

# Provincial Health Officer Drinking Water Report: Clean, Safe, and Reliable Drinking Water

**Thompson Rivers University –  
BC Small Water Systems Online Help Centre Webinar**

March 12, 2024

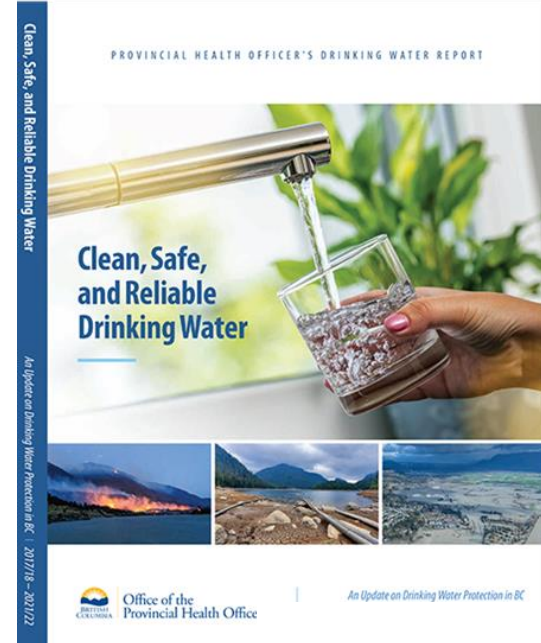
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Provincial Drinking Water Officer



Office of the  
Provincial Health Officer

# Presentation Outline

- Roles and responsibilities in drinking water protection
  - *Drinking Water Protection Act (DWPA)*
  - Office of the Provincial Health Officer (PHO)
- PHO Drinking Water Report
  - Types of water systems
  - Highlights of key findings
  - Overview of priority recommendations
  - Recommendations relating to small water systems



# Drinking Water Protection in BC

In BC, the Ministry of Health administers the DWPA

## **DRINKING WATER PROTECTION ACT**

[SBC 2001] CHAPTER 9

*Assented to April 11, 2001*

### *Contents*

#### **Part 1 – Introductory Provisions**

- 1 Definitions
- 2 Relationship with other Acts
- 3 Drinking water officers
- 4 Guidelines and directives respecting drinking water protection
  - 4.1 Annual drinking water protection report
  - 4.2 Reports respecting problems related to Provincial government actions
- 5 Drinking water advisory committees

#### **Part 2 – Drinking Water Supply**

- 6 Water supply systems must provide potable water
- 7 Construction permits and requirements for water supply systems
- 8 Operating permits and requirements for water supply systems
- 9 Qualification standards for persons operating water supply systems
- 10 Emergency response and contingency plans
- 11 Water monitoring requirements
- 12 Notice if immediate reporting standard not met
- 13 Water supplier must report threats to drinking water
- 14 Public notice of threats to drinking water

### *Drinking Water Protection Act*

## **DRINKING WATER PROTECTION REGULATION**

[includes amendments up to B.C. Reg. 87/2011, May 19, 2011]

### *Contents*

- 1 Definitions
- 2 Standards for potable water
- 3 Domestic water system
  - 3.1 Exemptions
- 4 Prescribed water supply systems
- 5 Treatment
  - 6 Construction permits
  - 7 Operating permits and fees
- 7.1 Decals
- 7.2 Permits and decals not transferable
- 7.3 Temporary facilities
- 8 Water monitoring analysis
  - 9 Immediate reporting standard
  - 10 Public notification
  - 11 Time limits for publication
- 12 Qualification standards for persons operating water supply systems
- 13 Emergency response and contingency plan
- 14 Well floodproofing
- 15 Assessment response plan

**Schedule A**

**Schedule B**

**Schedule C**

# Roles and Responsibilities under the *Drinking Water Protection Act*

## Ministry of Health

- Administers the DWPA and its regulation
- Develops provincial policy, guidelines and objectives
- Ensures drinking water and public health considered in broader government context

## Office of the PHO

- Independent oversight & advice
- Monitoring & reporting

## Regional Health Authorities

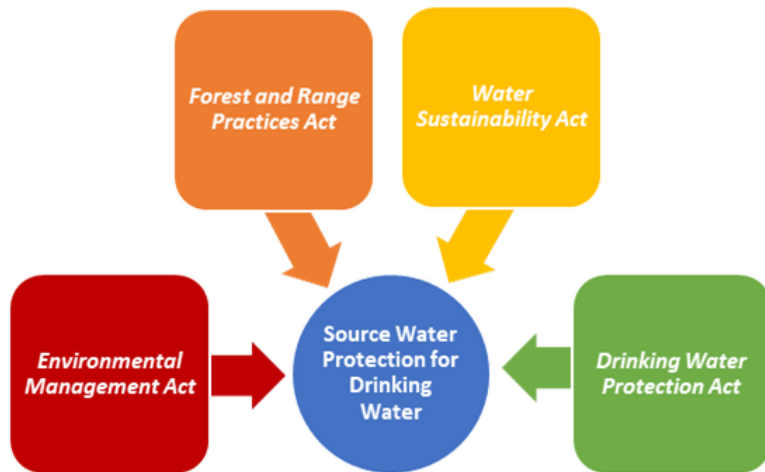
- Implements and enforces the legislation and associated guidelines
- Issues construction and operating permits
- Provides support, advice, and education to water suppliers and public

## Ministry of Water, Land, and Resource Stewardship

- Strategic lead for water and land use policy in BC
- Source-to-Tap strategy development lead
- Watershed security strategy lead / source water protection
- Now responsible for certain sections under the DWPA

# Primary Legislation for Water Protection in BC

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Source: Adapted from BC Ministry of Environment and Climate Change Strategy. Hullcar (Clcahl) aquifer response plan report; 2018.<sup>1</sup>

<sup>1</sup> BC Ministry of Environment and Climate Change Strategy. Hullcar (Clcahl) aquifer response plan report. Victoria, BC; BC Ministry of Environment and Climate Change Strategy; 2018 Nov [cited 2019 Jan 28]. Available from: [https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-permitting-and-compliance/hullcar/review-docs/hullcar\\_aquifer\\_response\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-permitting-and-compliance/hullcar/review-docs/hullcar_aquifer_response_plan.pdf).

