Real Time Water Quality Deployment Report

New Found Gold Corp.

NF02YQ0075 & NF02YQ0076

2025-06-10 to 2025-07-24

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

New Found Gold

In 2024, the Water Resources Management Division (WRMD), in partnership with New Found Gold Corp., began establishing a real time water quality and quantity monitoring network in and around the Queensway Project in central Newfoundland. Two new 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 2025-06-10 through to 2025-07-24.

These stations are a part of the Real-Time Water Quality Network. The stations are maintained by the Department of Environment and Climate Change, 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
Hermans Pond Brook	Dissolved Oxygen (mg/l)	Fair	—
Hermans Pond Brook	pH	Excellent	Good
Hermans Pond Brook	Specific Conductivity (µS/cm)	Excellent	Good
Hermans Pond Brook	Temperature (°C)	Excellent	—
Hermans Pond Brook	Turbidity (NTU)	Excellent	Excellent
Pond 226 Brook	Dissolved Oxygen (mg/l)	Fair	—
Pond 226 Brook	pH	Good	Fair
Pond 226 Brook	Specific Conductivity (µS/cm)	Excellent	Excellent
Pond 226 Brook	Temperature (°C)	Excellent	—
Pond 226 Brook	Turbidity (NTU)	Excellent	Excellent

At deployment, all parameters at both stations were rated good or excellent, with the exception of dissolved oxygen, which received a fair rating. Because this result was observed at both stations, the fair ranking is likely due to sensor degradation on the QAQC sonde. No removal data were collected for this deployment period.

Grab sample comparisons were rated good or excellent across all parameters at both stations, except for pH at Pond 226 Brook, which was rated fair. This is likely attributable to insufficient time for the field sonde to equilibrate with site conditions before the initial measurement was recorded.

Water Temperature
(°C)

Water temperature plays a crucial role in wildlife 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 9.42°C to 23.94°C, while water temperatures at Pond 226 Brook ranged between 11.42°C to 24.53°C.

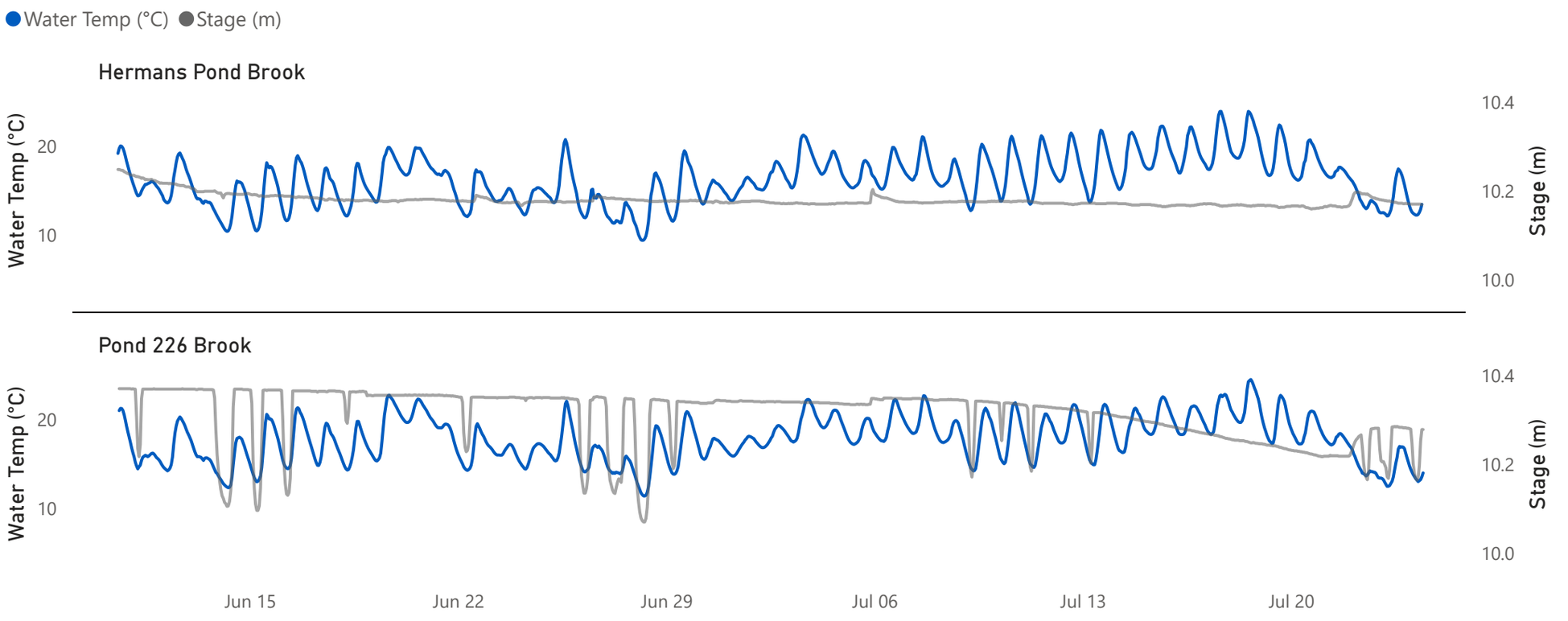
Throughout this deployment period, a natural diurnal pattern was evident, with warmer temperatures during daylight hours and cooler temperatures at night. A increasing trend was observed at both stations, which would be expected during the seasonal transition into Summer.

