



# DRINKING WATER SAFETY

in Newfoundland and Labrador

2018  
Annual Report

Newfoundland  
Labrador





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# EXECUTIVE SUMMARY

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The Multi-Barrier Strategic Action Plan (MBSAP) has three levels with various components in each level enhancing the safety of public drinking water systems in Newfoundland and Labrador as highlighted below. This report describes the initiatives, activities and accomplishments pertaining to the MBSAP for drinking water safety of public drinking water systems for the 2017–18 fiscal year. This is the 17th annual report prepared by the Department of Municipal Affairs and Environment, Government of Newfoundland and Labrador.

## Highlights of MBSAP component indicators for the 2017–18 fiscal year include:

### Level I Source Protection and Distribution

- 322 protected public water supply areas in the province
- 164 land use referrals reviewed for proposed activities concerning protected public water supply areas
- 72 permits issued for development activity in a protected public water supply area
- 5 watershed management committees
- 494 disinfection systems, 138 drinking water treatment systems, 20 water treatment plants (WTPs), and 30 potable water dispensing units (PWDUs)
- 149 permits issued to construct water and sewer infrastructure
- \$67,851,585 approved for water infrastructure projects

### Level II Monitoring and Enforcement

- 189 active boil water advisories (BWAs) as of March 31, 2018
- 19,576 bacteriological samples and 3932 chemical and physical water quality samples were collected
- Bacteriological and chemical drinking water quality exceedances recorded (Table 11)
- 1181 seasonal community updates were available through the water resources portal
- 130 regulatory inspections/investigations performed
- 20 education and 108 on-site training seminars conducted
- 508 certified water or wastewater system operators
- 294 participants at the 2018 Annual Drinking Water Safety Workshop
- Corrective measures undertaken (Table 16)

### Level III Public Policy

- Brochure - Do You Live within a Protected Public Water Supply Area?
- Brochure - Is Your Cottage within a Protected Public Water Supply Area?
- Brochure - Septic Systems within a Protected Public Water Supply Area.
- A video on Drinking Water Bacteriological Sampling Procedures
- A video on Flowmeter Readings
- A video on Hypochlorination
- A video on Water Distribution System Flushing

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Hon. Lisa Dempster  
Minister of Municipal Affairs  
and Environment

## MESSAGE FROM THE MINISTER

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As the Minister of Municipal Affairs and Environment, I am pleased to present the 2018 Annual Report on Drinking Water Safety in Newfoundland and Labrador.

Newfoundland and Labrador's Drinking Water Program is guided by the framework under the Multi-Barrier Strategic Action Plan, and it provides a comprehensive and adaptive outline for managing and ensuring the safety of public drinking water systems. This plan is a joint effort between the departments of Municipal Affairs and Environment, Health and Community Services, and Service NL, Regional Health Authorities, and the owners and operators of public water supply systems.

The Provincial Government is committed to supporting the provision of clean drinking water for Newfoundlanders and Labradorians. The department works with communities to reduce long-term boil water advisories and protect the integrity of their water systems. There are currently 508 certified water or wastewater system operators providing monitoring and enforcement for our drinking water supplies. The province helped communities reduce boil water advisories, and work continues to reduce these advisories further in our province.

I would like to congratulate the staff of the department and all partners for their tireless commitment and dedication to provide clean, safe, and reliable drinking water to the people of Newfoundland and Labrador.

Sincerely,

A handwritten signature in black ink that reads "Lisa Dempster". The signature is fluid and cursive.

Hon. Lisa Dempster  
Minister of Municipal Affairs and Environment

Drinking  
Water Safety in  
Newfoundland  
and Labrador

2018  
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# INTRODUCTION

This report highlights the initiatives, activities and accomplishments of the departments that implemented the Multi-Barrier Strategic Action Plan (MBSAP) in the 2017–18 fiscal year (April 1, 2017, to March 31, 2018). The report describes the three levels of the MBSAP and their various components (Figure 1). It illustrates how the Provincial Government is implementing the MBSAP.

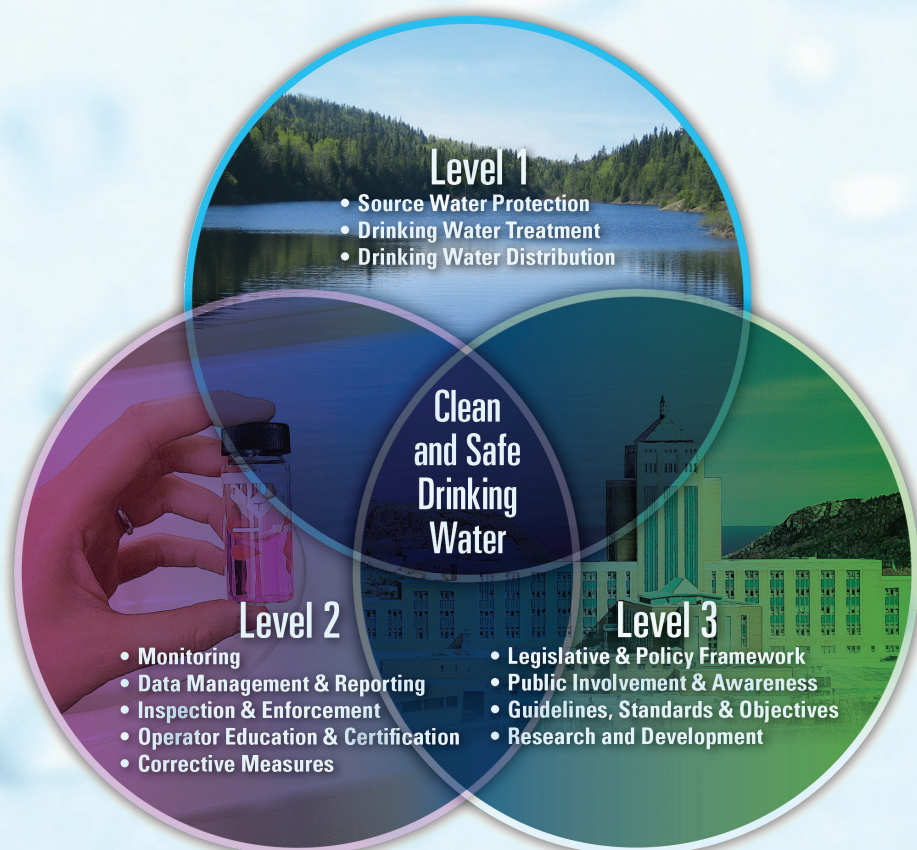
The MBSAP is considered to be the most effective method of managing drinking water systems and has been implemented by other jurisdictions throughout Canada.

The implementation of the MBSAP involves the collaborative efforts of three provincial government departments:

1. Municipal Affairs and Environment (lead department)
2. Health and Community Services
3. Service NL

In this report, indicators are reported for various components of the MBSAP. Information is reported for the current fiscal year alongside of previous fiscal years in order to evaluate performance of the existing drinking water framework. In addition, illustrations of technical work related to drinking water in this province are highlighted in special information boxes.

**Figure 1: The Multi-Barrier Strategic Action Plan**



# LEVEL I

The components of the first level of the MBSAP protect drinking water from the source to the tap.