# Ministries with a role in drinking water protection in BC

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- Health (HLTH)
- Natural Resource Sector (NRS):
  - Water, Lands & Resource Stewardship (WLRS)
  - Environment & Climate Change Strategy (ENV)
  - Forests (FOR)
  - Agriculture & Food (AGRI)
  - Energy, Mines & Low Carbon Innovation (EMLI)
  - BC Energy Regulator (BCER)
- Municipal Affairs (MUNI)
- Transportation and Infrastructure (MOTI)
- Emergency Management & Climate Readiness (EMCR)

# Office of the Provincial Health Officer (PHO)

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- Senior Public Health Official for BC
- Responsible for monitoring the health of the Population
- Provides independent advice to the Ministers and public health officials
- Responsibilities outlined in the *Public Health Act* and *Drinking Water Protection Act*
- Supported by the Deputy PHO and the Provincial Drinking Water Officer



BC PHO: Dr. Bonnie Henry

# Duties of the PHO under the DWPA

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- Monitor compliance of drinking water officers (DWOs) with guidelines and directives (s. 4(2))
- Prepare an annual report (s. 4.1)
- Report on any situation impeding the protection of public health in relation to drinking water (s. 4.2)
- Make recommendations to the Minister with regard to Drinking Water Protection Plans (s. 31)
- Review decisions by DWOs (s. 39.1)
- Approve laboratories for routine water quality testing (DWPR s. 8(4)(2))



# Duties of the PHO under the DWPA

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## Guidelines and directives respecting drinking water protection

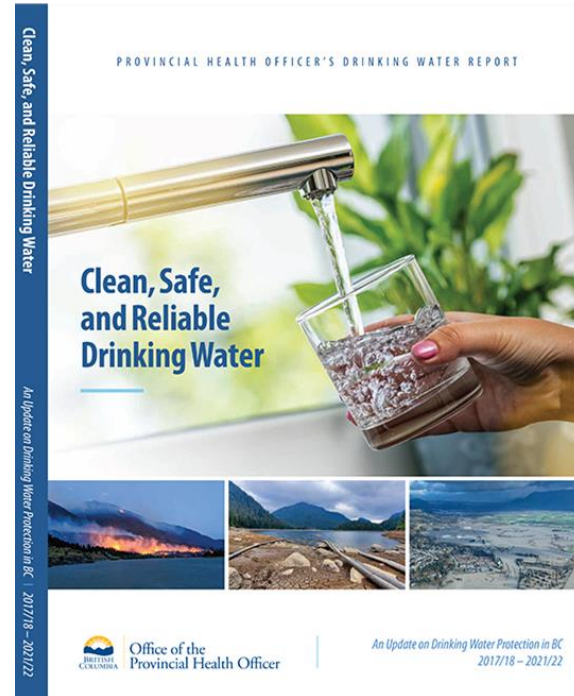
- 4 (1) The minister may establish
  - (a) guidelines that must be considered, and
  - (b) directives that must be followed

by drinking water officers and other officials in exercising powers and performing duties or functions under this Act and the [Public Health Act](#) in relation to drinking water.
  
- (2) The Provincial health officer must monitor compliance of drinking water officers with guidelines and directives established under this section.

# Duties of the PHO under the DWPA

## Annual drinking water protection report

4.1 (1) The Provincial health officer must prepare and deliver to the minister an annual report respecting activities under this Act for the past year.



# Duties of the PHO under the DWPA

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## Reports respecting problems related to Provincial government actions

- 4.2 (1) The Provincial health officer must report to the minister on any situation that
- (a) in the opinion of the Provincial health officer, significantly impedes the protection of public health in relation to drinking water, and
  - (b) arises in relation to the actions or inaction of one or more ministries, government corporations or other agents of the government.
- (2) If the Provincial health officer makes a report under subsection (1) and the situation cannot be resolved to the satisfaction of the Provincial health officer, the minister must bring the situation to the attention of the Executive Council.

# Duties of the PHO under the DWPA

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## Drinking Water Protection Plans (DWPPs) – Part 5 of the Act (s. 31 – 39)

- What are they?
- Who orders a DWPP?
- When can a DWPP be considered?
- Who can request a DWPP be considered?
- Where have DWPPs been implemented in BC?

# Duties of the PHO under the DWPA

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## **Reconsiderations and reviews of DWO decisions (s.39.1)**

- S. 19 - DWO authority in relation to assessments
- S. 25 - Hazard abatement and prevention orders
- S. 26 - Orders respecting contraventions
- S. 31(4) - Request respecting DWPP initiation
- A decision resulting from a reconsideration under this section

# Reconsiderations vs. Reviews

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1. Reviews conducted by someone other than the initial decision maker (usually the PHO)
2. Reviews are conducted “on the record” and cannot consider new evidence

# Decision Review Process

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- Person submits their request to PHO
- PHO assess grounds for review
- PHO defines scope
- Require / give notice of review if required
- PHO requests “the record” of the decision of DWO
- PHO Reviews record and makes decision

# PHO Drinking Water Report

- Update on activities from 2017/18 – 2021/2022
- COVID-19 impacts chapter
- Climate change and extreme climate-related events chapter
- Update on 2019 recommendations
- Discussion and new recommendations
  - 5 new, 15 carried forward and refreshed

