

Real Time Water Quality Deployment Report

New Found Gold Corp.

NF02YQ0075 & NF02YQ0076

2025-09-02 to 2025-10-14



Government of Newfoundland & Labrador
Department of Environment, Conservation & Climate Change
Water Resources Management Division

New Found Gold

In 2024, the Water Resources Management Division (WRMD), in partnership with New Found Gold Corp., established a real time water quality and quantity monitoring network in and around the Queensway Project in central Newfoundland. Two monitoring stations for water quality and quantity were installed on-site in October 2024.

This report will review the water quality data for the following two real-time monitoring stations at New Found Gold, Hermans Pond Brook and Pond 226 Brook, for the duration of 2025-09-02 through to 2025-10-14.

These stations are a part of the Provincial Real-Time Water Quality Network. The stations are maintained by the NL Water Resources Management Division (WRMD). WRMD staff are responsible for the maintenance and calibration of the water quality instruments deployed at these sites. The data recorded by the real-time water quality stations is available on [WRMD's website](#).

For the purposes of this report, air temperature and total precipitation data were used from the weather station located at the Gander International Airport. The data was retrieved from <https://climate.weather.gc.ca/>



Quality Assurance and Quality Control

As part of the Quality Assurance and Quality Control protocol (QA/QC), an assessment of the reliability of data recorded by an instrument is made at the beginning and end of the deployment period. The procedure is based on the approach used by the United States Geological Survey. With the exception of water quantity data (stage), all data used in the preparation of the graphs and subsequent discussion adhere to this stringent QA/QC protocol. Corrected data can be obtained upon request.

Parameter	Excellent	Good	Fair	Marginal	Poor
pH	$\leq \pm 0.2$ units	$\leq \pm 0.21 - 0.5$ units	$\leq \pm 0.51 - 0.8$ units	$\leq \pm 0.81 - 1$ units	$> \pm 1$ units
Water Temperature	$\leq \pm 0.2^{\circ}\text{C}$	$\leq \pm 0.21 - 0.5^{\circ}\text{C}$	$\leq \pm 0.51 - 0.8^{\circ}\text{C}$	$\leq \pm 0.81 - 1^{\circ}\text{C}$	$> \pm 1^{\circ}\text{C}$
Dissolved oxygen	$\leq \pm 0.3$ mg/L	$\leq \pm 0.31 - 0.5$ mg/L	$\leq \pm 0.51 - 0.8$ mg/L	$\leq \pm 0.81 - 1$ mg/L	$> \pm 1$ mg/L
Turbidity	$\leq \pm 2$ turbidity units or $\leq \pm 5\%$, whichever is greater	$\leq \pm 2.1-5$ turbidity units or $\leq \pm 5.1-10\%$, whichever is greater	$\leq \pm 5.1-8$ turbidity units or $\leq \pm 10.1-15\%$, whichever is greater	$\leq \pm 8.1-10$ turbidity units or $\leq \pm 15.1-20\%$, whichever is greater	$> \pm 10$ turbidity units or $> \pm 20\%$, whichever is greater
Specific Conductance	$\leq \pm 3$ $\mu\text{S}/\text{cm}$ or $\leq \pm 3\%$, whichever is greater	$\leq \pm 3.1-10$ $\mu\text{S}/\text{cm}$ or $\leq \pm 3.1-10\%$, whichever is greater	$\leq \pm 10 - 15$ $\mu\text{S}/\text{cm}$ or $\leq \pm 10.1-15\%$, whichever is greater	$\leq \pm 15.1 - 20$ $\mu\text{S}/\text{cm}$ or $\leq \pm 15.1-20\%$, whichever is greater	$> \pm 20$ $\mu\text{S}/\text{cm}$ or $> \pm 20\%$, whichever is greater

At deployment and removal, a QA/QC Sonde is temporarily deployed adjacent to the Field Sonde. Values for temperature, pH, conductivity, dissolved oxygen and turbidity are compared between the two instruments. Based on the degree of difference between parameters recorded by the Field Sonde and QA/QC Sonde at deployment and at removal, a qualitative statement is made on the data quality. There are a few circumstances which may cause QA/QC rankings below excellent, including the placement of the QA/QC sonde in relation to the field sonde, the amount of time each sonde was given to stabilize before readings were recorded, and deteriorating performance of one of the sensors.

The temperature sensor on any sonde is the most important. All other parameters can be divided into subgroups of: temperature dependent, temperature compensated, and temperature independent. Due to the temperature sensor's location on the sonde, the entire sonde must be at a constant temperature before the temperature sensor will stabilize. The values may take some time to climb to the appropriate reading; if a reading is taken too soon it may not accurately portray the water body.

Additionally, grab samples are collected during deployment to compare pH, specific conductivity and turbidity values between the field instrument and grab samples. Variability in results may be attributed to differences in the sampling location or depth relative to the sonde's deployment site or insufficient equilibration time for the sonde when initial field data was collected.

Hydrometric Data

Water Resources Management Division hydrometric (stage and flow) data is quality controlled on a less frequent basis than water quality data due to differences in protocols. The hydrometric data shown in this report is provisional and has not undergone quality control checks.

