Tata Steel Minerals Canada (TSMC) - Elross Lake Network

NF03OB0039, NF03OB0042 & NF03OB0043

2025 Annual Report

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

Contents

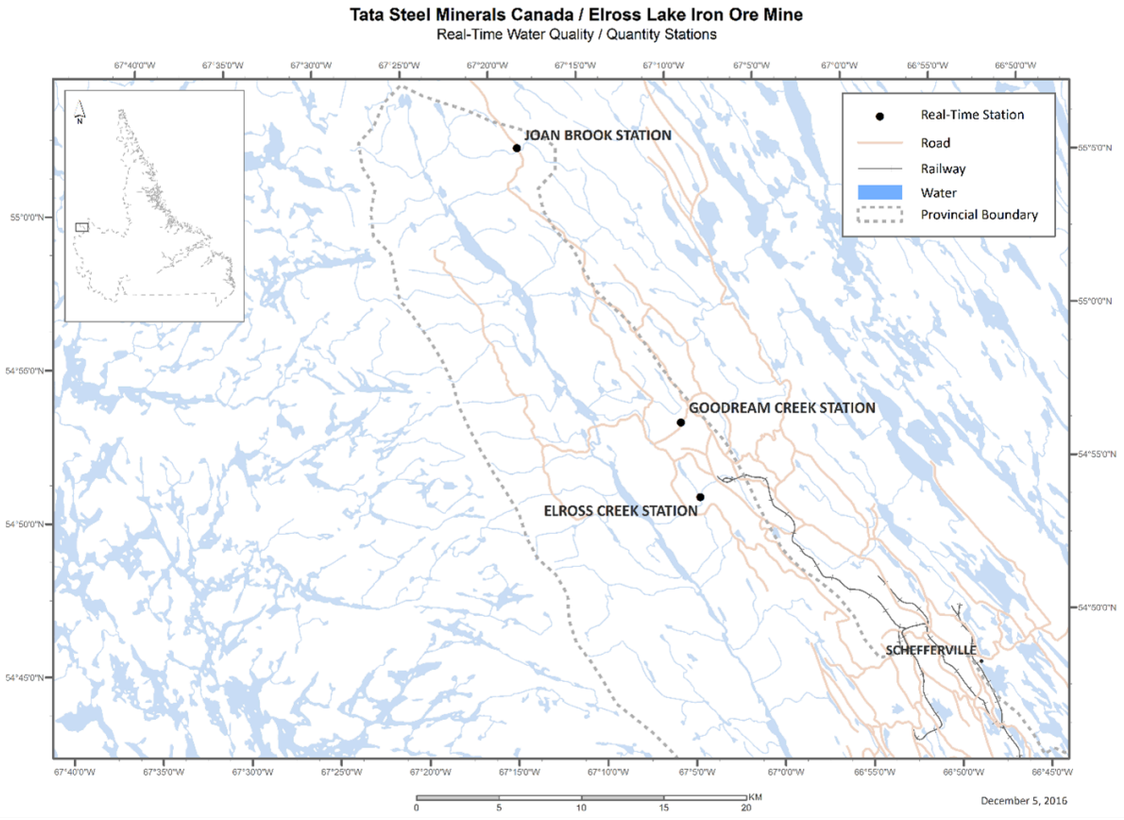
Acknowledgements

The comprehensive Real-Time Water Quality/Quantity Monitoring Network near the Elross Lake Iron Ore Mine in western Labrador is fully funded by Tata Steel Minerals Canada Limited (TSMC). Its effectiveness hinges on a collaborative partnership among TSMC and the Newfoundland & Labrador Department of Environment, Conservation and Climate Change (ECC). Managers and program leaders from each entity are dedicated to the network's operation, ensuring it delivers meaningful and precise water quality/quantity data.

In 2025, TSMC provided assistance to ECC staff during fieldwork operations following the initial deployment. This aid was crucial in overcoming equipment and instrumentation challenges, in addition to on-site water level monitoring and reducing travel times to the site, thereby minimizing delays in repairs or interruptions in water quality data collection and monitoring.

As of May 1, 2025, ECC assumed the critical role of managing the data logging/communication aspect of the network previously held by Environment and Climate Change Canada (ECCC). ECC holds responsibility for recording and overseeing water quality data as well as the hydrometric component of these stations. Due to differences in protocols, quality control for hydrometric data occurs less frequently than for water quality data. The hydrometric data presented in this report is provisional and has not undergone quality control checks.

Introduction



On April 18, 2011, a formal agreement was established between the Newfoundland & Labrador Department of Environment and Climate Change (ECC) and Tata Steel Minerals Canada Limited (TSMC) to deploy two real-time water quality/quantity stations near the Elross Lake Iron Ore Mine in western Labrador, adjacent to Schefferville, QC.

Subsequently, an amendment to the original agreement was enacted on February 10, 2015, to introduce an additional station at Joan Brook, situated below the outlet of Joan Lake. This additional station aimed to monitor the effects of mining activities on surface water downstream of the five pits (Kivivic 1, 2, 3N, 4, and 5) within the DSO4 Project 2B mining operation, located approximately 24 km northwest of the primary mine complex. Goodream Creek - 2Km North of Timmins 6 was initially installed on September 12, 2011, however was moved to a new location in June 2025.

The agreement has been extended in accordance with the terms and conditions outlined in the original agreement, subsequent amendments (February 2015, March 2018, December 2021), and extension letters (April 2016, March 2018, August 2020).

Each station is officially designated as follows: ELROSS CREEK BELOW PINETTE LAKE INFLOW, GOODREAM CREEK 2KM NORTHWEST OF TIMMINS 6 (now GOODREAM CREEK ABOVE TRIANGLE LAKE), and JOAN BROOK BELOW OUTLET OF JOAN LAKE, hereafter referred to as the Elross Creek Station, the Goodream Creek Station, and the Joan Brook Station, respectively.

Throughout the ice-free months, each station diligently measures six parameters, encompassing five water quality parameters (temperature, pH, specific conductivity, dissolved oxygen, and turbidity) and one water quantity parameter (stage).

Additionally, ECC is tasked with logging and transmitting all water quality and quantity data to a centralized repository via satellite communications. This real-time network's primary objective is to monitor, process, and distribute water quality and quantity data to TSMC and ECC for the evaluation and management of water resources. It also functions to provide early warnings of any potential or emerging water issues, enabling timely implementation of mitigative measures. ECC remains responsible for communicating significant water quality events to TSMC through email notifications, while deployment and annual reports are compiled to document the parameters measured at these stations.