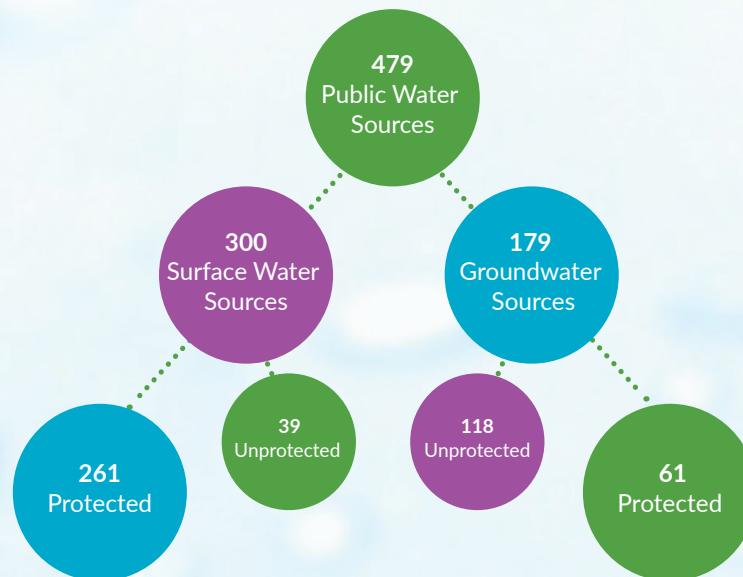
The three components of Level I of the MBSAP are:

1. source water protection
2. drinking water treatment
3. drinking water distribution

## Source Water Protection

Protected public water supply areas (PPWSAs) are protected under Section 39 of the Water Resources Act. These PPWSAs service a population of 411,636, representing 93 per cent of the population serviced by public drinking water systems. Figure 2 shows the status of public water sources for fiscal year 2017–18.

**Figure 2: Status of Public Water Sources**



The Department of Municipal Affairs and Environment encourages all communities to begin the protection process for new or existing drinking water sources if they have not already done so.

## Watershed Management

The Water Resources Management Division (WRMD) regulates development activities within protected public water supply areas. WRMD uses a number of tools to monitor such activities, including:

- referrals from the Interdepartmental Land Use Committee (ILUC), Fisheries and Land Resources (Crown Lands Administration Division) and, Natural Resources and other divisions within MAE (Environmental Assessment and Local Governance Division and Planning)
- permits for development activity
- watershed management plans
- watershed management committees
- community monitoring and inspections
- regulatory inspections



## Referrals

In the 2017–18 fiscal year, the WRMD processed 164 referrals from various departments for proposed activities concerning PPWSAs as outlined in Table 1.

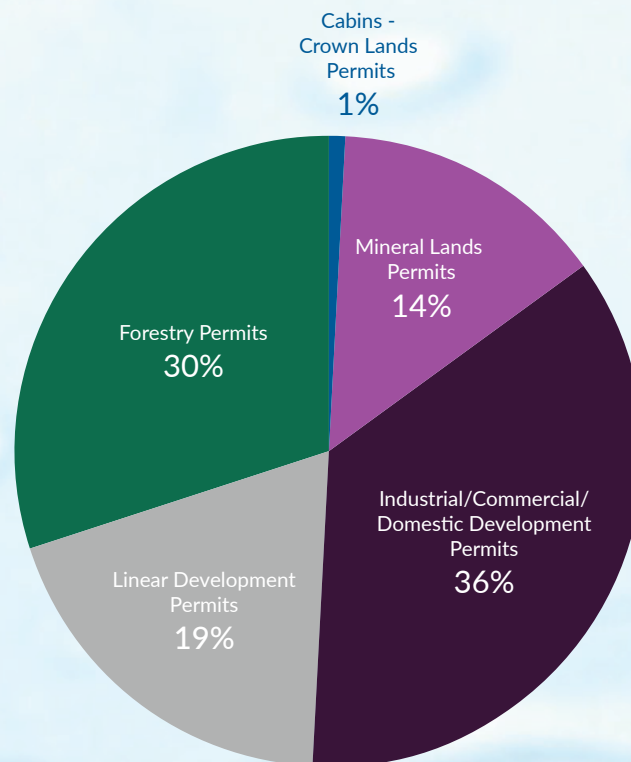
**Table 1: Number of Referrals Processed**

Type of Referral					Total
Fisheries and Land Resources (Crown Lands)	Natural Resources	ILUC	Municipal Affairs and Environment (Environmental Assessment)	Other	
71	53	25	14	1	164

## Activity Permits

All activities in a PPWSA (either a protected public water supply area, or a wellhead protected water supply area) require a permit under the Water Resources Act. During the 2017–18 fiscal year, 72 development activity permits were issued. Figure 3 illustrates the distribution of development permits by type. Figure 4 shows the total number of permits issued for development activities within a PPWSA for each fiscal year since 2013-14.

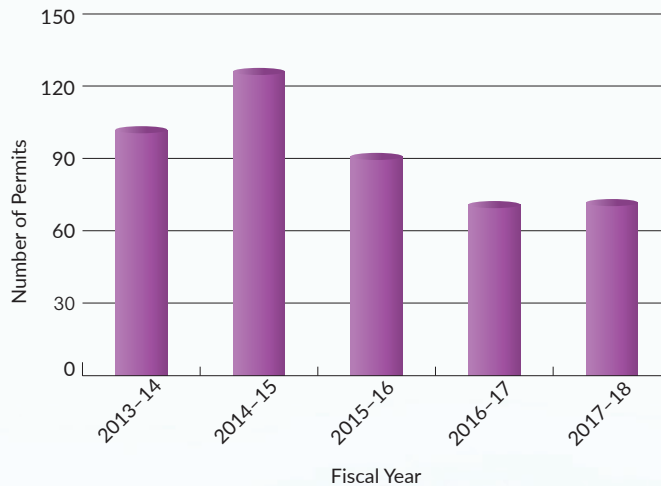
**Figure 3: Type of Development Permits**



The top two developmental activities for which permits were issued include:

1. industrial/commercial/domestic developments
2. forestry activities

**Figure 4: Permits Issued per Fiscal Year**



### Watershed Management Committees

Watershed management committees are formed to oversee land use management, potential development, and resource use conflict inside a PPWSA. Some committees develop watershed management plans (WMP) to help manage the watershed. The active watershed management committees in the province during 2017-18 were located in:

- Clarenville
- Corner Brook (WMP)
- Gander (WMP)
- Grand Falls-Windsor
- Steady Brook (WMP)

### Drinking Water Treatment

Water treatment strategies are used to address different water quality issues and to treat the water before it is consumed.

#### Disinfection

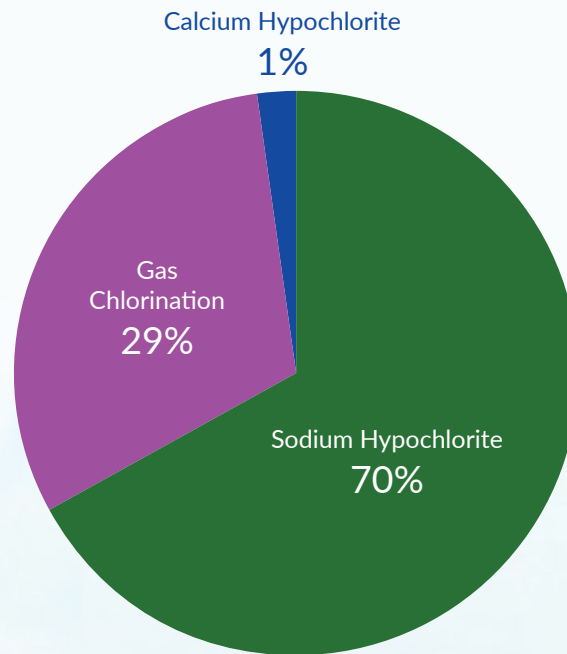
The most critical aspect of water treatment is disinfection as it ensures the pathogenic safety of drinking water. While there are several forms of disinfection used in the treatment of drinking water, chlorination is the most commonly used disinfection method in the province. The different disinfection methods used in the province are listed in Table 2.

