Real Time Water Quality Report
Peter's River near Botwood
Deployment Period 2008-02-06 to 2008-02-21

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 February 6, 2008 and remained deployed until February 21, 2008 (15 day period). However, beginning at 04:30 on February 15, 2007 unusual values were being recorded, indicating that something was wrong with the instrument or data transmissions. At the first opportunity, once ice conditions were stable (following a mild spell) the probe was removed on February 21, 2008 and subsequently determined to be damaged due to ice pressure or movement. Therefore, QA/QC data comparisons would be unreliable during removal of the instrument, and in fact all data would be suspect following February 15, 2008.
- *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 of the deployment period are shown in **Table 1**.
- The unit is removed indefinitely for servicing.

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	2008-02-06	Installation	Excellent	Poor	Fair	Good
	2008-02-21	Removal	NA	NA	NA	NA

Data Interpretation

- The water temperature (**Figure 1**) remained constant from the beginning of the deployment period until February 15, 2008. Temperature values ranged from -0.15˚C to -0.17˚C over these seven days.

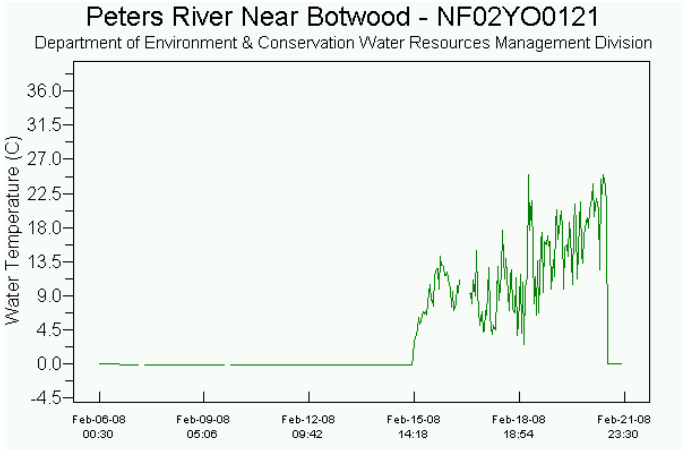

Figure 1

- pH values (**Figure 2**) remained fairly constant from the beginning of the deployment period until February 15, 2008. During the first seven days of the deployment period the pH values ranged from a minimum of 4.60 to a maximum of 5.75 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.

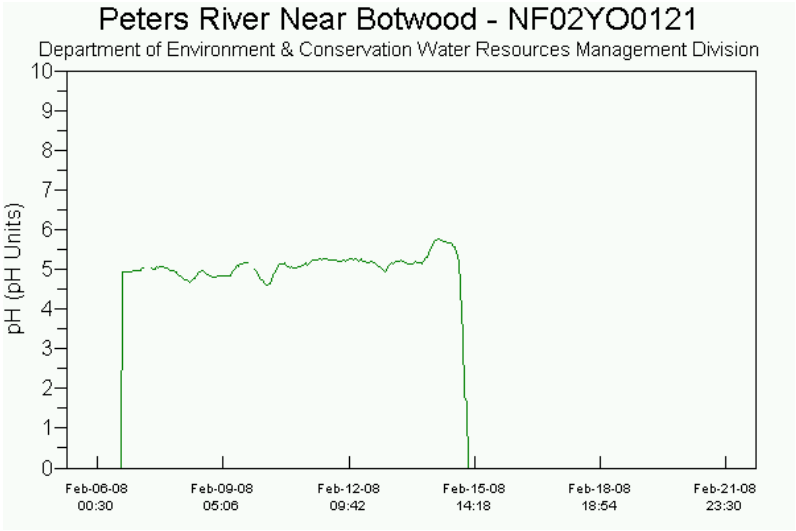

Figure 2

- The specific conductance **(Figure 3)** increased slightly from the beginning of the deployment period until February 15, 2008. During the first seven days of the deployment period, the specific conductance ranged from a minimum of 39 µS/cm to a maximum of 48 µS/cm. These values are typical for this river.

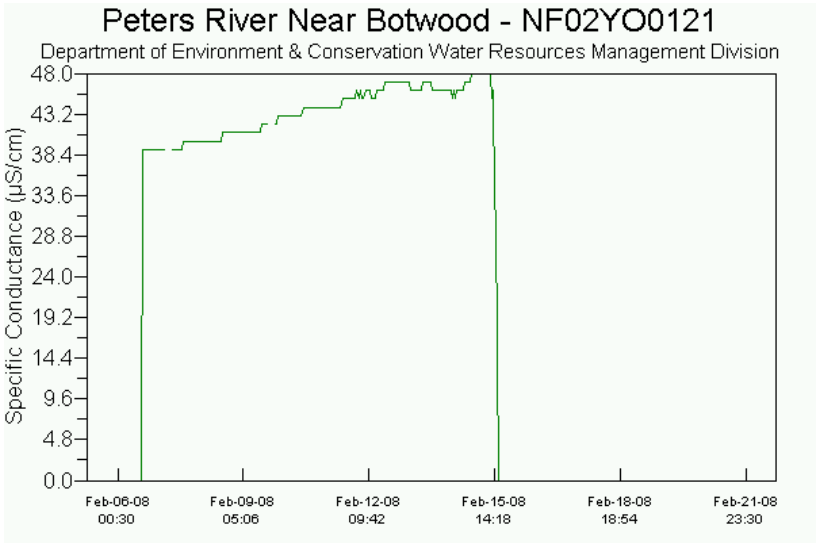

Figure 3

- The dissolved oxygen (**Figure 4**) values were very constant from the beginning of the deployment period until February 15, 2008. During the first seven days of the deployment period the DO values ranged from a minimum of 11.67 mg/L to a maximum of 12.55 mg/L. 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).

