

2023 Environmental Assessment Report

# Portrait of the Quality of Montréal's Water Bodies

Service de l'environnement





# A new interactive map for the Réseau de suivi du milieu aquatique (RSMA)

On June 29, 1999, the RSMA launched its first Web site displaying the results of its QUAŁO monitoring program of the quality of shoreline waters. Thanks to the weekly dissemination of its results, citizens henceforth were provided with the necessary tool to identify the locations suitable for direct contact water uses. In the summer of 2004, a new version of the interactive application was designed to allow one to consult all of the data of the RSMA's programs for the current year.

In 2023, the RSMA revamped its look and is pleased to present its new [interactive map](#) (available in French only) which allows for the consultation of its water quality results for the current year as well as the historical data of its QUAŁO and RUISSO monitoring programs (the water quality of streams and inland water bodies).

The interactive map, appearing after the introduction window, displays by default the monitoring stations of the QUAŁO sampling program for the current year.

After which, you can consult the map's user guide, a complete description of the programs, the RSMA's annual report as well as all of the analysis results published on Montréal's open data site by clicking on the links located on the upper right-hand side of the map using a computer and the "links" pictogram for a mobile device. Enjoy your consultations!

Montréal

Carte interactive du Réseau de suivi du milieu aquatique (RSMA)

