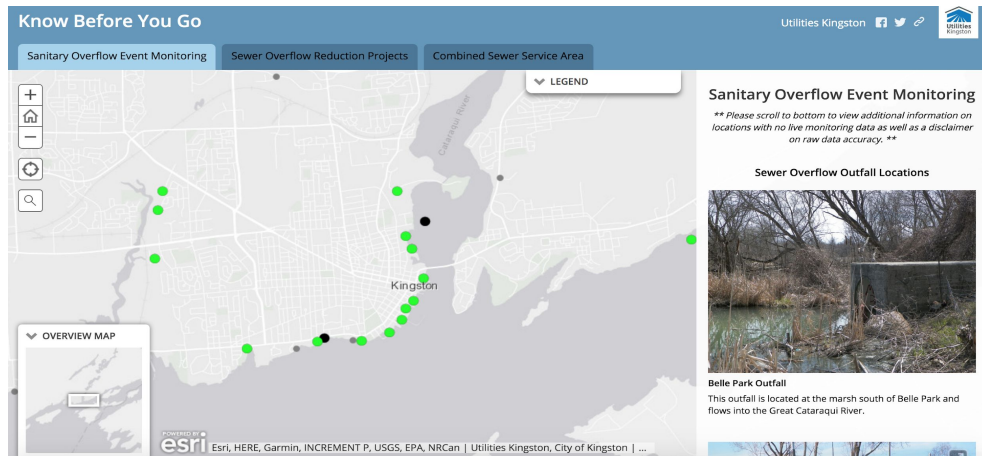
- Prepared in consultation with several members of the US-Canadian Great Lakes Network:
 - Lake Ontario Waterkeeper, Ottawa Riverkeeper, Ontario Rivers' Alliance, Buffalo Niagara Waterkeeper, Alliance for the Great Lakes, Fresh Water Alliance
- The model alert based on US Environmental Protection Agency (EPA) proposed public notification requirements for CSO events in the Great Lakes Basin
 - Implementing s. 425 of Consolidated Appropriations Act and the Federal Water Pollution Control Act (ss. 1314(1), 1318, 1342, 1361(a))
 - EPA requirements mandatory as permit conditions for CSO owners/operators
- The model alert was drafted for use in Ontario, however, this presentation contains updates to enable use on the west and east coasts

Advocating for other municipalities to report: Developing the model CSO alert

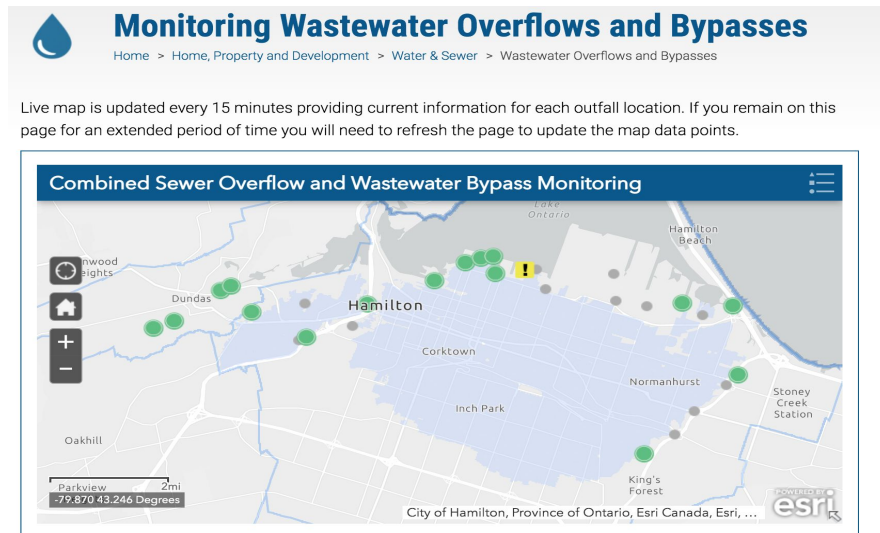
- Most Canadian cities already required to collect most of the information specified in the model alert
 - E.g. Wastewater Systems Effluent Regulations (under the *Fisheries Act*), Ontario Ministry of Environment, Conservation, and Parks Procedure F-5-5, British Columbia's Municipal Wastewater Regulation, and the Atlantic Canada Wastewater Guidelines Manual
- The only new requirements in this alert:
 - Real-time reporting to the public (not just government agencies) and a public online interface
 - Monitoring required over modelling (generally this legally required, but some municipalities have been effectively exempt)

