# Real Time Water Quality Deployment Report

# New Found Gold Corp.

## NF02YQ0075 & NF02YQ0076

2025-11-25 to 2025-12-11

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 2025-11-25 through to 2025-12-11.

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/

Newfoundland Labrador

# 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 | ≤ ± 0.2 units | ≤ ± 0.21 - 0.5 units | ≤ ± 0.51 - 0.8 units | ≤ ± 0.81 - 1 units | > ± 1 units |
| Water Temperature | ≤ ± 0.2°C | ≤ ± 0.21 - 0.5°C | ≤ ± 0.51 - 0.8°C | ≤ ± 0.81 - 1°C | > ± 1°C |
| Dissolved oxygen | ≤ ± 0.3 mg/L | ≤ ± 0.31 -0.5 mg/L | ≤ ± 0.51 - 0.8 mg/L | ≤ ± 0.81 - 1 mg/L | > ± 1 mg/L |
| Turbidity | ≤ ± 2 turbidity units or ≤ ± 5%, whichever is greater | ≤ ± 2.1-5 turbidity units or ≤ ± 5.1-10 %, whichever is greater | ≤ ± 5.1-8 turbidity units or ≤ ± 10.1-15 %, whichever is greater | ≤ ± 8.1-10 turbidity units or ≤ ± 15.1-20 %, whichever is greater | > ± 10 turbidity units or > ± 20 %, whichever is greater |
| Specific Conductance | ≤ ± 3 µS/cm or ≤ ± 3%, whichever is greater | ≤ ± 3.1-10 µS/cm or ≤ ± 3.1-10%, whichever is greater | ≤ ± 10 - 15 µS/cm or ≤ ± 10.1-15 %, whichever is greater | ≤ ± 15.1 - 20 µS/cm or ≤ ± 15.1-20 %, whichever is greater | > ± 20 µS/cm or > ± 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 | Grab Sample Removal |
|---|---|---|---|---|
| Hermans Pond Brook | Dissolved Oxygen (mg/l) | Excellent | | |
| Hermans Pond Brook | pH | Excellent | Fair | Excellent |
| Hermans Pond Brook | Specific Conductivity (µS/cm) | Good | Fair | Fair |
| Hermans Pond Brook | Temperature (°C) | Excellent | | |
| Hermans Pond Brook | Turbidity (NTU) | Excellent | Excellent | Excellent |
| Pond 226 Brook | Dissolved Oxygen (mg/l) | Excellent | | |
| Pond 226 Brook | pH | Excellent | Good | |
| Pond 226 Brook | Specific Conductivity (µS/cm) | Good | Poor | |
| Pond 226 Brook | Temperature (°C) | Excellent | | |
| Pond 226 Brook | Turbidity (NTU) | Good | Good | |

At deployment, all parameters at both stations were ranked as good or excellent, indicating minimal differences between the field sonde and QAQC sonde.

Grab sample rankings collected during deployment ranged from poor to excellent. pH ranked as fair at Hermans Pond Brook, likely a result of insufficient time for the sonde to equilibrate before recording initial measurements Specific conductivity ranked as fair at Hermans Pond Brook and poor at Pond 226 Brook. This is likely a result of sensor deterioration on the QAQC sonde, or differences in sampling location compared to placement of the field sonde.

There is no QAQC data available for either site upon removal, therefore no rankings. No grab sample was collected at Pond 226 Brook during removal due to ice conditions. Grab sample data for Hermans Pond Brook ranks as excellent for pH and turbidity, but fair for specific conductivity. The fair ranking is likely attributed to differences in placement of field sonde and grab sample collection.

# Water Temperature
(°C)

Newfoundland Labrador

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 -0.23°C to 3.31°C, while water temperatures at Pond 226 Brook ranged between -0.05°C to 3.63°C.