Quality Assurance and Quality Control

Deployment Period Rankings



QAQC Rankings

Station	Parameter	Deployment Rank	Deployment Grab Sample Rank	Removal Rank
Hermans Pond Brook	Dissolved Oxygen (mg/l)	Excellent		Excellent
Hermans Pond Brook	pH	Fair	Poor	Excellent
Hermans Pond Brook	Specific Conductivity (µS/cm)	Good	Good	Good
Hermans Pond Brook	Temperature (°C)	Good		Good
Hermans Pond Brook	Turbidity (NTU)	Fair	Good	Excellent
Pond 226 Brook	Dissolved Oxygen (mg/l)	Good		Good
Pond 226 Brook	pH	Fair	Fair	Good
Pond 226 Brook	Specific Conductivity (µS/cm)	Good	Good	Excellent
Pond 226 Brook	Temperature (°C)	Good		Excellent
Pond 226 Brook	Turbidity (NTU)	Excellent	Good	Excellent

At deployment, all parameters at both stations were rated as good or excellent, with the exception of pH at both stations and turbidity at Hermans Pond Brook, which were rated as fair. The fair pH ratings were likely the result of insufficient equilibration time for the field sonde before initial measurements were recorded. The fair turbidity rating at Hermans Pond Brook was likely due to differences in positioning between the field and QA/QC sondes at the time measurements were taken.

At removal, all parameters at both stations were rated as good or excellent, indicating minimal variation between field and QA/QC sonde measurements and suggesting stable sensor performance throughout the deployment period.

Grab sample rankings collected during deployment ranged from poor to good. pH at Hermans Pond Brook was rated poor, while pH at Pond 226 Brook was rated fair. These lower ratings were likely influenced by differences in sampling depth or location relative to the deployed field sonde, as well as insufficient equilibration time prior to recording the initial grab sample measurements.

Water Temperature (°C)



Water temperature plays a crucial role in wildlife and ecosystem health, as many organisms rely on air and water conditions to regulate their body temperatures. Additionally, water temperature affects other key parameters, such as dissolved oxygen levels and specific conductivity.

Water temperature at Hermans Pond Brook ranged between 3.66°C to 20.32°C, while water temperatures at Pond 226 Brook ranged between 4.19°C to 18.74°C.

Throughout this deployment period, a natural diurnal pattern was evident, with warmer temperatures during daylight hours and cooler temperatures at night. A decreasing trend was observed at both stations, which would be expected during the seasonal transition from summer to fall.