Hermans Pond Brook

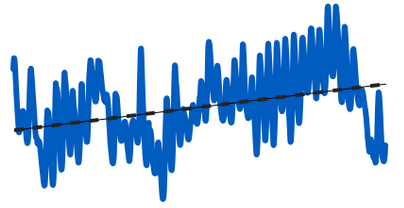
16.35 Average	16.31 Median
9.42 Minimum	23.94 Maximum

Pond 226 Brook

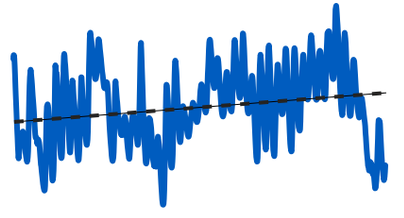
17.84 Average	17.84 Median
11.42 Minimum	24.53 Maximum



Hermans Pond Brook Trendline



Pond 226 Brook Trendline



pH
(pH Units)

Newfoundland Labrador

Hermans Pond Brook

6.86 Average	6.85 Median
6.68 Minimum	7.02 Maximum

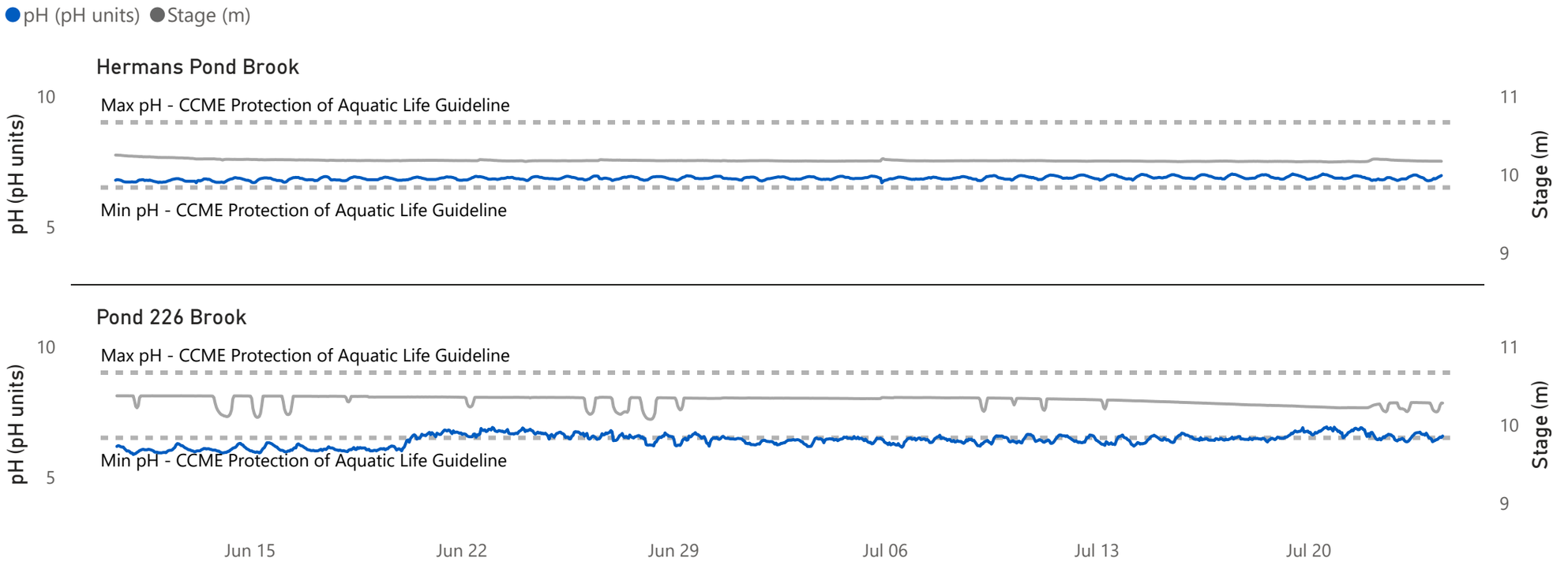
Pond 226 Brook

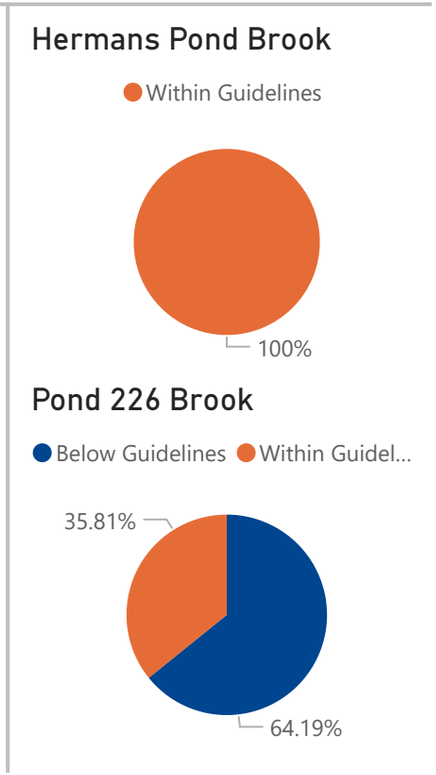
6.41 Average	6.44 Median
5.86 Minimum	6.92 Maximum

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 6.68 to 7.02 pH units, while pH at Pond 226 Brook ranged between 5.86 to 6.92 pH units. Overall, pH was generally stable at both stations throughout the deployment period. Daily fluctuations in pH are typical and are often influenced by temperature changes, precipitation and the respiration of aquatic plants. Rainwater, naturally lower in pH, can briefly dilute the water and cause a temporary drop in pH, but levels generally return to normal 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 initially fell below the minimum guideline but increased slightly around June 21 and fluctuated near the 6.5 guideline for the remainder of the deployment.





Specific Conductivity