Newfoundland Labrador

TATA Steel Minerals Canada (TSMC) - 2025 Operational Update

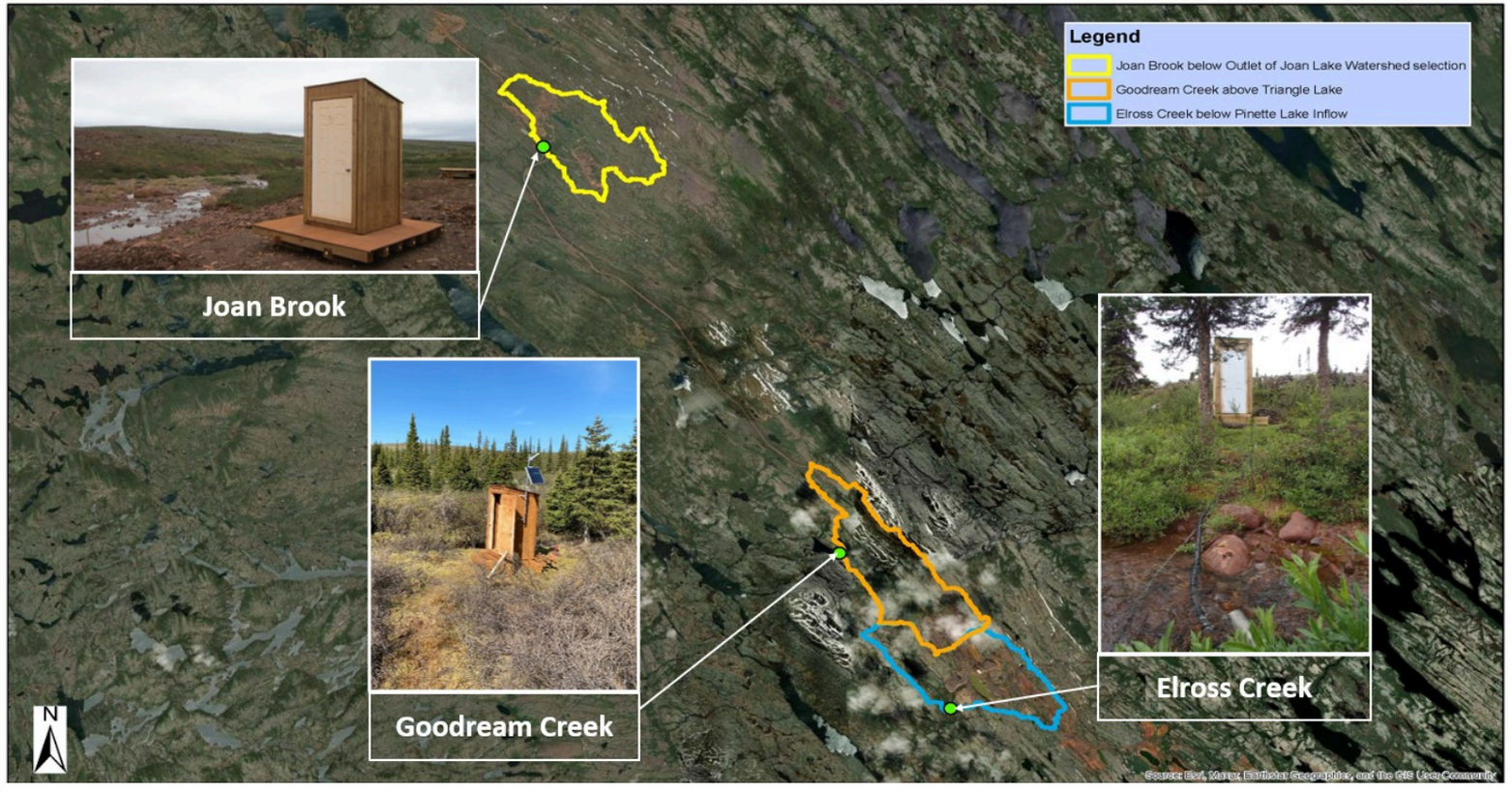


Figure 1: Map and images of TSMC Schefferville, RTWQ station watersheds located alongside Elross Creek, Goodream Creek & Joan Brook.

Lat/Long	Elross Creek Station	Goodream Creek Station	Joan Brook Station
Gauge house	54.877698, -67.099848	*54.92794, -67.15597	*55.03334, -67.17597
Helicopter pad	54.877604, -67.100014	*54.92794, -67.15597	*55.03334, -67.17597
Instrument	54.877757,-67.099728	*54.927898, -67.153892	*55.03334, -67.17597

***General Site Location**

Mining and processing operations at TSMC in 2025 consisted of ore extraction activities from 5 deposits. In the DSO4 Area, TSMC operated the Goodwood deposit located in Quebec. In the DSO3 Area, on the Newfoundland and Labrador footprint of the project TSMC operated the Timmins 3N, Timmins 7 and Fleming 7N deposits.

Additionally, TSMC initiated the development of the Howse Project deposit in Area 3. The activities consisted of the development of ahaul road, water management infrastructure, removal of overburden, pit development, and initiation of early mining activities.

Concentrate processing plant operation and rail transport of product to the port were conducted year round to meet the delivery requirements for customers.

Newfoundland Labrador

ELROSS CREEK BELOW PINETTE LAKE

NF03OB0039

The Elross Creek station site was strategically chosen to oversee all surface water outflows from both the Elross Lake mining site and the DSO4 Project 2B mining sites, as depicted in Figure 2. This station focuses on monitoring surface water within the 11.91 km^2 watershed, downstream of the Timmins 1 pit and downstream of Pinette Lake. Commencing operations on October 17-18, 2011, the station initially recorded only stage values for seven months until June 5, 2012, when water quality instruments were deployed for the first time.

This station sits about 1.2 km southwest of the Timmins 1 pit within the Elross Basin, and 60 m downstream from the confluence of water inflows from Pinette Lake into Elross Creek. Originating from Pinette Lake and the Timmins 1 pit of the Elross Lake Iron Ore Mine in western Labrador, Elross Creek flows primarily southwest into Elross Lake, part of the Churchill River drainage basin. The distance from its headwaters to the sampling site (NF03OB0039) is approximately 3 km, while the distance from the sampling site to the mouth of the Churchill River at Lake Melville spans around 1000 km.

JOAN BROOK ABOVE JOAN LAKE

NF03OB0042





The Joan Brook station is within a watershed that covers an area of 10.12km^2 and is responsible for monitoring surface water downstream of five pits (Kivivic 1, 2, 3N, 4, and 5) within the DSO4 Project 2B mining operation. Operational since June 2016, it assesses stage values and water quality. Originating from Joan Lake and fed by various tributaries, Joan Brook is a small stream flowing southwest into Howells River. The distance from its headwaters to the sampling site (NF03OB0042) is approximately 1.2 km, with a distance to the outlet at Howells River of around 7.4 km.

Through the federal National Disaster Mitigation Program, Joan Brook was equipped with a precipitation tipping bucket in 2023. This has proven to be effective in identifying short-term fluctuations in precipitation, which are crucial for real-time water quality assessments.

