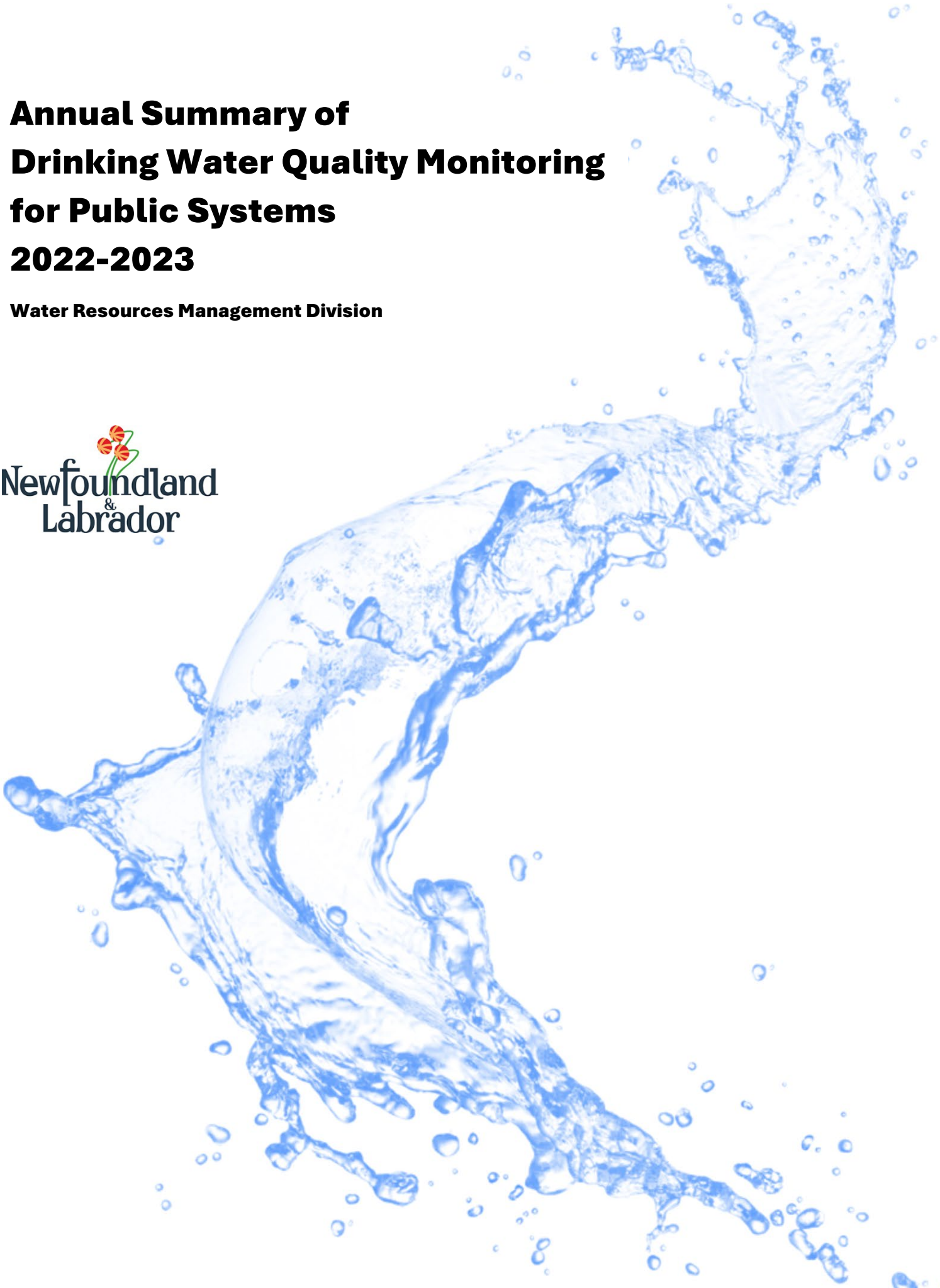
Annual Summary of Drinking Water Quality Monitoring for Public Systems 2022-2023

Water Resources Management Division

Newfoundland & Labrador



Background

Clean, safe drinking water is fundamental to the health, well-being, and economic prosperity of the people and communities of Newfoundland and Labrador. Guided by the Multi-Barrier Strategic Action Plan (MBSAP), the province's Drinking Water Program provides a comprehensive, adaptive framework that ensures a high standard of public drinking water quality. Safeguarding public drinking water systems involves extensive monitoring—from source to distribution—carried out collaboratively by several government departments and partners, including Environment and Climate Change (ECC), Digital Government and Service NL (DGSNL), and NL Health Services (NL Public Health and the Public Health Microbiology Laboratory).