(µS/cm)

Conductivity relates to the ability of an electric charge to pass through a solution. Pure water has low conductance and water with dissolved ions has higher conductance. Specific conductance is corrected to 25°C to allow comparison across variable temperatures. Water parameter maps can be found on the Water Resources Management website. Specific conductivity is often affected by precipitation, as rainwater often has a lower conductivity and can temporarily dilute the water column, resulting in a short-term decrease in conductivity.

Specific conductivity at Hermans Pond Brook ranged between 74.32 µS/cm to 101.51 µS/cm. Conductivity remained generally stable throughout the deployment period, with brief dips coinciding with stage increases as a result of precipitation events. Specific conductivity at Pond 226 Brook ranged between 27.56 µS/cm and 124.53 µS/cm, and fluctuated throughout the deployment period.

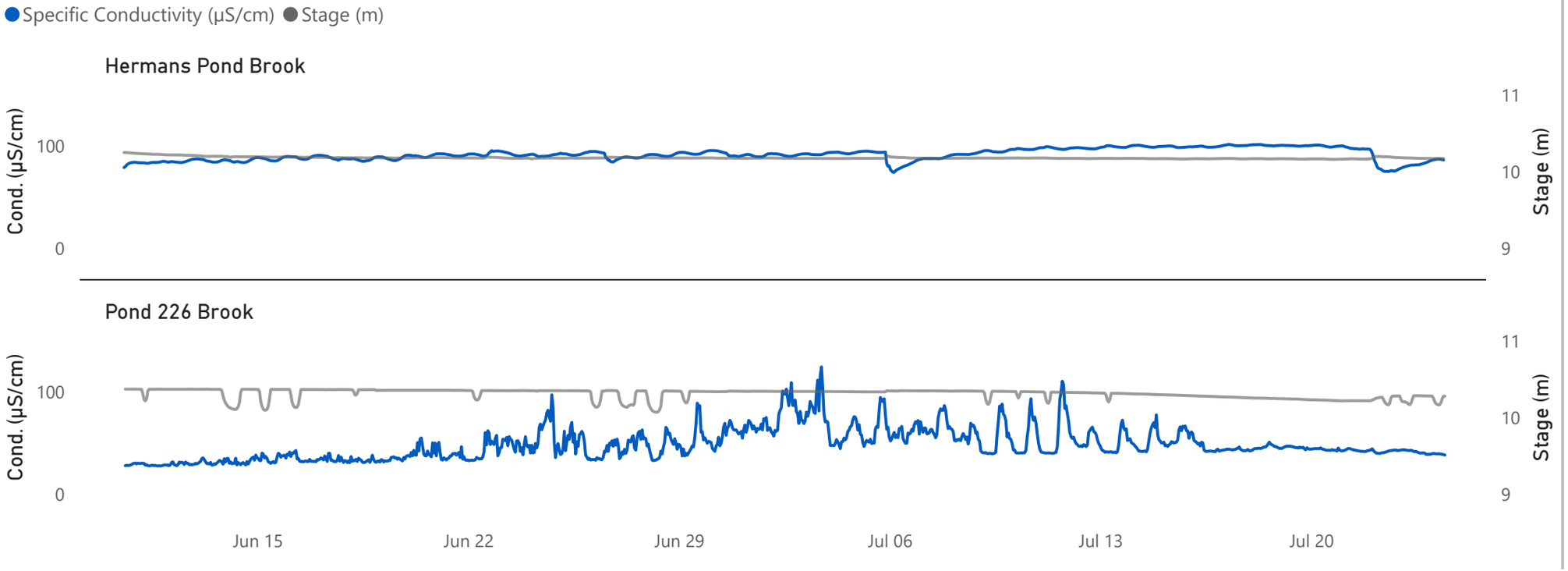
A slight overall increasing trend was observed at both stations. This is likely due to reduced precipitation and greater evaporation associated with rising atmospheric temperatures. As air temperatures increase, evaporation intensifies, leading to a concentration of dissolved ions within the water body.