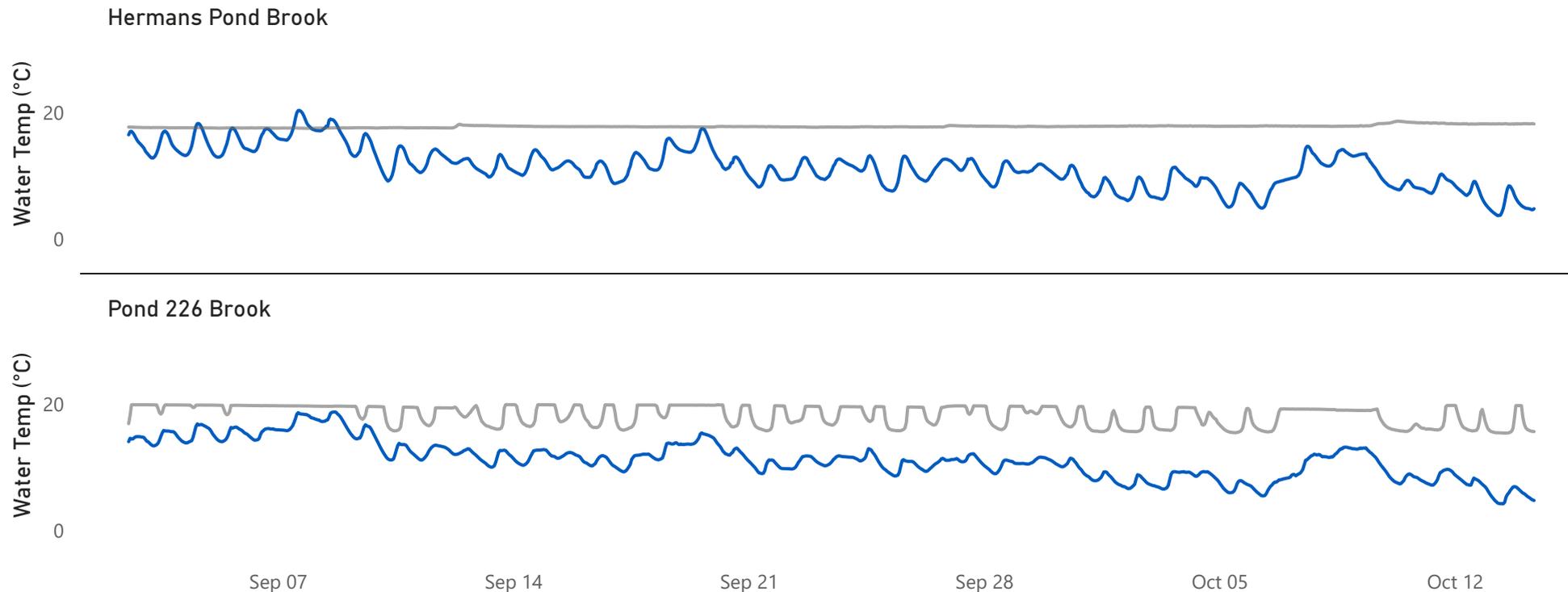
Hermans Pond Brook

11.28	11.16
Average	Median
3.66	20.32
Minimum	Maximum

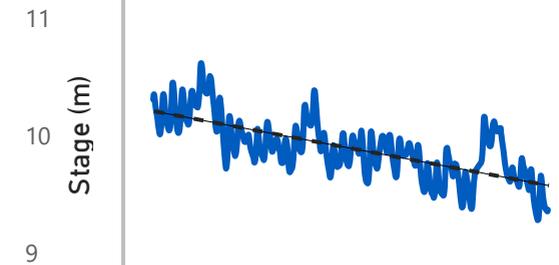
Pond 226 Brook

11.24	11.21
Average	Median
4.19	18.74
Minimum	Maximum

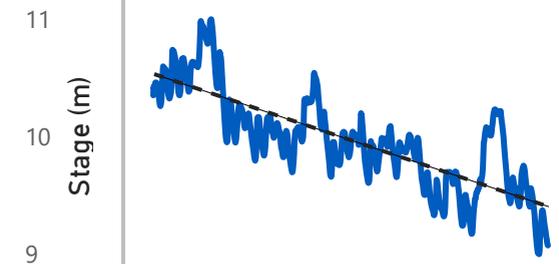
● Water Temp (°C) ● Stage (m)



Hermans Pond Brook Trendline



Pond 226 Brook Trendline



pH (pH Units)



Hermans Pond Brook

6.83	6.84
Average	Median
6.54	7.07
Minimum	Maximum

Pond 226 Brook

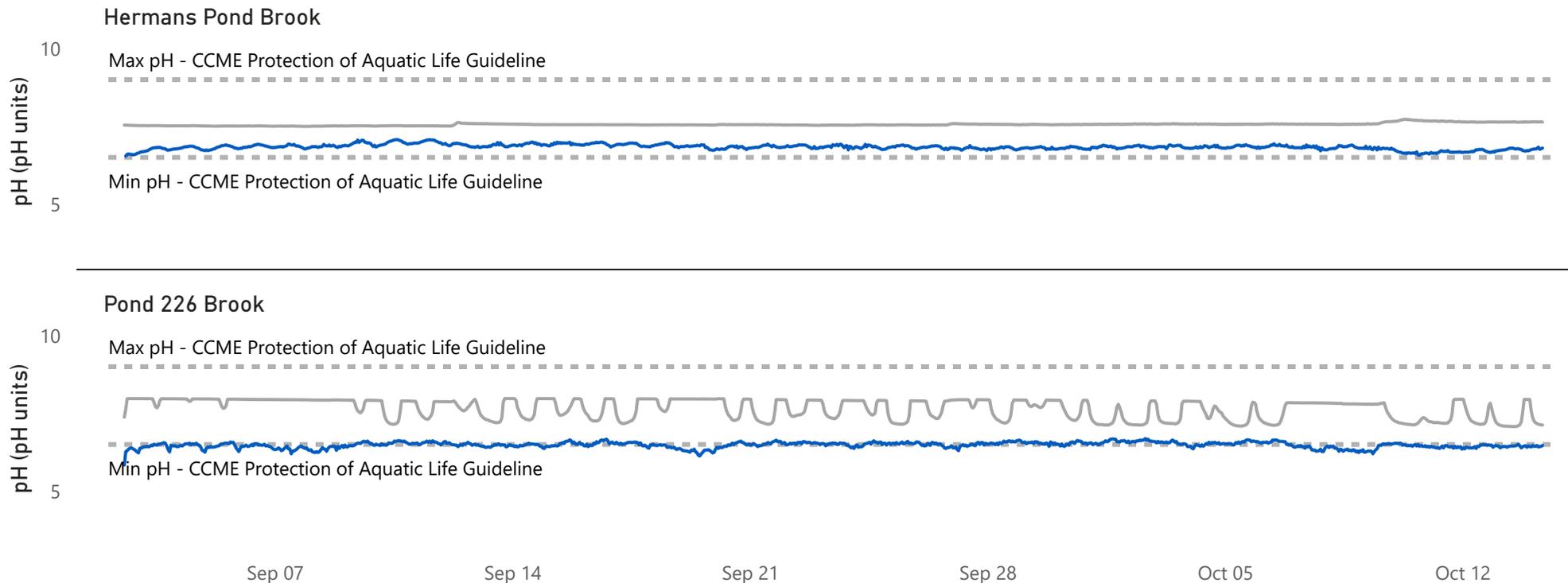
6.48	6.49
Average	Median
5.84	6.69
Minimum	Maximum

pH relates to the free hydrogen ions in water and it is a measure of acidity in water. According to the [Canadian Council of Ministers of the Environment](#) (CCME) Freshwater Aquatic Life Guidelines, the recommended pH range for aquatic health is between 6.5 and 9.0. However, many rivers in Newfoundland and Labrador are naturally more acidic due to the local geology. Water parameter maps can be found on the [Water Resources Management website](#).

pH at Hermans Pond Brook ranged between 6.54 to 7.07 pH units, while pH at Pond 226 Brook ranged between 5.84 to 6.69 pH units. Overall, pH remained stable and consistent at both stations throughout the deployment period. Daily pH fluctuations are typical and are often influenced by temperature variation, precipitation events, and the respiration of aquatic plants. Rainwater, which is naturally lower in pH, can temporarily dilute surface waters and cause short-term decreases in pH, though levels generally return to baseline within a few days to weeks.

