



Public Drinking Water Supply Shortages in Newfoundland and Labrador

Drinking Water Workshop 2022

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Management
Division

Department of
Environment and
Climate Change

Introduction

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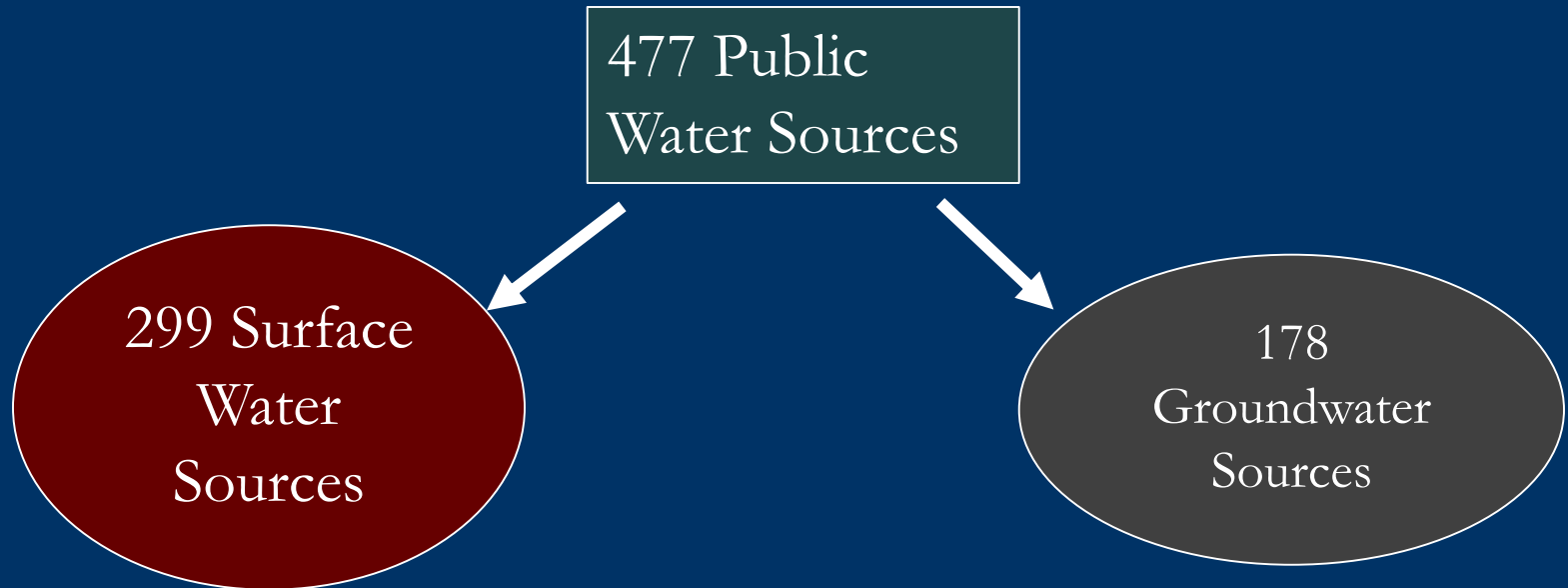
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- A member of the Drinking Water Section of WRMD (central region) since May 2020

Where does our drinking water come from?



Types of Surface Water Sources

- Rivers
- Dammed Brooks
- Lakes/Ponds



Types of Water Shortages

1) Infrastructure or Maintenance Related:



- Leaks
 - Power interruptions
 - Equipment malfunctions (pumps, valves)
 - Dam failures
 - Blocked intake (ice, sediment or other debris)
- Typically a short term issue with a known solution,
- Often preventable

Preventing Infrastructure Issues



- Find and fix leaks
- Upgrade aging infrastructure
- Keep supply of back back-up equipment and/or replacement parts for key infrastructure (e.g., pumps, valves)
- Inspect infrastructure to detect problems
- Clean reservoir of sediment
- Redundancy for key infrastructure
- Install frazil ice systems – air purge system, heat trace system
- Use alternative source during construction around intake