Clean, Safe, and Reliable Drinking Water

An Update on Drinking Water Protection in BC | 2017/18 – 2021/22

PROVINCIAL HEALTH OFFICER'S DRINKING WATER REPORT



Office of the  
Provincial Health Officer

An Update on Drinking Water Protection in BC  
2017/18 – 2021/22



# Info on Small Systems

- Report provides data and info on:
  - Numbers of small systems
  - Types of water systems and a discussion on specific challenges by type
  - Numbers of approved non-potable systems and POE/POU exemptions
  - SWS operator training and certification
  - Updates on various initiatives to support small systems and build capacity

Clean, Safe, and Reliable Drinking Water

An Update on Drinking Water Protection in BC | 2017/18 – 2021/22

PROVINCIAL HEALTH OFFICER'S DRINKING WATER REPORT



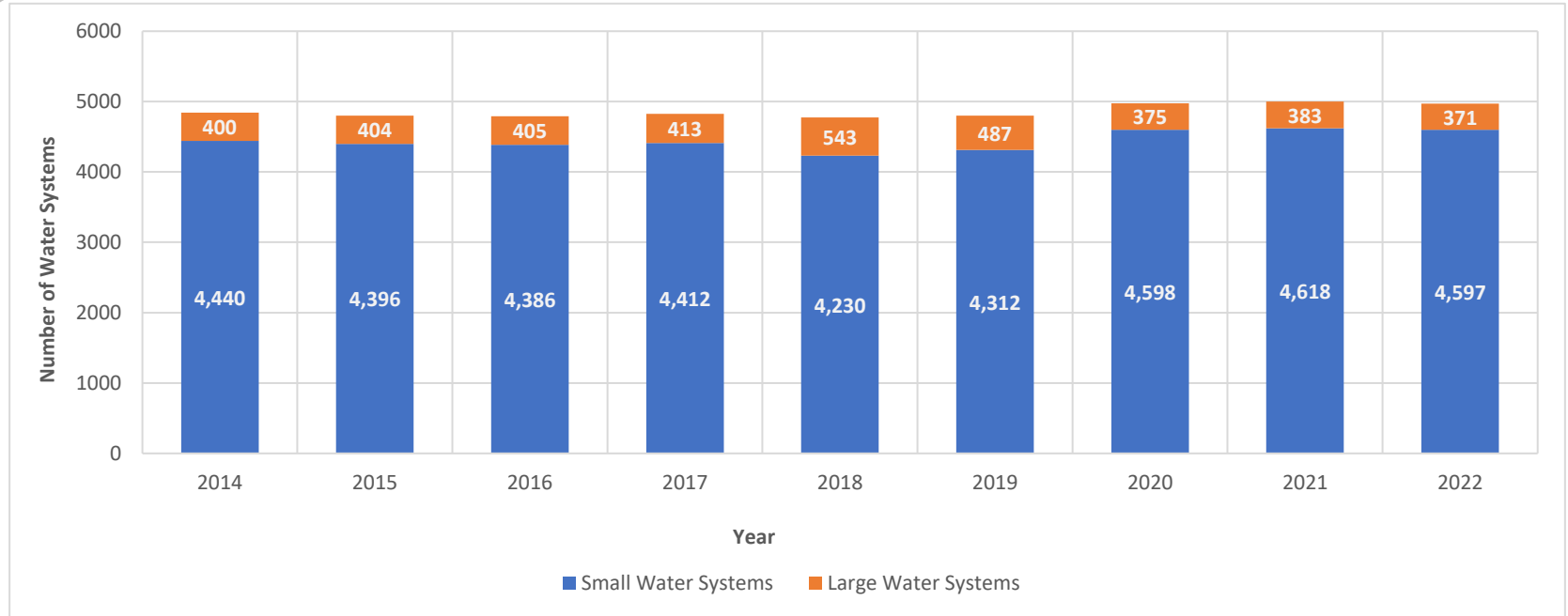
**Clean, Safe,  
and Reliable  
Drinking Water**



Office of the  
Provincial Health Officer

An Update on Drinking Water Protection in BC  
2017/18 – 2021/22

# Number of Small and Large Water Systems, BC, as of March 31, 2014 - 2022



## Number of Small and Large Water Systems in BC, by Regional Health Authority, as of March 31, 2022

Health Authority	Number of small and large water systems in BC as of March 31, 2022		
	Small	Large	Total
Island Health	861	88	949
Northern Health	1,192	63	1,255
Vancouver Coastal Health	330	37	367
Interior Health	1,822	146	1,968
Fraser Health	401	37	429
<b>Total</b>	<b>4,597</b>	<b>371</b>	<b>4,968</b>

# Types of Community Water Systems

Number of Community Water Systems by Regional Health Authority, BC, as of March 31, 2022						
Water System Type	Water System Sub-Type	Island Health	Northern Health	Vancouver Coastal Health	Interior Health	Fraser Health
Local Government Water Systems	Municipality	31	30	23	86	32
	Regional Districts	52	8	26	100	19
	Improvement Districts	49	3	13	88	6
Non-local Government Water Systems	Utility	26	0	13	48	4
	Water Users' Community	10	0	3	67	3
	Strata Corporation	39	1	12	67	11
	Private Corporation/ Registered Business	21	30	76	319	30
	Private Owner (Individual)	53	18			30
	Joint (User) Ownership – Incorporated	37	2	17		7
	Joint (User) Ownership – “Good Neighbour System”	16	17	4		8
First Nations Water System Inspected by RHAs	1	0	0	0		1

Number of Community Water Systems by Water System Sub-Type, BC, as of March 31, 2022