Hermans Pond Brook

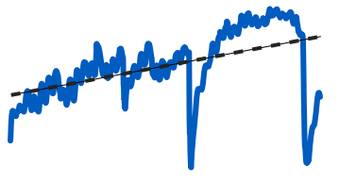
91.75	91.65
Average	Median
74.32	101.51
Minimum	Maximum

Pond 226 Brook

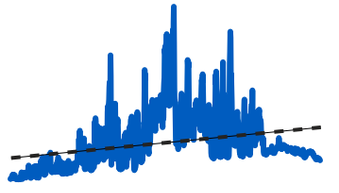
48.22	43.98
Average	Median
27.56	124.53
Minimum	Maximum



Hermans Pond Brook Trendline



Pond 226 Brook Trendline



Dissolved Oxygen

(mg/L and % Sat)

Newfoundland Labrador

Hermans Pond Brook

9.06 Average	9.03 Median
7.21 Minimum	10.80 Maximum

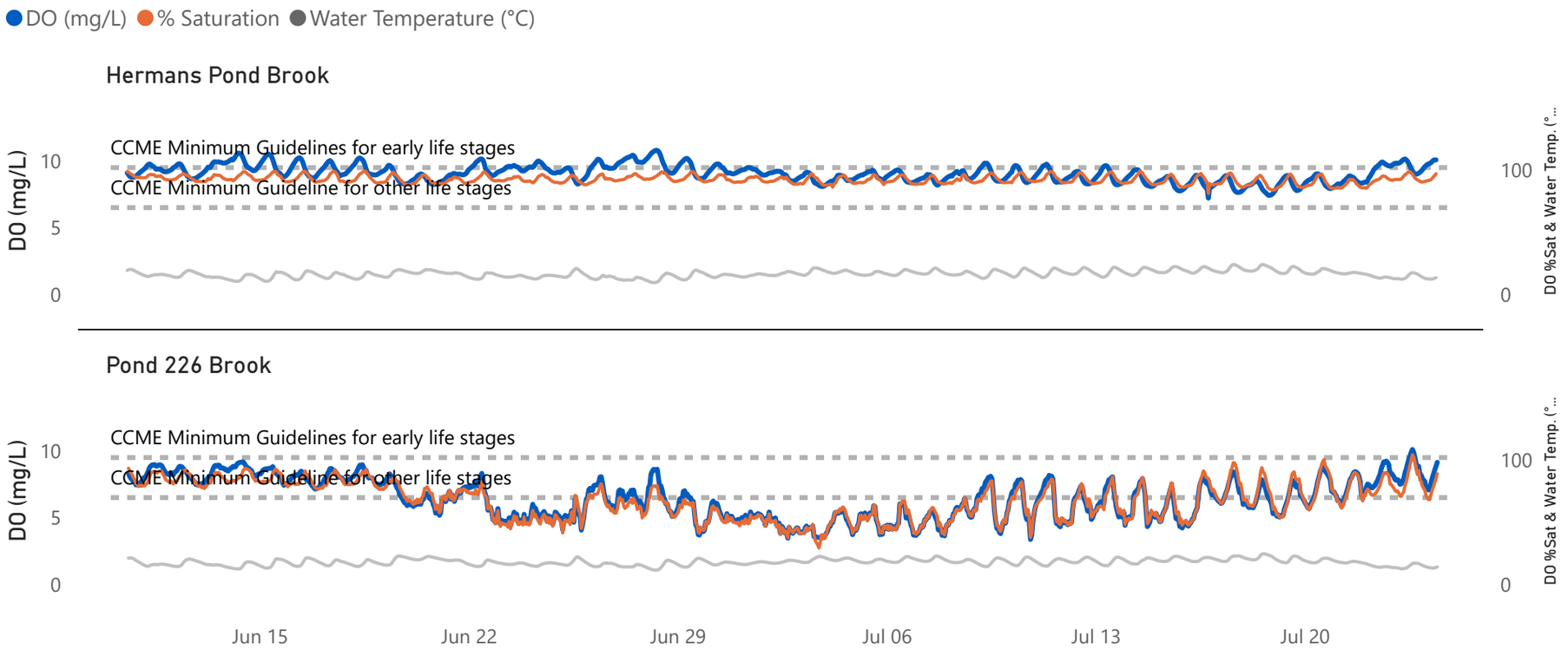
Pond 226 Brook

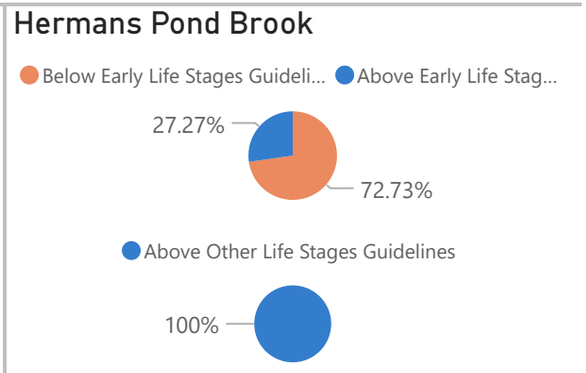
6.46 Average	6.42 Median
3.36 Minimum	10.11 Maximum

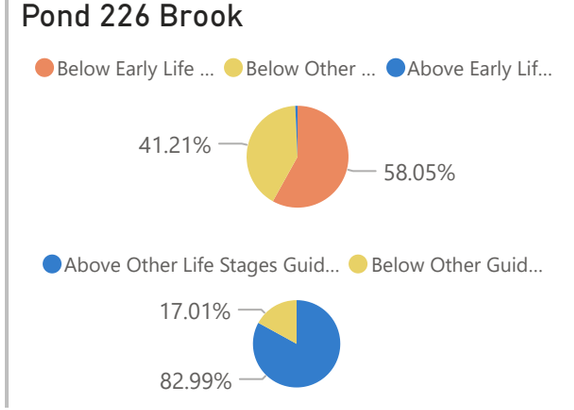
Dissolved oxygen (DO) in water is crucial for aquatic life. The CCME Freshwater Aquatic Life Guidelines provide benchmarks to assess waterway health, with the minimum DO guideline being 9.5 mg/L for early life stages in cold water and 6.5 mg/L for other life stages. DO levels are influenced by water temperature, with colder water able to retain higher DO concentrations. This inverse relationship can be observed on the graphs below, as well as daily fluctuations that can be attributed to changes in temperature and respiration of aquatic plants.

DO at Hermans Pond Brook ranged between 7.21 mg/L and 10.80 mg/L, while DO at Pond 226 Brook ranged between 3.36 mg/L and 10.11 mg/L. Pond 226 Brook is more susceptible to temporary oxygen depletion as seen in the lower DO concentrations, likely due to environmental factors such as lower canopy cover and higher exposure to temperature effects.

DO at Hermans Pond Brook remained consistently above the CCME minimum guideline for other life stages and fluctuated near the guideline value for early life stages but remained below it for most of the deployment period. Pond 226 Brook exhibited greater variability in DO, with concentrations staying below the guideline for early life stages and dropping below the minimum guideline for other life stages after around June 22. Following this, DO gradually increased and fluctuated near other life stages guideline value for the remainder of the deployment.







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 0.01 NTU and 21.61 NTU, while turbidity at Pond 226 Brook ranged between 0.00 NTU and 49.56 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.