Rechercher une adresse ou un lieu

Sainte-Thérèse

Bianville

Saint-Eustache

Laval

Montreal

Longueuil

Boucherville

Varennes

Tremblant

Pointe-Claire

Boréale d'Oak

Vaudreuil-Dorion

Pincourt

Saint-Constant

Beauharnois

Châteauguay

Saint-Cyr

Massicout

Saint-Jérôme

Point d'échantillonage: IBIZ-15 Parc Terrasse-Sainte-Coeur

Date et heure du prélèvement: 5 octobre 2023 06:48

Température (°C): 20.3

Conductivité (µS/cm): 89

pH: 7.3

Coliformes fécaux (UFC/100 ml): 38

Precipitations (mm) Total - dernier 60 h: 0.0

Conditions Météo: Temps sec

Entités sélectionnées: 0

Powered by Esri

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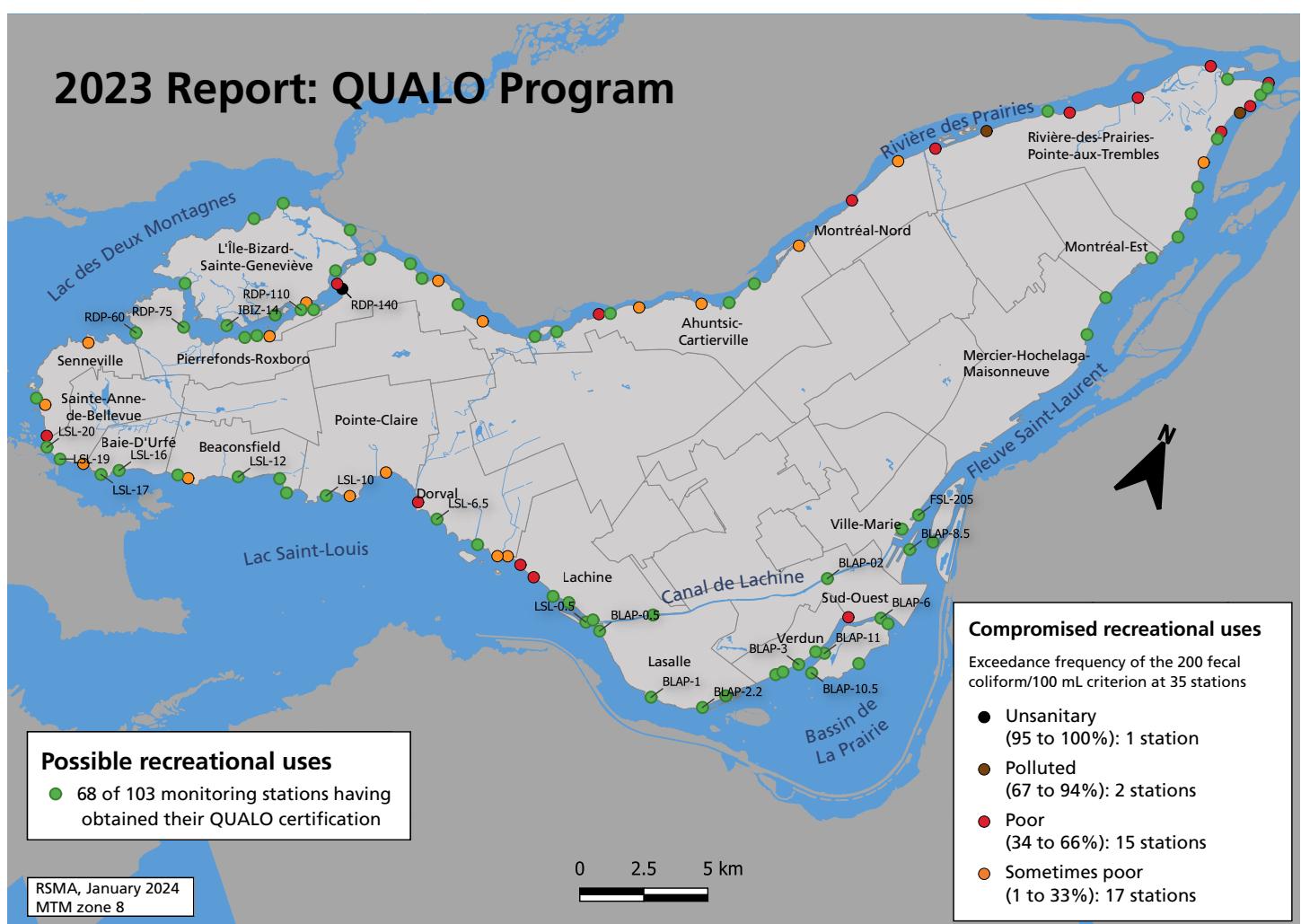
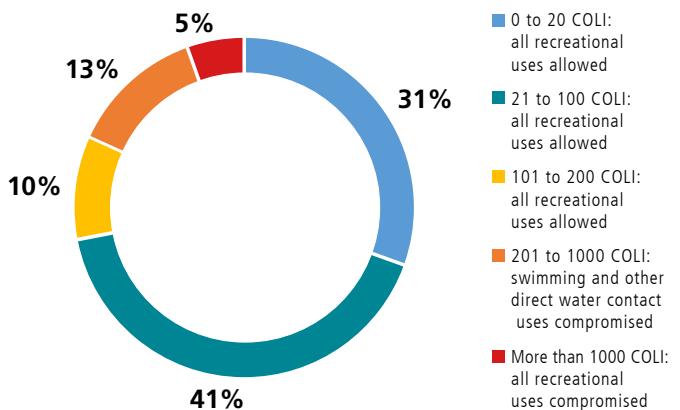
# QUALO Program: Shoreline Water Quality

The year 2023 marked the twenty-fifth year of the QUALO program. This monitoring program of the water's bacteriological quality was implemented over a 20-week period from May 23 to October 5. Since 2017, the same monitoring stations (103) took samples of five water bodies: 16 in Fleuve Saint-Laurent (FSL), 37 in Rivière des Prairies (RDP), 25 in Lac Saint-Louis (LSL), 17 in Bassin de La Prairie (BLAP) and 8 in Île Bizard (IBIZ).

Of the 2,059 bacteriological analyses conducted, 82% of the samples satisfied the quality criterion of 200 COLI<sup>1</sup> set by the MELCCFP<sup>2</sup> allowing for the practice of recreational activities involving a direct contact with water, whereas only 5% of the samples exceeded the criterion of 1000 COLI thereby compromising any recreational activity.

## Distribution of COLI results in 2023

MELCCFP water quality criteria for recreational uses



1. Fecal coliforms, in colony forming units (CFUs) per 100 mL

2. Ministère de l'environnement et de la Lutte contre les changements climatiques, de la Faune et des Parcs

Many factors have an impact on the bacteriological quality of shoreline waters, but the key factors are generally the prevailing climatic conditions and the water levels during their sampling. In 2023, total precipitations of 407 mm were recorded during the sampling season. This value is comparable to the average of 391 mm computed over the past 10 years. However, the proportion of samples taken in the 60-hour period following a rainfall occurrence of 8 mm or more was only of 10% compared to 22% in 2022. As far as the levels and flow rates of water bodies are concerned, they were close to the average of the past 10 years, except in conditions of high and low flow rates where their values exceeded said average.

In 2023, 66% of monitoring stations earned their QUAZO certification, compared to 58% in 2022. This value compares with the average of 65% recorded for the past 5 years. For a monitoring station to be QUAZO certified, it must fulfill the following two conditions: the geometric mean of all results must not exceed 200 COLI and no more than 10% of its samples may exceed 400 COLI, the equivalent of two authorized exceedances during the season.