GOODREAM CREEK ABOVE TRIANGLE LAKE

NF03OB0043




Goodream Creek Station above Triangle Lake became fully operational in June 2025. This station is situated within the 12.76 km^2 watershed and is northwest of the Timmins 6 pit within the Goodream Basin and was established to monitor potential impacts stemming from groundwater flow from the Timmins 6 pit into the surface water of Goodream Creek. Additionally, this station will extend monitoring to assess impacts from the Howse deposit.

Monitored since October 17-18, 2011 (NF03OB0040), the original Goodream Creek station initially collected stage values exclusively for seven months until June 5, 2012, when water quality instruments were introduced.

Goodream Creek, originating from wetlands near the Timmins 6 pit of the Elross Lake Iron Ore Mine in western Labrador, flows northwest into Triangle Pond, forming part of the Churchill River drainage basin. The distance from its headwaters to the sampling site (NF03OB0043) is approximately 2 km, with a further approximate distance of 1000 km to the mouth of the Churchill River at Lake Melville.

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
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
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
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.

QA/QC Deployment Period Rankings

QAQC Rankings

STATION	DATE	PARAMETERS	DEPLOYMENT RANK	DEPLOYMENT GRAB SAMPLE RANK	REMOVAL RANK	WINTER REMOVAL GRAB SAMPLE RANK
Elross Creek	Tuesday, June 17, 2025	Dissolved Oxygen (mg/l)	Excellent		Excellent	
Goodream Creek	Tuesday, June 17, 2025	Temperature (°C)	Good		Excellent	
Goodream Creek	Tuesday, June 17, 2025	Dissolved Oxygen (mg/l)	Good		Poor	
Elross Creek	Tuesday, June 17, 2025	Temperature (°C)	Poor		Excellent	
Elross Creek	Tuesday, June 17, 2025	Turbidity (NTU)	Excellent	Excellent	Excellent	
Goodream Creek	Tuesday, June 17, 2025	Specific Conductivity (µS/cm)	Excellent	Excellent	Excellent	
Goodream Creek	Tuesday, June 17, 2025	Turbidity (NTU)	Excellent	Excellent	Excellent	
Elross Creek	Tuesday, June 17, 2025	Specific Conductivity (µS/cm)	Good	Excellent	Excellent	
Goodream Creek	Tuesday, June 17, 2025	pH	Excellent	Good	Excellent	
Elross Creek	Tuesday, June 17, 2025	pH	Excellent	Good	Fair	
Joan Brook	Wednesday, June 18, 2025	Dissolved Oxygen (mg/l)	Good		Poor	
Joan Brook	Wednesday, June 18, 2025	Temperature (°C)	Good		Poor	
Joan Brook	Wednesday, June 18, 2025	Turbidity (NTU)	Fair	Fair	Excellent	
Joan Brook	Wednesday, June 18, 2025	pH	Excellent	Good	Good	
Joan Brook	Wednesday, June 18, 2025	Specific Conductivity (µS/cm)	Excellent	Good	Good	
Elross Creek	Tuesday, August 19, 2025	DO (mg/L)	Excellent		Excellent	
Goodream Creek	Tuesday, August 19, 2025	DO (mg/L)	Good		Fair	
Goodream Creek	Tuesday, August 19, 2025	Temperature	Good		Good	
Elross Creek	Tuesday, August 19, 2025	Temperature	Poor		Excellent	
Elross Creek	Tuesday, August 19, 2025	Turbidity (NTU)	Excellent	Excellent	Excellent	Excellent
Goodream Creek	Tuesday, August 19, 2025	Turbidity (NTU)	Excellent	Excellent	Excellent	Excellent
Elross Creek	Tuesday, August 19, 2025	Sp. Conductivity	Good	Excellent	Excellent	Excellent
Goodream Creek	Tuesday, August 19, 2025	pH	Good	Fair	Good	Fair
Elross Creek	Tuesday, August 19, 2025	pH	Excellent	Good	Fair	Good
Goodream Creek	Tuesday, August 19, 2025	Sp. Conductivity	Good	Good	Good	Good
Joan Brook	Monday, September 08, 2025	DO (mg/L)	Good		Good	
Joan Brook	Monday, September 08, 2025	Temperature	Marginal		Excellent	
Joan Brook	Monday, September 08, 2025	Sp. Conductivity	Excellent	Excellent	Excellent	Excellent
Joan Brook	Monday, September 08, 2025	Turbidity (NTU)	Excellent	Excellent	Excellent	Excellent
Joan Brook	Monday, September 08, 2025	pH	Good	Marginal	Excellent	Excellent

Water Temperature

(°C)

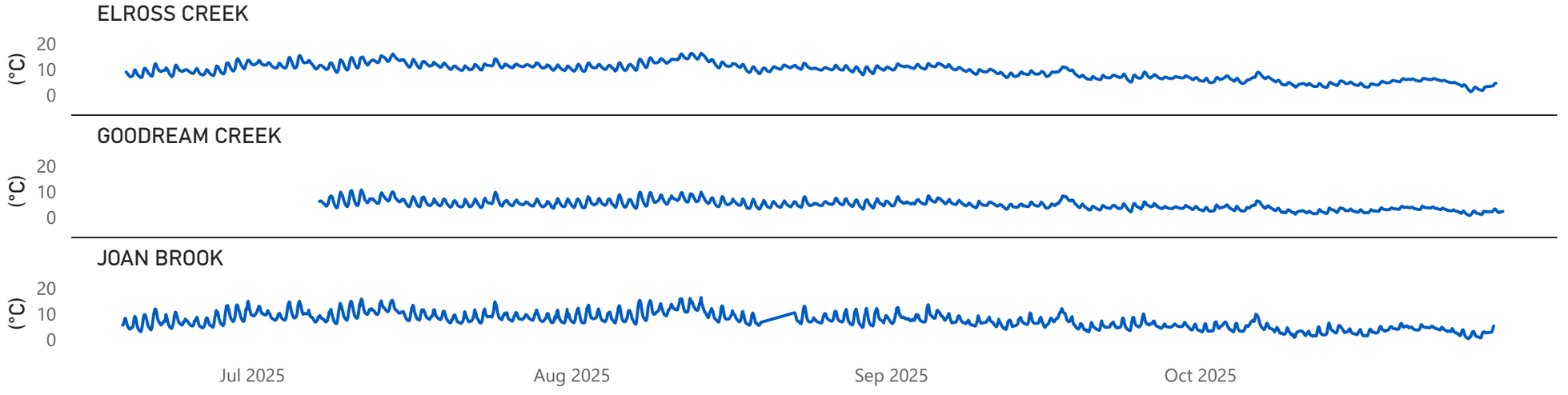
Newfoundland Labrador

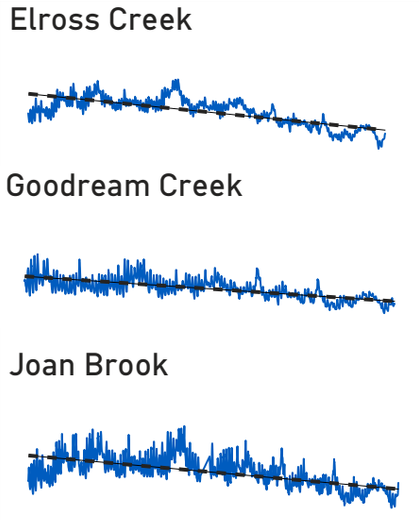
Water temperature is a key indicator of water quality because it influences biological activity, dissolved oxygen levels, and chemical processes in aquatic systems. Warmer water increases metabolic rates and oxygen demand while reducing oxygen solubility, whereas colder water supports higher dissolved oxygen levels needed for aquatic life. Temperature also affects nutrient cycling, pollutant behavior, and can cause stratification in lakes, leading to low-oxygen conditions at depth. As a result, monitoring water temperature is essential for maintaining healthy aquatic ecosystems.