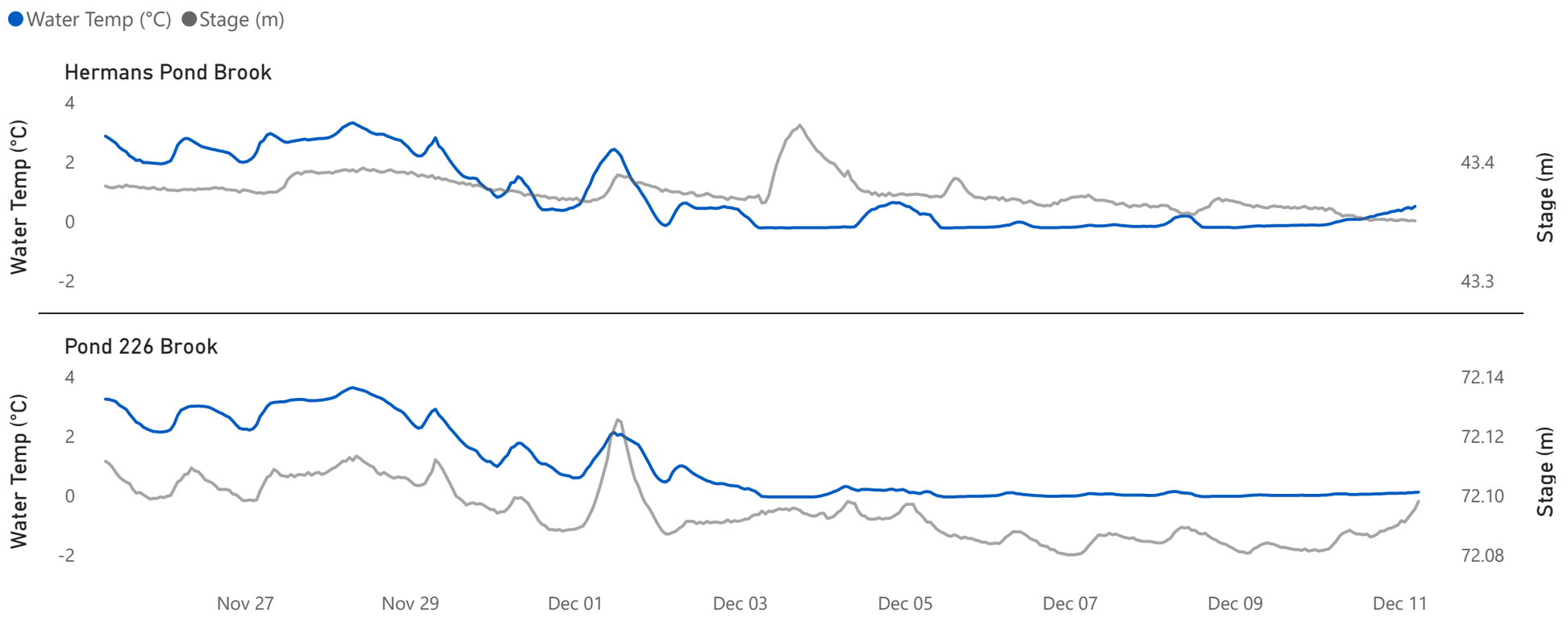
Throughout this deployment period, a natural diurnal pattern was evident, with warmer temperatures during daylight hours and cooler temperatures at night. A decreasing trend was observed at both stations, which would be expected as air temperatures decrease throughout the seasonal transition to winter.

### Hermans Pond Brook

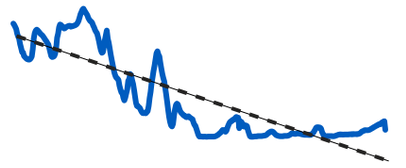
| | |
|---|---|
| 0.85 Average | 0.38 Median |
| -0.23 Minimum | 3.31 Maximum |

### Pond 226 Brook

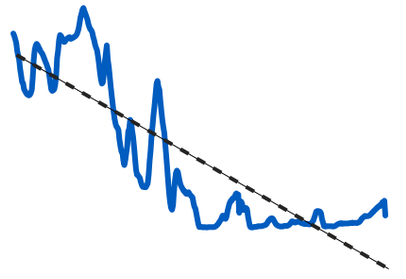
| | |
|---|---|
| 1.03 Average | 0.23 Median |
| -0.05 Minimum | 3.63 Maximum |




