Real-Time Water Quality Deployment Report

Duck Pond Network

January 1, 2016 to May 26, 2016

Newfoundland Labrador

Government of Newfoundland & Labrador
Department of Environment and Climate Change
Water Resources Management Division
St. John's, NL, A1B 4J6 Canada

Real-Time Water Quality Deployment Report

Duck Pond Network

2016-01-01 to 2016-05-26

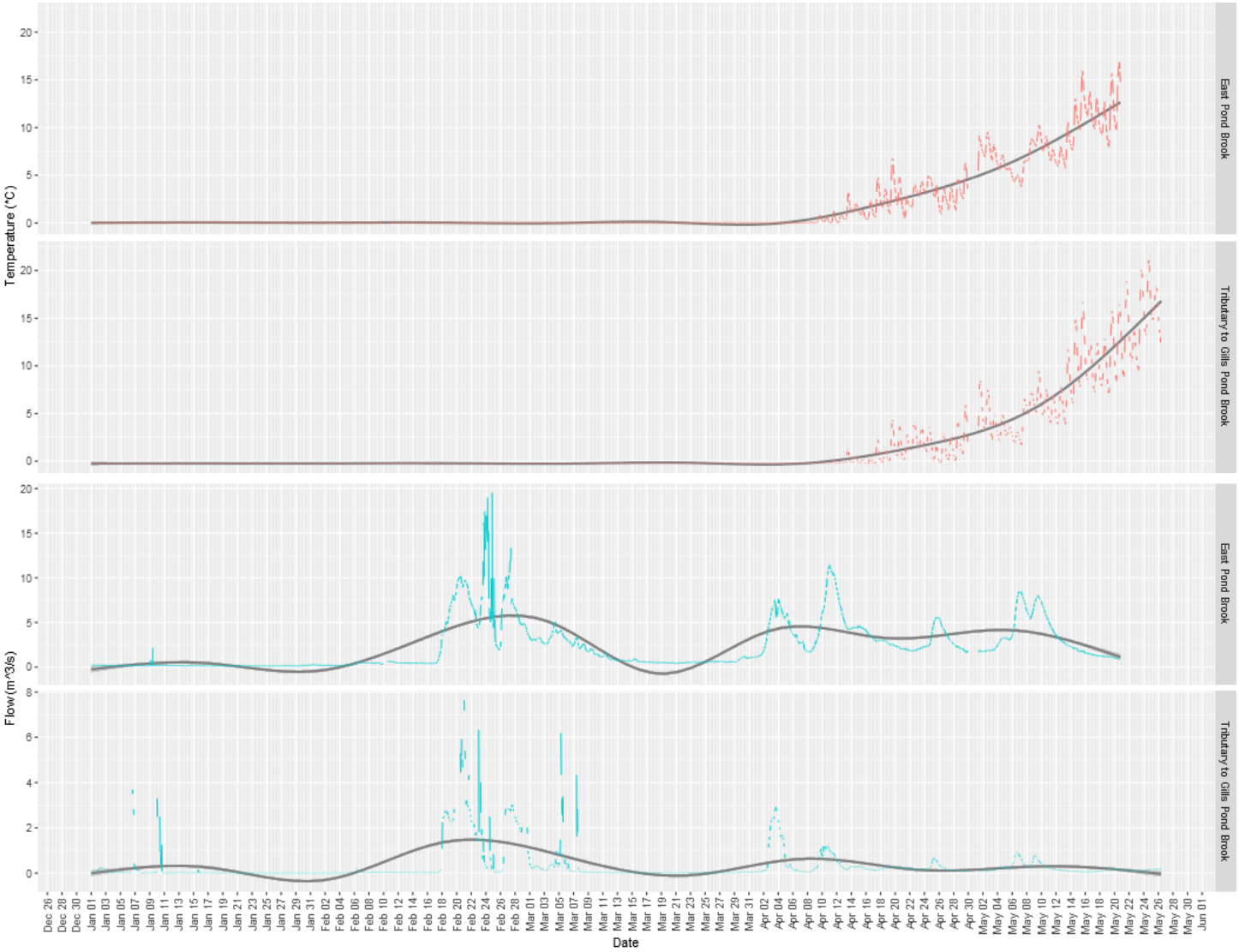
General

- Department of Environment and Climate Change staff monitors the real-time web pages consistently.