Water temperature across the three monitoring sites exhibited clear seasonal trends, with the warmest conditions occurring during July and August followed by gradual cooling into September and October. Elross Creek recorded the warmest overall conditions, with temperatures ranging from 1.21 °C to 16.21 °C and an overall average of approximately 8.48 °C across the monitoring period. Joan Brook exhibited a broader range of temperatures, from 0.30 °C to 16.34 °C, with monthly averages decreasing from 9.47 °C in July to 3.63 °C by October, reflecting progressive seasonal cooling and greater short-term variability. Goodream Creek consistently recorded the coolest temperatures, ranging from 0.60 °C to 15.29 °C, with monthly averages declining from 5.87 °C in July to 2.79 °C in October, most likely associated with larger volume and depth. Across all sites, temperatures displayed regular diurnal fluctuations and expected seasonal cooling trends characteristic of surface water systems transitioning from summer into fall conditions.

Monthly Average Water Temperature (°C)

STAT_NAME	Month	Average	Minimum	Maximum	Median
ELROSS CREEK	June	9.51	6.71	14.03	9.37
ELROSS CREEK	July	11.72	8.68	15.90	11.49
ELROSS CREEK	August	11.23	7.74	16.21	10.81
ELROSS CREEK	September	8.48	4.89	12.23	8.20
ELROSS CREEK	October	4.81	1.21	8.77	4.80
GOODREAM CREEK	July	5.87	3.42	10.58	5.63
GOODREAM CREEK	August	5.68	3.03	9.74	5.46
GOODREAM CREEK	September	4.72	2.03	8.27	4.54
GOODREAM CREEK	October	2.79	0.60	6.35	2.74
JOAN BROOK	June	7.37	3.01	14.82	6.96
JOAN BROOK	July	9.47	6.07	15.70	9.17
JOAN BROOK	August	9.22	4.59	16.34	8.76
JOAN BROOK	September	6.60	2.87	13.49	6.35
JOAN BROOK	October	3.63	0.30	9.86	3.50





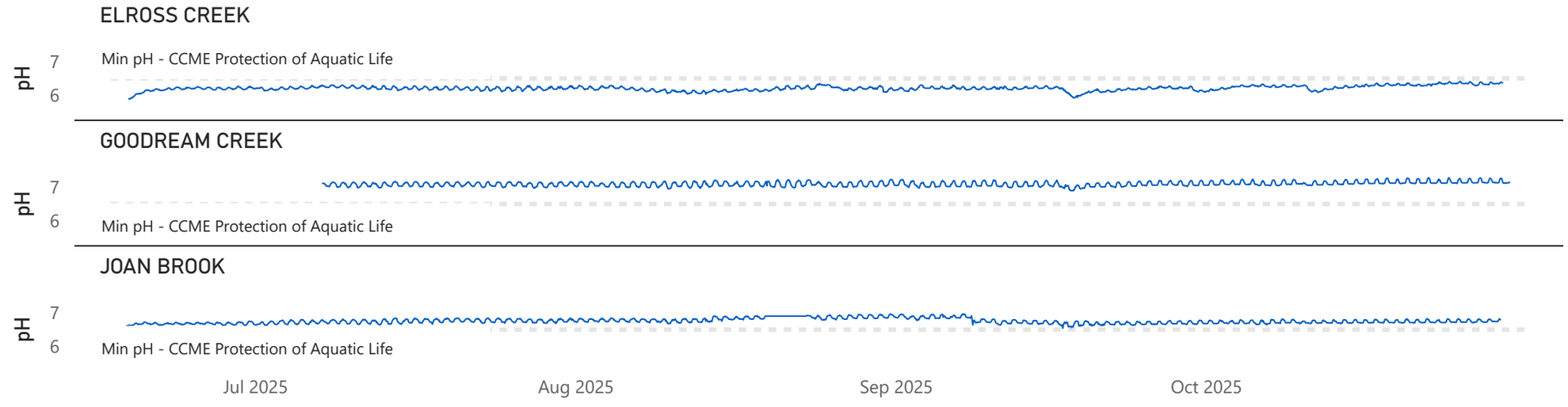
pH
(pH Units)

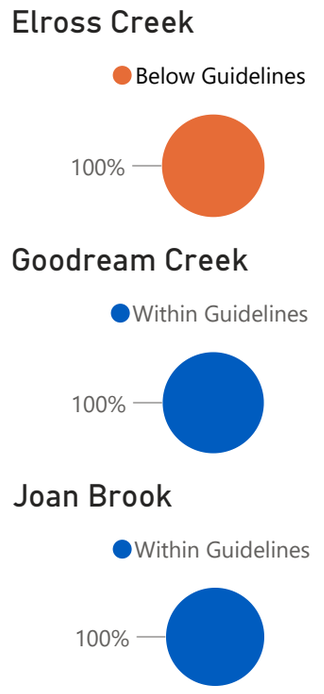
pH is used to give an indication of the acidity or basicity of a solution. A pH of 7 denotes a neutral solution while lower values are acidic and higher values are basic. Technically, the pH of a solution indicates the availability of protons to react with molecules dissolved in water. Such reactions can affect how molecules function chemically and metabolically.

pH conditions across the three monitoring sites remained generally stable throughout the monitoring period, with values ranging from slightly acidic to near neutral and showing only minor seasonal variability. Elross Creek recorded pH values between 5.88 and 6.41, with monthly average values remaining near 6.2 throughout the deployment, indicating consistently slightly acidic conditions typical of natural surface waters in the region. Goodream Creek exhibited stable near-neutral conditions, with pH values ranging from 6.95 to 7.28 and monthly averages consistently near 7.1. Joan Brook recorded pH values between 6.53 and 6.96, with monthly averages ranging from 6.67 to 6.82, reflecting stable conditions with limited variability throughout the monitoring period. While Elross Creek remained below the CCME guideline of 6.5 for the protection of aquatic life, these conditions are consistent with the historical baseline for the system and likely reflect naturally acidic watershed characteristics. Overall, pH conditions at all sites remained stable and representative of expected natural variability.