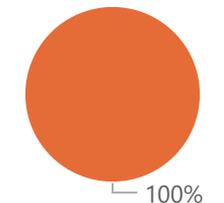
pH levels at Hermans Pond Brook remained within the CCME guideline range of 6.5 to 9.0 units throughout the entire deployment period. At Pond 226 Brook, pH fluctuated near the 6.5 guideline throughout the deployment. The naturally lower pH observed at Pond 226 Brook is likely due to localized environmental influences.

● pH (pH units) ● Stage (m)



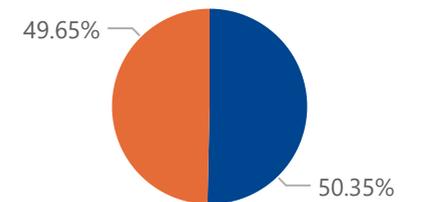
Hermans Pond Brook

● Within Guidelines



Pond 226 Brook

● Below Guidelines ● Within Guidel...



Specific Conductivity

($\mu\text{S}/\text{cm}$)



Conductivity measures how well a solution conducts electricity. Specific conductivity is adjusted to 25°C to allow comparisons across temperatures. Precipitation can influence conductivity: rainwater may temporarily lower it by diluting the water, or increase it if runoff introduces additional dissolved ions.

Specific conductivity at Hermans Pond Brook ranged between 76.91 $\mu\text{S}/\text{cm}$ to 100.15 $\mu\text{S}/\text{cm}$, while values at Pond 226 Brook ranged between 38.96 $\mu\text{S}/\text{cm}$ and 55.12 $\mu\text{S}/\text{cm}$.

Conductivity remained generally stable throughout the deployment period at both stations, with brief dips and spikes coinciding with water elevation increases, likely as a result of precipitation events. There was a slight increasing trend observed at both stations.