Types of Water Shortages

2) Supply Shortage

- Groundwater well dry
- Water levels in intake waterbody low
 - Dry conditions
 - High water usage
 - Construction related
- Natural event (altered river channel)

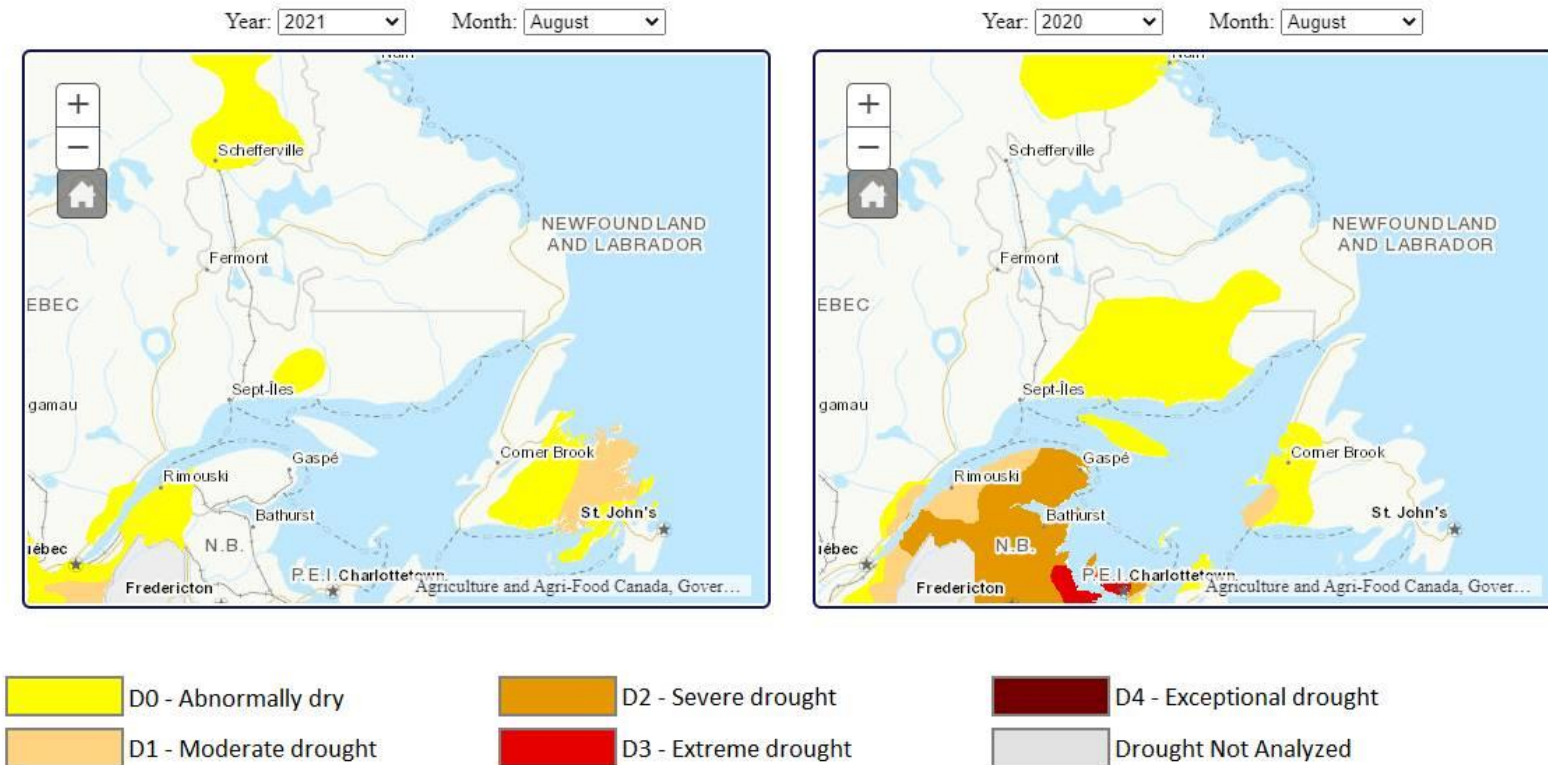


Supply shortage in...NL?