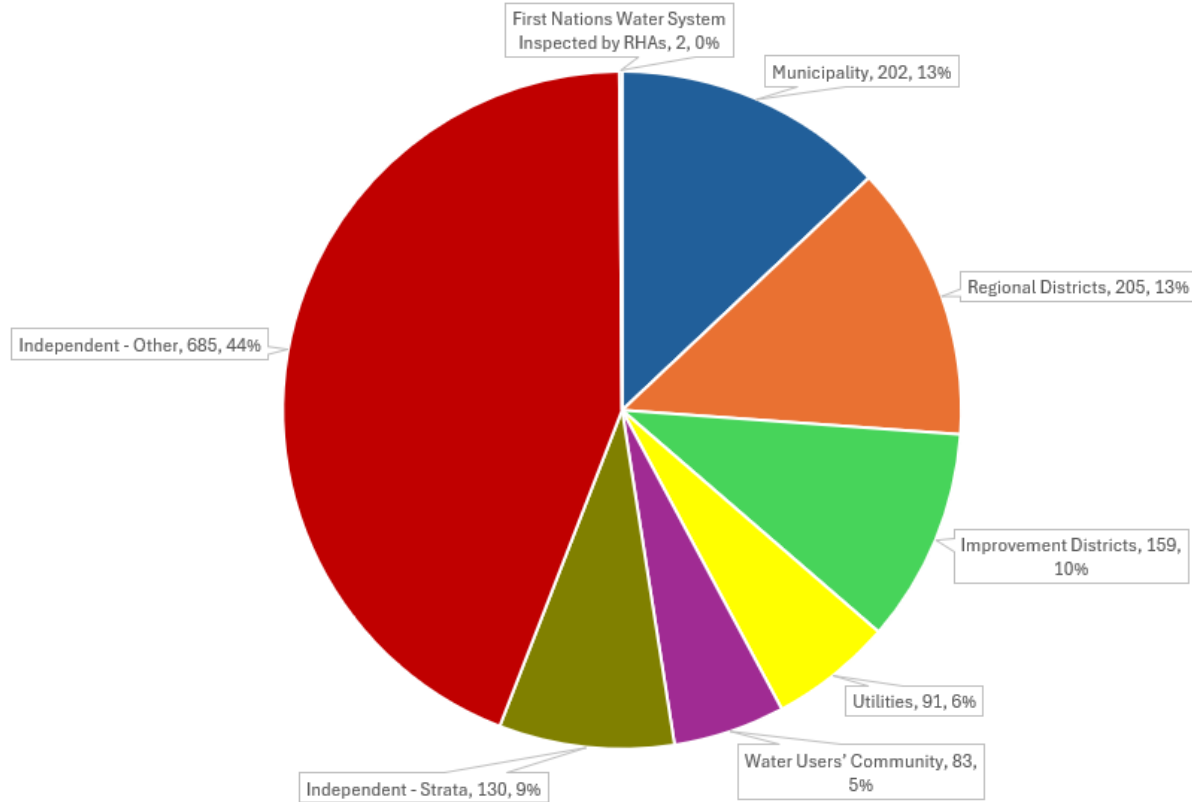
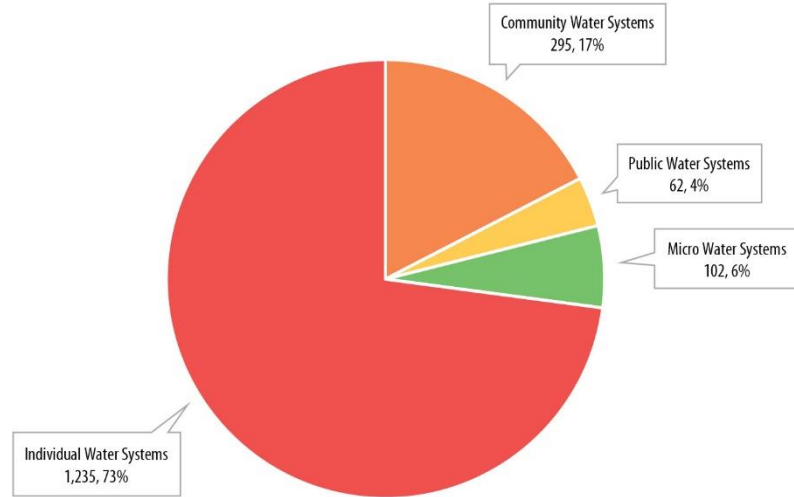


Figure 2.6: Number of First Nations Drinking Water Systems, BC, as of March 31, 2022