Monthly Average pH (pH Units)

STAT_NAME	Month	Average	Minimum	Maximum	Median
ELROSS CREEK	June	6.17	5.89	6.27	6.19
JOAN BROOK	June	6.67	6.53	6.75	6.67
ELROSS CREEK	July	6.21	6.11	6.30	6.21
GOODREAM CREEK	July	7.08	6.97	7.17	7.08
JOAN BROOK	July	6.75	6.62	6.84	6.75
ELROSS CREEK	August	6.18	6.03	6.35	6.18
GOODREAM CREEK	August	7.08	6.95	7.23	7.08
JOAN BROOK	August	6.82	6.68	6.96	6.81
ELROSS CREEK	September	6.18	5.92	6.30	6.20
GOODREAM CREEK	September	7.08	6.89	7.23	7.06
JOAN BROOK	September	6.74	6.54	6.96	6.72
ELROSS CREEK	October	6.28	6.09	6.41	6.29
GOODREAM CREEK	October	7.14	7.05	7.28	7.12
JOAN BROOK	October	6.73	6.64	6.82	6.72





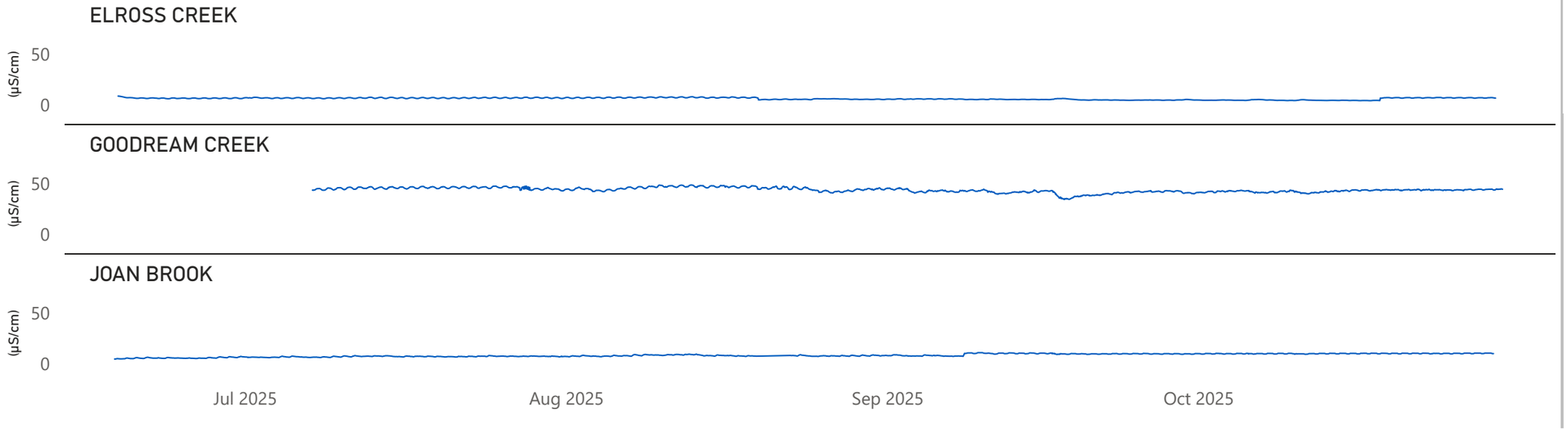
Specific Conductivity (µS/cm)

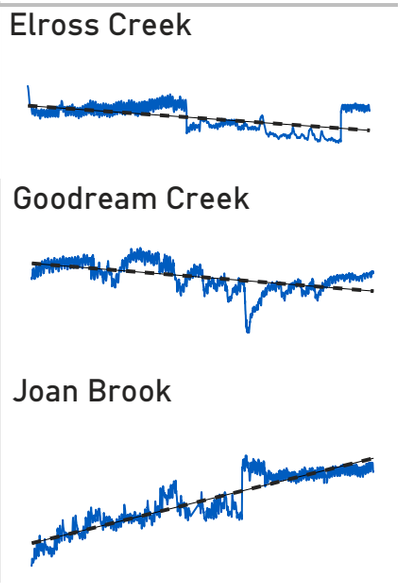
STAT_NAME	Month	Average	Minimum	Maximum	Median
ELROSS CREEK	June	6.50	5.88	8.50	6.44
JOAN BROOK	June	5.51	4.42	7.05	5.39
ELROSS CREEK	July	6.66	5.91	7.37	6.68
GOODREAM CREEK	July	45.82	42.86	47.71	45.93
JOAN BROOK	July	6.87	5.78	7.93	6.96
ELROSS CREEK	August	6.38	4.71	7.84	6.64
GOODREAM CREEK	August	45.50	40.78	48.85	45.58
JOAN BROOK	August	7.83	6.68	9.31	7.75
ELROSS CREEK	September	5.10	4.25	6.17	5.13
GOODREAM CREEK	September	41.52	34.56	46.08	41.95
JOAN BROOK	September	9.27	7.05	10.74	9.61
ELROSS CREEK	October	5.33	3.96	7.10	4.60
GOODREAM CREEK	October	43.03	39.94	44.93	43.30
JOAN BROOK	October	9.87	9.16	10.34	9.90

Conductivity relates to the ease of passing an electric charge – or resistance – through a solution. Conductivity is highly influenced by the concentration of dissolved ions in solution. Specific Conductivity is corrected to 25°C to allow comparison across variable temperatures. Monitoring specific conductivity is crucial for assessing water quality, identifying potential sources of contamination, and ensuring the health of aquatic ecosystems. Deviations from expected conductivity levels may signal the need for further investigation and management actions to maintain water quality and ecosystem integrity.

Total dissolved solids (TDS; g/L) is a calculated parameter derived from specific conductivity measurements, and due to the consistently low conductivity values observed at the monitoring sites, TDS concentrations were correspondingly very low throughout the deployment period.

Specific conductivity conditions across Elross Creek, Goodream Creek, and Joan Brook remained relatively stable throughout the monitoring period, with clear differences between sites reflecting local watershed characteristics and dissolved ion concentrations. Elross Creek consistently recorded the lowest conductivity values, ranging from 3.96 to 8.50 µS/cm, with monthly averages generally between 5 and 7 µS/cm, indicating very low ionic content and minimal external influences. Joan Brook exhibited slightly higher conductivity values, ranging from 4.42 to 10.74 µS/cm, with a gradual increase observed through late summer and fall, suggesting minor seasonal changes in dissolved ion concentrations. Goodream Creek consistently recorded substantially higher conductivity values, ranging from 34.56 to 48.85 µS/cm, with monthly averages remaining near 40–46 µS/cm throughout the deployment period. Across all sites, conductivity displayed only minor short-term variability, with occasional fluctuations likely associated with precipitation events and changing flow conditions. Overall, conductivity patterns remained stable and representative of consistent water quality conditions during the monitoring period.