### Hermans Pond Brook Trendline



### Pond 226 Brook Trendline



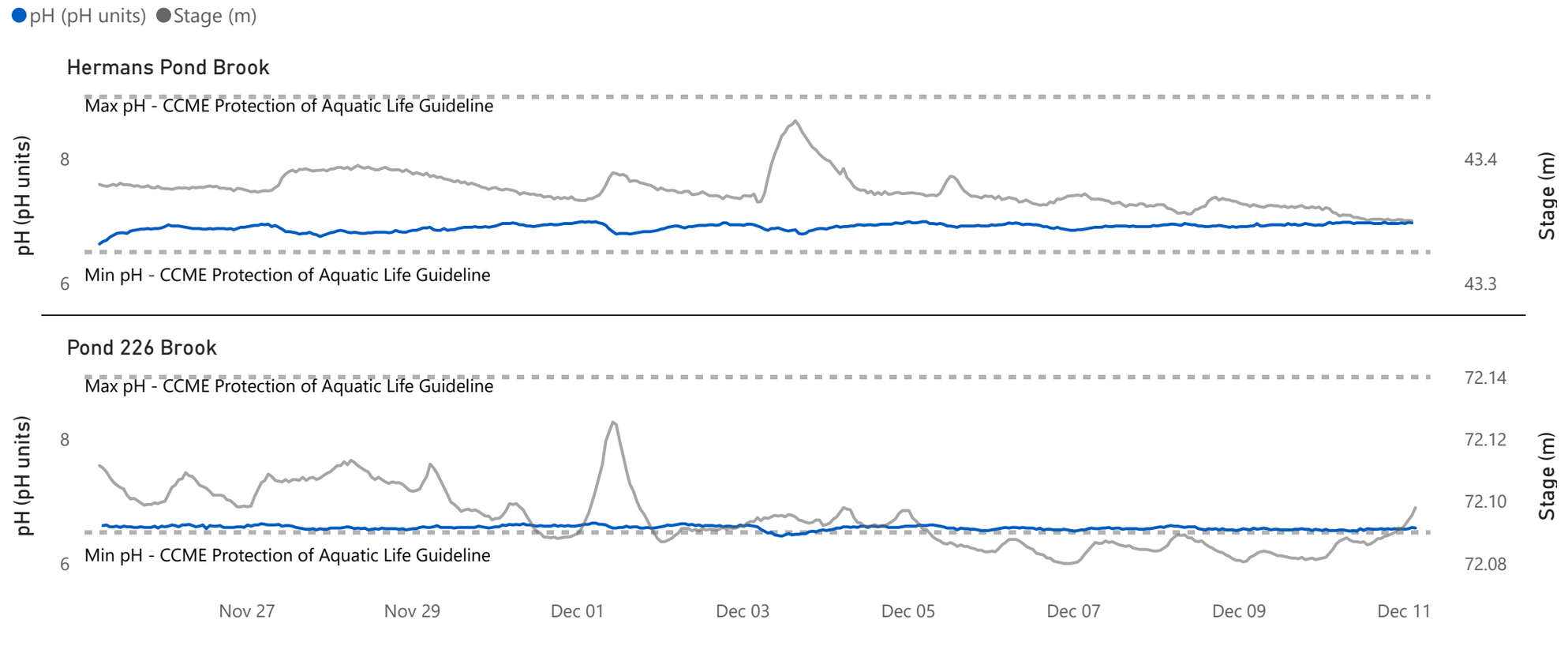
# pH
## (pH Units)

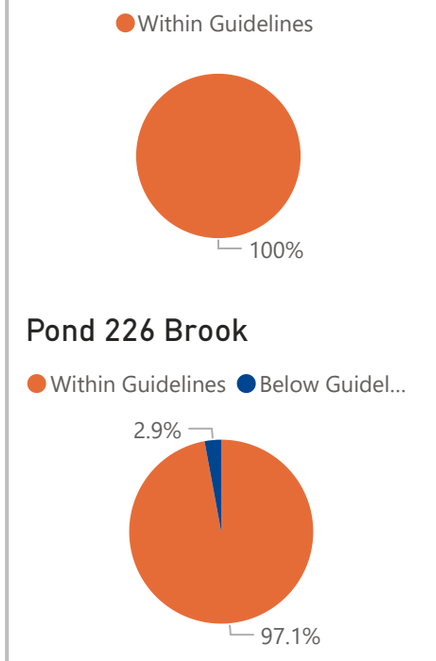
| Hermans Pond Brook | | Pond 226 Brook | |
|---|---|---|---|
| 6.90 Average | 6.92 Median | 6.57 Average | 6.58 Median |
| 6.63 Minimum | 6.99 Maximum | 6.44 Minimum | 6.65 Maximum |

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.

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 entirety of the deployment period. pH fluctuated around the 6.5 guideline at Pond 226 Brook, although values remained within the guideline values for the majority of the deployment. The naturally lower pH observed at Pond 226 Brook is likely due to localized environmental influences.