- This report is for the 2016 winter season immediately following the 2015 annual report ending on December 31, 2015. Regular reporting continues following the May 2016 deployment. Since this report does not follow a full deployment period, QAQC rankings are not available.
- Hydrometric data included in this report is provisional and used only for illustrative purposes. Corrected and finalized data may be retrieved from the Water Survey of Canada website (http://www.ec.gc.ca/rhc-wsc/)*.

Data Interpretation

Temperature

Water Temperature is a major factor used to describe water quality. Temperature has major implications on both the ecology and chemistry of a water body, governing processes such as the metabolic rate of aquatic plants and animals and the degree of dissolved oxygen saturation.



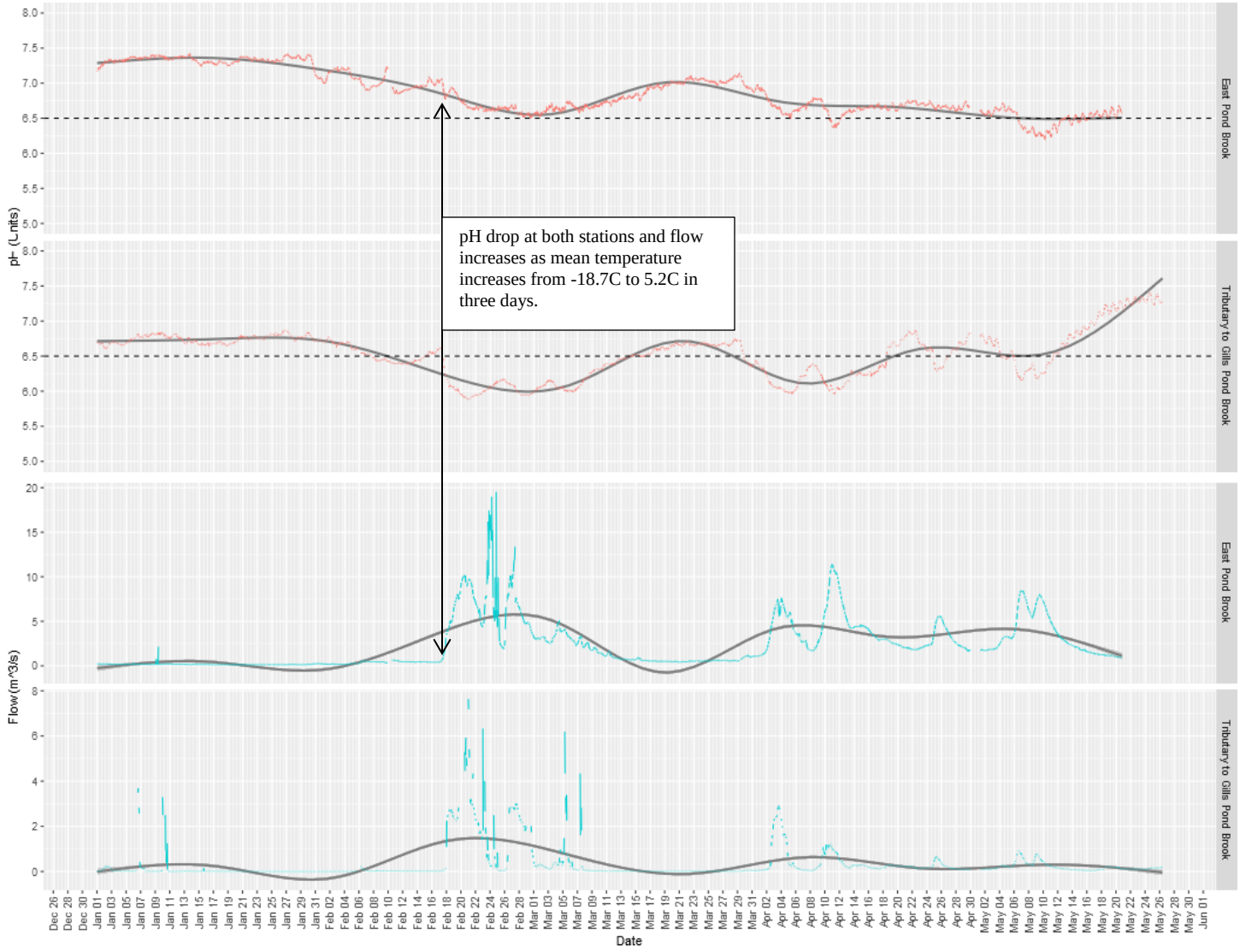
Station	Mean	Median	Min	Max
East Pond Brook	1.56	0.03	0.00	16.80
Tributary to Gills Pond Brook	1.52	-0.21	-0.24	21.08