Dissolved Oxygen

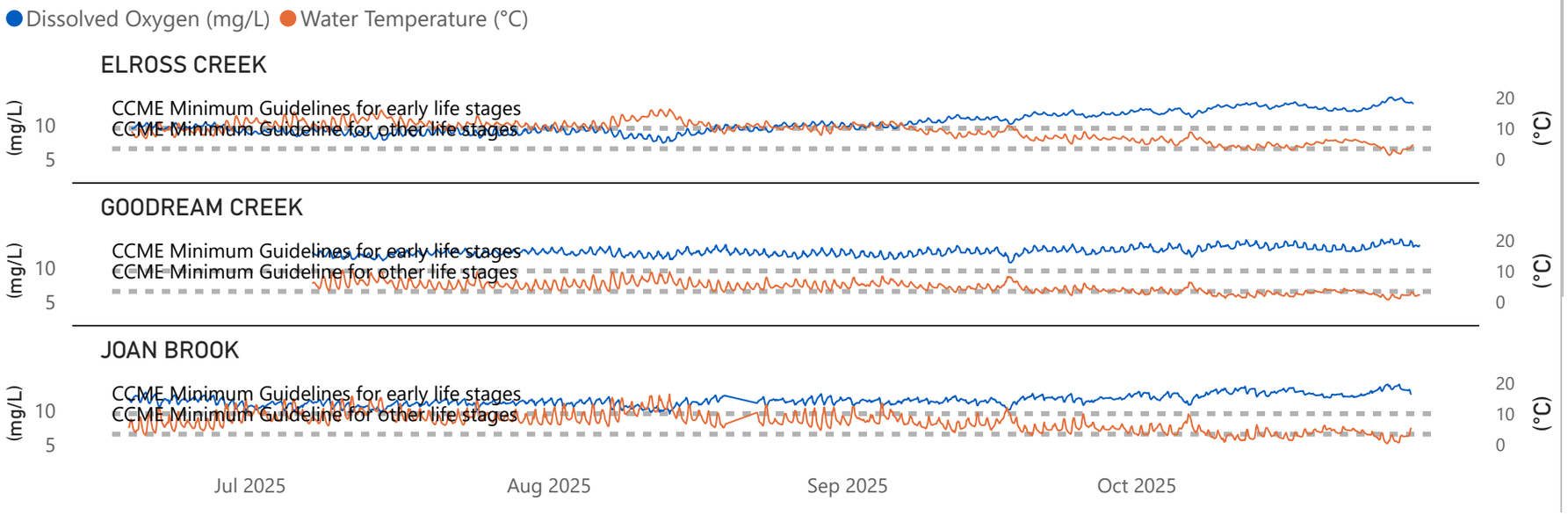
(mg/L and % Sat)

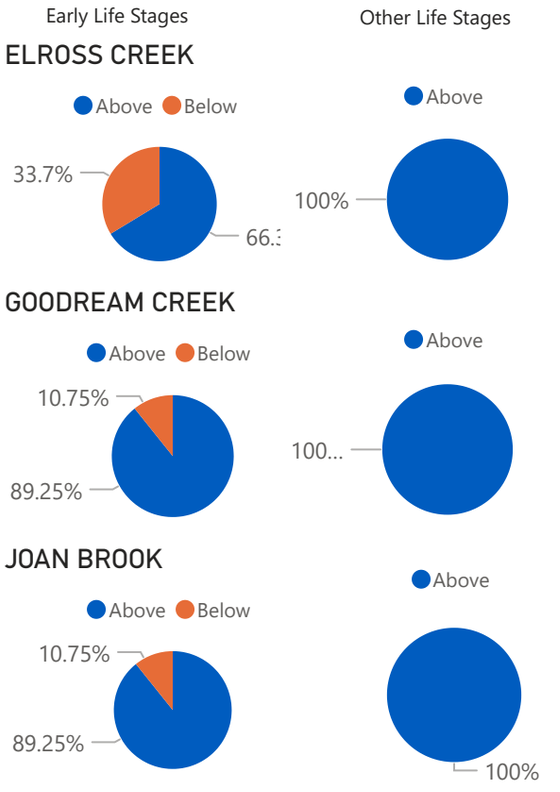
Newfoundland Labrador

STAT_NAME	Month	Average (mg/L)	Average (%Sat)
ELROSS CREEK	June	9.64	84.32
JOAN BROOK	June	11.43	94.82
ELROSS CREEK	July	8.89	81.96
GOODREAM CREEK	July	12.03	96.29
JOAN BROOK	July	10.87	94.94
ELROSS CREEK	August	9.20	83.69
GOODREAM CREEK	August	12.13	96.64
JOAN BROOK	August	11.09	96.19
ELROSS CREEK	September	10.86	92.54
GOODREAM CREEK	September	12.26	95.26
JOAN BROOK	September	11.47	93.41
ELROSS CREEK	October	12.56	97.72
GOODREAM CREEK	October	13.05	96.34
JOAN BROOK	October	12.49	94.24

Dissolved oxygen is a metabolic requirement of aquatic plants and animals. The concentration of oxygen in water depends on many factors, principally temperature – the saturation of oxygen in water is inversely proportional to water temperature. Oxygen concentrations also tend to be higher in flowing water compared to still, lake environments. Low oxygen concentrations can give an indication of excessive decomposition of organic matter or the presence of oxidizing materials.

Dissolved oxygen concentrations remained generally stable and well-oxygenated throughout the monitoring period across all three sites. Elross Creek exhibited the lowest dissolved oxygen concentrations, with monthly averages ranging from 8.89 to 12.56 mg/L and percent saturation values between 81.96% and 97.72%, indicating occasional periods below the CCME early life stage guideline of 9.5 mg/L. Goodream Creek consistently recorded the highest dissolved oxygen concentrations, with monthly averages ranging from 12.03 to 13.05 mg/L and percent saturation values remaining above 95% for most of the deployment; however, brief periods below the early life stage guideline were also observed. Joan Brook displayed dissolved oxygen concentrations between 10.87 and 12.49 mg/L, with percent saturation values ranging from 93.41% to 96.19%, while similarly experiencing occasional short-duration values below the early life stage threshold. Across all sites, dissolved oxygen concentrations generally increased as water temperatures declined through the fall months, reflecting the inverse relationship between water temperature and oxygen solubility. Despite periodic drops below the early life stage guideline, all recorded values remained above the CCME guideline for other life stages (6.5 mg/L), indicating overall favorable conditions for aquatic life.