Several municipalities already proactively reporting CSO events

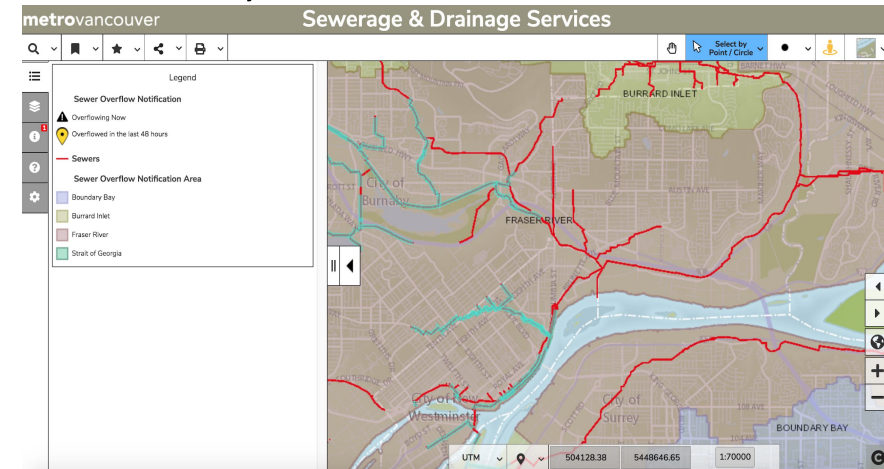
- Kingston, ON



- Hamilton, ON



- Vancouver, BC



- Sudbury, ON



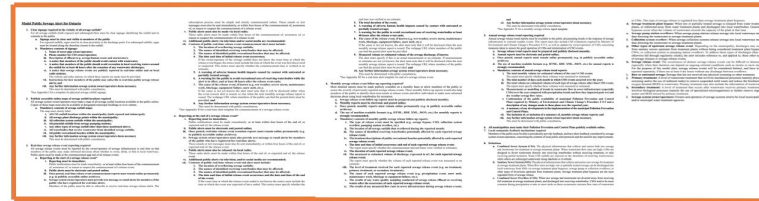
Overview of the 3 sections of the model alert

• Introduction



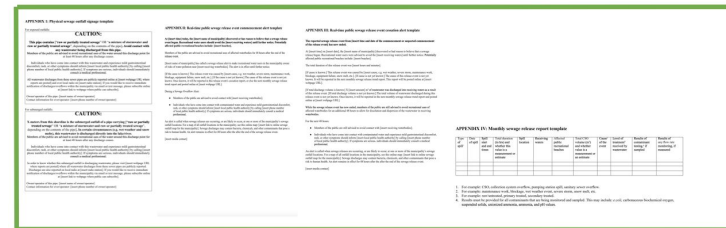
- Legal and policy context
- Descriptions and rationale for each section of the bylaw template

• Alert template



- Legal language to help inform future municipal bylaws/permits
- Outlines exact reporting requirements (incl. frequency and content of notices)

• Appendices with notice templates



- Language and content for public notices (incl. outdoor signage and online notices)

Walking through the draft alert: section 1

1. Clear signage required in the vicinity of all sewage outfalls

For all sewage outfalls (both exposed and submerged) there must be clear signage identifying the outfall and its contents to the public.