We don't exactly live in a desert, but we have been experiencing dryer than normal summers, including the last two years in a row.

August 2020/2021

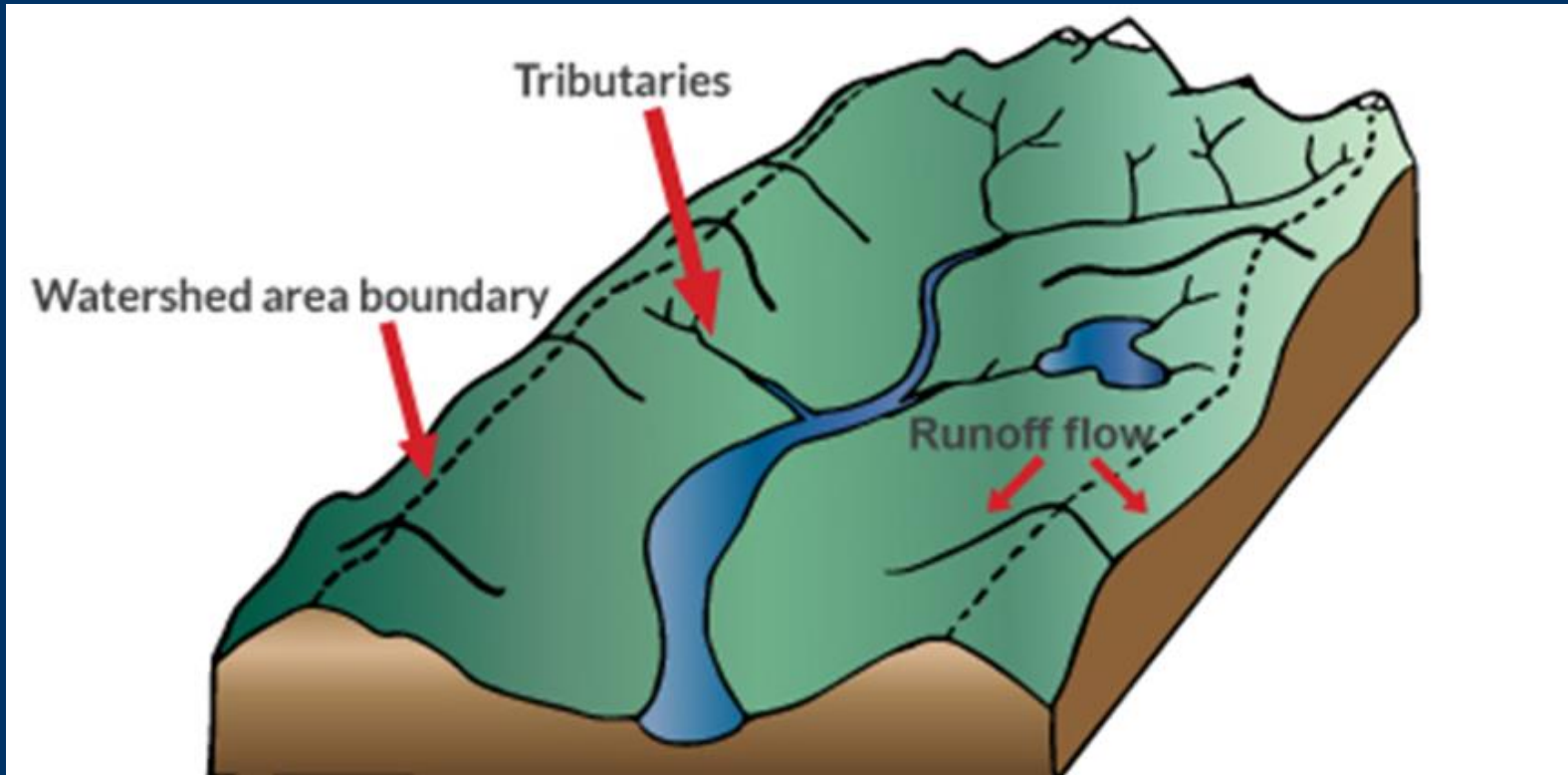


Water Shortages in NL

- Some systems are more susceptible than others.
 - River intakes
 - Small watershed



Watershed Areas





So, you have a supply shortage. What do you do?