**Table 2: Number of Disinfection Systems in Newfoundland and Labrador**

Type of Disinfection System					
Chlorination	Ultraviolet Light	Mixed Oxidants	Ozone	Chloramines	Hydrogen Peroxide
447	33	8	4	1	1

There are a number of different chlorination system types in the province. Figure 5 illustrates the distribution of these systems in 2017-18.

**Figure 5: Chlorination Systems Used in Newfoundland and Labrador**



### Parameter Specific Drinking Water Treatment

Mitigative measures have been implemented in numerous drinking water systems to alleviate water quality challenges related to various local parameters (e.g., pH). Table 3 shows the number and type of drinking water treatment systems operational in the province as of the 2017-18 fiscal year.

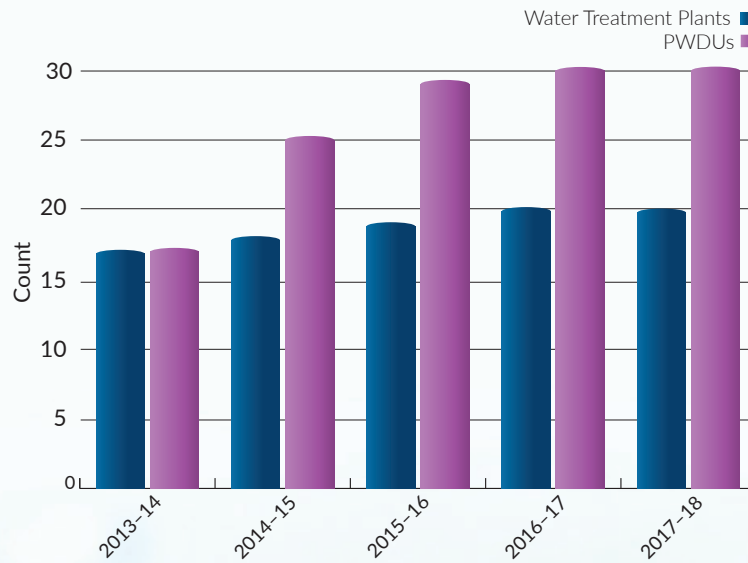
**Table 3: Number of Water Treatment Systems in Newfoundland and Labrador**

Type of Drinking Water Treatment System						
pH adjustment	Micron/pressure filters	Infiltration galleries	Arsenic removal	Iron/Manganese removal	Lead removal	Strontium removal
57	40	25	10	4	1	1

### Water Treatment Plants

As of March 31, 2018, 50 water treatment plants are in place in Newfoundland and Labrador (this number includes 30 potable water dispensing units (PWDUs)). Figure 6 illustrates the total number of water treatment plants in Newfoundland and Labrador for each fiscal year since 2013-14.

**Figure 6: Water Treatment Plants per Fiscal Year**



## Drinking Water Distribution

The drinking water distribution system is the largest component of physical infrastructure that ensures drinking water safety. It includes all the pipes, valves, service lines, pumping stations, fire hydrants, and storage facilities required to deliver clean and safe drinking water.

In fiscal year 2017-18, there were 511 public water distribution systems in the province. Table 4 shows the breakdown of the number of water distribution systems for 2017-18. Sixty-one per cent of public water distribution systems fall into the “≤ 500” classification.

**Table 4: Public Water Distribution System Classes for 2017-18**

Size (population serviced)	> 50,000	15,001 - 50,000	1,501 - 15,000	501 - 1,500	≤ 500	Unknown	Total
Count	1	5	36	81	329	59*	511

\*includes 30 PWDUs.

During the 2017-18 fiscal year, the Department of Municipal Affairs and Environment approved \$67,851,585 for water related projects. Table 5 provides a breakdown of initiatives from April 1, 2017 to March 31, 2018.

In 2017-18, the Department issued 13 permits to operate for drinking water systems and 149 permits to construct under Sections 36, 37, 39 and 48 of the Water Resources Act. The total number of active permits to operate for drinking water systems at the end of the 2017-18 fiscal year was 324. Figure 7 shows the number of permits to construct issued for each fiscal year since 2013-14.

**Table 5: Funding Approved for 2017-18**

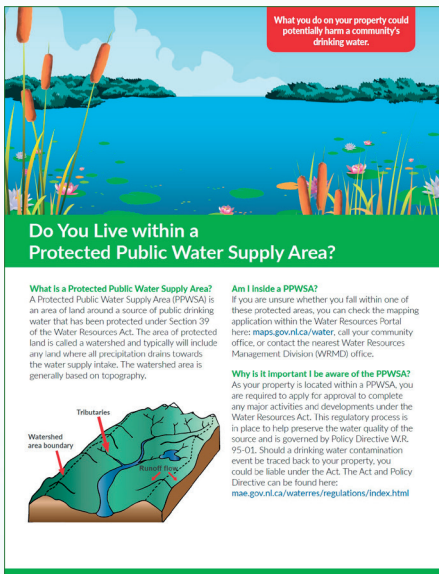
Category	Funding (\$)*
New Water Supply Infrastructure	\$3,431,045.31
Upgrades to Water Supply Infrastructure	\$5,539,920.18
New Water Distribution	\$3,190,156.40
Upgrades to Water Distribution	\$16,412,775.22
New Drinking Water Treatment	\$5,069,470.92
Upgrades to Drinking Water Treatment	\$2,747,865.85
Joint upgrades/extensions to water distribution/ sewage collection systems	\$30,617,932.75
DWSI/PWDU**	\$252,122.73
Studies	\$590,295.65
<b>Total</b>	<b>\$65,851,585.01</b>

\*Provincial share less GST amounts shown.

\*\*Drinking Water Safety Initiative/Potable Water Dispensing Units.

**Figure 7: Number of Permits to Construct per Fiscal Year**





## HIGHLIGHT

### Protected Public Water Supply Areas and You

The Water Resources Management Division (WRMD) designates Protected Public Water Supply Areas (PPWSA) for communities across the province. Current and prospective users of a PPWSA should be aware of the legislation and guidelines for engaging in activities within a PPWSA. This ensures that the drinking water for a community can be protected and utilized in a sustainable manner.

Once a PPWSA is established, activities within these areas are regulated under Section 39 of the Water Resources Act. The Policy for Land and Water Related Developments in Protected Public Water Supply Areas provides further guidance on the types of activities permitted and prohibited in a PPWSA, and defines how a stakeholder can responsibly develop within a PPWSA.

WRMD has developed a number of brochures that answer many questions about specific types of activities for current and future proponents of activities within PPWSAs. Brochures developed during the 2017-18 fiscal year include:

Do You Live within a Protected Public Water Supply Area?  
Is Your Cottage within a Protected Public Water Supply Area?  
Septic Systems within a Protected Public Water Supply Area

These and other information related to PPWSAs can be found the WRMD website at:

[mae.gov.nl.ca/waterres/quality/drinkingwater/protectedareas.html](http://mae.gov.nl.ca/waterres/quality/drinkingwater/protectedareas.html)

If you live within or nearby a PPWSA “Do You Live within a Protected Public Water Supply Area?” describes what a PPWSA is, important things to consider when planning to develop in a PPWSA, and the permit requirements for activities within a PPWSA.