- Water temperatures at East Pond Brook and Tributary to Gills Pond Brook are very stable and cold from January 1, 2016 to April 7, 2016. During the morning of April 8 a notable and marked change occurs where water temperatures begin to trend upwards from 0.02°C.

*All hydrometric data is provisional and is subject to correction. Please consult Water survey of Canada for finalized data and interpretation.

pH

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.



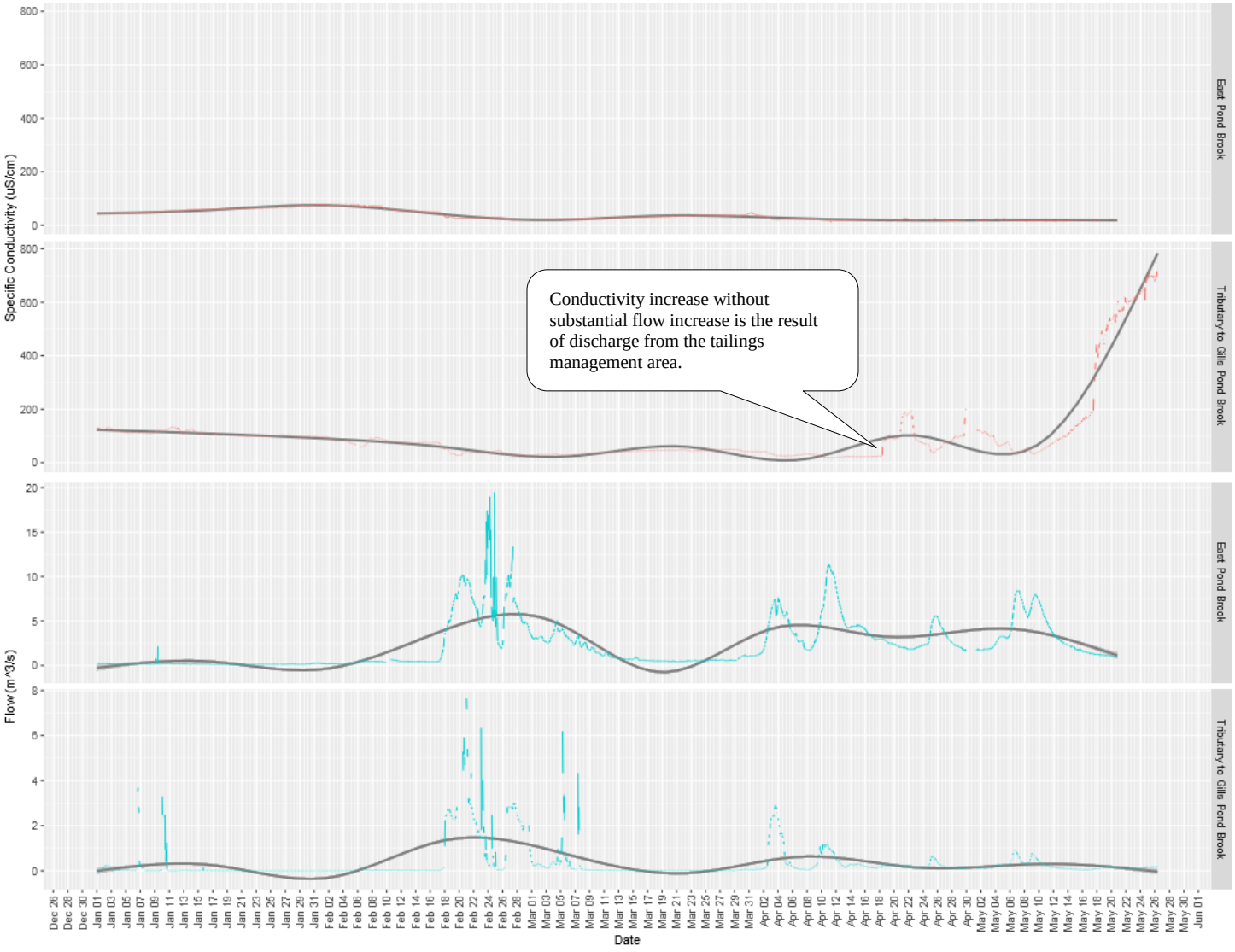
Station	Mean	Median	Min	Max
East Pond Brook	6.87	6.78	6.19	7.42
Tributary to Gills Pond Brook	6.53	6.59	5.88	7.41