Turbidity

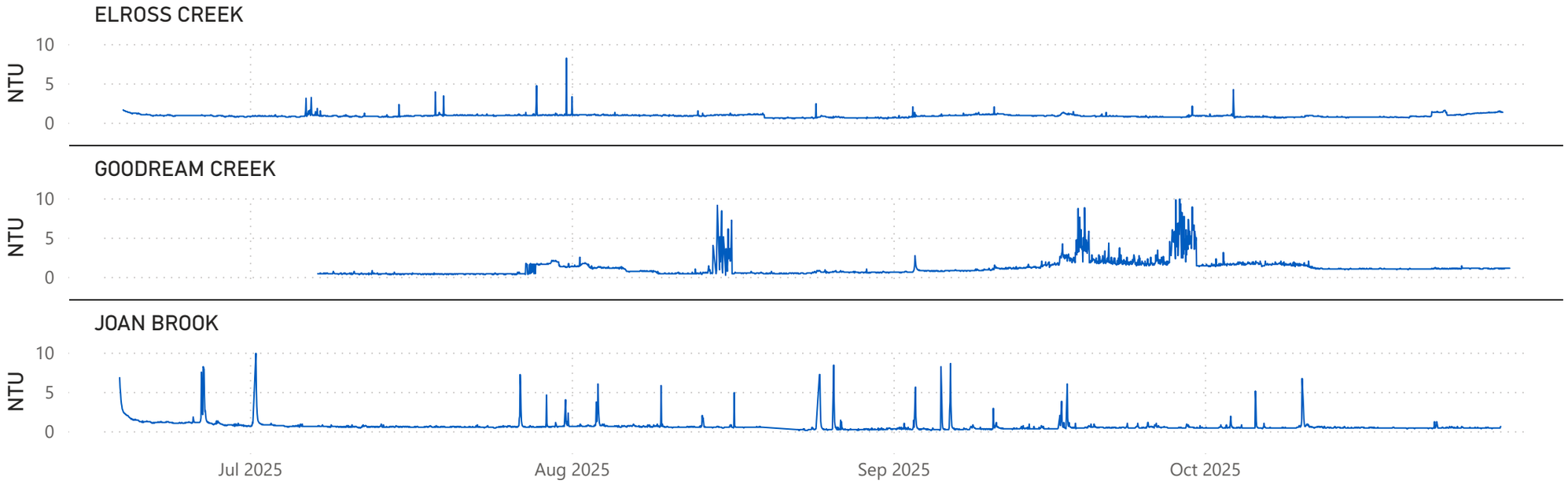
(NTU)

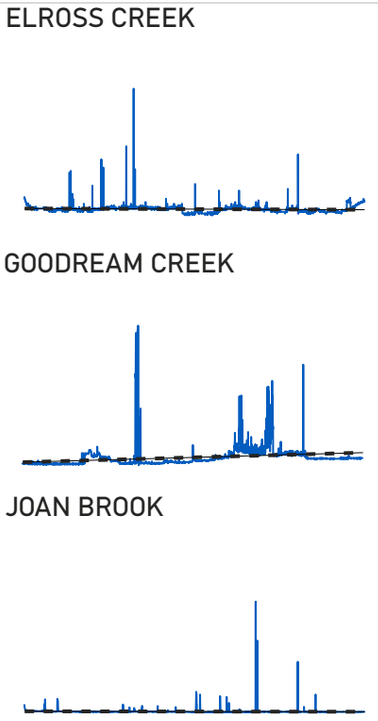
Water turbidity is characterized by the cloudiness or haziness caused by suspended particles and can significantly impact water quality. High turbidity reduces light penetration, hindering photosynthesis and affecting aquatic vegetation growth and habitat suitability. It can lead to temperature fluctuations, oxygen depletion from microbial decomposition of organic matter, and sedimentation, smothering benthic habitats and compromising biodiversity. Turbidity can also transport nutrients and pollutants, contributing to eutrophication, algal blooms, and contamination of drinking water sources. Furthermore, it highlights the significance of monitoring and managing turbidity levels to uphold the health and functionality of aquatic ecosystems.

STAT_NAME	Average	Minimum	Maximum	Median
ELROSS CREEK	0.87	0.50	8.20	0.90
GOODREAM CREEK	1.17	0.20	17.40	1.00
JOAN BROOK	0.77	0.10	101.20	0.50

Turbidity conditions across Elross Creek, Goodream Creek, and Joan Brook remained generally low throughout the monitoring period, indicating predominantly clear water conditions at all sites. Elross Creek recorded turbidity values ranging from 0.50 to 8.20 NTU, with an average of 0.87 NTU, and exhibited only minor intermittent increases over the deployment period. Goodream Creek displayed values between 0.20 and 17.40 NTU, with an average of 1.17 NTU, with several short-duration spikes likely associated with precipitation events and corresponding increases in streamflow. Joan Brook exhibited the greatest variability, with turbidity ranging from 0.10 to 101.20 NTU, although average conditions remained low at 0.77 NTU. The isolated high-magnitude spikes observed at Joan Brook were likely related to short-term sediment mobilization during runoff events or temporary localized disturbances near the sensor. Overall, turbidity remained low and stable for the majority of the monitoring period, with brief event-driven increases occurring intermittently across the three sites.

TURBIDITY (NTU) - Values greater than historical baseline (10 NTU) were removed for graphing purposes.

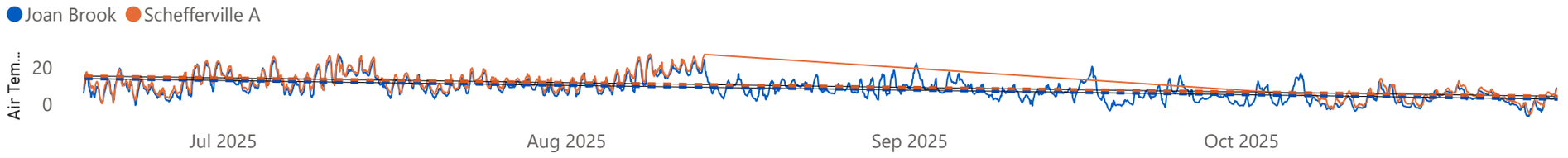




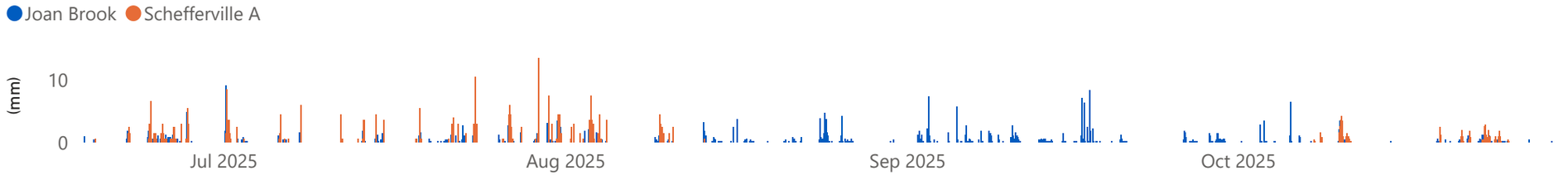
Meteorological and Hydrometric Data

*Climate data obtained from Joan Brook & Schefferville Airport Stations

Air Temperature Trend Line



Schefferville A Precipitation & Joan Brook Precipitation (mm)



Stage values are determined by a vertical reference and serves as an approximation of the water level at the monitoring station.