The short answer... it depends.

- How critical water levels are. (emergency vs. abnormally low)
- What's causing the shortage
- Available options

Abnormally Low Supply (Water Conservation Issue)

- Promote water conservation



- Impose water use restrictions on residents (i.e. no lawn watering)

- Install water meters near the intake

Supply Emergency

- Call a state of emergency
- Truck in potable bulk or bottled water
- Identify and connect to emergency drinking water source
 - Neighboring community's drinking water system
 - Pump from a nearby surface water source
 - Obtain approval from WRMD
 - Issue NCA or BWA as needed
- Add sandbags below a river intake to retain water
- Apply for special assistance funding for emergency work



Emergency Measures - Pumping

In an emergency (and in the right circumstances), water pumps can be used to pump water from a nearby waterbody.

- Supply Shortage
- Nearby body of water
- Accessible
- Access to capable pumps and equipment



Emergency Measures - Pumping



Pumping from...



Emergency Measures - Pumping

- In order for the residents to continue drinking the water as normal, the pump and hoses must be certified for potable water (NSF), and the water is to be pumped from a pond in the existing PPWSA.
- If water is pumped with non-certified equipment, or is pumped from a pond outside the PPWSA, then a temporary non-consumption order will likely come into effect.
- Pumps or hoses that may have been used to pump sewage are not permitted.
- Ensure gas-fueled pumps do not contaminate the water source (constant monitoring and secondary containment).

Who do I contact?

Emergency



Water Conservation
Issue



Maintenance Issue



- Fire Emergency and Services
- Digital Government and Service NL
- Water Resources Management Division
- Municipal Infrastructure Branch
- Engineering Consultant
- Equipment Supplier
- Department of Fisheries and Oceans



Communicating with the Public

It's also important to communicate the relevant information to residents and other affected users, such as:

- The cause of the shortage
- What they can do to help
- What is being done
- Any emergency information



This can be done a variety of ways.

- Brochures
- Social Media
- Community website
- Radio
- Newspaper
- Posters

Long Pond – A Case Study

Long Pond PPWSA – Joe Batt's Arm (Fogo Island)

- Services a resident population of about 685, and a significantly higher number during tourist season.
- In August 2021 the intake pond experience significant reduction in volume due to lack of precipitation.









Long Pond: A Case Study



Long Pond: A Case Study

So... what caused this anyway?

- Dry summer
- High water usage for the size of the watershed.