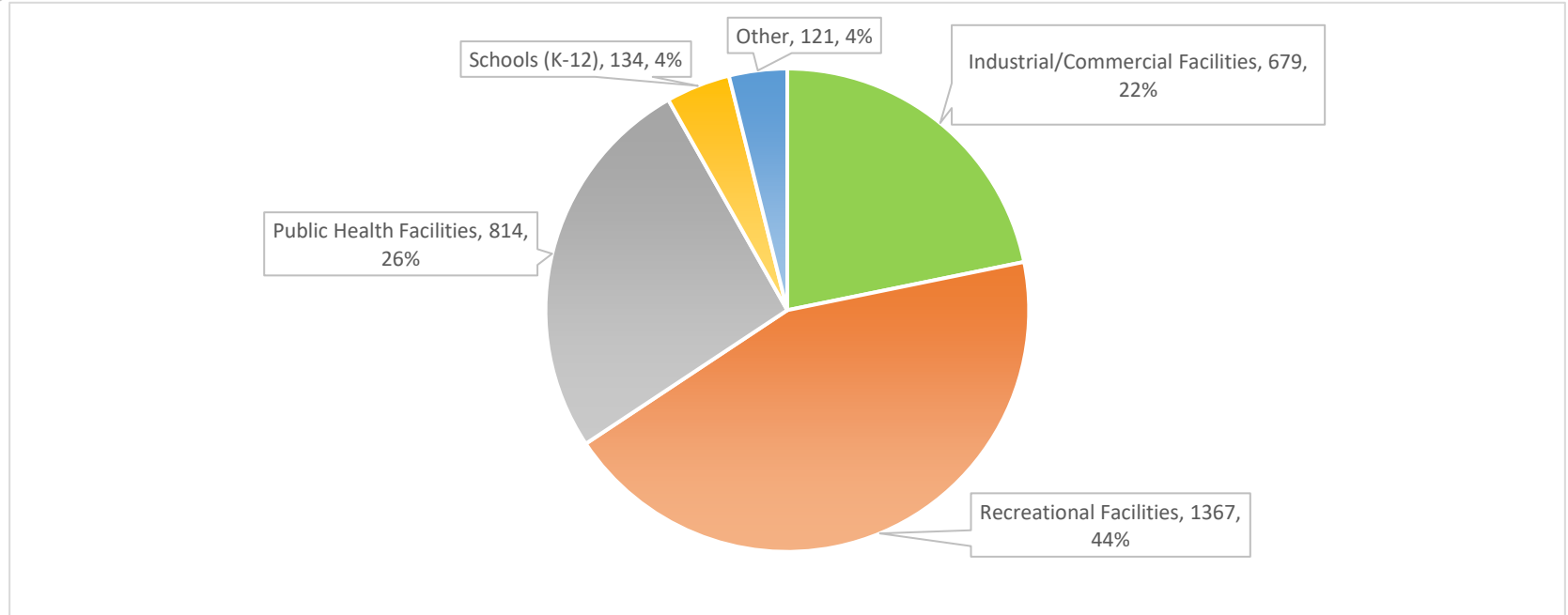
**Note:** Single connections that serve a single-family dwelling off reserve would not fall under the purview of the *Drinking Water Protection Act* or the regional health authorities.

**Source:** First Nations Health Authority; 2021/22.

## Types of First Nations Water Systems

# Types of Water Systems:

Number of Stand-alone Facility Water Systems, BC, as of March 31, 2022



# PHO Report - Key Findings

There is now strategic leadership for drinking water, but we still do not have a new strategy to replace to 2002 Action Plan

Most of the population is served by large water systems capable of providing clean, safe and reliable drinking water; however, capacity limitations and compliance issues for small water systems continue to grow

Data system issues and inadequate data access continue to challenge reporting, evaluation, and situational awareness; although some progress is being made and provincial IM/IT projects are underway

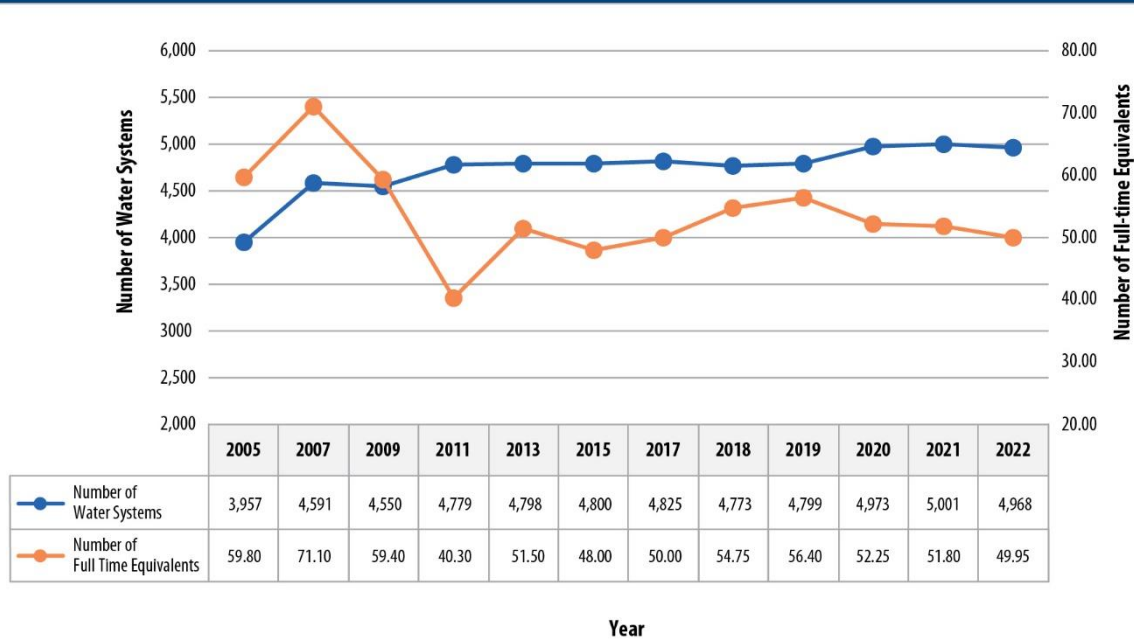
The pandemic and extreme climate-related events over the reporting period had significant impacts on the drinking water program, water suppliers, and water testing laboratories





# Key Findings - Staffing

**Figure 7.1: Number of Full-time Equivalent Positions Working within Regional Health Authority Drinking Water Programs Compared to the Number of Permitted Water Systems, BC, as of March 31, 2005 to 2022**



**Note:** Full-time equivalents (FTEs) for clerical support were not included in these data. Data points reflect the number of each as of March 31 of that calendar year. These numbers represent normalized staffing levels and do not always capture ongoing vacancies within the programs.

**Source:** Regional health authorities; 2017/18–2021/22.

# Key Findings – COVID-19 Impacts



Operator training continues throughout the pandemic.