# Specific Conductivity

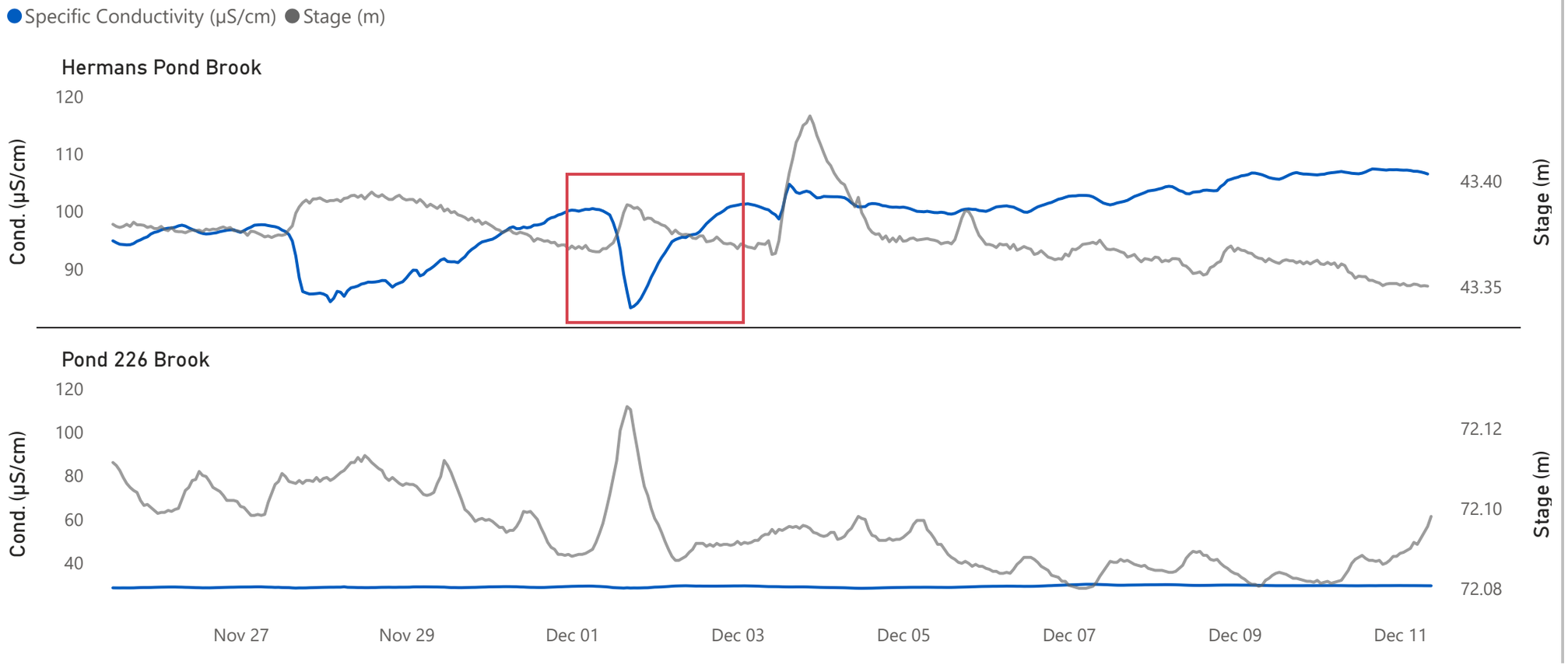
(µS/cm)

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.

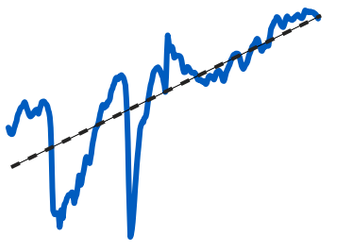
Specific conductivity remained generally stable throughout the deployment period at both stations, although values at Hermans Pond Brook were slightly more variable. Brief dips and spikes coincide with stage increases, likely as a result of precipitation events. There was a slight increasing trend observed at both stations.

The impact of precipitation on conductivity is evident at Hermans Pond Brook throughout this deployment, as can be seen on the graph below. There are several dips that coincide with stage increases and precipitation events, highlighted by the red box on the graph. Precipitation can influence conductivity as rainwater may temporarily lower values by diluting the water, or increase values if runoff introduces additional dissolved ions.

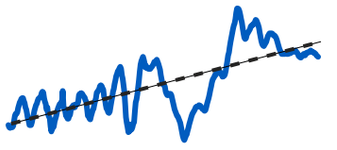
| Hermans Pond Brook | | Pond 226 Brook | |
|---|---|---|---|
| 98.74 Average | 100.10 Median | 29.18 Average | 29.06 Median |
| 83.22 Minimum | 107.38 Maximum | 28.38 Minimum | 30.23 Maximum |




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 was stable and consistent at both stations throughout the deployment period. Pond 226 Brook is more susceptible to slightly lower DO levels, likely due to environmental factors such as lower canopy cover and higher exposure to temperature effects.