Building on this strong foundation, the 2023 Drinking Water Safety Action Plan expands the principles of the MBSAP to encompass semi-public and private drinking water systems. Central to this concept of continuous improvement are 37 targeted actions designed to strengthen governance, infrastructure, risk management, regulatory oversight, community outreach, and research and innovation. These actions not only reinforce existing safeguards but also introduce new strategies to address emerging challenges—such as evolving environmental conditions, shifting public health standards, and advancements in treatment technologies.

Each action in the plan is supported by clear timelines and measurable indicators, enabling transparent reporting, informed decision-making, and collaborative engagement among government departments, communities, and stakeholders. By enhancing communication and public participation, the plan fosters a stronger, more resilient drinking water framework and helps maintain public confidence in the safety and reliability of the province's water supply.

This Annual Summary of Drinking Water Quality Monitoring for Public Systems (hereafter referred to as the '*Annual Monitoring Summary*') focuses on monitoring activities and water quality metrics for public drinking water systems. This summary report includes year-over-year data and insights on key performance indicators related to public drinking water quality. The Government of Newfoundland and Labrador remains committed to implementing corrective measures aimed at reducing Boil Water Advisories (BWAs) and addressing Non-consumption Advisories (NCAs). These efforts are ongoing and are designed to enhance public safety and protect community health.

CLICK HERE

If you would like to learn more about the 2023 Drinking Water Safety Action Plan.

https://www.gov.nl.ca/ecc/files/23074-Drinking-Water-Safety-Plan-April-10.pdf

Bacteriological Water Quality

Environmental Health Officers and Environmental Technicians with the Department of Digital Government and Service NL collect tap water samples from public drinking water systems for analysis of bacteriological parameters (total coliforms and Escherichia coli). These samples are analyzed through the NL Health Services laboratory network, which includes the Public Health Microbiology Laboratory and hospital laboratories. Figure 1 shows the total number of bacteriological samples that were collected and tested for each fiscal year since 2015-16.

During 2022-23, 18,191 public drinking water system bacteriological samples were collected and tested. Based on the analysis of bacteriological parameters for public drinking water system samples taken during the 2022-23 fiscal year, 575 samples were found to be unsatisfactory in terms of total coliforms and 110 samples were found to be unsatisfactory in terms of E. coli (Table 1). An unsatisfactory result indicates the presence of total coliforms and or E. coli bacteria counts in the sample.

Figure 1: Bacteriological Samples Tested per Fiscal Year

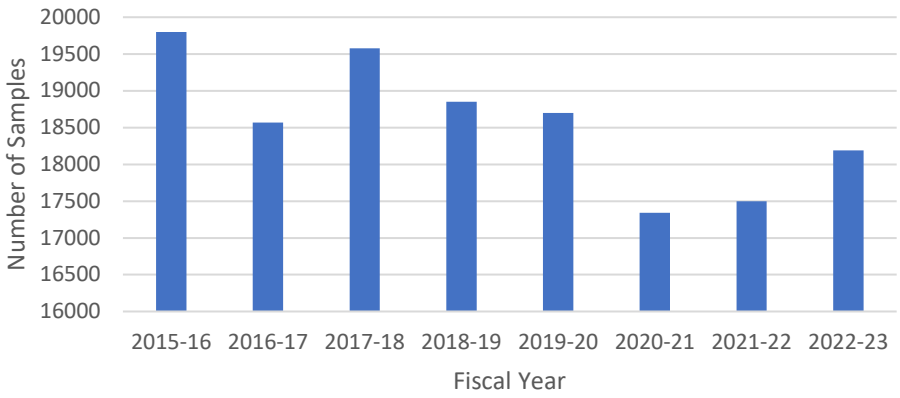


Table 1: Summary of Bacteriological Sampling for 2022-2023

Fiscal Year 2022-2023					
Number of public water system bacteriological samples for each region tested during the fiscal year:					
St. John's	Eastern	Central	Western	Northern	Total
7,436	1,150	3,943	3,394	2,268	18,191
Number of samples found to be unsatisfactory in terms of total coliforms by region:					
St. John's	Eastern	Central	Western	Northern	Total
136	84	146	121	88	575
Percentage (%) of public water system samples tested found to be unsatisfactory in terms of total coliforms: 3.16%					
Number samples tested found to be unsatisfactory in terms of E. coli by region:					
St. John's	Eastern	Central	Western	Northern	Total
16	22	17	40	15	110
Percentage (%) of public water system samples tested found to be unsatisfactory in terms of E.coli: 0.60%					

Boil Water Advisories

Boil Water Advisories (BWAs) are preventative measures designed to protect public health from microbiological contamination that may be present, or is confirmed to be present, in drinking water.