Photo credit: Kalpna Solanki, EOC President and CEO

## Health Authority staffing shortages & redeployments

- Drop in routine inspections and proactive work

## Water supplier challenges

- Staffing, access, supply chains, infrastructure delays, changes in water use patterns

## Routine sampling & lab disruptions

- Access, transport, supply chains, cancellation of on-site laboratory audits



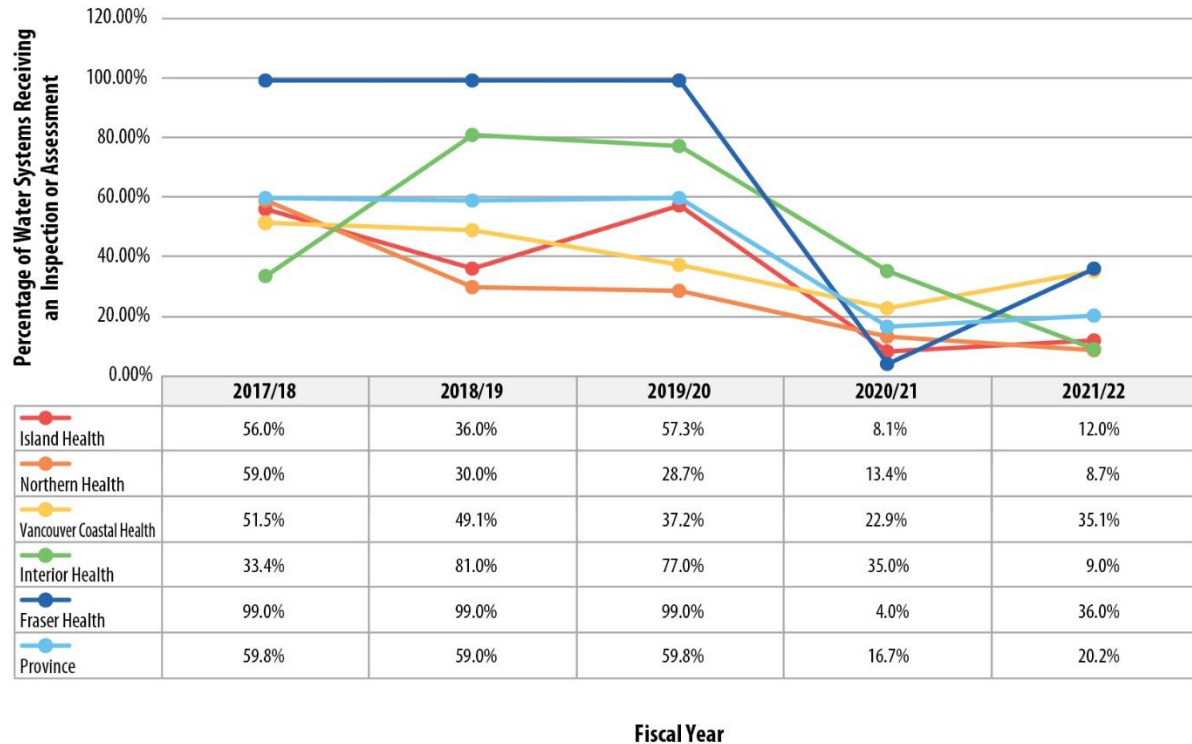
Stock piling of water sampling supplies at the BCCDC Public Health Laboratory.

Photo credit: BCCDC - PHL



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**Figure 7.2: Percentage of Water Systems Receiving an Inspection or Assessment, by Regional Health Authority and for the Province Overall, BC, 2017/18 to 2021/22**



**Note:** As indicated in Table 7.3, not all water systems underwent an annual inspection. However, data on “water systems meeting inspection frequency targets” were not available from all regional health authorities, so overall water system inspection numbers were used as an alternative. Because not all water systems require an annual inspection, it is not expected that 100 per cent of water systems would be inspected each year.

**Source:** Regional health authorities; 2017/18–2021/22.



# Key Findings – Climate Related Emergencies

(Left) Heavy equipment is used to scrape a fire guard around the Lytton First Nation Stein Water System Water Treatment Plant – 2022; (Middle) The Sunshine Coast Regional District uses siphons to access emergency water when the water no longer flows naturally from Chapman Lake into Chapman Creek - 2022; (Right) Flooding in the Sumas Prairie, Abbotsford – 2021.

Photo credits: (Left) Warren Brown, Lytton First Nation; (Middle) Sunshine Coast Regional District; (Right) Jamie Austin, City of Abbotsford

# Key Findings – Climate Change

- Further strain on limited staffing resources – emergency response mode
- Further sampling and transportation network disruptions
- Severe infrastructure damage
- Increase in water quality & quantity concerns
- Small water systems most vulnerable
- Further planning and clarity on roles and responsibilities needed
- Many lessons learned for resiliency