When a monitoring station is QUAZO certified, the RSMA considers that its location is conducive to the practice of recreational activities involving direct water contacts, and this despite the fact that some exceedances of the threshold of 200 COLI may have been recorded during the sampling season. It's worthwhile mentioning that in 2023, 22 of the 68 QUAZO certified stations (see table of the locations allowing for their detection and the map of the QUAZO report for their location) obtained results of 200 COLI and less for all of the samples taken during

the season. Also, 7 of the 68 QUAZO certified stations have retained their certification since the inception of the program 25 years ago.

### **Locations allowing for recreational activities involving direct water contact**

<b>Stations with all results ≤200 COLI</b>	<b>QUAZO certified for the past</b>
LSL-10	25 years
LSL-16	25 years
LSL-19	25 years
BLAP-1	25 years
IBIZ-14	24 years
BLAP-0.5	22 years
RDP-110	21 years
RDP-75	18 years
BLAP-02	18 years
BLAP-6	17 years
LSL-20	17 years
BLAP-10.5	12 years
BLAP-2.2	9 years
BLAP-3.0	8 years
RDP-60	8 years
BLAP-11	6 years
LSL-0.5	5 years
LSL-17	5 years
LSL-6.5	3 years
BLAP-8.5	3 years
FSL-205	3 years
LSL-12	1 year



### **Parc de la Promenade-Bellerive**

On September 25, 2023, Montréal's Service des grands parcs, du Mont-Royal et des sports (SGPMS) published a notice informing the public about the beginning of an environmental assessment of a project submitted to the MELCCFP for the restoration of the shoreline of the Parc de la Promenade-Bellerive. This project focuses on three key areas:

1. ensure public safety and the protection of shoreline infrastructures;
2. preserve our natural heritage and improve the ecological functions, biodiversity and resilience of shorelines;
3. improve and diversify the access to water bodies.

The RSMA contributed to this important project, by implementing in 2023 a weekly sampling program in a new monitoring station located in the Parc de la Promenade-Bellerive on the shore of the Fleuve Saint-Laurent. This program aims to collect data in order to assess the water's quality on the basis of the bacterium Escherichia coli (E. coli) counts used as the water quality criterion for swimming as established by the MELCCFP.

## Fleuve Saint-Laurent

In 2023, the percentage of QUAZO certified stations in the Fleuve Saint-Laurent sector increased relative to 2022 and exceeded the average of 49% computed on the basis of the results of the past 25 years. The overall results obtained for this waterbody are in line with the general trend of the QUAZO program for 2023, with 81% of samples satisfying the quality criterion of 200 COLI and 6% exceeding the criterion of 1000 COLI.

75%  
QUAZO

## Rivière des Prairies

In 2023, 18 of the 37 monitoring stations, or 49%, earned their QUAZO certification. This percentage is greater than that obtained in 2022 (35%) and may be explained by the lesser number of samples taken under the influence of heavy rainfalls. Indeed, in 2023, only 9% of the samples were collected during the 24-hour period following rainfalls of 8 mm or more compared to 26% in 2022. In 2023, the monitoring station located in the Parc de la Rive Boisée (RDP-140) in Pierrefonds-Roxboro recorded the worst results of the QUAZO program with values equal to or greater than 1000 COLI for all 20 samples collected during the season. This monitoring station is obviously impacted by the sanitary waters of the illicit connections (IC) awaiting their correction.

49%  
QUAZO

## Île Bizard-Sainte-Geneviève

As in the past, the quality of the shoreline waters in this sector proved to be very good. The result of 88% was identical to that obtained in 2022. Only one station was unable to earn its QUAZO certification, namely the Parc Denis-Benjamin-Viger station. The rehabilitation work conducted on the Jacques-Bizard bridge located upstream may account for the poorer quality of the waters measured at this station.

88%  
QUAZO

## Lac Saint-Louis

The proportion of monitoring stations having earned their QUAZO certification in the Lac Saint-Louis sector is similar to that obtained in 2022, i.e. 56%. About a third of the monitoring stations (8 out of 25) of this water body obtained a result lower or equal to 200 COLI for all of their samples collected during the season. Consequently, these locations showed that they were conducive to the practice of direct water contact activities during their sampling.