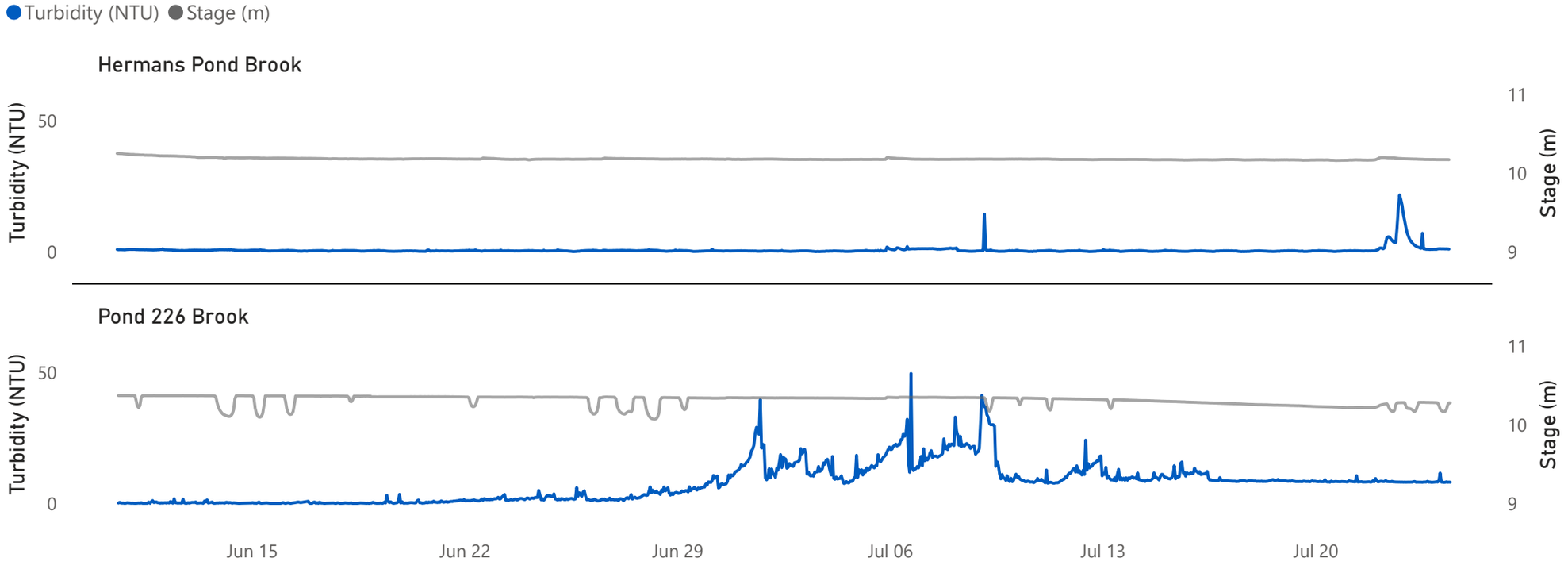
Turbidity at Hermans Pond Brook remained generally low and stable throughout the deployment period, with occasional brief spikes likely associated with precipitation events. At Pond 226, turbidity was low and stable until around June 30, when increased fluctuations and variability were observed. After July 15, turbidity returned to consistently low levels. The temporary increase in variability may be linked to precipitation events or sediment passing near the sensor during