- a) Signage must be clear and visible to members of the public For exposed outfalls, signs must be in close proximity to the discharge point. For submerged outfalls, signs must be located along the shoreline closest to the outfall.
- b) Mandatory contents of signage:
 - i. Name of sewer pipe owner/operator;
 - ii. Phone number for CSS owner/operator;
 - iii. Description of effluent (e.g. sewage/human waste and stormwater);
 - iv. A notice that members of the public should avoid contact with wastewater;
 - v. A notice that members of the public should avoid recreation in local receiving waters around the outfall for at least 48 hours after the cessation of any wastewater discharges;
 - vi. A notice that sewage release events are publicly reported in real-time online and on local radio stations; The website and radio stations on which these reports are made must be provided.
 - vii. Instructions for how members of the public may subscribe to real-time public sewage release alerts; and
 - viii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix I: template for outdoor outfall signage

For exposed outfalls:

CAUTION:

This pipe contains [“raw or partially treated sewage” OR “a mixture of stormwater and raw or partially treated sewage”, depending on the contents of the pipe]. Avoid contact with any wastewater being discharged from this pipe.

Members of the public are advised to avoid recreational uses of the water around this discharge point for at least 48 hours after any discharge ceases.

Individuals who have come into contact with this wastewater and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

All wastewater discharges from these sewer pipes are publicly reported online at [insert webpage URL where reports are posted] and over local radio on [insert radio station]. If you would like to receive immediate notification of discharges/overflows within the municipality via email or text message, please subscribe online at [insert link to webpage where public can subscribe].

Owner/operator of this pipe: [insert name of owner/operator]

Contact information for over/operator: [insert phone number of owner/operator]

For submerged outfalls:

CAUTION:

X meters from this shoreline is the submerged outfall of a pipe carrying [“raw or partially treated sewage” OR “a mixture of stormwater and raw or partially treated sewage”, depending on the contents of the pipe]. In certain circumstances (e.g. wet weather and snow melts), this wastewater is discharged directly into the lake/river.

Members of the public are advised to avoid recreational uses of the water around this discharge point for at least 48 hours after any discharge ceases.

Individuals who have come into contact with this wastewater and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

In order to know whether this submerged outfall is discharging wastewater, please visit [insert webpage URL where reports are posted] where all wastewater discharges from these sewer pipes are publicly reported.

Discharges are also reported on local radio at [insert radio station]. If you would like to receive immediate notification of discharges/overflows within the municipality via email or text message, please subscribe online at [insert link to webpage where public can subscribe].

Owner/operator of this pipe: [insert name of owner/operator]

Contact information for over/operator: [insert phone number of owner/operator]

Walking through the draft alert: section 2

2. Publicly accessible online maps of sewage outfall locations required

All sewage system owner/operators must make a map of all sewage outfall locations available to the public online. Copies of these maps must also be available at designated municipal buildings or civic centres.

- a) Mandatory contents of sewage outfall maps: The map must clearly label:
 - i. All CSS outfall locations within the municipality (both exposed and submerged);
 - ii. All sewage plant discharge points within the municipality;
 - iii. All collection system outfalls within the municipality;
 - iv. All potential outfalls from sewage pumping stations;
 - v. Any other types of sewage outfall other than those mentioned above;
 - vi. All waterbodies that receive wastewater from identified sewage outfalls;
 - vii. All public recreational beaches within the municipality;
 - viii. Any further information sewage system owner/operators deem necessary This must be determined with public consultation.

Walking through the draft alert: section 3a

3. Real-time sewage release event reporting required

All sewage release events must be reported by the owner/operator of sewage infrastructure in real time so that members of the public may make informed decisions about whether to swim, drink, or fish in local waterways. Public alerts must be made at the commencement and end of all release events.