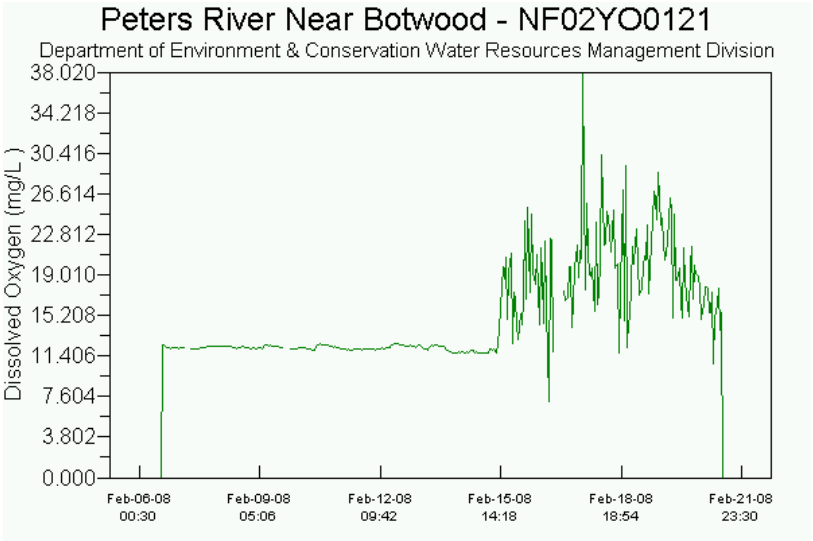

Figure 4

- The turbidity values **(Figure 5)** were very constant from the beginning of the deployment period until February 15, 2008. During the first seven days of the deployment period the DO values were either 0 NTU or 1 NTU.

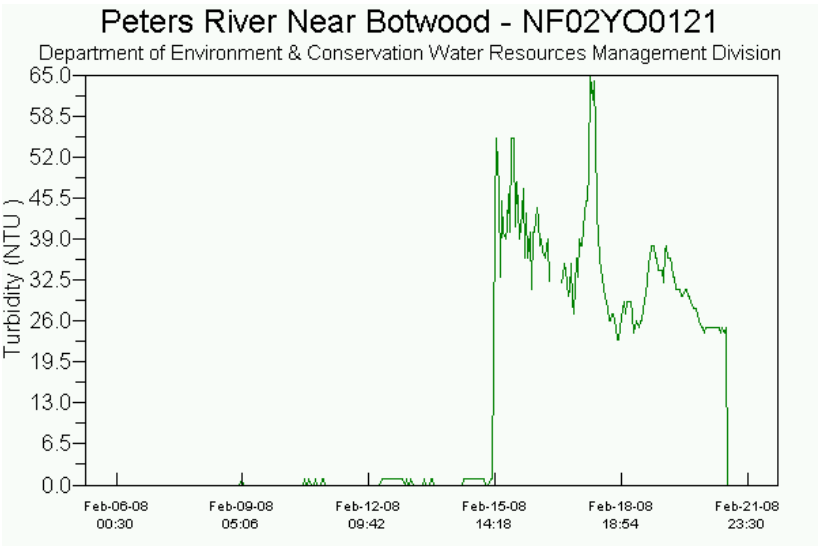

Figure 5

- The streamflow or discharge measurements were unaffected due to the fact that this is measured with a separate instrument. Streamflow ranged from a minimum of 7.83 m^3/s to a maximum of 20.0 m^3/s (peak on February 14, 2008). This is certainly within the normal range for this stream. It is interesting to note that the DataSonde damage is likely to have happened during or shortly after the high flows on February 14, 2008. During this period, ice cleared from the centre of the main river channel leaving only shorefast ice by February 21, 2008.

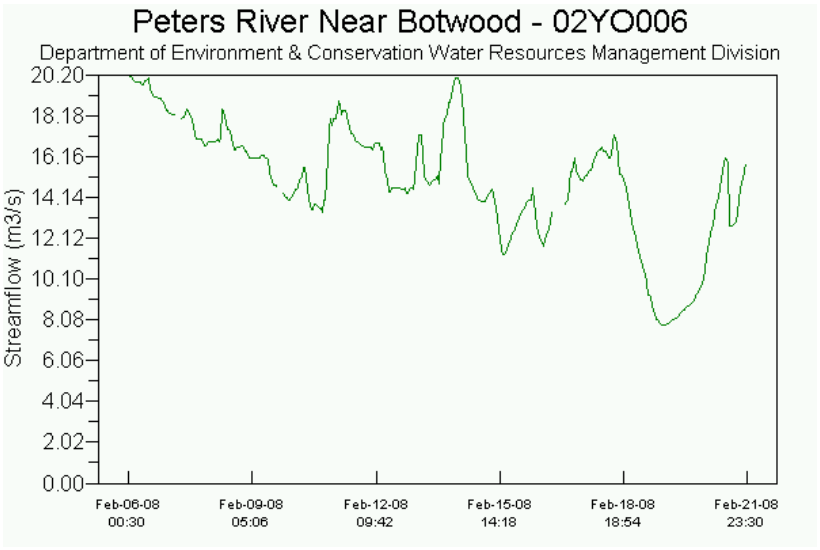

Figure 6