measurements. The soft, muddy substrate at Pond 226 Brook could contribute to elevated turbidity values if sediment becomes trapped in the protective cage surrounding the sensor.

Hermans Pond Brook

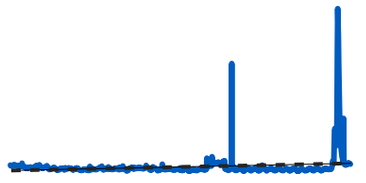
0.59 Average	0.32 Median
0.01 Minimum	21.61 Maximum

Pond 226 Brook

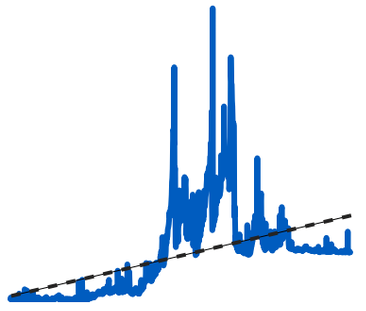
7.79 Average	8.22 Median
0.00 Minimum	49.56 Maximum



Hermans Pond Brook Trendline



Pond 226 Brook Trendline



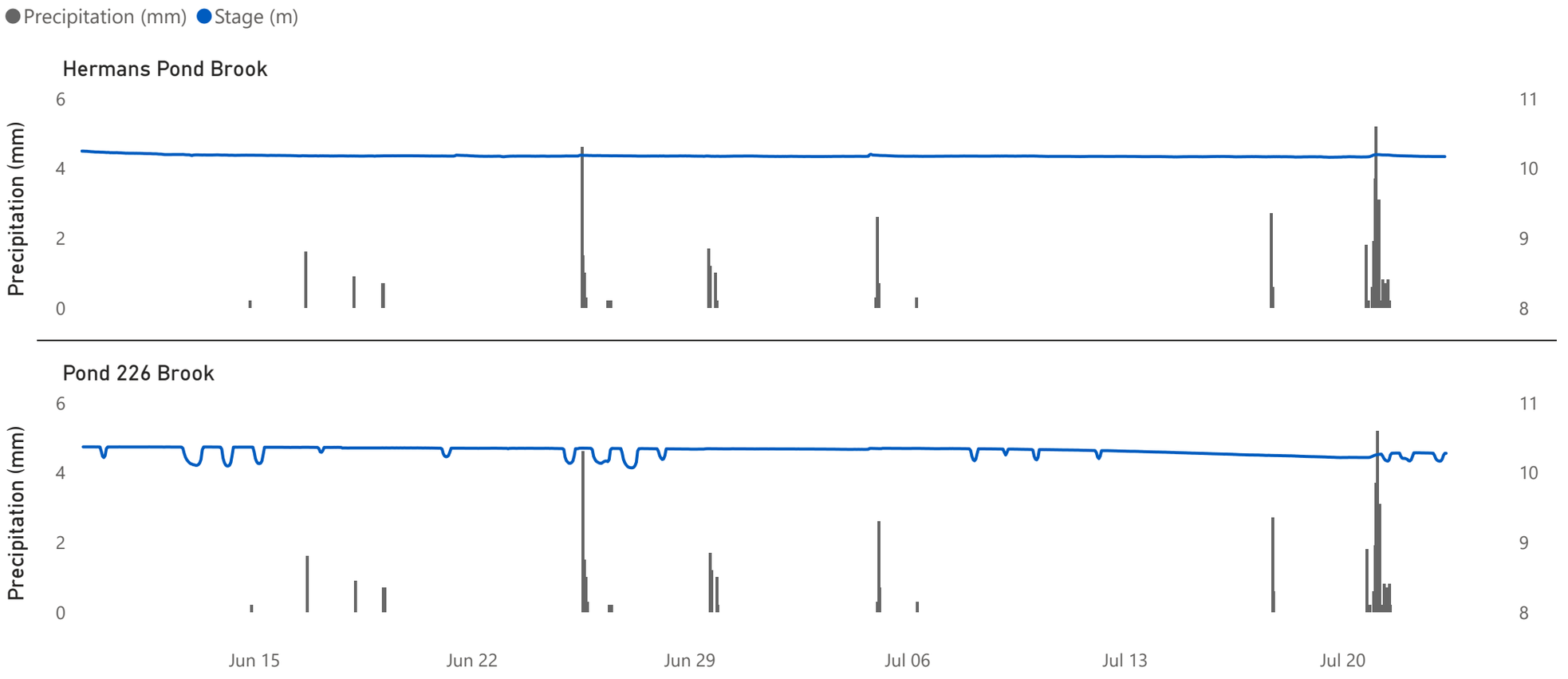
Stage
(m)

