

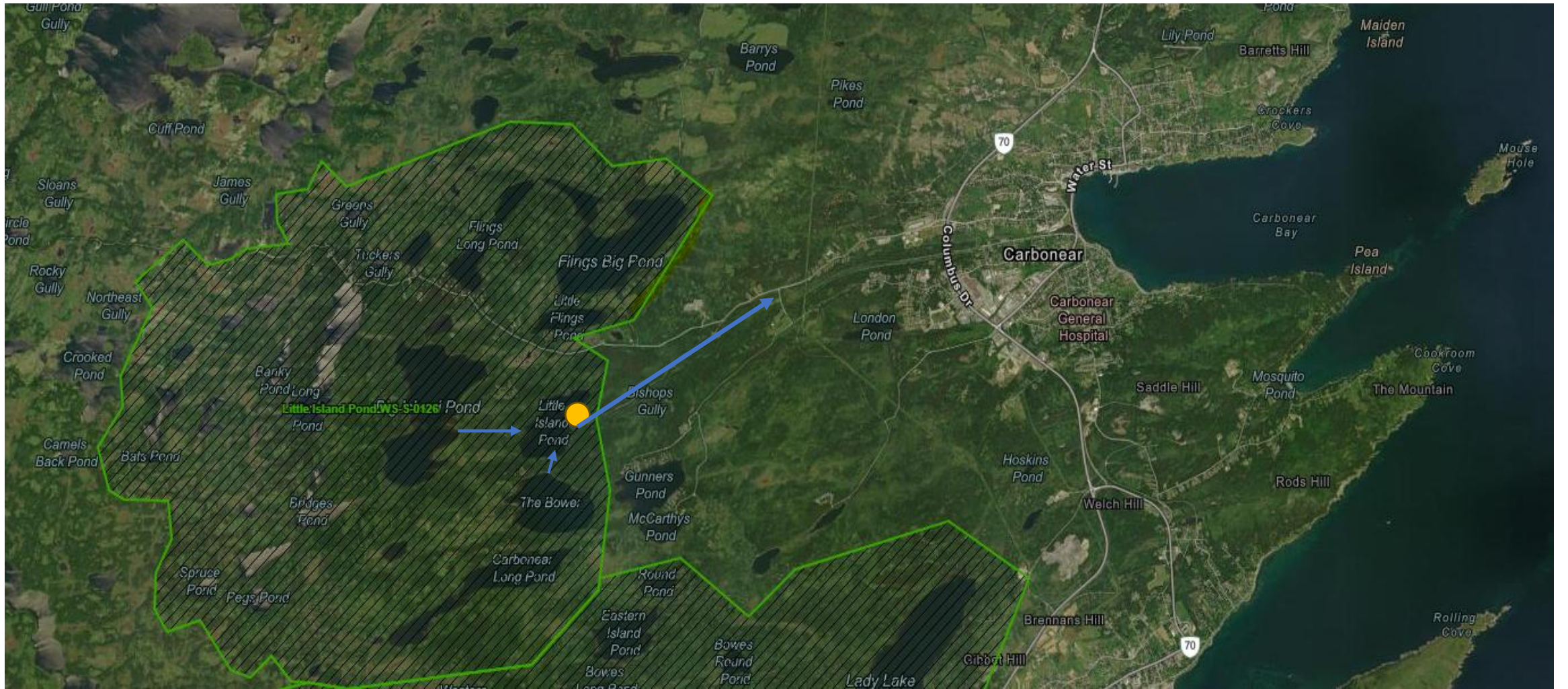
Come Hell or Low Water

Navigating water distribution system challenges in
Carbonear, NL during drought conditions 2025