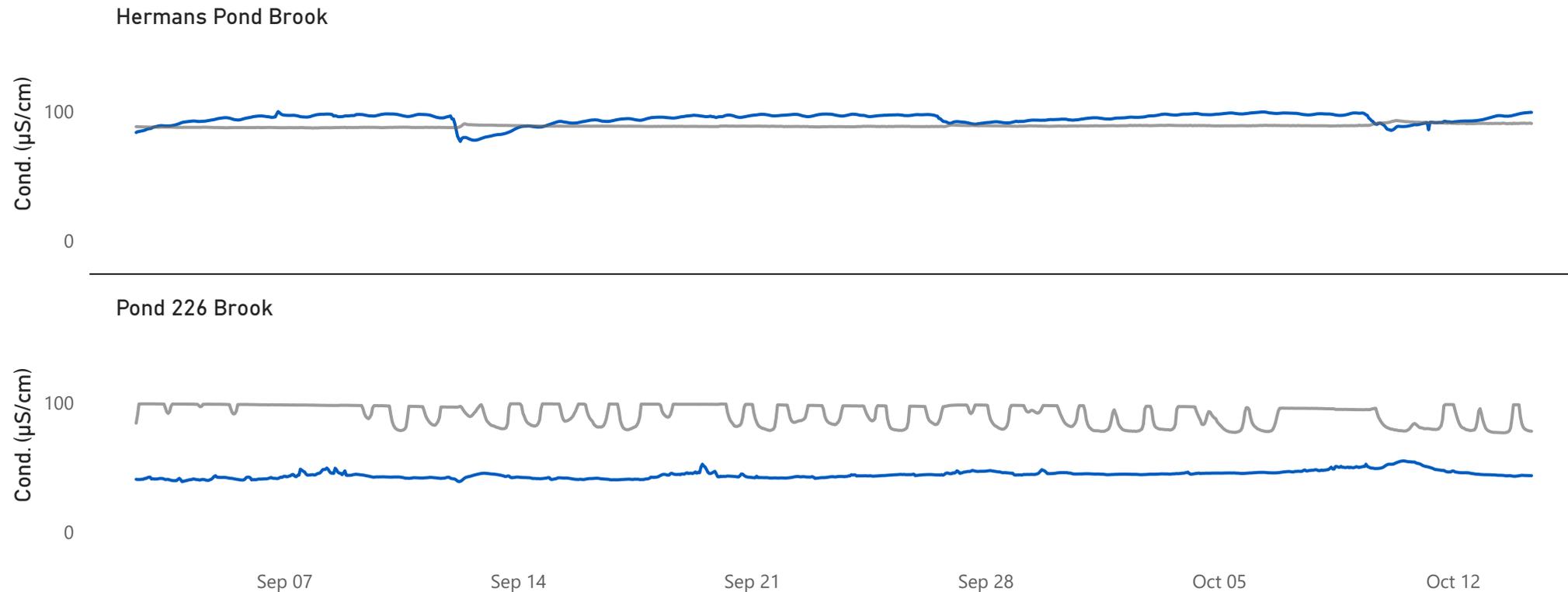
Hermans Pond Brook

94.51	95.89
Average	Median
76.91	100.15
Minimum	Maximum

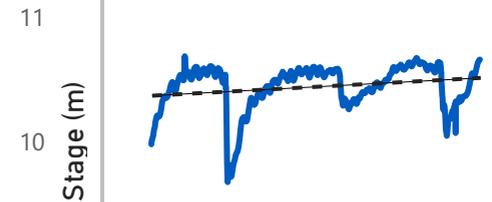
Pond 226 Brook

44.39	44.35
Average	Median
38.96	55.12
Minimum	Maximum

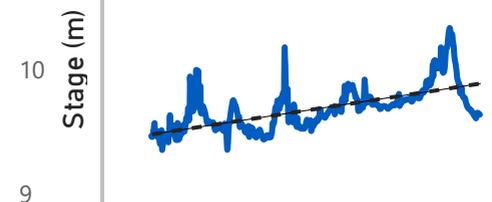
● Specific Conductivity ($\mu\text{S}/\text{cm}$) ● Stage (m)



Hermans Pond Brook Trendline



Pond 226 Brook Trendline



Dissolved Oxygen

(mg/L and % Sat)



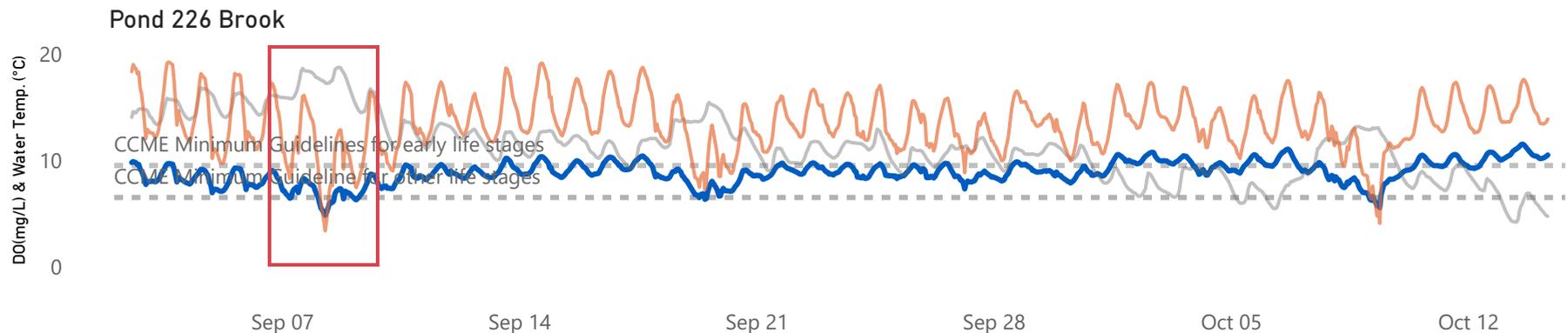
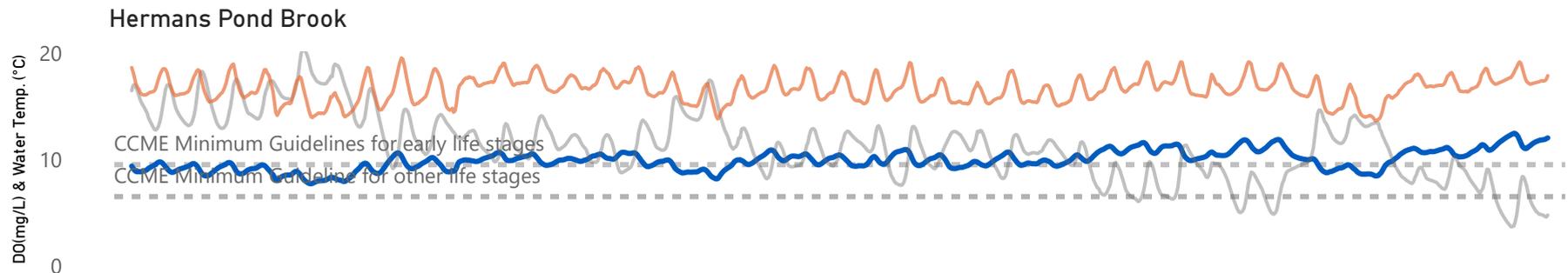
Dissolved oxygen (DO) is essential for aquatic life. The [CCME](#) Freshwater Aquatic Life Guidelines set minimum thresholds of 9.5 mg/L for early life stages in cold water and 6.5 mg/L for other life stages. DO concentrations are influenced by water temperature, with colder water holding more oxygen. This inverse relationship, along with daily fluctuations driven by temperature changes and plant respiration, is evident in the graphs below.

DO at Hermans Pond Brook ranged between 7.71 mg/L and 12.45 mg/L, while DO at Pond 226 Brook ranged between 4.81 mg/L and 11.52 mg/L. Pond 226 Brook is more susceptible to lower DO levels, likely due to environmental factors such as lower canopy cover and higher exposure to temperature effects. The minimum observed at Pond 226 Brook (4.81mg/L) occurred during a period of increased water temperature (highlighted by the red box on the graph below).

DO at Hermans Pond Brook stayed consistently above the CCME minimum guideline for other life stages, while Pond 226 Brook experienced brief dips below it related to warmer water temperatures. For early life stages, both sites fluctuated near the guideline.