A BWA is issued when water quality becomes questionable due to operational deficiencies, such as insufficient chlorine residuals, the absence of a disinfection system, or the presence of bacteriological indicators like total coliforms in a community's water system. In such cases, the results are immediately communicated to affected communities for appropriate action. The information is also passed along to the Medical Officers of Health to advise that action has been taken with the community, and for any follow up that may be necessary by the public health system. The list of all active BWAs in is updated daily and is publicly accessible via: https://www.gov.nl.ca/ecc/waterres/drinkingwater/advisories/

On March 31, 2023, there were 189 BWAs in effect across the province. These advisories impacted 149 communities, affecting approximately 41,579 individuals—equivalent to about 9.4% of the population served by public water systems. Of these advisories, 125 were classified as long-term, having been in effect for five years or more.

Figure 2 shows a comparison of BWAs at the end of each fiscal year since March 31, 2016.

Figure 3 depicts the breakdown of BWAs issued on March 31, 2023, categorized by the underlying reasons for their issuance.

Figure 2: Number of BWAs and Number of Communities Affected

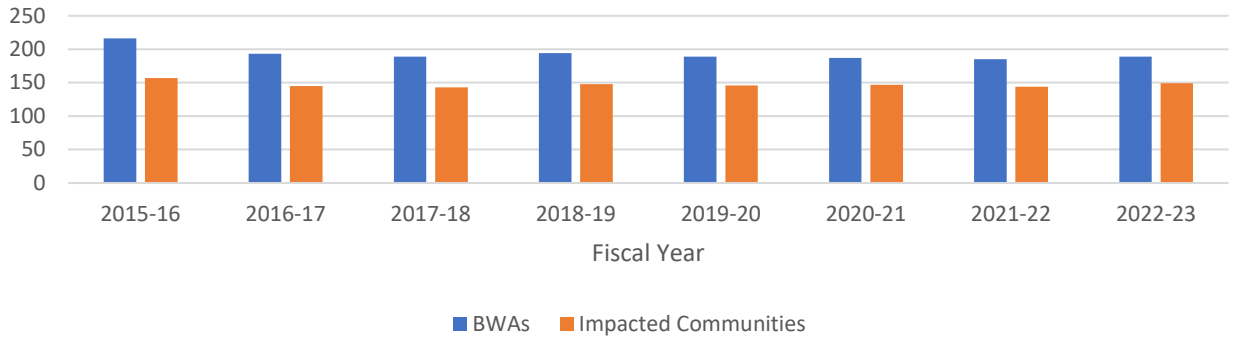
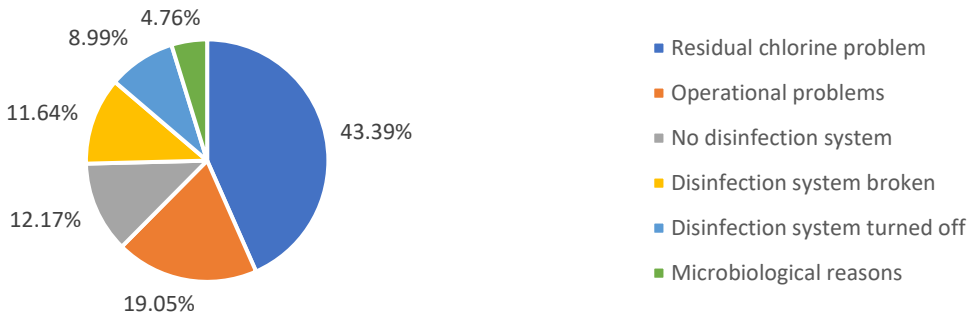


Figure 3: Reasons for BWAs



Chemical and Physical Water Quality

Staff within the Water Resources Management Division (WRMD) of the Department of Environment and Climate Change collect water samples from both source and tap locations to analyze chemical, physical, and radiological parameters. The number of chemical and physical water quality samples taken by region for 2022-23 are presented in Table 2. During 2022-23, WRMD collected a total of 3,825 samples.

Table 2: Number of Samples Taken by WRMD for 2022-23

Region	Source	Tap	THM	HAA	Total
Eastern	154	372	459	460	1445
Western	58	326	360	360	1104
Central	62	220	338	338	958
Labrador	25	64	112	112	313
Other (Special)	5	0	0	0	5

Analysis of chemical and physical parameters is conducted by an accredited laboratory, ensuring high standards of quality and competency in sample processing. Once the laboratory completes its analysis, the results are sent to the WRMD for evaluation. The WRMD assesses these results by comparing them to the drinking water quality guidelines used by the Government of Newfoundland and Labrador, which are based on the Guidelines for Canadian Drinking Water Quality (GCDWQ) developed by Health Canada. This comparison helps identify any exceedances in chemical or physical parameters that could pose risks to human health or affect the aesthetic quality of the drinking water. Table 3 provides a summary of chemical and physical parameter exceedances recorded from fiscal years 2017-18 to 2022-23.