“Is Your Cottage within a Protected Public Water Supply Area?” is a useful reference for existing cottage owners and for proponents planning to build or renovate a cottage within a PPWSA.

Residential and recreational property owners that own or plan to install a septic system can reference “Septic Systems within a Protected Public Water Supply Area” for information on how a properly installed and maintained septic system is important for stakeholders that live or have recreational property within a PPWSA.

## LEVEL II

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The standard of performance achieved in Level I of the MBSAP is verified through the components of Level II. The five components in Level II of the MBSAP are:

1. monitoring
2. data management and reporting
3. inspection and enforcement
4. operator education, training, and certification
5. corrective measures

### Monitoring

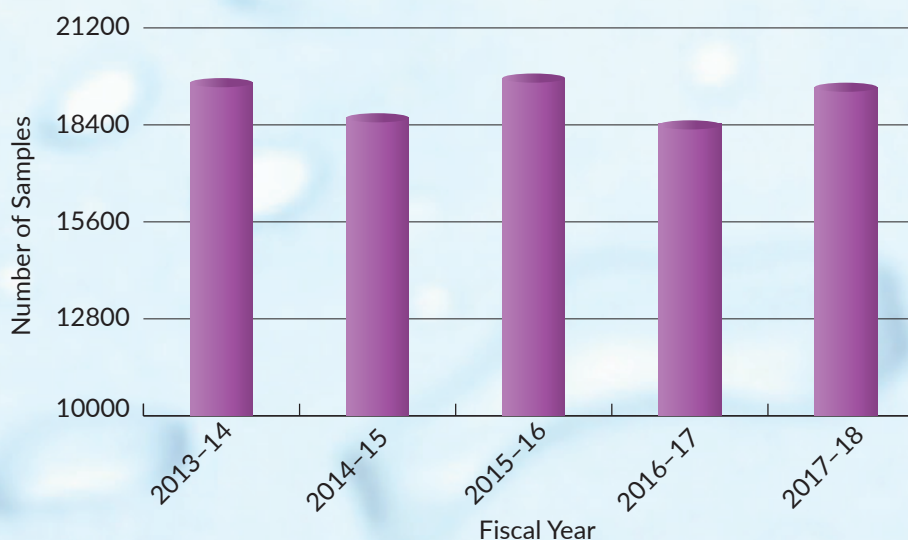
Drinking water quality monitoring consists of regular sampling and testing of drinking water from both the source and the tap. The extensive monitoring program for drinking water quality in the province is a joint responsibility shared by the departments of Municipal Affairs and Environment, Health and Community Services, and Service NL.

### Bacteriological and Chemical Water Quality

#### Bacteriological Water Quality

Through the Department of Service NL, Environmental Health Officers and Environmental Technicians collect tap water samples from public drinking water supplies for analysis of bacteriological parameters. The parameters monitored include total coliforms and Escherichia coli (E. coli). During 2017–18, 19,576 public water supply bacteriological samples were collected and tested. Figure 8 shows the total number of bacteriological samples that were collected and tested for each fiscal year since 2013–14.

**Figure 8: Bacteriological Samples Tested per Fiscal Year**



The number of bacteriological samples tested at each regional drinking water testing facility is shown in Table 6.

**Table 6:** Number of Bacteriological Samples Tested in Each Region for 2017–18

Region					Total
St. John's	Eastern	Central	Western	Northern	
8108	1026	4120	4563	1759	19,576

### Bacteriological Parameters: Results

Based on the analysis of bacteriological parameters for public drinking water samples taken during the 2017–18 fiscal year, 730 public water supply samples tested were found to be unsatisfactory in terms of total coliforms. An unsatisfactory result indicates the presence of total coliforms and/or E. coli bacteria counts in the sample. Table 7 shows the number of samples found to be unsatisfactory for total coliforms at each regional drinking water testing facility for the fiscal year 2017–18.

**Table 7:** Number of Unsatisfactory Samples for Total Coliforms for 2017–18

Region					Total
St. John's	Eastern	Central	Western	Northern	
286	62	146	185	51	730
39%	9%	20%	25%	7%	100%

There were 137 bacteriological samples tested that were found to be unsatisfactory in terms of E. coli. Table 8 shows the number of samples found to be unsatisfactory for E. coli. at each regional drinking water testing facility for the fiscal year 2017–18.

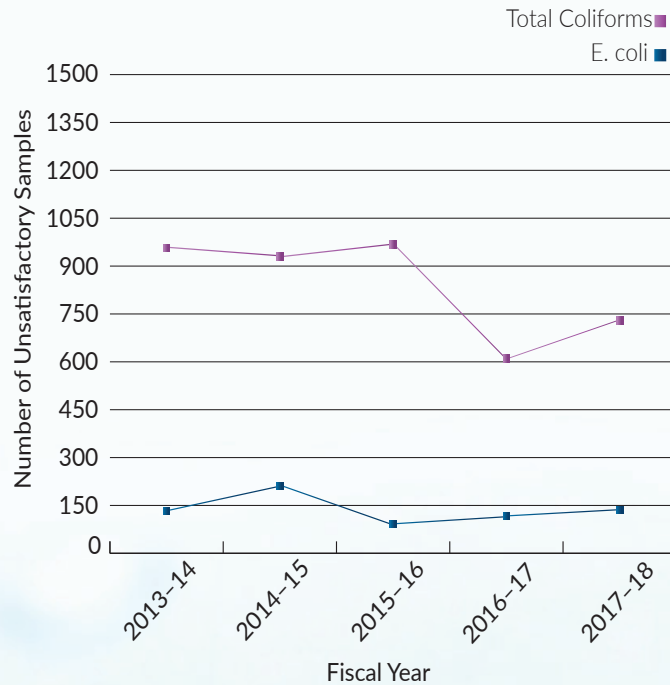
**Table 8:** Number of Unsatisfactory Samples for E. coli for 2017–18

Region					Total
St. John's	Eastern	Central	Western	Northern	
46	12	33	44	2	137
34%	9%	24%	32%	1%	100%

The number of unsatisfactory samples for total coliforms and E. coli for each fiscal year since 2013–14 is shown in Figure 9.



**Figure 9: Unsatisfactory Bacteriological Samples per Fiscal Year**

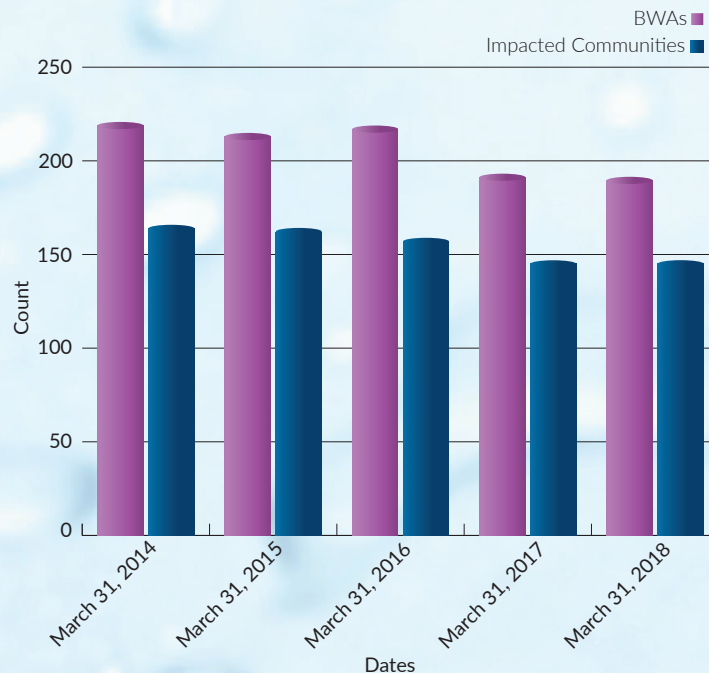


\*Escherichia coli (E. coli) is considered a good indicator of recent fecal contamination of drinking water and the possible presence of disease causing microorganisms.