60%  
QUAZO



Parc Antoine-Faucon, rivière des Prairies (station RDP-110)

## Bassin de La Prairie

The sector of the Bassin de La Prairie obtained a percentage of QUAZO certified stations greater than the average of 82% computed over the 25-year existence of the program. However, all of the samples collected at 9 of the 16 stations of this water body achieved a result lower than or equal to 200 COLI, thus respecting the criterion allowing for all water recreational activities including swimming. Only that monitoring station affected by the wastewater control structure of the Saint-Pierre collector failed to earn its QUAZO certification, given that 6 exceedances of the 400 COLI criterion were recorded during the sampling season.

94%  
QUAZO

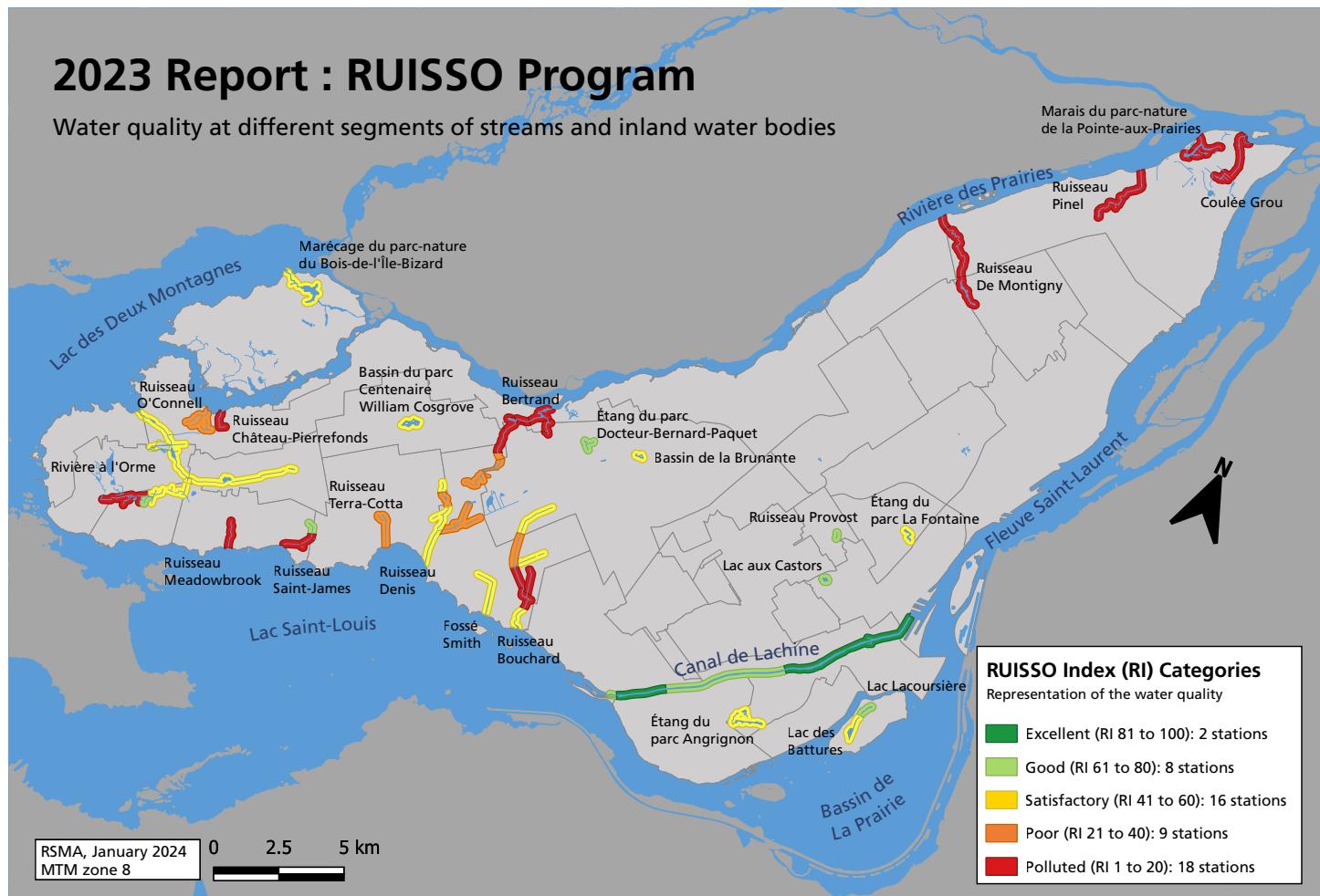
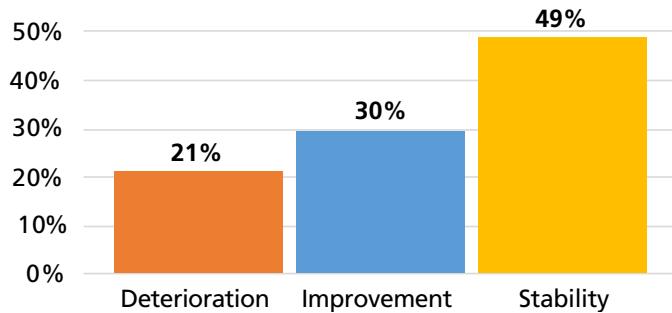