Newfoundland Labrador

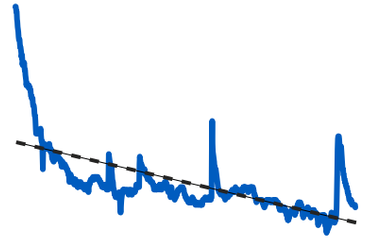
Hermans Pond Brook		Pond 226 Brook	
10.18 Average	10.18 Median	10.31 Average	10.34 Median
10.16 Minimum	10.25 Maximum	10.07 Minimum	10.37 Maximum

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.

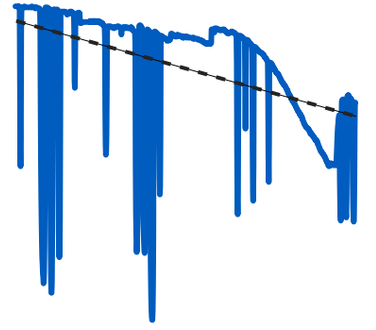
Stage ranged between 10.16m to 10.25m at Hermans Pond Brook, and ranged between 10.07m to 10.37m at Pond 226 Brook. Stage remained generally stable throughout the deployment period, with minor increases corresponding to precipitation events. An overall decreasing trend was observed at both stations, likely due to reduced precipitation and increased evaporation associated with rising air temperatures.