Elross Creek Stage (m)

Goodream Creek Stage (m)

Joan Brook Stage (m)

Monthly Average Air Temp (°C)

Month	Joan Brook	Schefferville A
June	9.82	11.19
July	11.75	13.43
August	11.20	16.31
September	6.57	
October	2.96	3.97

Monthly Total Precipitation (mm)

Month	Joan Brook	Schefferville A
June	36.82	55.80
July	96.40	183.90
August	91.59	59.10
September	141.04	
October	51.37	70.20
Total	**417.22**	**369.00**

Average Monthly Stage (m)

STAT_NAME	Month	STAGE (m)
ELROSS CREEK	June	1.10
JOAN BROOK	June	1.62
ELROSS CREEK	July	1.06
GOODREAM CREEK	July	588.11
JOAN BROOK	July	1.57
ELROSS CREEK	August	1.06
GOODREAM CREEK	August	588.10
JOAN BROOK	August	1.52
ELROSS CREEK	September	1.05
GOODREAM CREEK	September	588.12
JOAN BROOK	September	1.69
ELROSS CREEK	October	1.04
GOODREAM CREEK	October	588.12
JOAN BROOK	October	1.74

Summary

The Tata Steel Minerals Canada (TSMC) – Elross Lake Network successfully operated throughout the 2025 ice-free monitoring season, providing continuous real-time water quality and hydrometric data at Elross Creek, Goodream Creek, and Joan Brook between June 17 and October 30, 2025. The monitoring network continued to support the assessment of potential mining-related influences on surrounding surface waters while also providing valuable baseline environmental information for long-term watershed management and aquatic habitat protection.

• **Water Temperature** across all monitoring stations exhibited expected seasonal trends, with the warmest conditions occurring during July and August followed by gradual cooling through September and October. Elross Creek consistently recorded the warmest and most stable temperatures, while Goodream Creek remained the coolest throughout the monitoring period, likely due to greater water volume and depth. All sites displayed regular diurnal fluctuations and natural seasonal cooling patterns typical of surface water systems in western Labrador.

• **pH** conditions remained stable throughout the monitoring season and were generally representative of natural freshwater systems within the region. Elross Creek remained slightly acidic and below the CCME guideline of 6.5 for the protection of aquatic life; however, these conditions are consistent with historical baseline conditions and natural watershed geology. Goodream Creek maintained stable near-neutral conditions, while Joan Brook remained slightly acidic to neutral with limited variability.

• **Specific Conductivity** remained consistently low across the monitoring network, indicating low dissolved ion concentrations and minimal influence from external inputs. Goodream Creek displayed notably higher conductivity values than Elross Creek and Joan Brook, likely reflecting localized geological and watershed characteristics. Overall conductivity trends remained stable throughout the monitoring period with only minor short-term variability associated with precipitation and flow changes. Total dissolved solids (TDS), calculated from conductivity measurements, remained correspondingly low throughout the deployment season.

• **Dissolved Oxygen** concentrations remained generally stable and indicative of healthy, well-oxygenated aquatic environments across all stations. Goodream Creek and Joan Brook consistently maintained concentrations above CCME guidelines for the protection of aquatic life, while Elross Creek periodically approached the early life stage guideline during warmer summer conditions. Seasonal cooling through the fall corresponded with increasing dissolved oxygen concentrations at all sites.

• **Turbidity** conditions remained low for the majority of the deployment season, indicating generally clear baseline water quality conditions throughout the monitoring network. Short-duration turbidity spikes observed at Goodream Creek and Joan Brook were likely associated with precipitation events, runoff, and temporary sediment mobilization. Elross Creek remained highly stable with very limited turbidity variability throughout the season.

• **Meteorological and Hydrometric Conditions** demonstrated that precipitation events influenced short-term variability in water quality and stage conditions throughout the monitoring period. Joan Brook air temperature and precipitation trends generally followed regional climatic conditions observed at Schefferville A, although localized differences were evident, possibly due to watershed characteristics, terrain, and localized weather events. Stage conditions at all stations remained relatively stable overall, with event-driven increases associated with precipitation and runoff periods.

• In 2025, ECC formally assumed responsibility for the hydrometric data logging and communication components of the monitoring network from Environment and Climate Change Canada (ECCC). Continued collaboration between ECC and TSMC remains critical to the successful operation, maintenance, and advancement of the monitoring network.

Overall, the 2025 TSMC Elross Lake Network monitoring program successfully characterized seasonal water quality and hydrologic conditions within the monitored watersheds. The dataset provides important baseline environmental information to support ongoing watershed assessment, aquatic habitat protection, regulatory monitoring, and the long-term evaluation of potential mining-related influences within the Elross Lake region.

Path Forward

• ECC – WRMD will continue to assume responsibility for the hydrometric monitoring, water quality instrumentation, data logging, and communication components of all three (3) TSMC monitoring stations during the 2026 field season.

• ECC staff will redeploy real-time water quality (RTWQ) instruments at Elross Creek, Joan Brook, and Goodream Creek during the spring of 2026 when ice conditions permit. The monitoring season will typically extend from June through October and will consist of routine maintenance visits, calibrations, QA/QC assessments, and instrument servicing to support continuous and accurate data collection.

• ECC staff, with assistance from TSMC personnel, will continue regular inspection and maintenance activities at all monitoring stations to minimize interruptions in data collection, maintain reliable communications, and address equipment or instrumentation issues in a timely manner.

• Additional evaluation of deployment techniques, sonde placement, and station infrastructure will continue in order to improve long-term instrument stability, reduce sensor fouling, and improve data quality at all monitoring locations.

• ECC staff will continue to work cooperatively with TSMC staff regarding access, logistics, and field support requirements associated with ongoing operation and maintenance of the monitoring network. Continued collaboration remains essential for efficient field operations within the remote monitoring area.

• Hydrometric monitoring activities, including stage verification and development of improved stage-discharge relationships, will continue throughout future deployment seasons to strengthen long-term understanding of watershed response and flow conditions within the monitored basins.

• ECC staff will continue development of value-added products and analytical tools using RTWQ and grab sample datasets, including ongoing work related to estimated water quality parameters, trend analysis, and watershed response evaluation.

• Continued enhancements to ECC's Automatic Data Retrieval System and data management infrastructure will support improved real-time monitoring capabilities, data accessibility, visualization, and long-term archival of monitoring data.

• TSMC will continue to receive notification of significant water quality observations or operational issues throughout the monitoring season through regular communication, deployment summaries, and annual reporting.

• Open communication and collaboration between ECC and TSMC personnel will continue to be maintained to proactively address operational challenges, monitoring requirements, and emerging environmental concerns within the Elross Lake monitoring network.