Long Pond – A Case Study

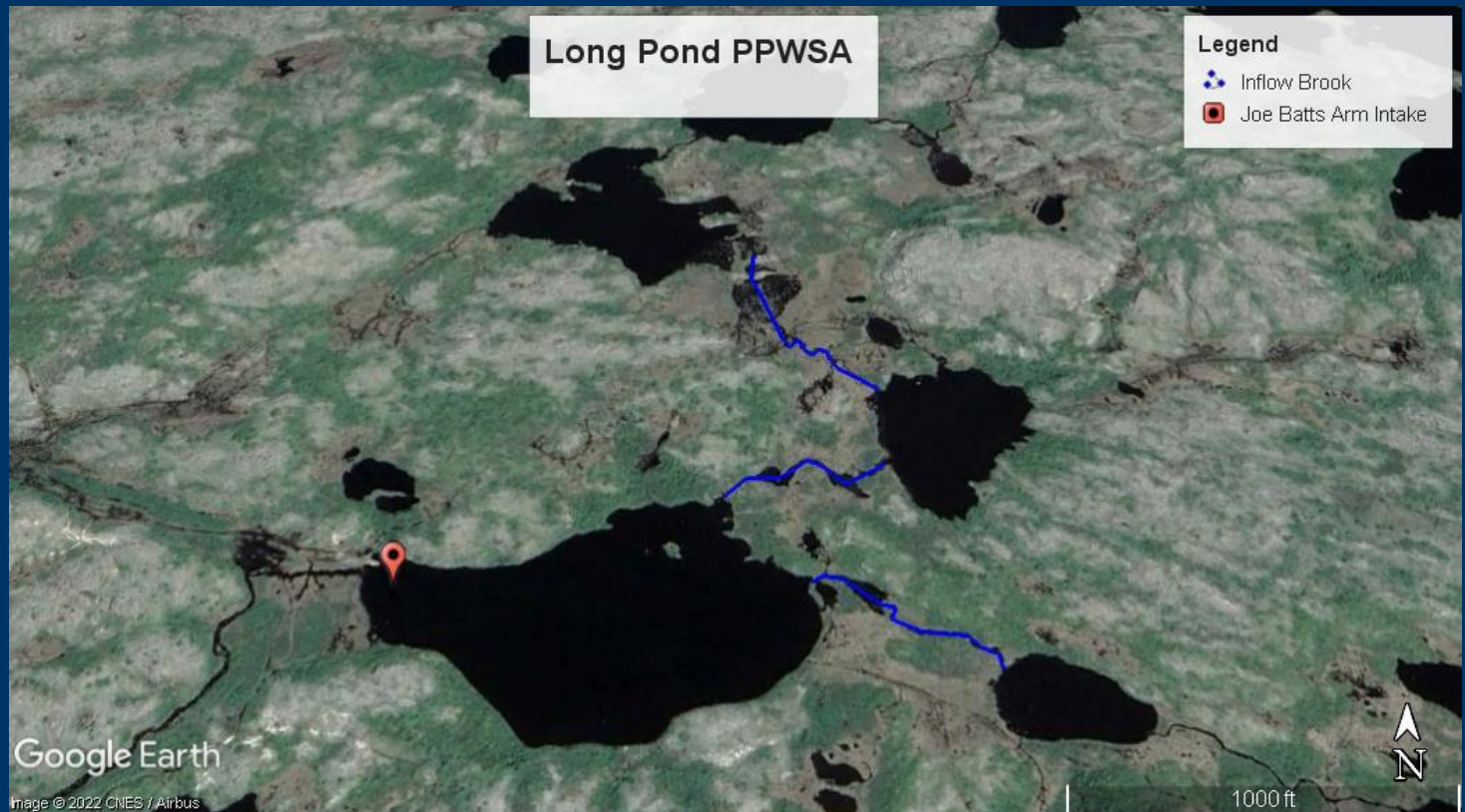
Initial Challenges

- Limited access
- Limited equipment availability
- No confidence of future precipitation

Long Pond: A Case Study

Short Term Solution:

Three pumps were running and monitored around the clock to keep up with the demand until the watershed received sufficient precipitation



Long Pond: A Case Study

Long term/preventative solution?

Possibly constructing a dam to increase intake pond volume.



Key Points to Remember

- Recognize the risk of a possible water shortage.
 - Susceptible system
 - Lower than normal water levels
 - Dry Forecast
- Be proactive.
 - Regularly monitor water levels
 - Promote water conservation and impose restrictions early
 - Complete regular preventative maintenance
- Contact the appropriate government departments early!

Contact Information

Water Resources Management Division

- waterandsewer@gov.nl.ca

Municipal Infrastructure Branch

- Contact your regional engineer at
<https://www.gov.nl.ca/ti/mi/contact/#ro>

Fire and Emergency Services

- 1(709) 729-3703

Digital Government and Service NL

- <https://www.gov.nl.ca/dgsnl/departments/contact/#locations>
- serviceninfo@gov.nl.ca

Thank you!