

Real Time Water Quality Report Peter's River near Botwood Deployment Period 2007-12-18 to 2008-02-05

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis. Any unusual observations are investigated, with site visits being carried out as warranted.
- Raw (uncorrected) data has been used in the preparation of the graphs and subsequent discussion below.

Maintenance and Calibration of Instrumentation

- Following regular cleaning and calibration of the Datasonde the instrument was installed at Peter's River on December 18, 2007 and remained deployed until February 5, 2008 (49 day period) when ice conditions were stable enough to remove the instrument through the frozen surface of the river.
- *In-situ* measurements of ambient water quality were undertaken with a freshly calibrated Minisonde each time a Datasonde was installed or removed.
- The comparative results between the Minisonde and Datasonde values at the beginning and end of the deployment period are shown in **Table 1**.

Table 1: QA/QC Data Comparison Rankings During Deployment Period

Station	Date (YYYY-MM-DD)	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Peter's River near Botwood	2007-12-18	Installation	Excellent	Fair	Poor	Marginal
	2008-02-05	Removal	Excellent	Fair	Fair	Excellent

Data Interpretation

- The water temperature (**Figure 1**) remained fairly constant throughout the deployment period. Temperature values ranged from 0.17°C to -0.09°C over the deployment period.

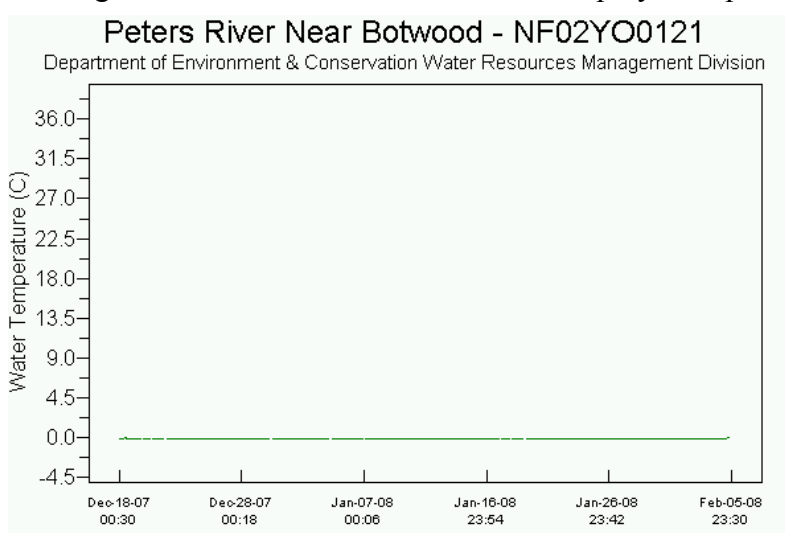


Figure 1

- pH values (**Figure 2**) decreased slightly throughout the deployment period. The pH values ranged from a minimum of 4.66 to a maximum of 6.46 with all of the values falling below the recommended range (6.5 – 9.0) for the CCME *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. pH levels in this range are not uncommon for this river, and can be considered a natural occurrence.