- During the winter months, both stations exhibit similar patterns in pH, usually the result of flow changes caused by periods of melt. Most values are above the minimum CCME Guideline of 6.5 units (dashed line).

*All hydrometric data is provisional and is subject to correction. Please consult Water survey of Canada for finalized data and interpretation.

Specific Conductivity

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: distilled water has zero conductivity (infinite resistance) while salty solutions have high conductivity (low resistance). Specific Conductivity is corrected to 25°C to allow comparison across variable temperatures.



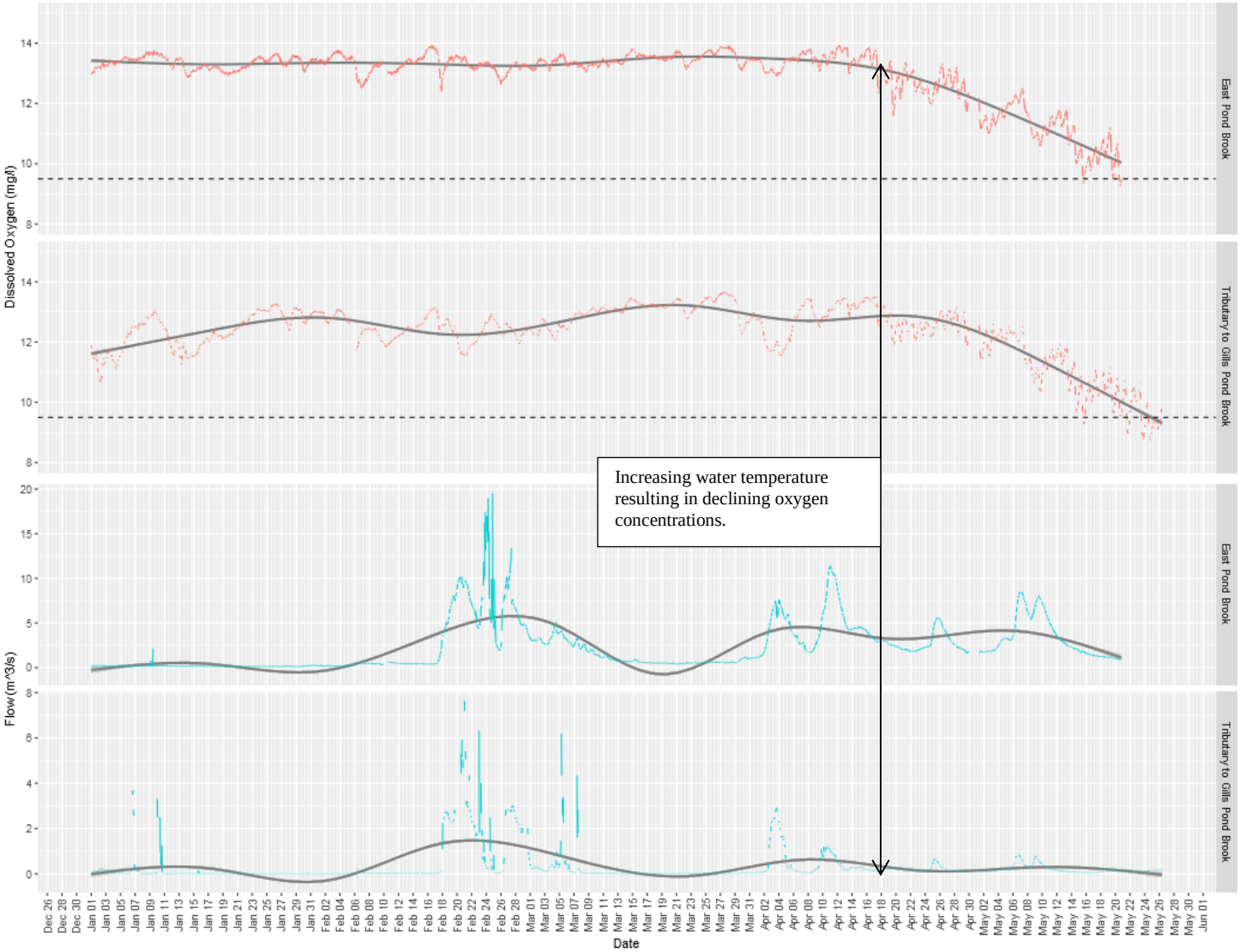
Station	Mean	Median	Min	Max
East Pond Brook	36.6	28.6	13.4	78.2
Tributary to Gills Pond Brook	100.4	71.3	18.3	716.0

- Specific conductivity decreases throughout the winter at both stations due to a lack of overland flow containing dissolved solids during the cold months. Specific conductivity, however, increases in early April at Tributary to Gills Pond Brook station as discharge of treated effluent from the tailings management area resumes for the year.

*All hydrometric data is provisional and is subject to correction. Please consult Water survey of Canada for finalized data and interpretation.

Dissolved Oxygen

Dissolved oxygen is a metabolic requirement of aquatic plants and animals. The concentration of oxygen in water depends on many factors, especially 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.