a) Reporting at the start of a sewage release event

- i. Reporting must be immediate; Public notifications must be made immediately, or at least within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event;
- ii. Public alerts must be electronic and posted online;
- iii. Once posted, real-time release event commencement reports must remain online permanently (e.g. in publicly accessible online archives);
- iv. Sewage system owner/operators must provide text message or email alerts for members of the public who have registered for real-time alerts; Members of the public must be able to subscribe to receive real-time sewage release alerts. The subscription process must be simple and clearly communicated online. These emails or text messages must also be sent immediately, or within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event.
- v. Public alerts must also be made via local radio; These radio alerts must be made within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event.
- vi. Additional public alerts via television and/or social media are recommended;
- vii. Contents of public real-time release event commencement alert must include:
 1. The location of overflowing sewage outfalls;
 2. The names of identified receiving waterbodies that may be affected;
 3. The names of identified public recreational beaches that may be affected;
 4. The date and time of initial release event occurrence; If the owner/operator of the sewage outfall does not know the exact time at which the release event began, the notice must include the time at which the event was first discovered or suspected. This notice must specify whether the commencement time is verified or an estimate;
 5. A warning of adverse human health impacts caused by contact with untreated or partially treated sewage;
 6. A warning for the public to avoid recreational uses of receiving waterbodies while the alert is in effect, and at least 48 hours after the release event ends;
 7. The cause of the release event, if known (e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.); If the cause is not yet known the alert must note that it will be disclosed either when the event cessation alert is issued, or else when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alerts must be provided. and
 8. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation

Appendix II: template for release event reporting

At [insert time] today, the [insert name of municipality] discovered or has reason to believe that a sewage release event began. Recreational water users should avoid the [insert receiving waters] until further notice. Potentially affected public recreational beaches include: [insert beaches].

Members of the public are advised to avoid recreational uses of affected waterbodies for 48 hours after the end of the release event.

[Insert name of municipality] has called a sewage release alert to make recreational water users in the municipality aware of risks of water pollution near [insert receiving waterbodies]. The alert is in effect until further notice.

[If the cause is known:] This release event was caused by [insert cause, e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.]. [If the cause is not yet known:] The cause of this release event is not yet known. Once known, it will be reported in this release event's cessation report, or else the next monthly sewage release trend report and posted online at [insert webpage URL].

During a Sewage Overflow Alert:

- Members of the public are advised to avoid contact with [insert receiving waterbodies].
- Individuals who have come into contact with contaminated water and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

An alert is called when sewage releases are occurring, or are likely to occur, at one or more of the municipality's sewage outfall locations. For a map of all outfall locations in the municipality, see this online map: [insert link to online sewage outfall map for the municipality]. Sewage discharges may contain bacteria, chemicals, and other contaminants that pose a risk to human health. An alert remains in effect for 48 hours after the after the end of the sewage release event.

[insert media contact]

Walking through the draft alert: section 3b

b) Reporting at the end of a sewage release event*

- i. Reporting must be immediate; Public notifications must be made immediately, or at least within four hours of the end of, or expected end of, the release event.
- ii. Public alerts must be electronic and posted online;
- iii. Once posted, real-time release event cessation reports must remain online permanently (e.g. in publicly accessible online archives);
- iv. Sewage system owner/operators must also provide text message or email alerts for members of the public who have registered for real-time alerts; These emails or text messages must also be sent immediately, or within four hours of the end of, or expected end of, the release event.
- v. Public alerts must also be released via local radio; These radio alerts must be made within four hours of the end of, or expected end of, the release event.
- vi. Additional public alerts via television, and/or social media are recommended;
- vii. Contents of public real-time release event end alert must include:
 1. The location of overflowing sewage outfalls;
 2. The names of identified receiving waterbodies that may be affected;
 3. The names of identified public recreational beaches that may be affected;
 4. The date and time of initial release event occurrence and the date and time of the end of the event; If the exact time at which the release event ended is not known the notice must include the time at which the event was expected of have ended. This notice must specify whether the end time was verified or an estimate;
 5. The total duration of the event;
 6. A warning of adverse human health impacts caused by contact with untreated or partially treated sewage;
 7. A warning for the public to avoid recreational uses of receiving waterbodies at least 48 hours after the release event ends;
 8. The cause of the release event, if known (e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.); If the cause is not yet known, the alert must note that it will be disclosed when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alert must be provided.
 9. Measured volume or estimated volume of the sewage discharge, if known; The alert must specify if this is an actual measurement or an estimate. If measurements or estimates are not yet known, the alert must note that it will be disclosed when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alert must be provided. and
 10. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix III: template for release event reporting

The reported sewage release event from [insert time and date of the commencement or suspected commencement of the release event] has now ended.