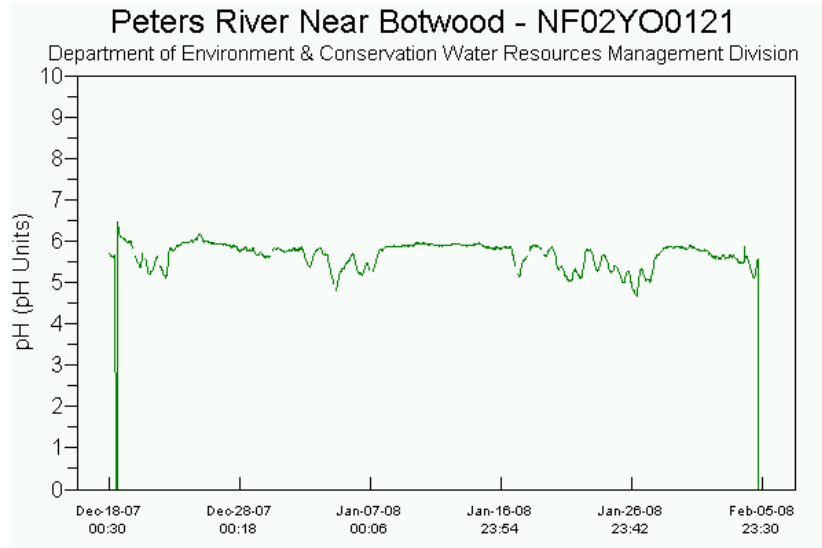


Figure 2

- The specific conductance (**Figure 3**) ranged from a minimum of 38 $\mu\text{S}/\text{cm}$ to a maximum of 57 $\mu\text{S}/\text{cm}$ over the deployment period. These values are typical for this river under normal conditions. These minor fluctuations are generally inversely proportional to changes in streamflow. See Figure 6.

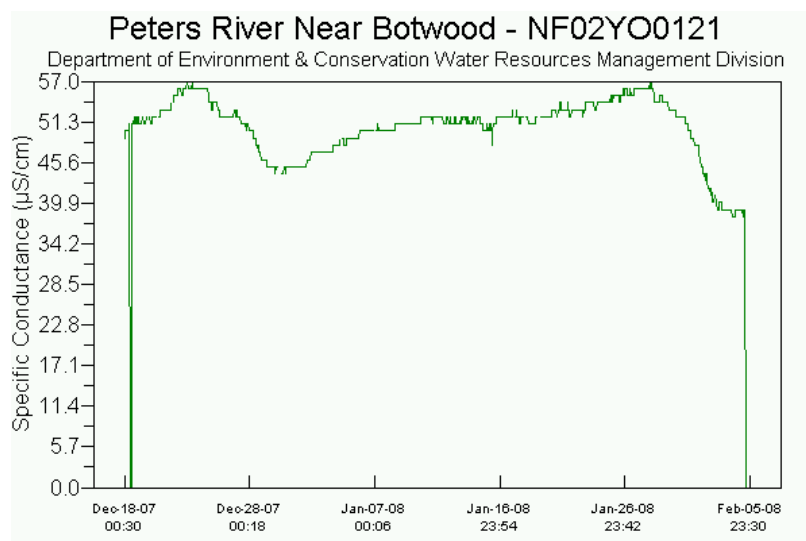


Figure 3

- The dissolved oxygen (**Figure 4**) values ranged from a minimum of 10.97 mg/L to a maximum of 12.89 mg/L over the deployment period. All dissolved oxygen values fall within the recommended CCME *Canadian Water Quality Guidelines for the Protection of Aquatic Life* for dissolved oxygen (cold water/other life stages – above 6.5 mg/L; cold water/early life stages – above 9.5 mg/L; warm water/other life stages – above 5.5 mg/L; warm water/early life stages – above 6 mg/L).