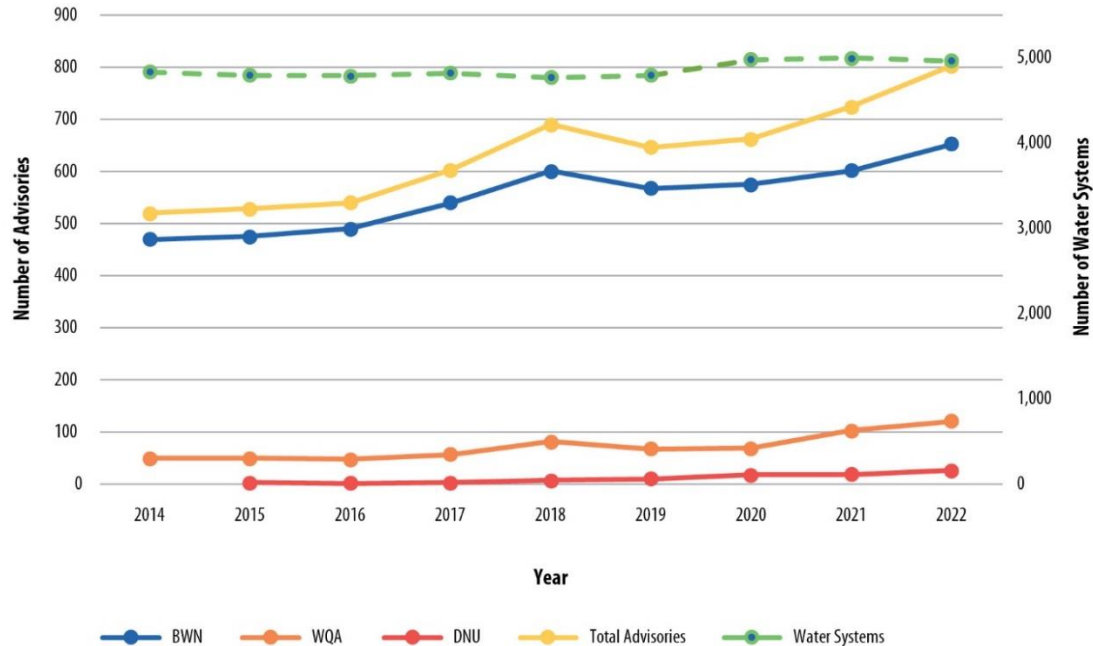


Overland piping and emergency storage tank at a small water system after a debris flow caused by an atmospheric river severely damages the system in 2021.

Photo credit: S. Wong – Interior Health

# Key Findings – Drinking Water Advisories

**Figure 6.5: Total Number of Drinking Water Advisories and Drinking Water Systems on March 31, by Advisory Type and Year, BC, 2014 to 2022**



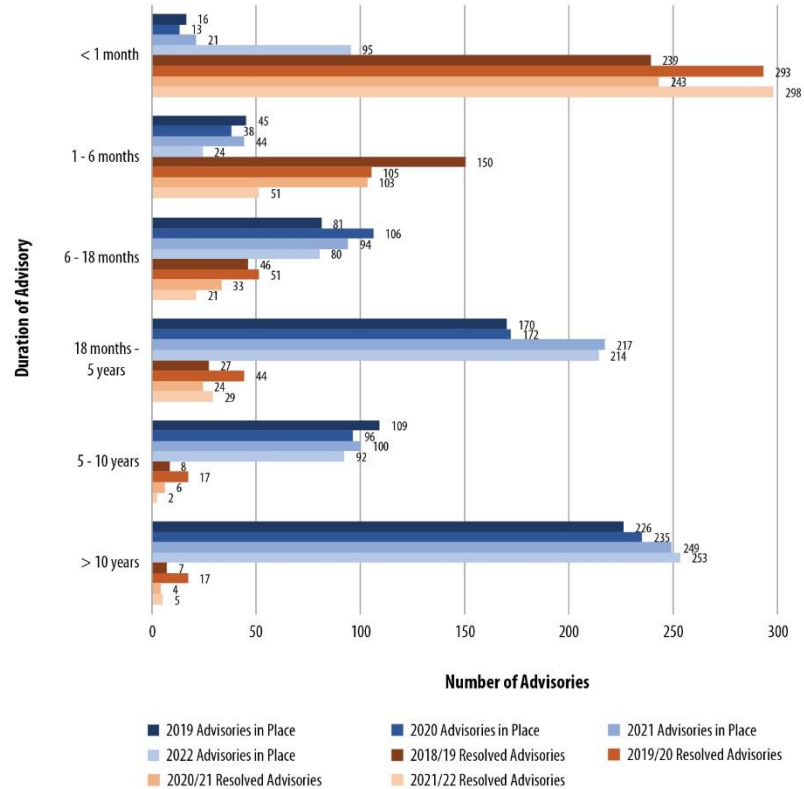
**Note:** BWN = boil water notice; WQA = water quality advisory; DNU = do not use notice. Total advisories is the sum of all advisories for that fiscal year. “Do not use” data were not available for the 2014 year.

**Source:** PHO 2019 drinking water report; regional health authorities; 2018–2022.

# Key Findings – Long-term Advisories

- Most active advisories are long term (> 18 months)
- Long-term advisories are harder to resolve
- Most long-term advisories are associated with small water systems

**Figure 6.10: Number and Duration of Drinking Water Advisories in Place as of March 31, 2019 to 2022, Compared to the Number and Duration of Resolved Drinking Water Advisories for the Entire Fiscal Year, BC, 2018/19 to 2021/22**



**Note:** Drinking water advisories in place were as of March 31 for each year, whereas the number of resolved advisories were for the entire fiscal year. Fiscal year 2017/18 had insufficient data for reporting.

**Source:** Regional health authorities; 2018/19–2021/22.

# 2019 Recommendations Update

## Clean, Safe, and Reliable Drinking Water



An Update on  
Drinking Water  
Protection in BC and  
the *Action Plan for  
Safe Drinking Water  
in British Columbia*



- 32 Recommendations made
- 6 Complete
- 14 In progress
- 5 Considered ongoing advice and not carried forward
- 7 No action taken



# New Recommendation Groupings

Governance of Drinking Water Protection

Legislative and Policy Frameworks to Protect Drinking Water

Evaluation and Accountability of Program Activities – Information Management & Information Technology (IM/IT)

Small Water System Governance and Sustainability

Provincial Drinking Water Protection Program Resources

Drinking Water Officers' Guide – Recommendations for Specific Guidance



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# Priority Recommendations

## Short Term

- Address emergency response planning and climate change resilience for drinking water (Recommendations 5 and 6)
- Ensure drinking water protection programs are adequately resourced (Recommendation 15)