Ian Gerard T Farrell

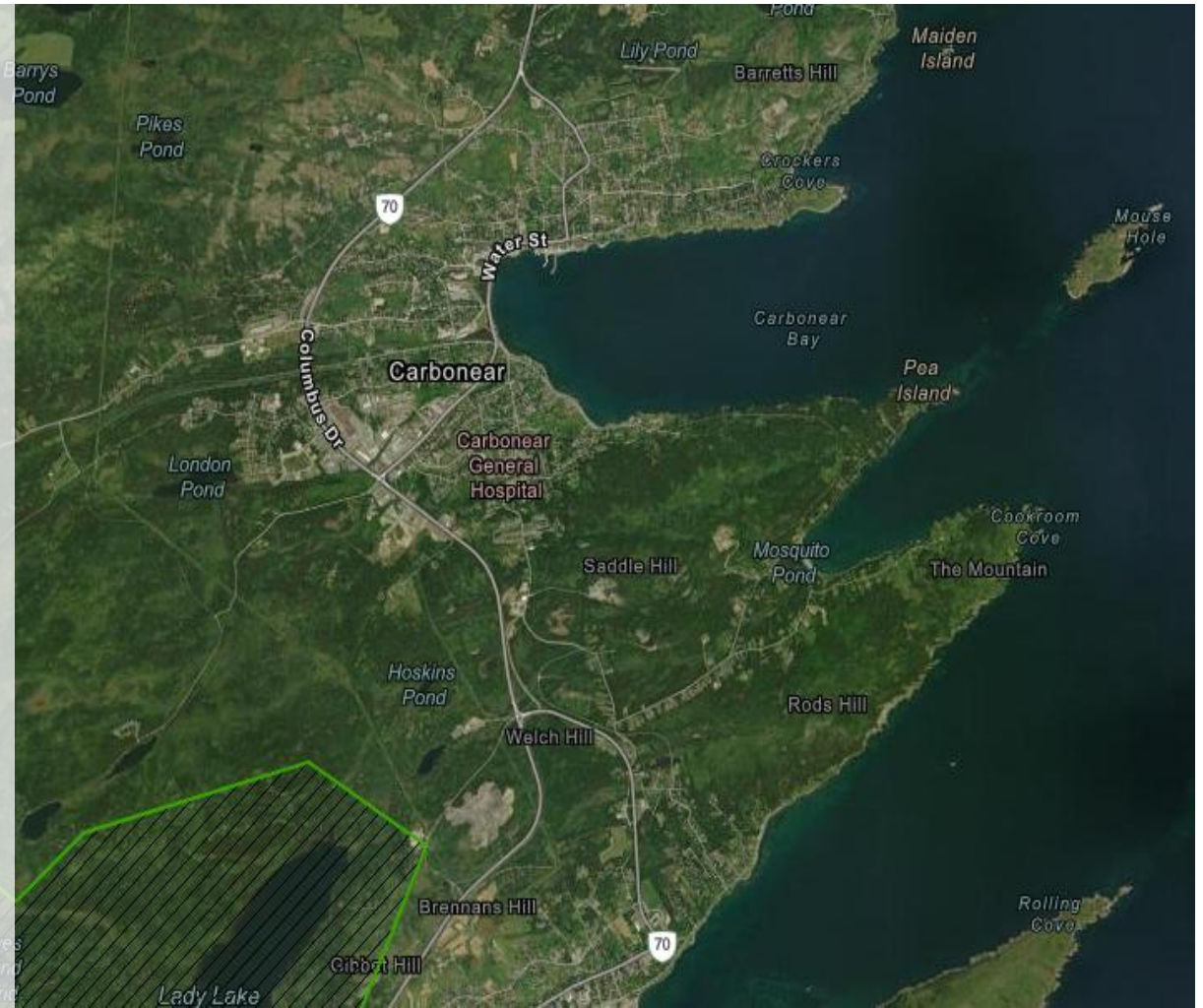
Director of Operations and Public Works
Town of Carbonear