### Boil Water Advisories

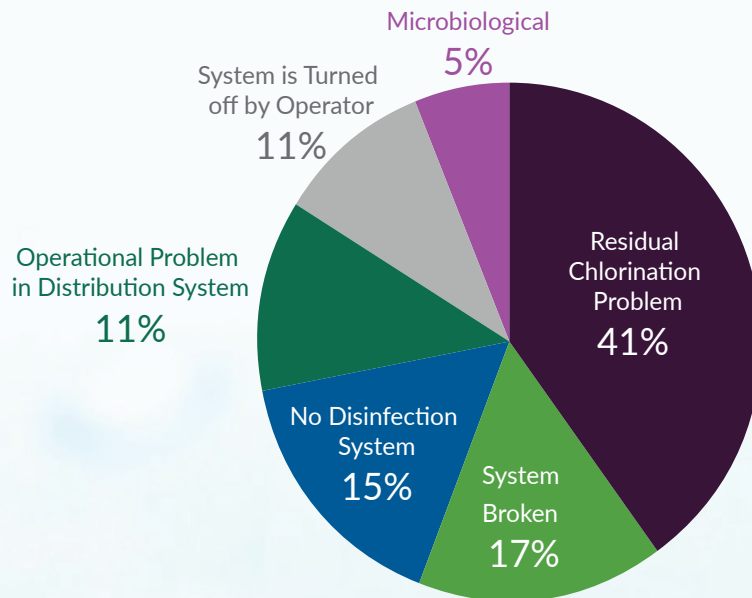
Boil water advisories are preventative measures for protecting public health from waterborne microbiological contamination that may, or are known to be, present in drinking water. A BWA is also issued when water quality is questionable due to operational deficiencies (such as inadequate chlorine residual), no disinfection system, or the water in a community’s water system is contaminated with bacteriological indicators (such as total coliforms). Figure 10 shows a comparison of BWAs at the end of each fiscal year since March 31, 2014.

**Figure 10: Number of BWAs and Number of Communities Affected**



On March 31, 2018, 189 BWAs were in effect (this includes long-term BWAs), affecting 143 communities in the province, with an impacted population of 36,207 (7% of total population). Figure 11 illustrates the distribution of existing BWAs by reason used to issue the advisory for the 2017–18 fiscal year.

**Figure 11: Reasons for BWAs**



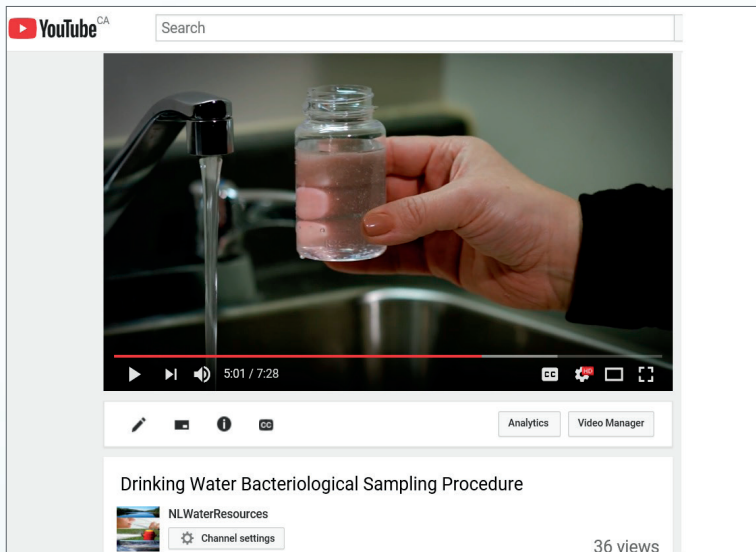
Long-term BWAs are BWAs that have been in effect for a period of five years or greater at the end of March 31, 2018. A total of 136 BWAs have been in effect for a period of five years or greater.

### Chemical and Physical Water Quality

The number of chemical and physical water quality samples taken by region for 2017–18 are presented in Table 9. Analysis of chemical and physical parameters is performed by an accredited lab ensuring that the laboratory provides quality and competency in its sample analysis.

**Table 9: Number of Samples Taken by the Department for 2017–18**

Region	Source	Tap	THM	HAA	Total
Eastern	70	360	429	429	<b>1288</b>
Western	126	335	372	372	<b>1205</b>
Central	50	292	405	405	<b>1152</b>
Labrador	10	63	104	104	<b>281</b>
Other (Special)	6	0	0	0	<b>6</b>
<b>Total</b>	<b>262</b>	<b>1050</b>	<b>1310</b>	<b>1310</b>	<b>3932</b>



## HIGHLIGHT

### Boil Water Advisory Reduction Initiative: Training Videos

In 2015, the Government of Newfoundland and Labrador announced a new Community Sustainability Partnership. One of the capacity supports announced as part of this partnership was the Boil Water Advisory (BWA) Reduction Initiative. As part of this initiative, government is using external consultants to undertake work to help reduce the number of BWAs in the province. This work involves developing tools to help communities come off of BWAs, assessing what communities need to do to come off of BWAs, and raising public awareness about BWAs.

During 2017-18, the initiative included the development of four drinking water system operational training videos which cover the following topics:

- Drinking Water Bacteriological Sampling Procedure;
- Hypochlorination;
- Water Distribution System Flushing; and
- Flowmeter Readings

The training videos were produced by PB Productions and provide direction to water system operators on proper operation and maintenance techniques. The intent of these videos is to reduce the number of BWAs by ensuring operators have easy access to training resources and implement proper operational procedures. The videos are available on the Water Resources Management Division's YouTube page ([youtube.com/user/NLWaterResources](https://youtube.com/user/NLWaterResources)).

In 2017–18, the department collected 3932 samples. Table 10 shows the number of samples scheduled and the number actually taken for 2017–18.

**Table 10:** Number of Samples Scheduled and Collected by the Department for 2017–18

Type of Sample	Scheduled	Collected*
Tap	986	1050
Trihalomethanes	1298	1310
Haloacetic acids	1298	1310
Source	285	262
<b>Total</b>	<b>3827</b>	<b>3932</b>

\* Due to an interruption in chemical water testing in the central region in 2016–17 additional samples were collected in 2017–18.

The reasons that some samples were not taken are as follows:

- town was not chlorinating at the time of sampling (THM and HAA samples)
- water supply not operating at the time of sampling (tap, THM and HAA samples)
- no sample location available at the time of sampling (very small systems)
- source inaccessible

Every year, the department schedules special parameter monitoring. In 2017–18, special parameter monitoring programs were conducted for radiological parameters (gross alpha/beta and lead-210 radium-226).