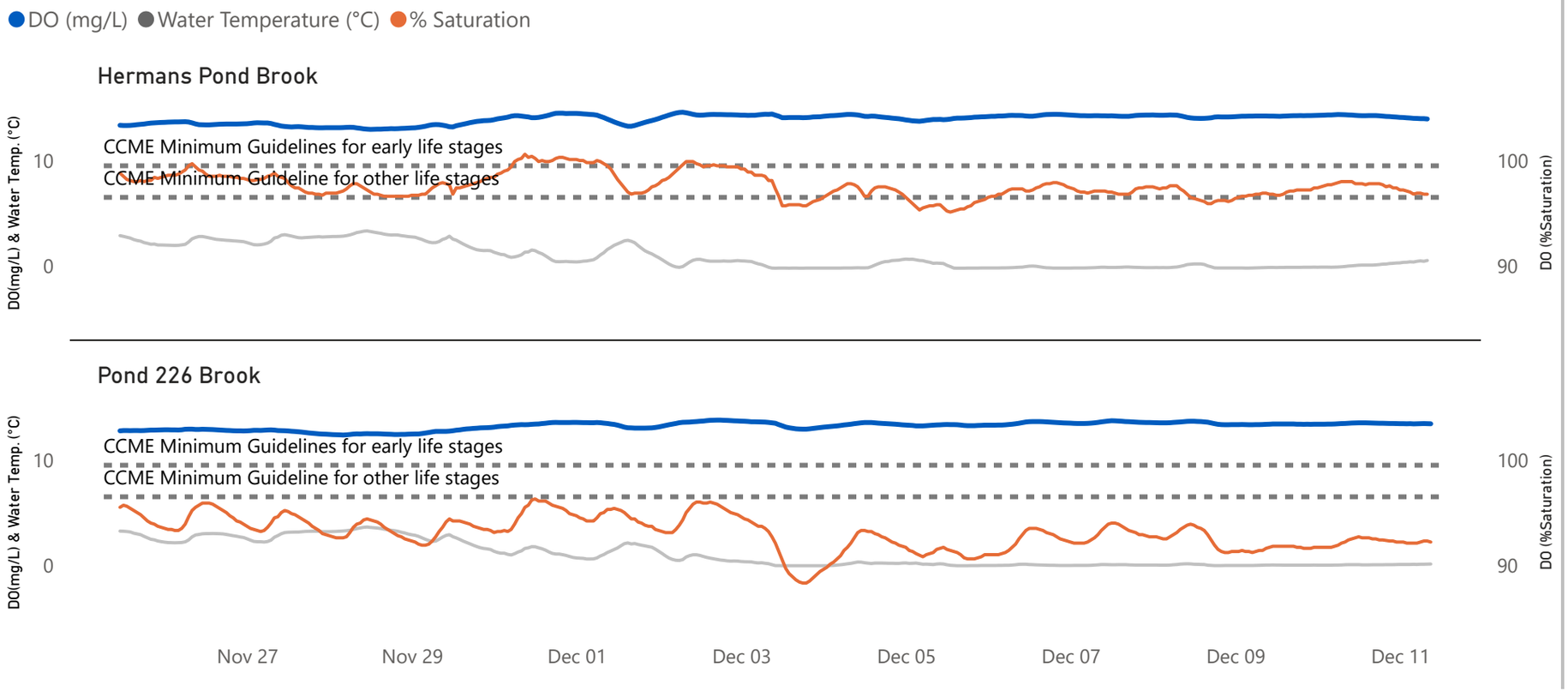
DO at both stations stayed above the CCME minimum guidelines for other life stages and early life stages.

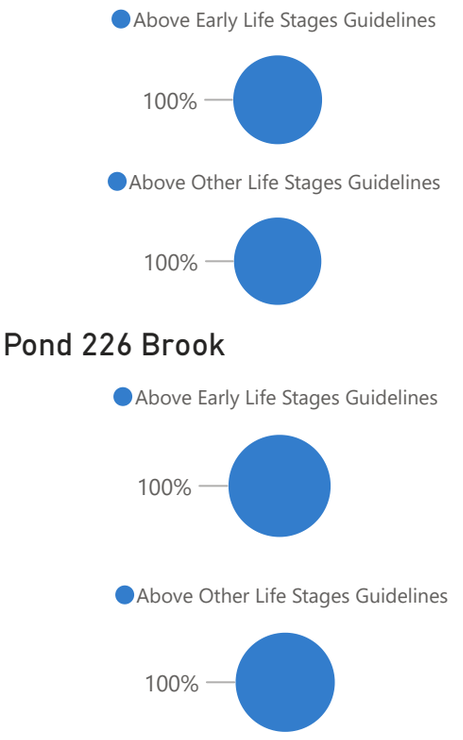
### Hermans Pond Brook

| | |
|---|---|
| 13.94 Average | 14.13 Median |
| 12.96 Minimum | 14.59 Maximum |

### Pond 226 Brook

| | |
|---|---|
| 13.23 Average | 13.36 Median |
| 12.37 Minimum | 13.79 Maximum |