System User Profile

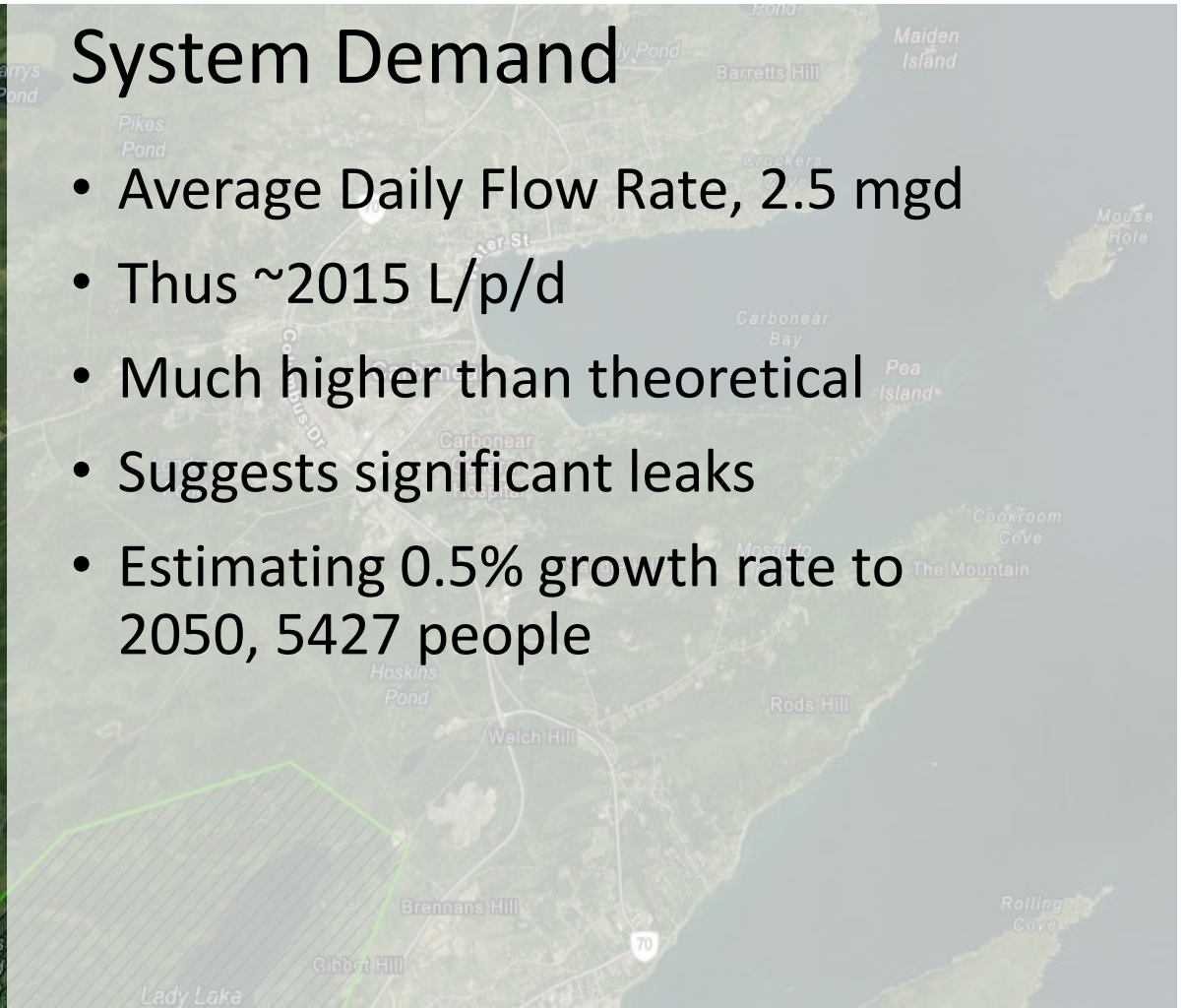
- Population, 4696
- # Households, 2094
- 250+ businesses
- 1 hospital, and 1 long term care facility with 228 beds
- 2 schools
- ~45kms linear infrastructure
- Screenhouse, chlorine building
- 3 pumphouses





System Demand

- Average Daily Flow Rate, 2.5 mgd
- Thus ~2015 L/p/d
- Much higher than theoretical
- Suggests significant leaks
- Estimating 0.5% growth rate to 2050, 5427 people



Local News

Clareville R

Aug 21, 2025 | 9:31 AM



Nfld. &

Local I Fac

Lakes Bol

Monit Mayo

Oct 31, 2025 |



Nfld. & Labrador

St. John's asking residents to conserve water

City says water supply is down due to period of low precipitation

CBC News · Posted: Oct 08, 2025 10:56 AM NDT | Last Updated: October 8, 2025



Listen to this article ⓘ

Estimated 2 minutes



ast resort' to says mayor

nservation order

T | Last Updated: October 21

feet below normal
century.



Newfoundland Drought of 2025

January	~100.0 mm	Near average
February	~150.0 mm	Above average
March	86.0 mm	Below average
April	146.8 mm	Last month with above-average rain
May	52.0 mm	Significantly below average
June	47.1 mm	4th warmest June on record; very dry
July	54.0 mm	Drought intensification
August	96.2 mm	Below average; peak of water bans
September	40.5 mm	Less than 50% of normal
October	120.2 mm	Below average (Normal is ~158 mm)
November	253.9 mm	Record-breaking wetness
December	182.7 mm	Above average