### Chemical and Physical Parameters: Results

Results for chemical and physical parameters are sent to the department when laboratory analysis is complete. The department then evaluates the results by comparing them to current Guidelines for Canadian Drinking Water Quality (GCDWQ). Water quality results are compared to the GCDWQ to identify exceedances in chemical and physical parameters that may pose a risk to human health or aesthetic approval of drinking water.

Table 11 summarizes the tap water bacteriological, chemical and physical parameter exceedances for fiscal years 2013–14, 2014–15, 2015–16, 2016–17 and 2017–18. When an exceedance is confirmed for a parameter that may pose risk to human health, an exceedance report is promptly provided to the community, as well as the departments of Health and Community Services and Service NL. Exceedances for aesthetic parameters are also reported to communities, along with all other parameter results, in quarterly drinking water quality updates. Communities and the public can access this drinking water quality data through the WRMD’s Water Resources Portal online at: [maps.gov.nl.ca/water/](https://maps.gov.nl.ca/water/). WRMD’s sampling and reporting procedures are in the Drinking Water Quality Monitoring Manual, which can be viewed at: [mae.gov.nl.ca/waterres/quality/drinkingwater/manual.html](https://mae.gov.nl.ca/waterres/quality/drinkingwater/manual.html)

**Table 11: Exceedances per Fiscal Year**

Department	Exceedances						
	Parameters	2013-14	2014-15	2015-16	2016-17*	2017-18	
Service NL	Bacteriological	Escherichia coli	132	211	92	117	137
		Total coliforms	962	932	970	611	730
Municipal Affairs and Environment	Chemical and Physical	Turbidity	78	170	83	70	71
		Arsenic	13	6	8	6	4
		Barium	2	1	0	0	0
		Fluoride	0	0	0	1	1
		Lead	2	4	6	8	4
	Disinfection By-Products	Trihalomethanes (THMs)	117	93	108	62	145
		Haloacetic Acids (HAAs)	153	117	134	62	144
	Aesthetic	Colour	466	307	424	312	478
		pH	368	196	225	254	294
		Total Dissolved Solids	19	11	17	11	15
		Chloride	5	2	7	6	11
		Sodium	3	2	7	6	9
		Sulphate	2	1	0	1	1
		Copper	5	9	7	6	6
		Iron	127	86	102	97	135
Manganese	102	81	68	63	78		

\*Exceedance in some parameters are lower than previous years as statistics reflect an interruption in chemical water testing in the central region during the reporting time frame: ([mae.gov.nl.ca/waterres/whatsnew/index.html](http://mae.gov.nl.ca/waterres/whatsnew/index.html))

## Data Management and Reporting

The large volume of data acquired during the implementation of the various components of the MBSAP must undergo a stringent quality assurance/quality control (QA/QC) process before it can be compiled, analyzed, and reported to the public. The WRMD strives to collect quality data and report it to the public in an open and timely manner. Table 12 summarizes the reports used to communicate the results from programs related to drinking water quality.

## Inspection and Enforcement

The Water Resources Act states that a permit holder shall allow inspectors to carry out inspections of an activity for which a license or permit has been issued. Investigations can also occur once the department is made aware of a contravention of the Water Resources Act or associated regulations and permits. Departmental staff conduct inspections of water supply systems under construction, the operation of water treatment and distribution systems, groundwater wells being drilled, and activities taking place in PPWSAs to ensure that they comply with the terms and conditions of the permit. Communities should conduct routine surveillance and monitoring for approved development activities within PPWSAs to ensure existing activities are being conducted in an environmentally acceptable manner and that there are no development activities taking place without prior approval from the department. Investigations are typically issue-specific.

In the 2017–18 fiscal year, departmental staff carried out a total of 130 inspections/investigations. In addition, staff visited public water supplies two to four times a year during scheduled monitoring work. Table 13 presents a breakdown of inspections for 2017–18.

One of the department's main goals is to ensure communities achieve clean and safe drinking water in a sustainable and efficient manner. When non-compliance with the conditions of a permit is reported, the WRMD responds to enforce the permit.

## Operator Education, Training, and Certification

Certified operators are integral to the proper operation and maintenance of the systems that supply clean and safe drinking water to the consumer. Through continuing education, training, and certification, the department addresses the need for qualified drinking water treatment and distribution system operators in this province. During the 2017–18 fiscal year, 20 drinking water related classroom seminars were held at 11 locations across the province.

### Operator Training

The operator training program provides municipal drinking water system operators with hands-on training opportunities. The program utilizes three mobile training units that have been equipped with various equipment and tools used in the operation and maintenance of drinking water systems. Training sessions are delivered on-site in the operator's community to maximize accessibility to the training opportunities. During 2017–18, the province's three operator trainers conducted 108 on-site training sessions throughout the province. These sessions were attended by a total of 170 participants.

**Table 12: Types of Public Reports Produced by the Department**

Type	Description
<b>Seasonal Community Drinking Water Quality Updates</b>	As of May 1, 2016, the department switched from paper reporting to a paperless format for all communities with public drinking water systems. Communities are now provided an email when seasonal data is updated. The data is available on the Water Resources Portal. These reports clearly indicate any parameters that exceed the Guidelines for Canadian Drinking Water Quality. The province recommends that communities post these reports in public locations. In the 2017–18 fiscal year, 1181 seasonal community updates were available through the portal.
<b>Exceedance Reports</b>	Exceedance reports are provided to communities when a chemical analysis result is above the Guidelines for Canadian Drinking Water Quality for a contaminant. These reports are faxed or mailed to the affected community as soon as the department receives the results. In the 2017–18 fiscal year, seven exceedance reports (four arsenic, two lead, one fluoride) were sent to communities.
<b>Annual Drinking Water Safety in Newfoundland and Labrador Report</b>	The Annual Drinking Water Safety in Newfoundland and Labrador Report has been published each year since 2001. It outlines accomplishments and activities under the Multi-Barrier Strategic Action Plan for drinking water safety in a particular fiscal year.
<b>Web Documents on Drinking Water Quality</b>	The WRMD’s website is an important tool used to communicate with the public. It is updated regularly with new information on drinking water quality and related topics. The “News and Highlights” page, lists the most current information and is online at: <a href="http://mae.gov.nl.ca/waterres/whatsnew/index.html">mae.gov.nl.ca/waterres/whatsnew/index.html</a>

**Table 13: Inspections by the Department for 2017–18**

Protected Surface Water Supplies	Water and Sewer	Protected Groundwater Supplies	Total
3	24	103	130

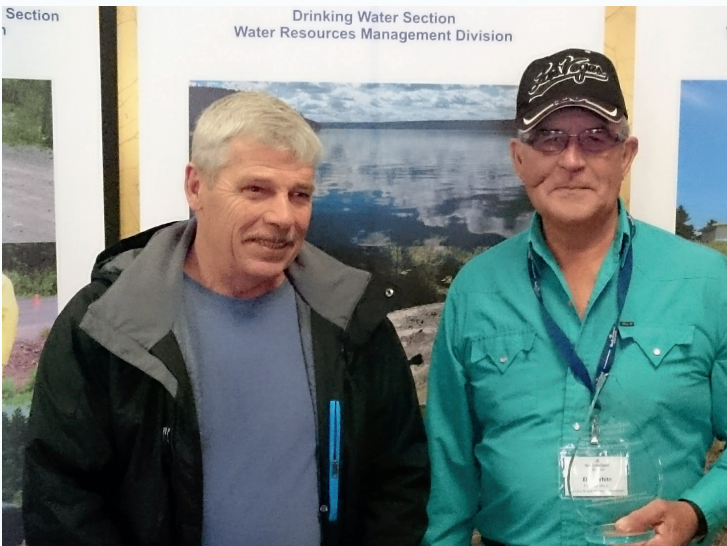
## HIGHLIGHT

### 2018 Operator of the Year Awards

The Department of Municipal Affairs and Environment created the Operator of the Year Awards to recognize the outstanding dedication of municipal operators in providing clean and safe drinking water. Community representatives across the province were invited to nominate an operator they felt had made an outstanding contribution. In total, 21 nominations were submitted to the selection committee for consideration in two categories: Volunteer Operator of the Year and Operator of the Year.