Hermans Pond Brook Trendline



Pond 226 Brook Trendline

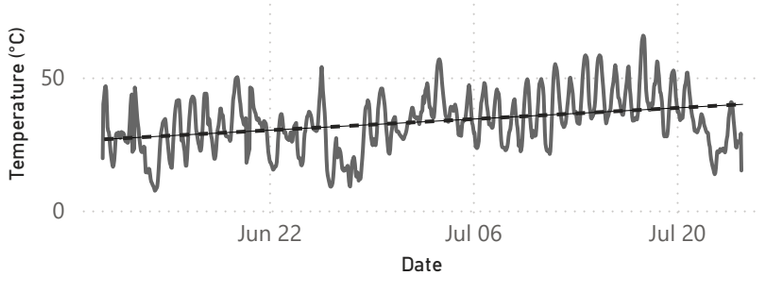


Meteorological and Hydrometric Data

Gander Airport CS MET Station Data

Newfoundland Labrador

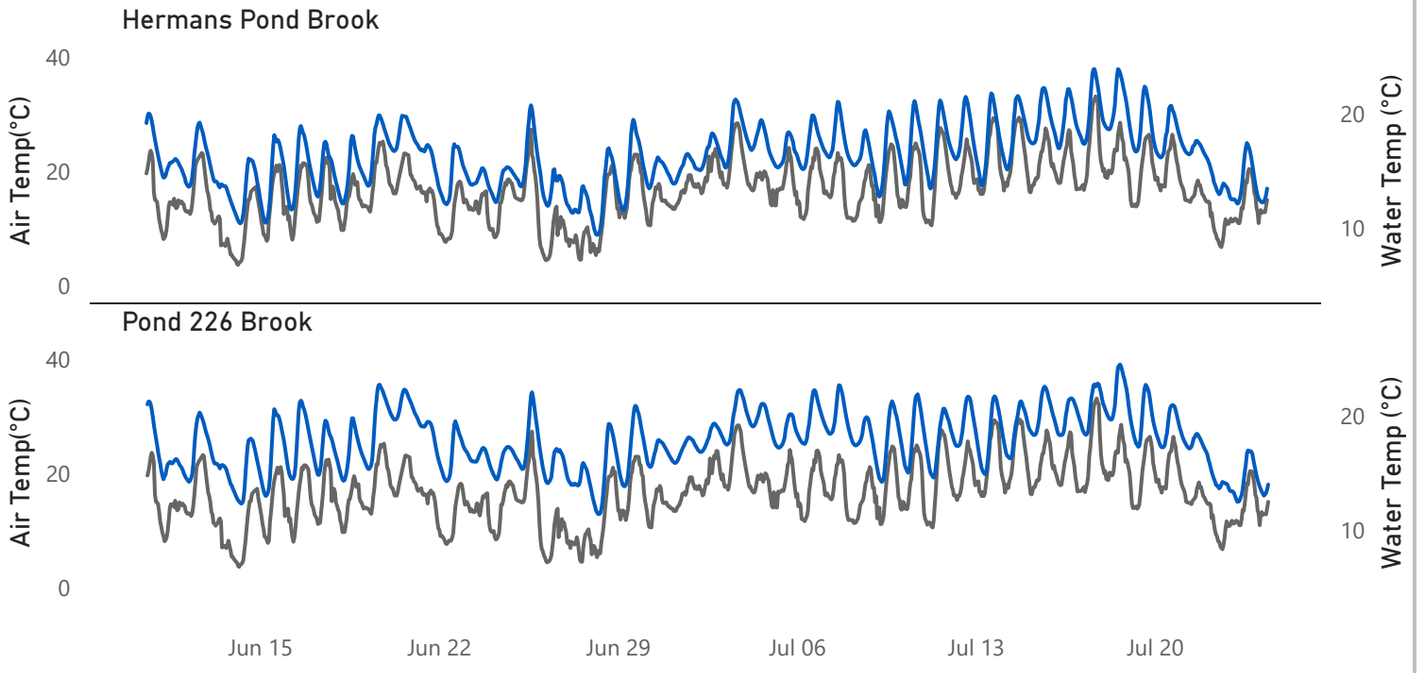
Air Temperature Recorded at Gander Airport CS MET Station



Air Temperature Statistics

16.72 Average (°C)	16.70 Median (°C)
3.60 Minimum (°C)	33.10 Maximum (°C)

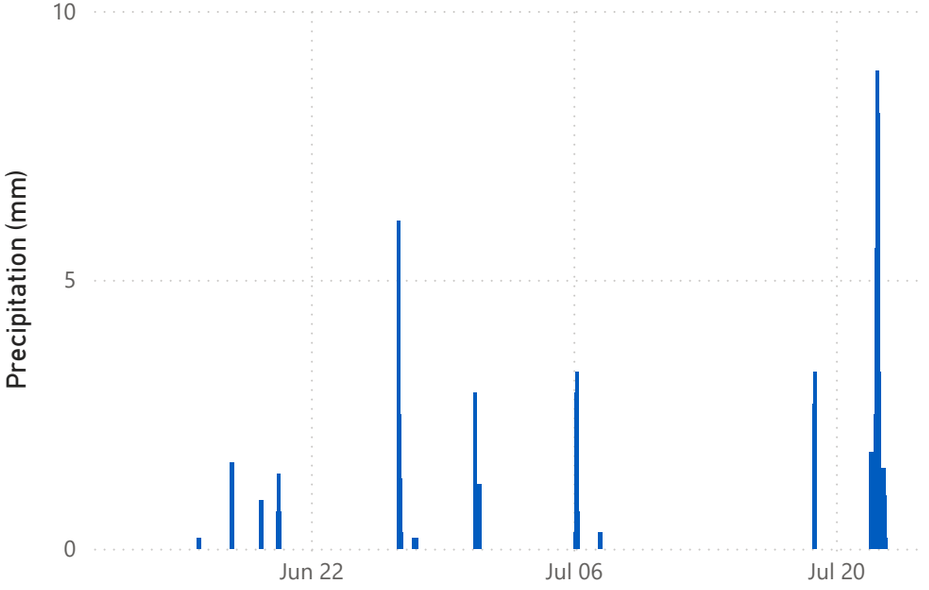
Air Temperature (°C) Water Temperature (°C)



Precipitation Statistics

0.04 Average (mm/hr)	0.00 Median (mm/hr)
0.00 Minimum (mm/hr)	5.20 Maximum (mm/hr)

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.