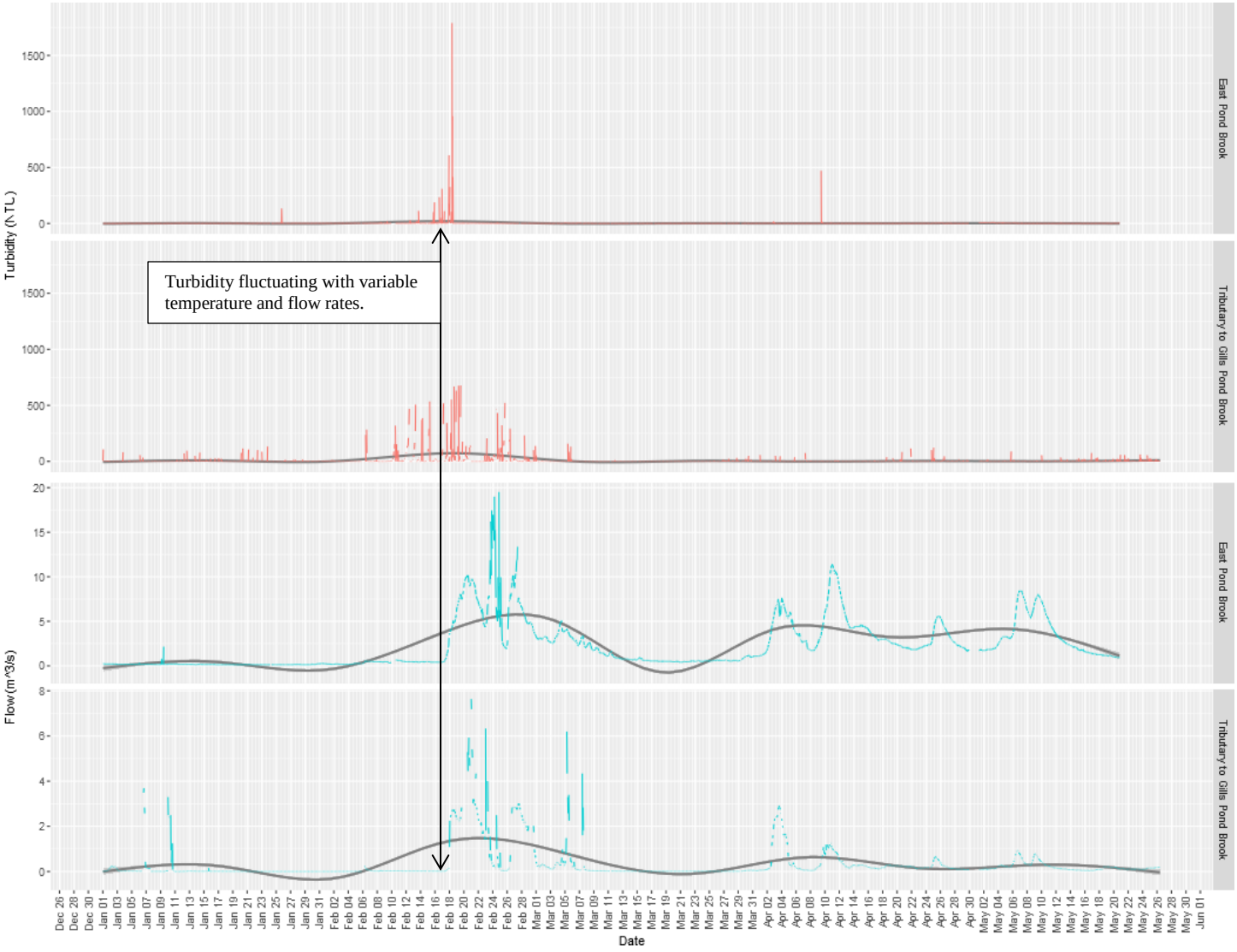
Station	Mean	Median	Min	Max
East Pond Brook	12.99	13.30	9.27	13.94
Tributary to Gills Pond Brook	12.32	12.51	8.75	13.67

- As water temperatures increase in the spring, oxygen concentrations gradually begin to decrease due to the inverse relationship. Towards the end of May, some values fall below the CCME Guideline for the protection of early life stage cold water biota (dashed line at 9.5 mg/l).

*All hydrometric data is provisional and is subject to correction. Please consult Water survey of Canada for finalized data and interpretation.

Turbidity

Turbidity is typically caused by fine suspended solids such as silt, clay, or organic material. Consistently high levels of turbidity tend to block sunlight penetration into a waterbody, discouraging plant growth. High turbidity can also damage the delicate respiratory organs of aquatic animals and cover spawning areas.