## Medium to Long Term

- Develop a provincial Source-to-Tap Strategy (Recommendation 1) inclusive of a small water system strategy (Recommendation 12)
- Complete a provincial, interoperable data system for drinking water (Recommendation 10)
- Review and modernize the *Drinking Water Protection Act* and source water protection tools (Recommendation 3, 4, and 16)

Recommendation	Lead	Collaborator(s)
1: Action Plan and Memorandum of Understanding	WLRS	HLTH
2: Roles and Responsibilities for Drinking Water on Federal Land	HLTH	WLRS
3: Legislative Review of the <i>Drinking Water Protection Act</i>	HLTH	WLRS
4: Drinking Water Protection Plans	WLRS	PHO, HLTH, and HAs
5: Climate Resiliency and Emergency Response	WLRS	EMCR, HLTH, MUNI, and First Nations
6: Climate Change Resiliency and Adaptation	HLTH	WLRS, Comptroller, ENV, MUNI, and HAs
7: Regulatory Conflict Pertaining to the Authorization of Joint Works and Water Users' Communities	WLRS	HLTH and Comptroller
8: Public Assent Processes and the <i>Community Charter</i>	MUNI	
9: Implementation of Drinking Water Indicators for Annual Reporting	HAs	
10: Provincial IM/IT Strategy	HLTH	HAs, WLRS, and MUNI
11: Water Quality Data Sharing	ENV	WLRS
12: Small Water System Strategy	WLRS	HLTH, Comptroller, MUNI and TRAN
13: Operator Training for Small Water Systems and Bulk Water Haulers	HLTH	HAs
14: Access to Approved Laboratories	BCCDC	HLTH, HAs, and FNHA
15: Drinking Water Program Resources and Training Requirements	A HAs B HLTH C HLTH	C PHO, HAs, and WLRS
16: Source Water Risk Assessment Framework	A WLRS B HLTH	A HLTH B WLRS & HAs
17: Distribution System Integrity and Maintenance	HLTH	HAs
18: Asset Management and Financial Planning	A MUNI B HLTH	A HLTH B HAs
19: Bulk Water Haulers	HLTH	HAs
20: Investigating Threats to Drinking Water	HLTH	WLRS and HAs

# Governance of Drinking Water Protection

## **Recommendation 1: Action Plan and Memorandum of Understanding**

Develop the Source-to-Tap Strategy to replace the *Action Plan for Safe Drinking Water in British Columbia*. Develop a formalized agreement on interagency coordination to replace the 2006 Memorandum of Understanding regarding inter-agency accountability and coordination on drinking water protection, and recommit to modernized principles and actions across government.

**Lead:** Ministry of Water, Land, and Resource Stewardship (WLRS), in collaboration with the Ministry of Health (HLTH)

# Legislative and Policy Frameworks

## **Recommendation 3: Legislative Review of the *Drinking Water Protection Act***

Conduct a legislative review of the *Drinking Water Protection Act* to:

Identify amendments to address ongoing small water system challenges, climate change resilience, source water protection, and the Province's commitment to the *Declaration on the Rights of Indigenous Peoples Act*.

**Lead:** HLTH, in collaboration with WLRS

# Legislative and Policy Frameworks

## **Recommendation 7: Regulatory Conflict Pertaining to the Authorization of Joint Works and Water Users' Communities**

Address the regulatory conflict between the *Drinking Water Protection Act*, *Water Sustainability Act*, and *Water Users' Communities Act*:

- a. Review the definitions of “water supply systems”, “water users’ communities”, “waterworks purpose”, and “domestic use” across all statutes, and identify options to harmonize the definitions that consider public health protection, ecosystem protection, small water system capacity, and prevention of unsustainable water supply systems.
- b. Review the processes for authorizing the construction of joints works used for drinking water across the statutes, and identify options for coordinating approval processes to prevent the creation of small water supply systems without all the necessary approvals.

**Lead:** WLRS, in collaboration with HTLH and the Comptroller of Water Rights

# Small Water Systems

## Recommendation 12: Small Water System Strategy

- Develop a provincial small water system strategy as part of a provincial Source-to-Tap Strategy (Recommendation 1) with interagency commitment to:
  - a. Prevent the creation of new unsustainable small water systems during subdivision development.
  - b. Promote amalgamation and acquisition of small water systems.
  - c. Support and encourage improvement district conversion.
  - d. Build capacity and sustainability of existing small water systems.
  - e. Identify opportunities to strengthen the governance of improvement districts, private water utilities, water users' communities, and other small water systems, and identify processes to support the quick conversion and dissolution of such systems when their governance structure fails or falls into receivership or escheat.

**Lead:** WLRS in collaboration with HLTH, the Comptroller of Water Rights, MUNI, and the Ministry of Transportation and Infrastructure (MOTI)

# Small Water Systems

## **Recommendation 13: Operator Training for Small Water Systems and Bulk Water Haulers**

Develop a minimum recommended standard of training and competencies for small water system operators and bulk water haulers. Standards for small water systems should consider the varying sizes, levels of complexity, water sources, and governance structures.

**Lead:** HLTH, in collaboration with RHAs



# Provincial Drinking Water Protection Program Resources

## **Recommendation 14: Access to Approved Laboratories**

Develop and resource a strategic approach to:

- a. Support improved access to water testing in remote and rural areas. This includes but is not limited to exploring Level C laboratories and point-of-use testing for microbiological indicators, and partnering with neighbouring First Nations community-based monitors.
- b. Prepare a continuity plan for a routine microbiological water quality sampling program in BC for disruptions caused by climate-related or other types of emergencies that may disrupt laboratory supply chains, staffing, transportation networks, access to communities, sample pickup locations, or access to laboratories.

**Lead:** BC Centre for Disease Control Public Health Laboratory, in consultation with HLTH, RHAs, and the First Nations Health Authority



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