# Turbidity
## (NTU)

Newfoundland Labrador

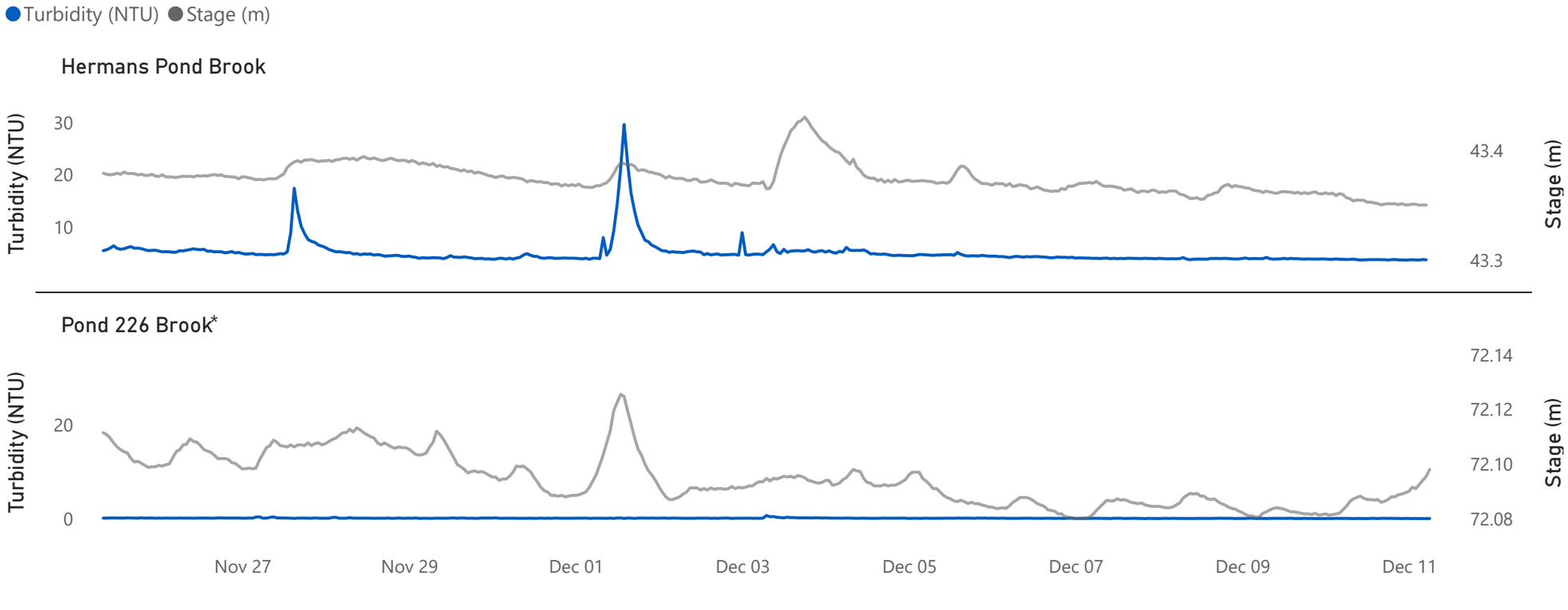
| Hermans Pond Brook | | Pond 226 Brook * | |
|---|---|---|---|
| 5.09 Average | 4.63 Median | 0.09 Average | 0.09 Median |
| 3.79 Minimum | 29.59 Maximum | 0.00 Minimum | 0.67 Maximum |

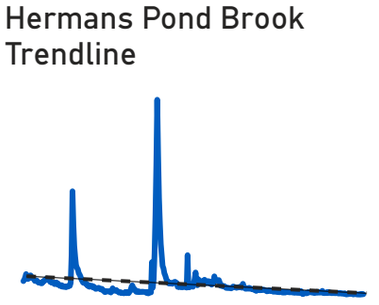
Turbidity, or water cloudiness, often increases during precipitation events when runoff carries silt and debris into the waterbody. Elevated turbidity can block light from reaching aquatic plants, disrupt benthic habitats, and harm fish gills or equipment.

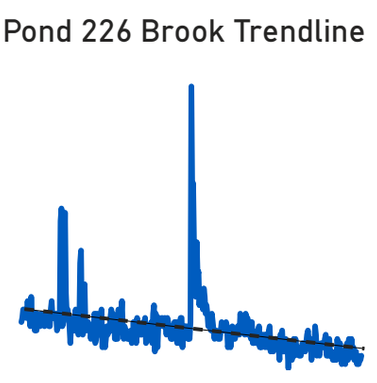
At Hermans Pond Brook, turbidity ranged between 3.79 NTU and 29.59 NTU, while turbidity at Pond 226 Brook ranged between 0.00 NTU and 0.67 NTU. Values at both stations was generally low throughout the monitoring period, although slightly higher at Hermans Pond Brook. There was a slight decreasing trend at both stations.

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. There was a notable temporary increase in turbidity values at Hermans Pond Brook during a precipitation event on December 2, as can be seen on the graph below.

**A small correction factor of +3.33 was applied to the Pond 226 Brook turbidity 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 not be entirely accurate, the overall data trends remain reliable.*



# Water Elevation

(m)

Water elevation 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. Water elevation generally rises during precipitation events as rainwater and runoff enter the water column. By monitoring water elevation 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 was converted to water elevation at the beginning of this deployment period. While stage is a measure of the water level relative to a established reference point, water elevation is relative to a specific datum.

Water elevation ranged between 43.35m to 43.43m at Hermans Pond Brook, and ranged between 72.08m to 72.13 m at Pond 226 Brook. Stage remained generally stable with a decreasing trend throughout the deployment period at both stations, with some minor dips and spikes.