At [insert time] on [insert date], the [insert name of municipality] discovered or had reason to believe that a sewage release began. Recreational water users were advised to avoid the [insert receiving waters] until further notice. Potentially affected public recreational beaches include: [insert beaches].

The total duration of this release event was [insert hours and minutes].

[If cause is known:] This release event was caused by [insert cause, e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.]. [If cause is not yet known:] The cause of this release event is not yet known. It will be reported in the next monthly sewage release trend report. This report will be posted online at [insert webpage URL].

[If total discharge volume is known:] X [insert amount] m³ of wastewater was discharged into receiving waters as a result of this release event. [If total discharge volume is not yet known:] The total volume of wastewater discharged during this release event is not yet known. Once known, it will be reported in the next monthly sewage release trend report and posted online at [insert webpage URL].

While the sewage release event has now ended, members of the public are still advised to avoid recreational uses of affected waterbodies for an additional 48 hours to allow for dissolution and dispersion of the wastewater in receiving waterbodies.

For the next 48 hours:

- Members of the public are still advised to avoid contact with [insert receiving waterbodies].
- Individuals who have come into contact with contaminated water and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

An alert is called when sewage releases are occurring, or are likely to occur, at one or more of the municipality's sewage outfall locations. For a map of all outfall locations in the municipality, see this online map: [insert link to online sewage outfall map for the municipality]. Sewage discharges may contain bacteria, chemicals, and other contaminants that pose a risk to human health. An alert remains in effect for 48 hours after the after the end of the sewage release event.

[insert media contact]

Walking through the draft alert: section 4

4. Monthly sewage release event follow-up reporting required

More detailed reports must be made publicly available on a monthly basis to allow members of the public to assess the severity of previously reported sewage release events. These monthly follow-up reports would also help members of the public to identify short-term trends in release events and allow individuals to make more informed decisions about using local waterbodies for recreation.

- a. Sewage release event follow-up reports must be prepared and publicly disclosed monthly;
- b. Monthly reports must be electronic and posted online;
- c. Once posted, monthly reports must remain online permanently (e.g. in publicly accessible online archives);
- d. The use of machine-readable formats (e.g. HTML, RDF, XML, JSON, etc.) for monthly reports is strongly recommended;
- e. Mandatory contents of monthly public sewage release follow-up reports:
 - i. The type of release event must be specified (e.g. sewage bypass, CSO, collection system overflow, pumping station overflow, etc.)
 - ii. The location of all sewage outfalls that overflowed during the reported month;
 - iii. The names of identified receiving waterbodies potentially affected by each reported sewage release event;
 - iv. The locations/descriptions of public recreational beaches potentially affected by each reported sewage release event;
 - v. The date and time of initial occurrence and end of each reported sewage release event; The report must specify whether the commencement and end times were verified or estimates;
 - vi. The duration of each reported sewage release event;
 - vii. The measured or estimated volume of discharge, expressed in m³, for each reported sewage release event; The report must specify whether the volume of each reported release event was measured or an estimate;
 - viii. The level of treatment received for each reported sewage release event (e.g. no treatment, primary treatment, or secondary treatment);
 - ix. The cause of each reported sewage release event (e.g. precipitation event, snow melt, maintenance work, blockage or equipment failure, etc.);
 - x. The results of any water quality sampling conducted of sewage release effluent or receiving waters after the occurrence of each reported sewage release event;
 - xi. The results of any measured flow rates in sewer infrastructure during sewage release events; and xii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix IV: template for monthly reporting