The Volunteer Operator of the Year Award was created to honour an individual that operates a municipal drinking water system without any monetary compensation. The 2018 Award was presented to Mr. Elias White from the No'kmaq Village – the Flat Bay Band Inc. Mr. White has been a volunteer operator of the drinking water system for Flat Bay West and Birchy Brook for 30 years. He has donated countless hours to the operation of the drinking water systems, and there have been many nights that he went without sleep to ensure repairs were completed.

The 2018 Operator of the Year Award was presented to Mr. Patrick Cusick, Town of St. Lawrence. Mr. Cusick has worked with the Town of St. Lawrence for almost 30 years. During that time, he has never hesitated on taking on a challenge and always ensured that projects are successfully completed. He is dedicated and professional in his role as a drinking water system operator. Patrick is actively involved in training opportunities and has successfully achieved his Class 2 Water Distribution Certification, Potable Water Dispensing Unit Certification, and Class I Wastewater Collection Certification.



Award recipients from left to right (Patrick Cusick, Elias White) receive awards.



## Operator Certification

Certification is an essential component for the operation of a safe drinking water system. There are 508 certified water or wastewater operators in Newfoundland and Labrador. Seventy-six operators achieved their first level of certification in 2017-18. Table 14 contains the total number of operator certificates issued by classification.

**Table 14:** Total Number of Operator Certificates Issued for 2017-18

Water Distribution	Water Treatment	Very Small Water Systems	Wastewater Collection	Wastewater Treatment	Total Certificates
52	18	2	30	22	124

Table 15 summarizes the number of communities in Newfoundland and Labrador that employ at least one certified operator divided by classification.

**Table 15:** Number of Communities Employing Certified Operators

Water Distribution	Water Treatment	Potable Water Dispensing Units	Wastewater Collection	Wastewater Treatment
123	22	2	56	23

\*The above numbers do not include industrial facilities that employ certified operators - only municipalities.

## Annual Clean and Safe Drinking Water Workshop

The Annual Clean and Safe Drinking Water Workshop is open to all community operators and administrators. It brings together drinking water quality stakeholders and provides them with opportunities to learn about drinking water safety, to exchange information, and to share experiences. The presentations delivered throughout this event are carefully chosen to address specific challenges faced by small communities in providing clean and safe drinking water.

The 2018 Clean and Safe Drinking Water Workshop took place in Gander on March 28-30, 2018. The workshop attracted 294 participants from across the province and country. A travel subsidy is provided to attendees by the Department of Municipal Affairs and Environment to attend the workshop. Communities from the island portion of the province that were approved for the subsidy were reimbursed up to \$400, and communities from Labrador that were approved for the subsidy were reimbursed up to \$700.

## Corrective Measures

The Level II components of the MBSAP provide an ongoing picture of drinking water supply, quality, and infrastructure. The issues identified require the implementation of corrective actions to deal with these challenges. Corrective measures can include structural, non-structural, operational techniques and other best management practices.

There are five classes of corrective measures: policy, design, water system management, water treatment alternatives, and source alternatives. Table 16 shows the progress made in each category of corrective measures.

**Table 16: Corrective Measures Undertaken for 2017–18**

Corrective Measure	Description
<b>Policy</b>	<ul style="list-style-type: none"> <li>• Year 17 of the Multi-Barrier Strategic Action Plan for Safe Drinking Water in Newfoundland and Labrador</li> <li>• The Interdepartmental Safe Drinking Water Technical Working Group met five times</li> </ul>
<b>Design</b>	<ul style="list-style-type: none"> <li>• Updating the Newfoundland and Labrador Guidelines for the Design, Construction and Operation of Water and Sewerage Systems to the Newfoundland and Labrador Guidelines for the Design of Drinking Water Systems underway</li> </ul>
<b>Water System Management</b>	<ul style="list-style-type: none"> <li>• Ongoing operator education, training and certification</li> <li>• Permits to Construct issued relating to water system management:               <ul style="list-style-type: none"> <li>• Water main upgrades and replacement (also includes new watermains)- 70</li> <li>• New or upgraded pumps or pumphouse- 8</li> <li>• New or upgraded valves- 8</li> <li>• New or upgraded flow meter- 3</li> <li>• Intake upgrades- 5</li> </ul> </li> <li>• 13 Permits to Operate issued (Bonavista, Conception Bay South, Harbour Grace, Holyrood, Lewisporte, Long Harbour-Mount Arlington Heights, Nain, Spaniard's Bay, Springdale, Upper Island Cove, St. Anthony, St. John's (Bay Bulls Big Pond), St. John's (Petty Harbour-Long Pond)</li> </ul>
<b>Water Treatment Alternatives</b>	<ul style="list-style-type: none"> <li>• Permits to Construct issued relating to water treatment:               <ul style="list-style-type: none"> <li>• New chlorination systems- 7</li> <li>• Chlorination system upgrades- 3</li> <li>• New Fe/Mn Removal systems- 2</li> <li>• New infiltration gallery- 1</li> <li>• New filtration systems- 3</li> <li>• Water treatment plant upgrades- 1</li> <li>• New pH adjustment - 1</li> </ul> </li> </ul>
<b>Source Alternatives</b>	<ul style="list-style-type: none"> <li>• Permits to Construct issued relating to water sources:               <ul style="list-style-type: none"> <li>• New or upgraded intake or screen house- 3</li> </ul> </li> </ul>

## LEVEL III

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The management of drinking water depends on the contribution of several levels of government as well as the public. The four components in Level III of the MBSAP are:

1. legislative and policy frameworks
2. public involvement and awareness
3. guidelines, standards and objectives
4. research and development

### Legislative and Policy Frameworks

The legislation that governs public drinking water systems in the province includes the Water Resources Act, the Municipal Affairs Act, and the Municipalities Act. All of the legislation, policy directives, standards, and regulations are posted on the province's website. These three Acts contain broadly stated initiatives:

- the Water Resources Act regulates the administration of water rights, the protection of public water supply areas, and a range of construction, operation, and development permits pertaining to drinking water infrastructure and development that may impact public water supplies
- the Municipal Affairs Act administers the management of waterworks
- the Municipalities Act grants powers to municipalities for the construction, operation, and maintenance of water systems and for the allocation of funds for this work

Government also introduces regulations, guidelines and policy directives to provide more explicit direction for legislation.