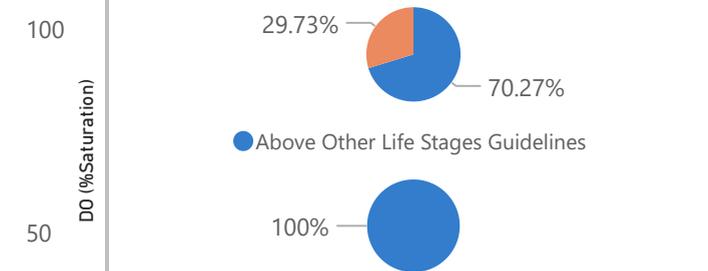
Hermans Pond Brook		Pond 226 Brook	
9.90	9.91	8.84	8.91
Average	Median	Average	Median
7.71	12.45	4.81	11.52
Minimum	Maximum	Minimum	Maximum

● DO (mg/L) ● Water Temperature (°C) ● % Saturation



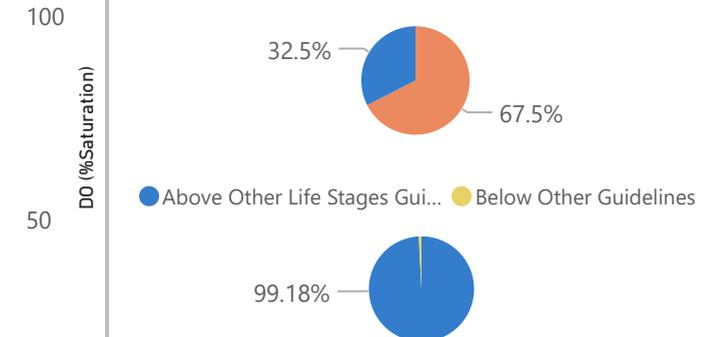
Hermans Pond Brook

● Above Early Life Stages Guideli... ● Below Early Life Sta...



Pond 226 Brook

● Below Early Life Stages Guideli... ● Above Early Life Stag...



Turbidity (NTU)



Turbidity, or water cloudiness, often increases during precipitation events when runoff carries silt and debris into the waterbody. Elevated turbidity can block light from reaching aquatic plants, disrupt benthic habitats, and harm fish gills or equipment.

Turbidity at Hermans Pond Brook ranged between 0.00 NTU and 20.81 NTU, while turbidity at Pond 226 Brook ranged between 0.00 NTU and 8.11 NTU. Turbidity tends to spike during stage increases, typically due to precipitation, which can disturb the bottom substrate or increase runoff entering the water. While turbidity levels may rise temporarily, they generally return to background values within a few days. Turbidity at both stations was generally low with similar median values throughout the monitoring period, with occasional sharp spikes.

**A small correction factor of +0.46 was applied to the Pond 226 Brook turbidity data and +1.84 to the Hermans Pond Brook data to address negative readings. Negative turbidity values can occur when the water is clearer than the instrument's zero calibration standard, often due to very low suspended solids or minor instrument drift. These values do not represent true "negative" turbidity. While the adjusted absolute values may carry some uncertainty, the overall data trends remain reliable.*