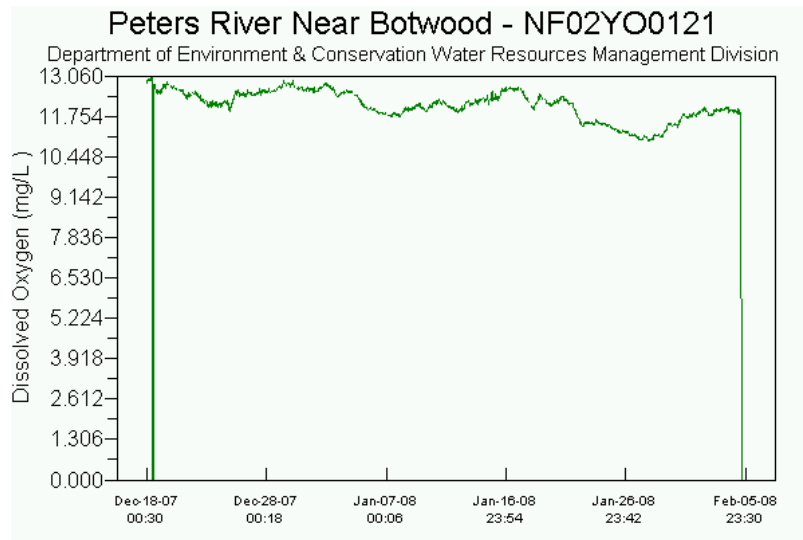


Figure 4

- The turbidity values (**Figure 5**) remained quite low during the deployment period, generally being below 2 NTU for most of the deployment period which is the typical background level for this station. There was one minor spike in turbidity (10 NTU on February 1, 2008) which coincided with the beginning of a period of high discharge following a winter mild spell and rainstorm event. This short lived turbidity spike is of no concern and does not indicate any degree of water quality impairment. Most turbidity values during this period were recorded as 1 NTU. It is likely that this is a calibration problem, and these values should have in fact been zero.

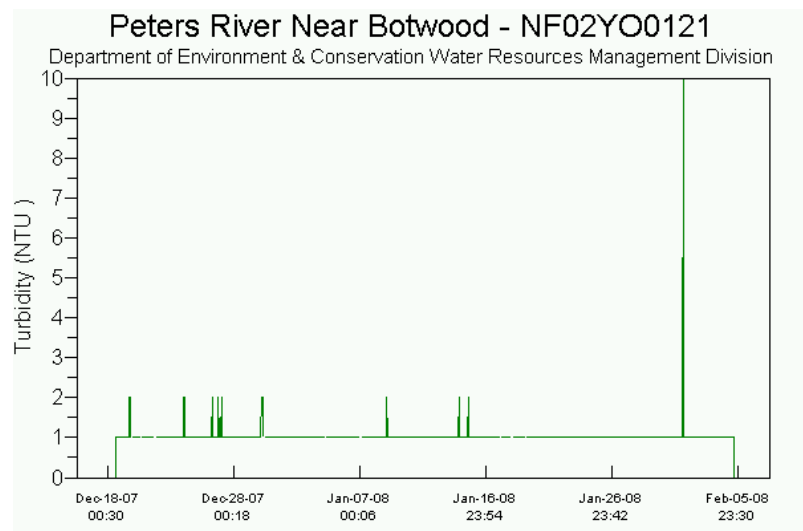


Figure 5

- The streamflow or discharge ranged from a minimum of 5.5 m³/s to a maximum of 29.0 m³/s (peak on February 3, 2008). This is certainly within the normal range for this stream with the rising and falling legs of the hydrograph being typical of the flashy nature of this stream, in response to precipitation events. During this period, there was continuous ice cover, with evidence that the ice had risen and fallen slightly.

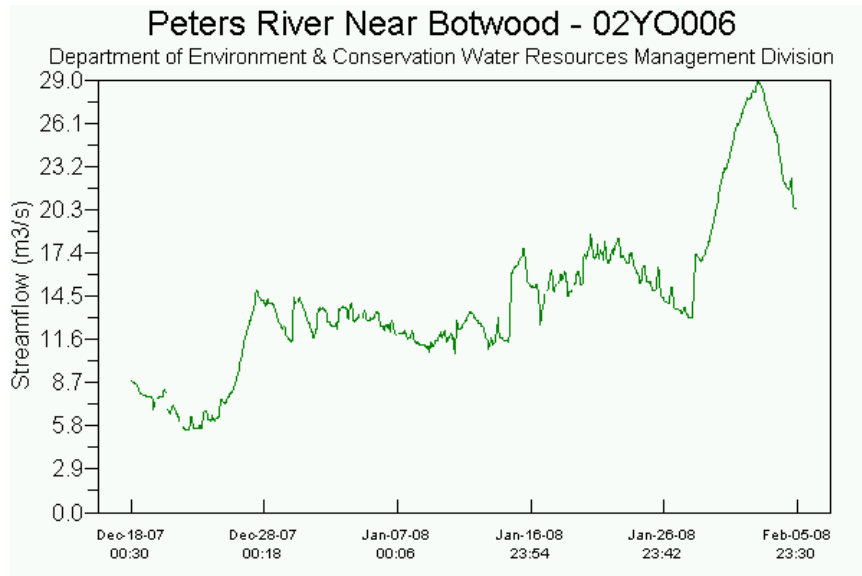


Figure 6