### Interdepartmental Cooperation

The Provincial Government's efforts to provide clean and safe drinking water are the result of the combined contributions of the departments of Municipal Affairs and Environment, Health and Community Services, and Service NL. Each department is responsible for various aspects of the MBSAP. Their efforts are coordinated by an interdepartmental committee of ministers, which is chaired by the Minister of Municipal Affairs and Environment. The committee's work is supported by the committee of deputy ministers and the Interdepartmental Safe Drinking Water Technical Working Group, which was formed in June 2000. Medical Officers of Health and representatives from the Public Health Laboratory are also members of the working group. The working group leads work on the development of policy and guidelines relating to drinking water safety.

In 2017-18, the working group focused on reducing the number of active BWAs in the province, developing a path forward for the introduction of new Guidelines for Canadian Drinking Water Quality (GCDWQ) for manganese, and development of a commercial and institutional water supply database.

## Regional Operator Program

The Regional Water and Wastewater Operator pilot program is a three-year initiative that started in 2015–16 funded through the Community Sustainability Partnerships (CSP). The main goal of the pilot program was to enhance effective operation and maintenance of municipal water and wastewater systems in the pilot communities, in accordance with regulatory requirements and in a more efficient and cost effective manner. The program was initiated through the Department of Municipal Affairs and Environment and Regional Service Boards in the Eastern, Central and Western Regions. Originally, the program started with 37 communities (13 in Eastern, 12 in Central, 12 in Western). The pilot project approval letter for municipalities selected to be involved in the program indicated that municipalities selected for the water/wastewater operator pilot initiative must be actively participating in that pilot project to be eligible for receipt of the payments of Municipal Operating Grants and the share of the Provincial Gas Tax Revenues commencing April 2016.

In 2015–16, the program was expanded to include 15 more communities. These communities included Portugal Cove South, Trepassey, St. Shott's, St. Mary's, Gaskiers-Point La Haye, Leading Tickles, Phillips Head, Cottrell's Cove, Summerford, Twillingate, Upper Ferry, Tompkins, Benois Siding, St. Andrew's and Great Codroy. The communities were selected based on geographic proximity, assessed need, and likelihood of the community to actively participate in the program. Out of the existing 37 communities and the 15 newly added ones, it was found that eight local service districts have either declined to participate or are non-compliant with the conditions of the pilot program by not disinfecting their public water system. It has been observed that participating communities have been able to manage their existing infrastructure better and at the same time lower costs by shifting from a reactive to a proactive approach to maintenance and repairs, engage in more effective planning exercises, and provide a higher quality level of service to residents.

The program has been useful to small rural communities. The current pilot program ends on March 31, 2019.

## Public Involvement and Awareness

The department continues to provide accessible and timely drinking water quality information to the public. The department's website is a major tool for increasing public awareness and encouraging public involvement. Watershed management committees are another way the public can participate in efforts to ensure clean and safe drinking water supplies. They are excellent forums in which stakeholders can voice opinions and concerns about land management and water quality issues in their watershed areas. The establishment of watershed management committees furthers the goals of increasing public involvement and awareness of drinking water safety issues.

New videos for the following drinking water related topics can be found on the NL Water Resources channel at [youtube.com/user/NLWaterResources](https://www.youtube.com/user/NLWaterResources):

- Drinking Water Bacteriological Sampling Procedures
- Flowmeter Readings
- Hypochlorination
- Water Distribution System Flushing

The videos have been developed as part of the BWA Reduction Initiative strategy for communities and water system operators.

## Guidelines, Standards and Objectives

To ensure clean and safe drinking water, the department sets drinking water safety guidelines, standards, and objectives, and regularly reviews and updates them to address current issues and challenges. Guidelines, standards and objectives currently available on the website, [env.gov.nl.ca/env/waterres/regulations/index.html](http://env.gov.nl.ca/env/waterres/regulations/index.html), include:

- Bacteriological Quality of Drinking Water
- Standards for Chemical and Physical Monitoring
- Guidelines for the Design, Construction and Operation of Water and Sewerage Systems
- Chlorination Equipment Selection Guidelines
- Best Management Practices for the Control of Disinfection by-Products in Drinking Water Systems in Newfoundland and Labrador
- Guidelines for Disinfecting Dug and Drilled Wells
- Guidelines for Sealing Groundwater Wells
- Selection Criteria and Guidelines for the Design, Construction and Operation of Potable Water Dispensing Units

## Research and Development

In order to stay on top of current and emerging issues that affect drinking water safety, the department undertakes several research and development activities each year. During 2017–18, the following studies were implemented:

- Sustainable Options for the Management of Public Drinking Water Systems: 3rd Report
- Implementation of Standard Operating Procedures for the Reduction of Boil Water Advisories in Newfoundland and Labrador
- Implementation of Standard Operating Procedure #11: Summary of Action and Lessons Learned

## Weblinks:

Department of Municipal Affairs and Environment  
[mae.gov.nl.ca/](http://mae.gov.nl.ca/)

Newfoundland and Labrador Water Resources Act SNL  
2002 cW-4.01  
[assembly.nl.ca/Legislation/sr/statutes/w04-01.htm](http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm)

Water Resources Management Division Reports and  
Publications  
[mae.gov.nl.ca/waterres/reports/index.html](http://mae.gov.nl.ca/waterres/reports/index.html)

Newfoundland and Labrador Water Resources Portal  
[mae.gov.nl.ca/waterres/portal.html](http://mae.gov.nl.ca/waterres/portal.html)

Protected Water Supply Area List and GIS Layers  
[mae.gov.nl.ca/waterres/gis/index.html](http://mae.gov.nl.ca/waterres/gis/index.html)

Guidelines for Canadian Drinking Water Quality:  
Summary Table  
[canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html](http://canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html)

Standards for Bacteriological Quality of Drinking Water  
[mae.gov.nl.ca/waterres/regulations/policies/standards\\_microbiological.html](http://mae.gov.nl.ca/waterres/regulations/policies/standards_microbiological.html)

Standards for Chemical and Physical Monitoring of  
Drinking Water  
[mae.gov.nl.ca/waterres/regulations/policies/physical\\_monitoring.html](http://mae.gov.nl.ca/waterres/regulations/policies/physical_monitoring.html)

Policy for Drinking Water Quality Monitoring and  
Reporting for Public Water Supplies  
[mae.gov.nl.ca/waterres/regulations/policies/water\\_quality.html](http://mae.gov.nl.ca/waterres/regulations/policies/water_quality.html)

Department of Municipal Affairs and Environment  
Drinking Water Quality Data  
[mae.gov.nl.ca/waterres/quality/drinkingwater/chemical.html](http://mae.gov.nl.ca/waterres/quality/drinkingwater/chemical.html)

Acts, Regulations, Policy Directives, and Water Quality  
Standards  
[mae.gov.nl.ca/waterres/regulations/policies/index.html](http://mae.gov.nl.ca/waterres/regulations/policies/index.html)

Education, Training, and Certification  
[mae.gov.nl.ca/waterres/training/index.html](http://mae.gov.nl.ca/waterres/training/index.html)

Guidelines for the Design, Construction, and Operation  
of Water and Sewerage Systems  
[mae.gov.nl.ca/waterres/waste/groundwater/report.html](http://mae.gov.nl.ca/waterres/waste/groundwater/report.html)

Best Management Practices for the Control of  
Disinfection By-products in Drinking Water Systems in  
Newfoundland and Labrador  
[mae.gov.nl.ca/waterres/reports/cwws/index.html](http://mae.gov.nl.ca/waterres/reports/cwws/index.html)



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