# RUISSO Program : Water Quality of Streams and Inland Water Bodies

In 2023, the monitoring of the bacteriological and physicochemical quality of the 25 streams and inland water bodies was continued on the Island of Montréal. A total of 53 monitoring stations were sampled on seven occasions from May 30 to October 24. The quality of streams and inland water bodies is assessed using the RUISSO index (RI), calculated on the basis of the results of the 24 parameters measured. These parameters include the major metals, phosphorus, ammoniacal nitrogen, dissolved oxygen, suspended matters (SM) and COLI. The RI is calculated using 8,893 measurements and the results of the physicochemical and bacteriological analysis conducted on the 371 samples collected during the season.

Based on the RI results, the water quality improved at 16 of the 53 stations (30%) compared to 2022. However, it deteriorated at 11 stations (21%) and remained stable at the remaining 26 (49%).

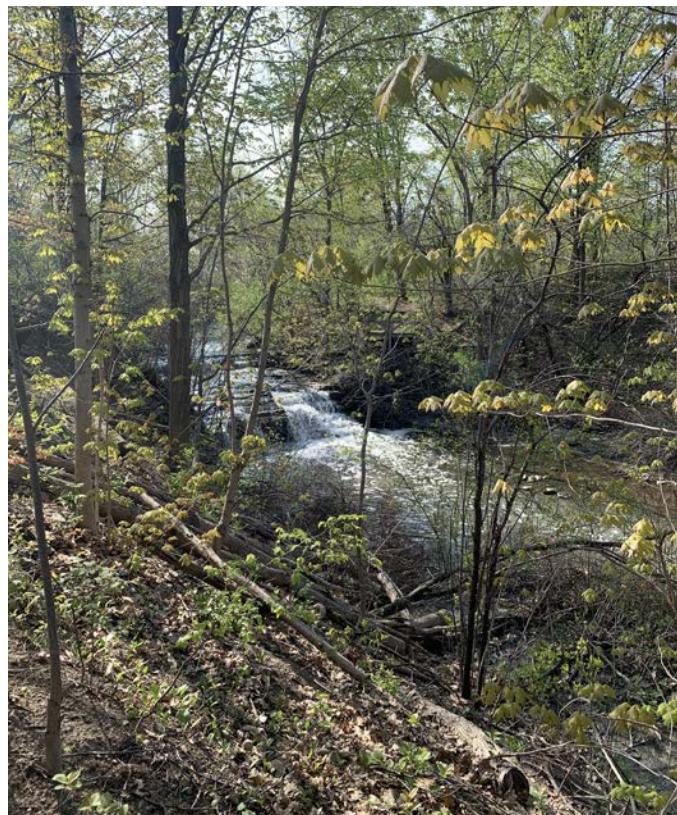
## Evolution of the water quality at the 53 stations compared to 2022



Overall, the results obtained in 2023, relative to those of the previous year, show an improvement in the water quality of 9 of the 25 streams and inland water bodies, a stability in 11 of them and a deterioration in the last 5.

## A decline in the RUISSO Index (RI)

In 2023, the marsh of the **Bois-de-L'Île-Bizard Nature Park (↓ RI of 13 points)** obtained its lowest RI since the beginning of its monitoring. The measured phosphorus contents were equal to or exceeded the criterion of 30 µg/L in over half of the samples collected. High phosphorus contents generally tend to accelerate the eutrophication of an environment by fostering the proliferation of aquatic plants. Presently, considering that it is a marsh, their waters present a good bacteriological quality and satisfactory physico-chemical characteristics.