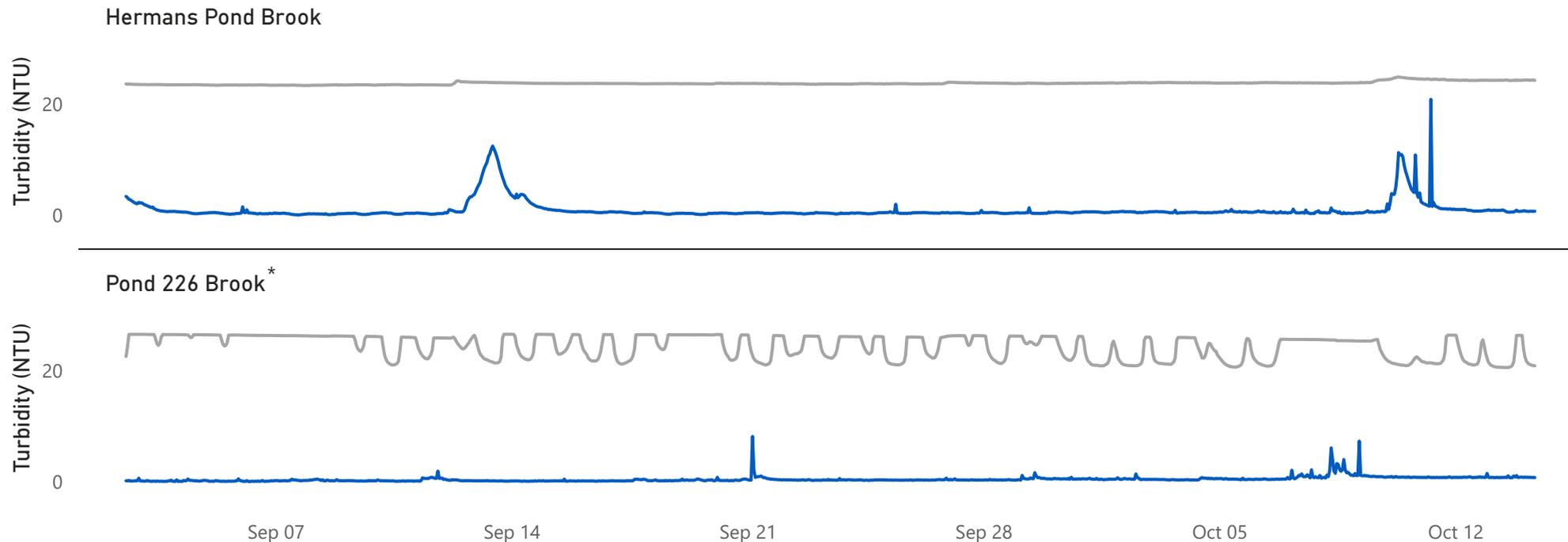
Hermans Pond Brook *

0.90	0.42
Average	Median
0.00	20.81
Minimum	Maximum

Pond 226 Brook *

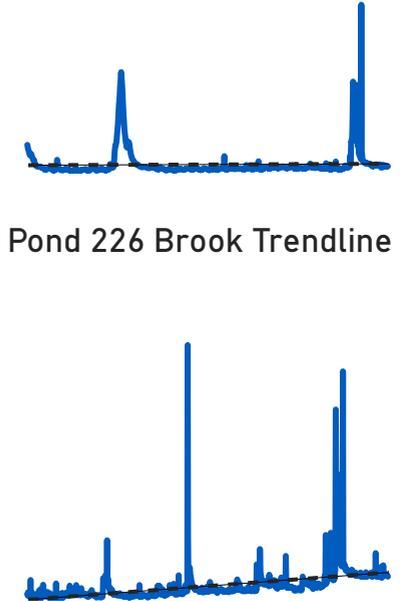
0.41	0.28
Average	Median
0.00	8.11
Minimum	Maximum

● Turbidity (NTU) ● Stage (m)



Hermans Pond Brook Trendline

Pond 226 Brook Trendline



Stage (m)



Stage provides an estimate of the water level at a monitoring station and plays a vital role in analyzing trends in water quality data, particularly for parameters such as specific conductivity, pH, and turbidity. Stage generally rises during precipitation events as rainwater and runoff enter the water column. By monitoring stage alongside precipitation events, we can better interpret our data, distinguish whether a stage increase is caused by rainfall or potential industrial activities, and assess its impact on water quality. Precipitation data was retrieved from the Gander, NL Airport CS meteorological (MET) station.

Stage ranged between 10.17m to 10.24m at Hermans Pond Brook, and ranged between 10.03m to 10.33m at Pond 226 Brook. Stage remained generally stable throughout the deployment period at both stations, with some minor dips and spikes. There was a slight increasing trend at Hermans Pond Brook, while there was a slight decreasing trend at Pond 226 Brook.

Hermans Pond Brook

Pond 226 Brook

10.19	10.18
Average	Median
10.17	10.24
Minimum	Maximum

10.22	10.27
Average	Median
10.03	10.33
Minimum	Maximum

Hermans Pond Brook

Stage (m)

11

10

Pond 226 Brook

Stage (m)

11

10

Sep 07

Sep 14

Sep 21

Sep 28

Oct 05

Oct 12

Hermans Pond Brook
Trendline

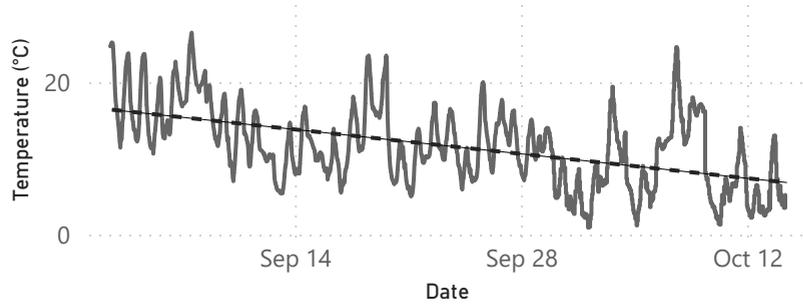
Pond 226 Brook
Trendline

Meteorological and Hydrometric Data

Gander Airport CS MET Station Data



Air Temperature Recorded at Gander Airport CS MET Station



● Air Temperature (°C) ● Water Temperature (°C)