When an exceedance is identified for a parameter that could pose a risk to human health, a detailed exceedance report is promptly issued to the affected community and shared with the Departments of Health and Community Services (HCS) and Digital Government and Service NL (DGSNL). Officials with these departments then consult with a Medical Officer of Health regarding the need to issue a Non-Consumption Advisory (NCA). Figure 4 provides a comparison of NCAs at the end of each fiscal year since March 31, 2016.

Figure 4: Non-Consumption Advisories

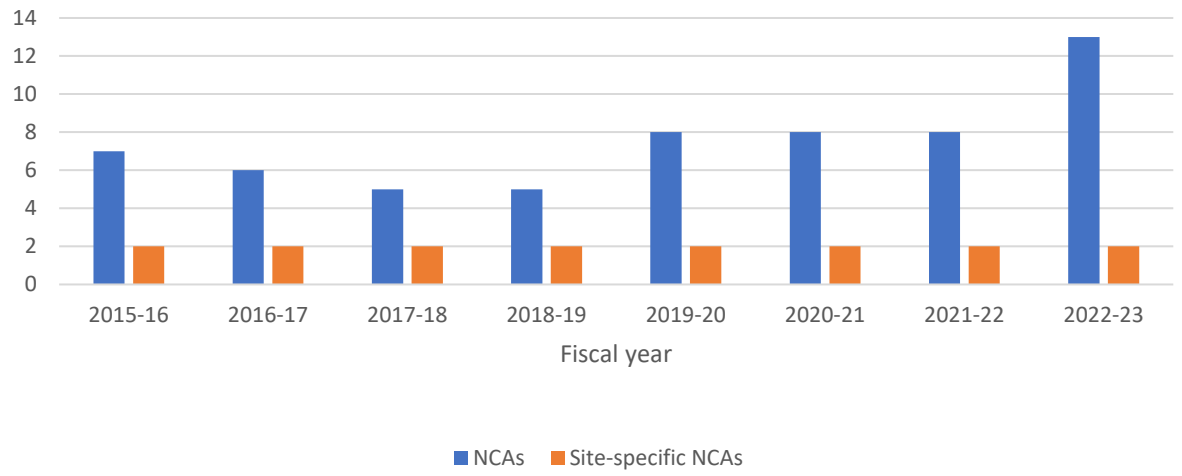


Table 3: Exceedances per Fiscal Year (2018-2019 to 2022-2023)

Chemical Parameters	MAC (mg/L)	Other Value	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Aluminum*	2.9	OG < 0.1	0	0	0	0	0
Antimony	0.006		0	0	0	0	0
Arsenic	0.01		5	5	9	1	5
Barium	2.0		0	0	0	0	0
Boron	5.0		0	0	0	0	0
Cadmium	0.007		0	0	0	0	0
Chloride		AO ≤ 250	5	4	3	3	2
Chromium	0.05		0	0	0	0	0
Copper	2.0	AO ≤ 1	1	0	2	3	2
Fluoride	1.5		1	2	1	0	0
Iron		AO ≤ 0.3	71	103	121	119	124
Lead	0.005		1	8	26	14	20
Manganese	0.12	AO ≤ 0.02	48	40	29	42	31
Mercury	0.001		0	0	0	0	0
Nitrate and Nitrite	10		0	0	0	0	0
Selenium	0.05		0	0	0	0	0
Sodium		AO ≤ 200	2	3	4	2	2
Strontium	7.0		0	0	0	0	0
Sulphate		AO ≤ 500	2	1	0	1	2
Uranium	0.02		0	0	0	0	0
Zinc		AO ≤ 5.0	0	0	0	0	0

** GCDWQ MAC for total aluminum in drinking water is 2.9 mg/L based on a locational running average of a minimum of quarterly samples taken in the distribution system. The exceedance number reported in the above table for aluminum is not based on quarterly sampling, rather it is based on semi-annual sampling of tap water quality.*

Physical Parameters	MAC (mg/L)	Other Value	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Colour	--	AO ≤ 15 TCU	437	416	446	449	424
pH	--	6.5-8.5	222	167	308	309	267
TDS	--	AO ≤ 500 mg/L	15	9	13	7	8
Turbidity	--	≤ 1.0 NTU	96	67	59	209	134

Disinfection By-Products (DBPs)	MAC (µg/L)	Other Value	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Trihalomethanes	100 *	None	114	131	144	179	169
Haloacetic Acids	80 *	None	137	128	156	156	137

** Expressed as a locational running annual average of quarterly samples, collected at a point of the highest formation potential. A minimum of four samples per year, one in each season are required to determine if a particular water supply meets or exceeds the recommended limit. The number reported in the table reflects the number of DBP exceedances in the last sampling season within the fiscal year (i.e. the winter sampling season that runs from January to March).*