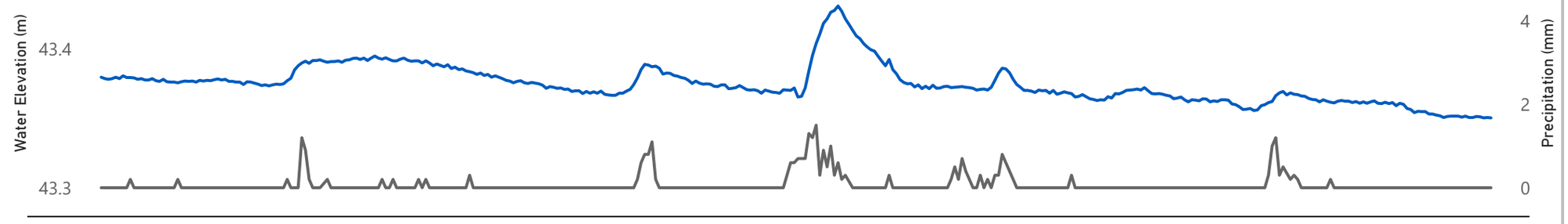
### Hermans Pond Brook

| | |
|---|---|
| 43.37 Average | 43.37 Median |
| 43.35 Minimum | 43.43 Maximum |

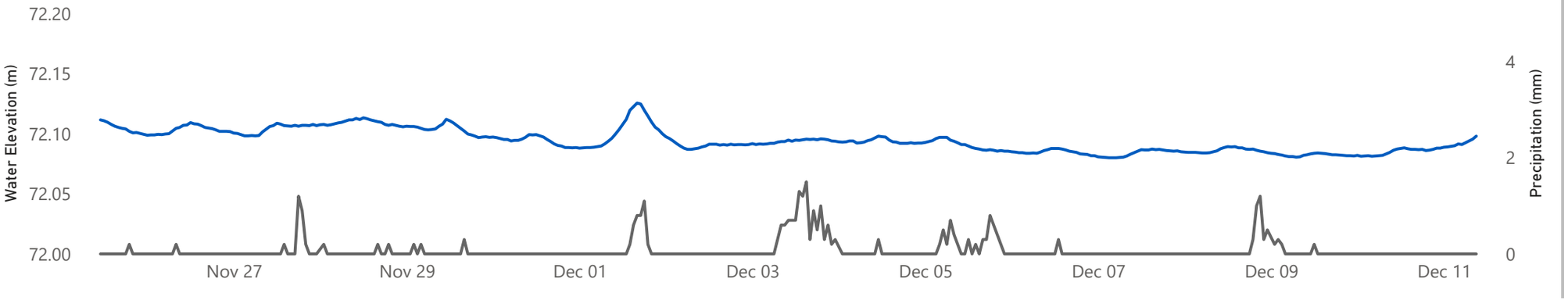
### Pond 226 Brook

| | |
|---|---|
| 72.09 Average | 72.09 Median |
| 72.08 Minimum | 72.13 Maximum |