Ruisseau De Montigny

The phosphorus contents measured at the **Ruisseau De Montigny (↓ RI of 17 points)** stations were the highest ever since the beginning of the monitoring program. Their contents resulted in a deterioration of the waters' quality, their categorization being downgraded from "poor" to polluted". In 2024, a special screening program

## Classification according to the RUISSO Index

Streams and inland water bodies	RI 2023	RI 2022	Evolution of the RI*
Étang du parc Dr-Bernard-Paquet	77	73	=
Ruisseau Provost	77	80	=
Canal de Lachine	77	71	+
Lac aux Castors	75	86	-
Lac Lacoursière	68	69	=
Étang du parc Lafontaine	59	63	=
Lac des Battures	53	53	=
Fossé Smith	53	20	+
Étang du parc Angrignon	52	61	-
Bassin de La Brunante	48	38	+
Marécage du parc-nature du Bois-de-l'Île-Bizard	47	60	-
Rivière à l'Orme	46	39	+
Bassin du parc Centenaire William Cosgrove	42	34	+
Ruisseau Saint-James	40	18	+
Ruisseau O'Connell	39	30	+
Ruisseau Denis	36	30	+
Ruisseau Terra-Cotta	36	39	=
Ruisseau Bouchard	34	28	+
Ruisseau Bertrand	27	25	=
Ruisseau Meadowbrook	20	19	=
Ruisseau Pinel	20	30	-
Ruisseau Château-Pierrefonds	18	16	=
Marais du parc-nature de la Pointe-aux-Prairies	15	19	=
Coulée Grou	14	18	=
Ruisseau De Montigny	5	22	-

\* The evolution is characterized as stable when the reading of the RI from one year to another reveals a variance of less than 5 points.

█ Excellent (RI 81 to 100)

█ Good (RI 61 to 80)

█ Satisfactory (RI 41 to 60)

█ Poor (RI 21 to 40)

█ Polluted (RI 1 to 20)

will be implemented by the Service de l'environnement in order to determine the origin of the contaminant. It is noteworthy that the bacterial contamination arising from the discharges of sanitary waters by illicit connections (IC) awaiting a correction also adversely impact the water quality of Ruisseau De Montigny.

All of the samples collected at the **Lac aux Castors** (**↓ RI of 11 points**) monitoring station showed a good bacteriological quality. The decline observed in the RI of this urban marsh is mainly due to the exceedances measured relative to the phosphorus and pH criteria.

The quality of the waters of **Ruisseau Pinel** (**↓ RI of 10 points**), located in a residential area, deteriorated in the past three years, being downgraded from the "poor" to the "polluted" category. The high COLI, phosphorus and suspended matter (SM) values measured during the sampling season are responsible for the decline in quality reflected by the RI. The poor practices observed at the properties bordering the stream (gardens, swimming pools and the storing of earth) certainly contribute to the increase in the quantities of contaminants found in this stream.

The water quality of the **Parc Angrignon pond** (**↓ RI of 9 points**) deteriorated, being downgraded from the "good" to the "satisfactory" category. Its inadequate water intake, resulting in the low water levels observed throughout the sampling season, certainly

contributed to the degradation observed. The low percentages of dissolved oxygen and the high values of pH measured in this water body resulted in a decline of its RI.

## An increase in the RUISSO Index (RI)

In 2023, fewer SM in **Fossé Smith** (**↑ RI of 33 points**) resulted in an improvement in the quality of the waters now listed in the "satisfactory" category. High levels of COLI and phosphorus remain the limiting parameters for the quality of the stormwaters that drain into this ditch.

Unlike last year, the quality of the **Ruisseau Saint-James** (**↑ RI of 22 points**) waters improved and were upgraded from the "polluted" to the "poor" category. The increase in RI is mainly due to the better results obtained at the monitoring station near Autoroute 20. As far as the monitoring station near the mouth of Lac Saint-Louis is concerned, its water quality is still affected by the sanitary waters originating from the illicit connections awaiting a correction.

## Plan régional des milieux humides et hydriques (PRMHH)

The Plan régional des milieux humides et hydriques (PRMHH) project sponsored by the Agglomeration of Montréal was designed to satisfy the requirements of the Loi concernant la conservation des milieux humides et hydriques (LCMH ; LQ, 2017, ch. 14) and was submitted for approval to the MELCCFP on December 15, 2023.

The key objectives set forth in the PRMHH aim to:

- protect 88% of the wetlands of the land territory (583 hectares) as well as a buffer zone of 30 metres around these environments;
- create and restore the wetlands and water environments in order to contribute to the zero net loss objective;
- support the durable use of 9% of wetlands in permanent agricultural zones (59 hectares).

The PRMHH project and the draft regulation modifying the Schéma d'aménagement et de développement (SAD) that accompanies it were adopted by the Agglomeration Council in March 2024.