Type of spill ¹	Date of spill	Spill start and end times	Total duration (in hrs) and whether this value is a measurement or estimate	Spill location	Receiving waters	Affected public recreational beaches	Total CSO volume (m ³) and whether value is a measurement or an estimate	Cause ² of the event	Level of treatment ³ received by wastewater	Results of contaminant testing, ⁴ if sampled	Results of any flow rate monitoring, if measured

1. For example: CSO, collection system overflow, pumping station spill, sanitary sewer overflow.
2. For example: maintenance work, blockage, wet weather event, severe storm, snow melt, etc.
3. For example: raw/untreated, primary treated, secondary treated.
4. Results must be provided for all contaminants that are being monitored and sampled. This may include: *e.coli*, carbonaceous biochemical oxygen, suspended solids, unionized ammonia, ammonia, and pH values.

Walking through the draft alert: section 5

5. Annual sewage release trend reporting required

Annual sewage release trend reports must be available to the public documenting trends in the response of sewage infrastructure to external weather events. This report must also include CSS evaluations required by Ministry of Environment and Climate Change's Procedure F-5-5, as well as updates by owner/operators of CSSs concerning measures taken to ensure the good operation of CSSs and minimization of CSO events.

- a. Sewage release trend reports must be prepared and publicly disclosed annually;
- b. Annual reports must be electronic and posted online;
- c. Once posted, annual reports must remain online permanently (e.g. in publicly accessible online archives);
- d. The use of machine-readable formats (e.g. HTML, RDF, XML, JSON, etc.) for annual reports is strongly recommended;
- e. Mandatory contents of annual sewage release trend reports:
 - i. The total monthly volume (or estimated volume) of the year's CSO events; The report must specify whether these volumes were measured or estimated;
 - ii. The total number of days each month in which CSO events occurred over the year;
 - iii. The total volume (or estimated volume) of each type of sewage release other than CSO events; The report must specify whether these volumes were measured or estimated;
 - iv. Measurements or modelling of trends in wastewater flow in sewer infrastructure (especially CSSs) over the year compared with precipitation trends and how they impacted peak wet and dry weather sewage flow rates;
 - v. Confirmation of the public availability of municipal Pollution Prevention and Control Plans required by Ministry of Environment and Climate Change's Procedure F-5-5 and a description of any changes made to these plans over the reported year;
 - vi. A summary of any developments in the implementation of the municipal Pollution Prevention and Control Plans;
 - vii. The inclusion of, or inclusion of a summary of, monthly sewage release reports; and
 - viii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation¹⁸

Walking through the draft alert: section 6 - 8

6. All municipalities must make their Pollution Prevention and Control Plans publicly available online.

7. Local community feedback mechanisms required Members of the public must be able to periodically provide feedback, and have their feedback considered by sewage system owners/operators, concerning the contents of local public alert protocols and the need for any improvements.

8. Definition section

Conclusion

- The model alert is an advocacy tool, a starting point for communities that want to see more action to address CSOs. Advocates can take what they need from the model and leave the rest
- The requirements in this model alert are not significantly more than what's already required by law, and the model does much of this policy bridging work for communities and municipalities
- Shows municipalities and other local authorities how potentially simple it can be to design and implement proactive public alert systems
 - Kingston, Sudbury, Hamilton, Seattle, Vancouver have shown that fulsome real-time sewage monitoring and reporting is possible, Calgary has eliminated CSOs altogether (Edmonton not far behind)
- This work supports the public's right to know about the health of their local waterways so they can make informed decisions about how they want to use those spaces for recreation

References:

Swimmable Waters in Your Community [Presentation](#)

Swim Guide - www.theswimguide.org

2018 [Toronto Water Monitoring Report](#)

2019 Water Monitoring [Report](#)

[Floating Trash Skimmers](#)

Vancouver 2020 Water Monitoring [Report](#)

Vancouver 2019 Water Monitoring [Report](#)

Swim Drink Fish Water Monitoring [Hubs](#)

WSER [Report](#)

The Impact of Sewage of the East Coast [Webinar](#)

CSO MODEL ALERT [11 page report](#)



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