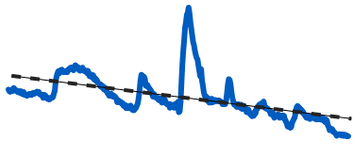
### Hermans Pond Brook



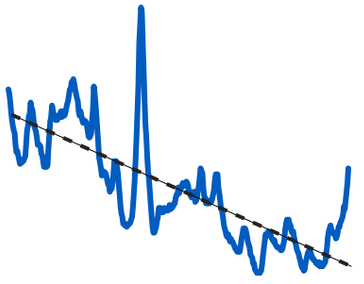

### Pond 226 Brook




### Hermans Pond Brook Trendline



### Pond 226 Brook Trendline

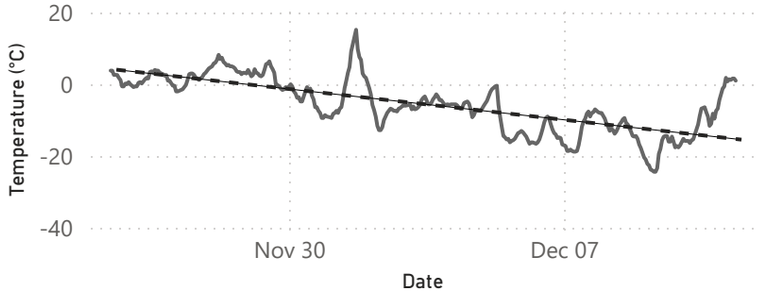


# Meteorological and Hydrometric Data

## Gander Airport CS MET Station Data

Newfoundland Labrador

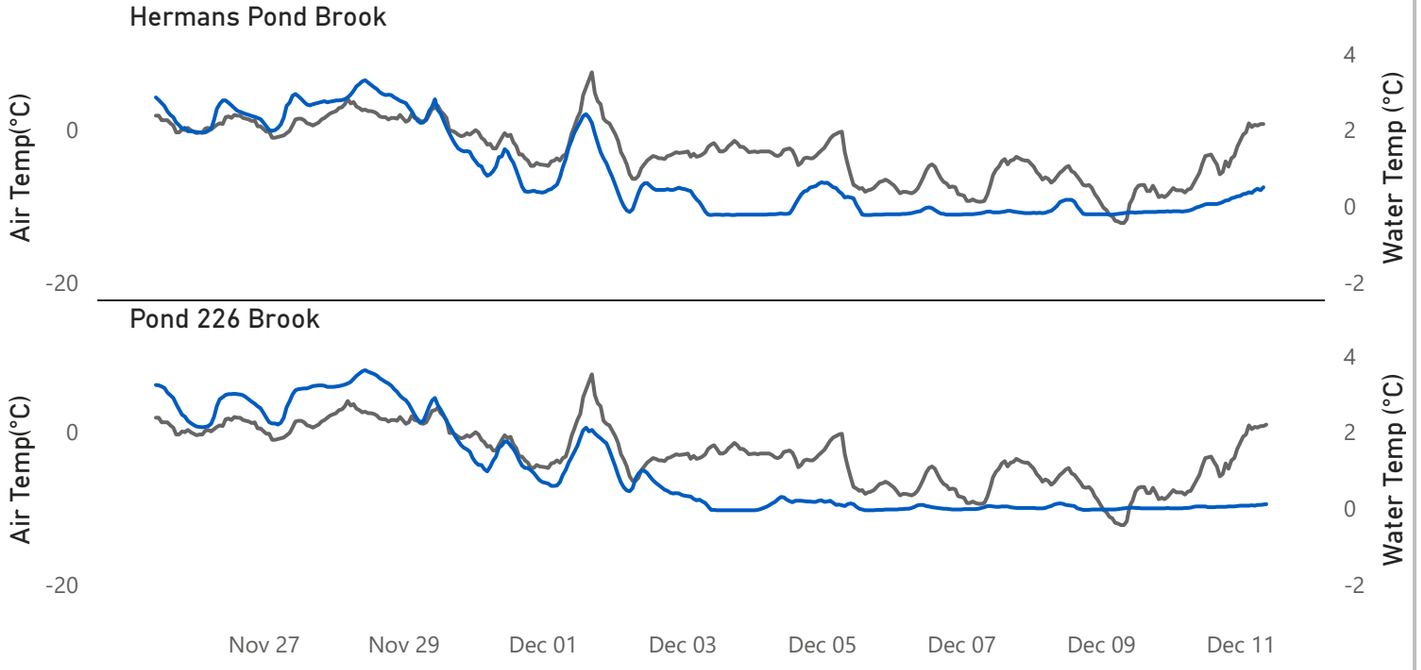
### Air Temperature Recorded at Gander Airport CS MET Station




### Air Temperature Statistics

| | |
|---|---|
| -2.85 Average (°C) | -2.90 Median (°C) |
| -12.20 Minimum (°C) | 7.60 Maximum (°C) |

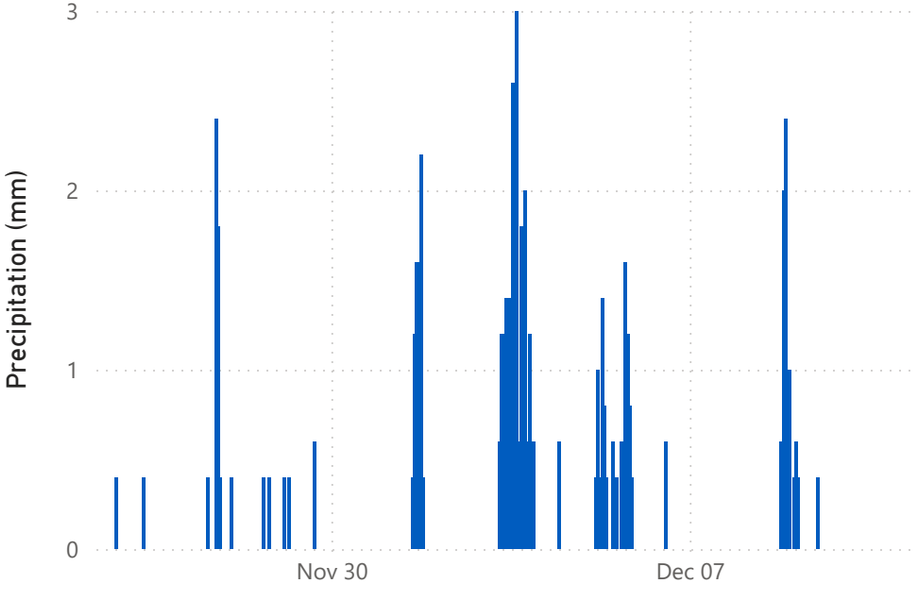
Air Temperature (°C) Water Temperature (°C)




### Precipitation Statistics

| | |
|---|---|
| 0.08 Average (mm) | 0.00 Median (mm) |
| 0.00 Minimum (mm) | 1.50 Maximum (mm) |

### 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.