Rivière à l'Orme



Bassin de la Brunante

The waters of **Bassin de la Brunante (↑ RI of 10 points)** proved to be of better quality and were relisted in the "satisfactory" category. A decline in the presence of the avian fauna and the fact that samples were mainly collected in dry conditions likely explain this improvement. As was the case last year, SM and phosphorus remain the limiting factors for the waters of this pond.

The quality of the waters of **Ruisseau O'Connell (↑ RI of 9 points)**, while improving, remained in the "poor" category. The main limiting parameter for this stream is phosphorus, whose concentrations greater than the "satisfactory" criterion of 30 µg/l were measured in all of the samples collected.

The quality of the waters of **Bassin du parc Centenaire William Cosgrove (↑ RI of 8 points)** sufficiently improved to be upgraded to the "satisfactory" category. Nevertheless, this water body is still affected by the sanitary waters of illicit connections in need of a correction and the high levels of phosphorus and SM measured therein.

After two years in the "poor" category, the quality of the waters of **Rivière à l'Orme (↑ RI of 7 points)** reclaimed their status of "satisfactory". Indeed, their RI of 46 obtained in 2023 is comparable to the average of 43 computed over the past 16 years. However, phosphorus, dissolved oxygen and COLI remain the limiting parameters for this water body.

## Restoration of Ruisseau Raimbault – A unique project in an urban setting

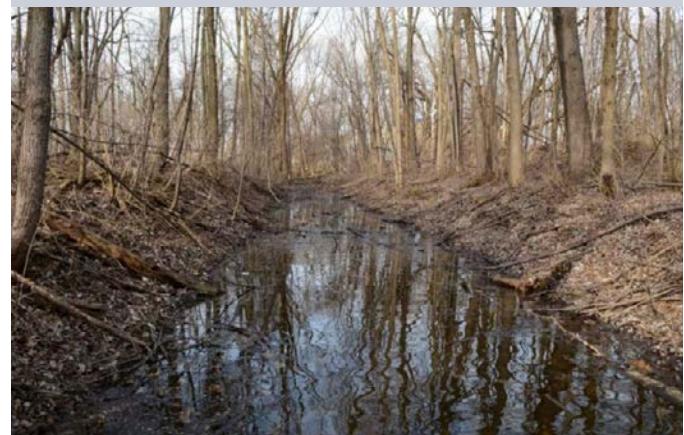
Ruisseau Raimbault is one of only three streams still remaining in the borough of Saint-Laurent (the others being the Brook and Bertrand streams). Partly channeled, with an intermittent flow, it is located in the wooded area of the Marcel-Laurin park in the heart of Saint-Laurent's Corridor de biodiversité.

Since 2023, the stream has been the subject of a water environment and wetlands restoration and creation project for which funding has been received from the MELCCFP.

Upon completion of the project, Ruisseau Raimbault will have been restored, its waters will flow freely and it will again become a habitat for aquatic fauna. This restoration project will also contribute to the attainment of the objectives of the Corridor de biodiversité de Saint-Laurent, consisting in fostering the fauna's migration and the dispersion of its flora, increasing their diversity and improving the territory's resilience to climate changes.

<https://montreal.ca/articles/corridor-de-biodiversite-de-saint-laurent-20825>

[Le parc Marcel-Laurin \(youtube.com\)](#)





# PLUVIO Program: Screening and Correction of Illicit Connections

The presence of illicit connections (IC) on the Island of Montréal is one of the main causes of the bacteriological contamination of watercourses in dry periods. The PLUVIO program, implemented in 2007, is intended to detect and correct the confirmed IC on the territory of the Agglomeration of Montréal.

IC may be due to a series of mistakes occurring during construction or renovation works, or seepage from damaged sanitary and stormwater conduits. IC allow sanitary waters to spill over into a stormwater sewer network, the earth, a ditch or a stream rather than into a sanitary sewer network.

IC are found in sectors served by a separate sewer network, i.e. a network that includes both a sanitary and stormwater system. About a third of the agglomeration's territory (mainly at both ends of the Island of Montréal, as well as Île des Sœurs and Île Bizard) are served by separate sewer systems. Also, 11 boroughs and 7 related cities on the territory of the Agglomeration of Montréal are impacted by this issue.