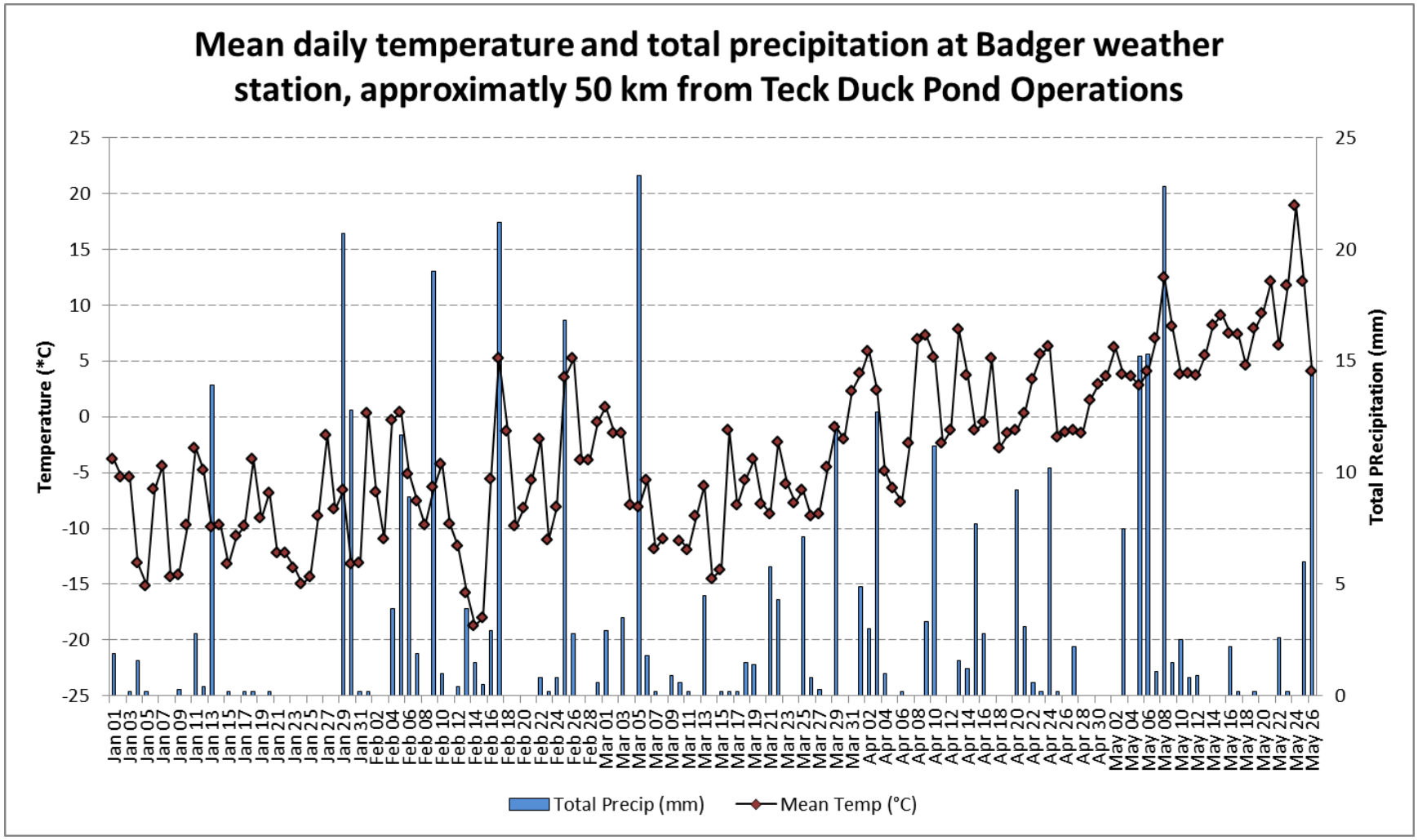


Station	Mean	Median	Min	Max
East Pond Brook	3.0	0.7	0.0	1789.0
Tributary to Gills Pond Brook	10.8	0.0	0.0	678.0

- Over this time period, turbidity levels were found to be low and often fluctuated in conjunction with flow, indicating turbidity was resulting from melting periods.

*All hydrometric data is provisional and is subject to correction. Please consult Water survey of Canada for finalized data and interpretation.

Appendix



Prepared by:
Ryan Pugh
Department of Environment and Climate Change
Water Resources Management Division
Phone: 709.729.1681
Fax: 709.729.3020