Informal obsv

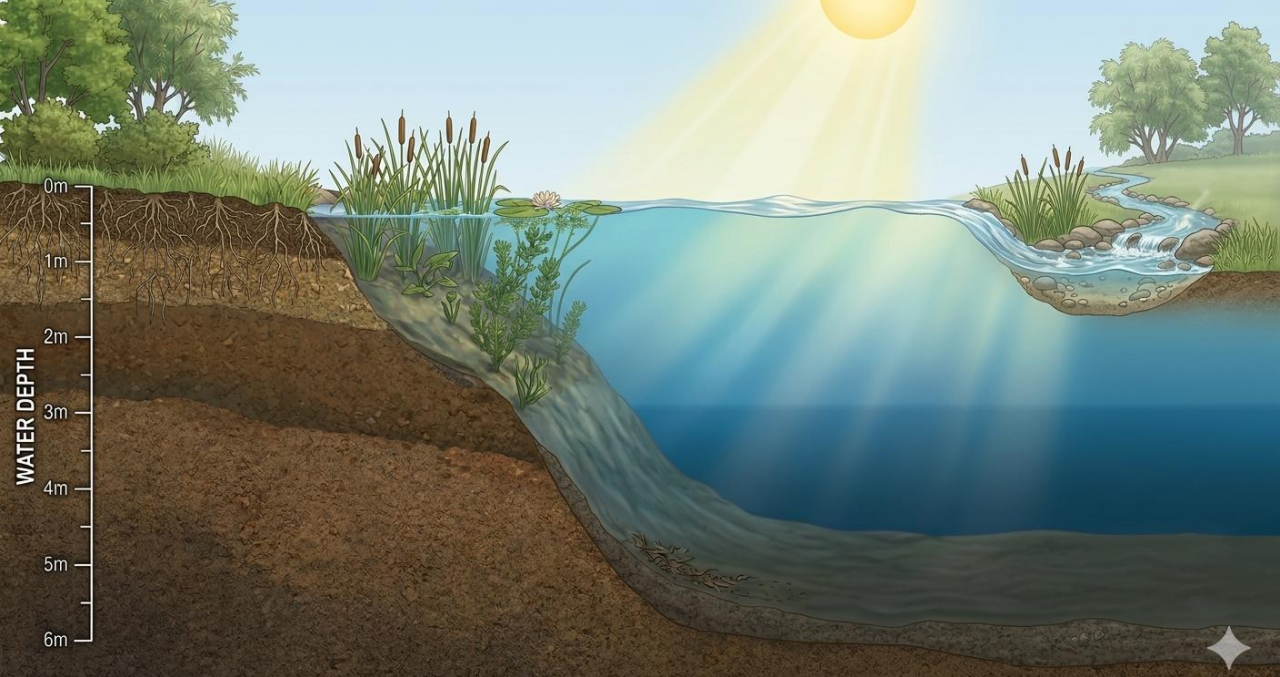
Daily measurements

Wells dry

3 Aug – Kingston Fire

Sub-Trop Storm





















Siphon Characteristics

- Started with PVC
 - Light weight, inexpensive
 - Seals likely leaked air
 - Provided proof of concept
- Settled on HDPE
 - Heavy, made it challenging
 - Air tight
 - Resilient





When considering siphon

- Start by plotting the intended profile of the pipe.
- Identify a point downstream low enough to ensure siphon.
 - Now you know the length of pipe you need.
- Determine materials:
 - Pipe, corp stops, saddles, 90 bend, buoy, bolts/nuts.





Opening the Bower





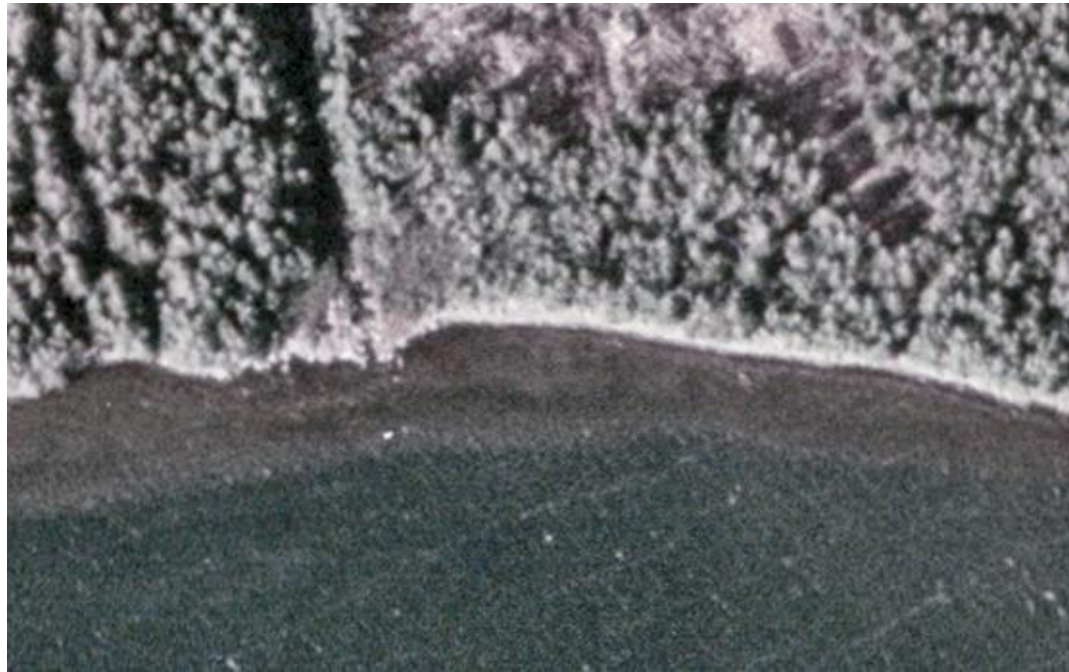




Reinstating the Bower



1979



1982



2024









Moving Forward

- Fix the leaks!
- Leak Detection Program
- Water Conservation Policy
- Continual monitoring of water levels
- SOP Bower Sluice
- Yield Study
- Climate Station



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