The inventory of stormwater networks conducted by the RSMA within the PLUVIO program resulted in the detection of 585 stormwater networks on the Island of Montréal. Sampling of these networks in dry conditions detected the presence of contamination in 192 networks out of a total of 585. Of these 192 problematic networks, 84 were found to be exempt of IC after further detailed studies revealing a contamination of a diffuse or animal origin. As far as the remaining 108 networks are concerned, 20 of the confirmed IC were corrected, whereas our screening and correction initiatives are ongoing for the remaining 88 networks.

## Status of the stormwater networks<sup>3</sup> (at December 31, 2023)

Non problematic networks	393	
Problematic networks	192	
<strong>Details of the problematic networks</strong>		
No illicit connections	84	
Corrected	20	104
Awaiting corrections	64	
Awaiting screening or validation	24	88
<strong>Total</strong>	<strong>192</strong>	

## Progress of the PLUVIO program

Since the beginning of the PLUVIO program, more than 20,000 addresses were detected and 1,293 IC were confirmed. Of this total, 728 IC were corrected, i.e. 56%.

In 2023, most of the work conducted by the related cities and boroughs was intended to validate the results of previous screenings in order to determine the origin of the sanitary contamination still present in certain stormwater networks.

## Overall progress in the correction of IC<sup>4</sup> (at December 31, 2023)

Territories	Addresses screened	Confirmed IC	Corrected IC	Non corrected IC
Related cities	10,073	378	319	59
Boroughs	10,389	915	409	506
<strong>Total</strong>	<strong>20,462</strong>	<strong>1,293</strong>	<strong>728</strong>	<strong>565</strong>

In terms of the territory of the Agglomeration of Montréal as a whole, 13 IC were corrected, of which 1 in Anjou, 2 in Montréal-Nord, 8 in Pierrefonds-Roxboro, 1 in Rivière-des-Prairies–Pointe-aux-Trembles and 1 in Sainte-Anne-de-Bellevue.

3. The number of networks may vary from one year to another, depending on the addition of new networks in the sectors under development or the modification of existing networks.  
4. The number of confirmed IC changes according to the information sent by the related cities and boroughs following their verifications.

To date, the related cities have corrected 84% of the IC confirmed on their territory and the boroughs have corrected 45% of their confirmed IC.

### Results of the corrective works by administration (at December 31, 2023)

Territories	Screened addresses	Confirmed IC	Corrected IC	Non corrected IC	Corrected IC (%)
(%)	60	10	3	7	30%
Anjou	282	26	5	21	19%
Île-Bizard-Sainte-Geneviève	1,547	46	28	18	61%
LaSalle	118	9	6	3	67%
Mercier-Hochelaga-Maisonneuve	0	0	0	0	0%
Montréal-Nord	991	67	12	55	18%
Pierrefonds-Roxboro	1,533	142	93	49	65%
Rivière-des-Prairies-Pointe-aux-Trembles	3,189	385	214	171	56%
Saint-Laurent	709	206	24	182	12%
Verdun	1,959	23	23	0	100%
Ville-Marie	1	1	1	0	100%
<b>Sub-Total Boroughs</b>	<b>10,389</b>	<b>915</b>	<b>409</b>	<b>506</b>	<b>45%</b>
Beaconsfield	54	10	10	0	100%
Dollard-des-Ormeaux	3,613	123	84	39	68%
Dorval	45	12	9	3	75%
Kirkland	6,232	209	195	14	93%
Pointe-Claire	98	12	11	1	92%
Sainte-Anne-de-Bellevue	30	11	10	1	91%
Senneville	1	1	0	1	0%
<b>Sub-Total Related cities</b>	<b>10,073</b>	<b>378</b>	<b>319</b>	<b>59</b>	<b>84%</b>



### Detailed screening and correction of IC in the City of Kirkland

The first step in the PLUVIO program consists in collecting samples from the stormwater networks in dry conditions in order to detect the presence of sanitary contamination. The pipes of buildings located in contaminated sectors are then subjected to an extensive screening relying on a dye, a camera inspection or other means to accurately detect the origin of the contamination.

The City of Kirkland distinguished itself in this regard by its thorough screening of all buildings located on its territory. Indeed, from 2009 to 2015, 6,134 addresses were screened and 195 IC corrected. Nevertheless, a validation of stormwater networks after the correction of IC yet again revealed the presence of a sanitary contamination. That is why, from 2018 to 2023, the City of Kirkland once again proceeded with the screening of 1,309 addresses. These screenings confirmed 14 new IC that will be corrected as soon as possible.

Thus, the City of Kirkland spared no effort to eliminate all sanitary contamination in its stormwater networks, thereby improving the water quality of its streams located in an urban setting.



Montréal.ca