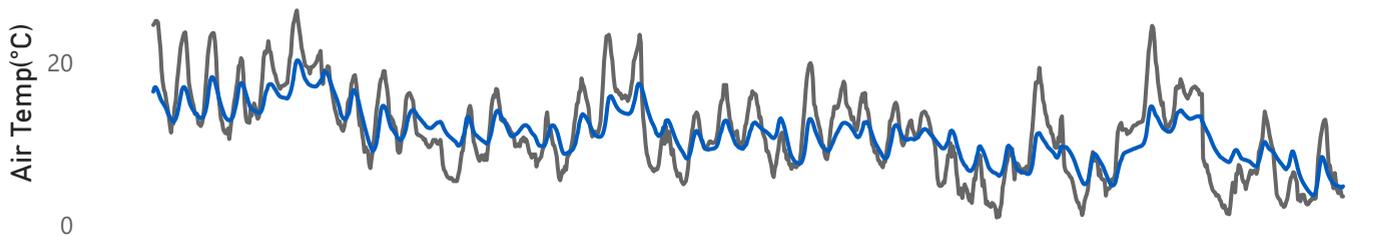
Air Temperature Statistics

11.61 Average (°C)	11.40 Median (°C)
0.90 Minimum (°C)	26.50 Maximum (°C)

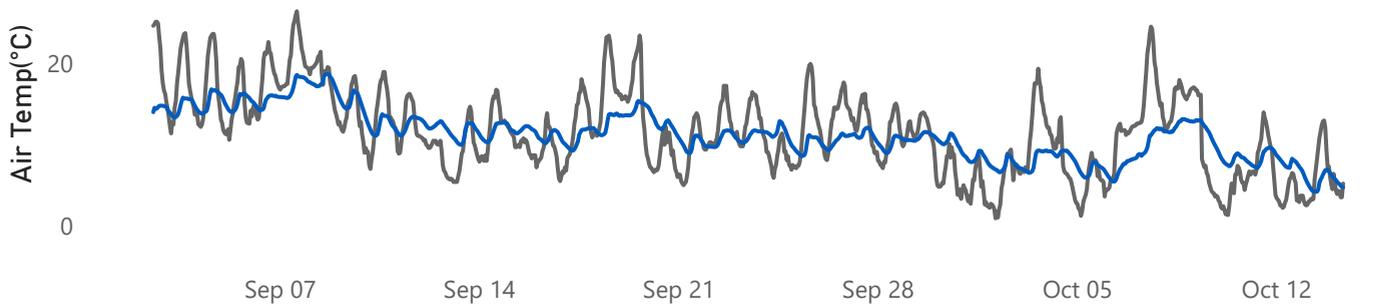
Precipitation Statistics

0.06 Average (mm)	0.00 Median (mm)
0.00 Minimum (mm)	4.80 Maximum (mm)

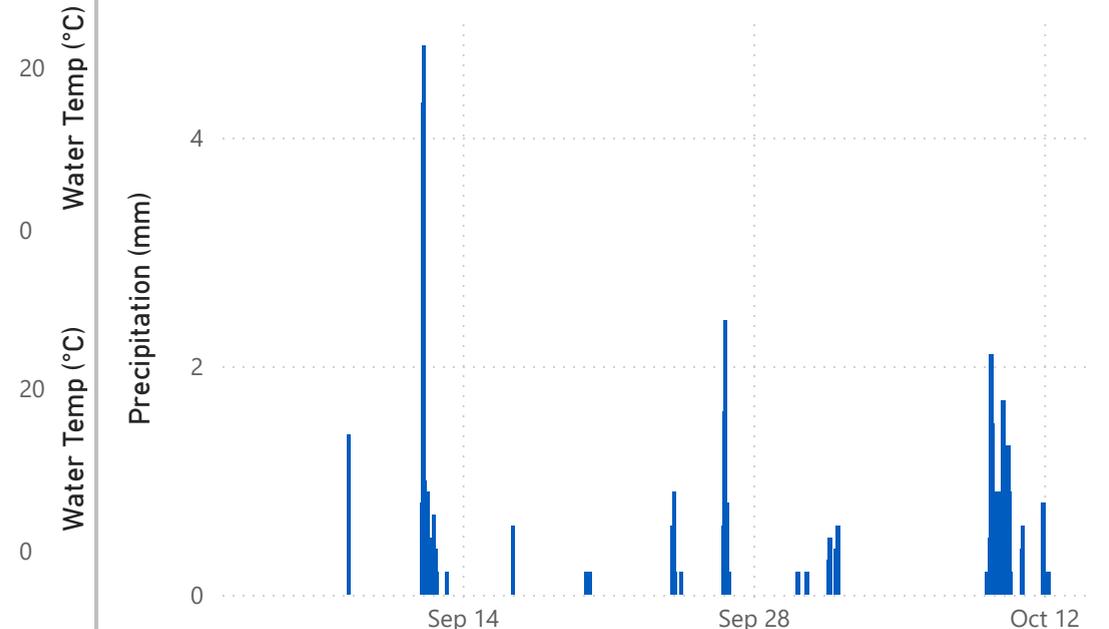
Hermans Pond Brook



Pond 226 Brook



Precipitation Recorded at Gander Airport CS MET Station



Hermans Pond Brook RTWQ Station

NF02YQ0075



Hermans Pond Brook is a small, narrow stream that flows from Herman Pond North and Herman Pond South. The real-time station is situated about 1.5 km downstream of Herman Pond North, with the hut located roughly 4 meters from the access road. The instrument is placed around 10 meters upstream of a bridge, and both the instrument and hydrometric plate are deployed at a depth of approximately 0.5 meters in the center of the brook. The streambed consists of cobbles and small rocks where the instrument is positioned, though it transitions to a softer, muddier bottom slightly upstream.

Pond 226 Brook RTWQ Station

NF02YQ0076



Pond 226 Brook is a small stream, with the real-time station positioned about 0.75 km downstream of Pond 226 and 0.15 km upstream from a small pool. The streambed consists of cobbles in certain areas but is mostly soft and muddy, with tall grass growing along both sides of the stream. The instrument and hydrometric plate are deployed in the center of the brook at a depth of approximately 0.75 meters. The hut is located roughly 25 meters inland from the stream.