

**Real Time Water Quality(RTWQ) Deployment Report
NF02YL0012 – Humber River at Humber Village Bridge
August - October 2008**

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.
- This monthly report interprets the data from the Humber River at Humber Village Bridge RTWQ station for the period of August 11th, 2008 to October 15th, 2008.

Maintenance and Calibration of Instrumentation

- The instrument was deployed from August 11th, 2008 to October 15th, 2008, (65 day deployment period) at which point it was removed for maintenance and calibration. This is a longer than normal deployment period for this station due to limited staff resources and excessive field commitments.
- The results from comparing the Minisonde values to the Datasonde values at the time of installation on August 11th and removal on October 15th can be seen in **Table 1**. Collection of QA/QC readings involves a second set of data readings being collected at the time of removal & installation, using a similar, freshly calibrated instrument. Data readings from both instruments were compared and their variability was ranked, as part of QA/QC protocol.
- For installation a ranking of excellent was achieved for temperature, conductivity and dissolved oxygen while pH received a good ranking. For removal a ranking of excellent was achieved for temperature, good for pH and conductivity and poor for dissolved oxygen. The poor ranking for dissolved oxygen may be attributed to a poorly calibrated and/or malfunctioning Minisonde or a maintenance problem with the Datasonde oxygen probe.

Table 1: QA/QC Data Comparison Rankings for installation – August 11th & removal - October 15th

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Humber River at Humber Village Bridge	August 11 th , 2008	Installation	Excellent	Good	Excellent	Excellent
	October 15 th , 2008	Removal	Excellent	Good	Good	Poor

Data Interpretation

- During the deployment period of August 11th to October 15th, 2008 the water quality remained relatively stable for all parameters.

- Water temperature values (**Figure 1**) for the deployment period ranged from 10.3 to 18.6 with a declining trend through late summer and early fall. There is also a clear pattern of diurnal fluctuations with warming in the day and cooling at night.

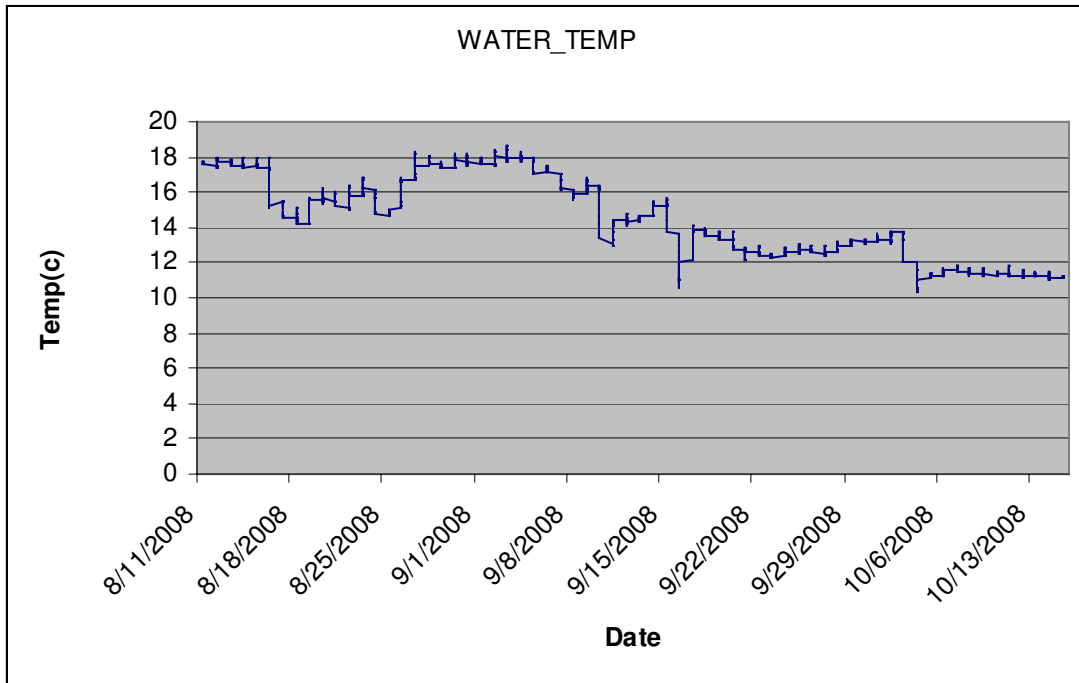


Figure 1

- Dissolved oxygen (DO) values (**Figure 2**) for the deployment period showed a gradual decline, which can only be attributed to instrument drift or error as under normal conditions the DO should increase with declining temperature. This instrument was removed and sent for servicing of the DO sensor.

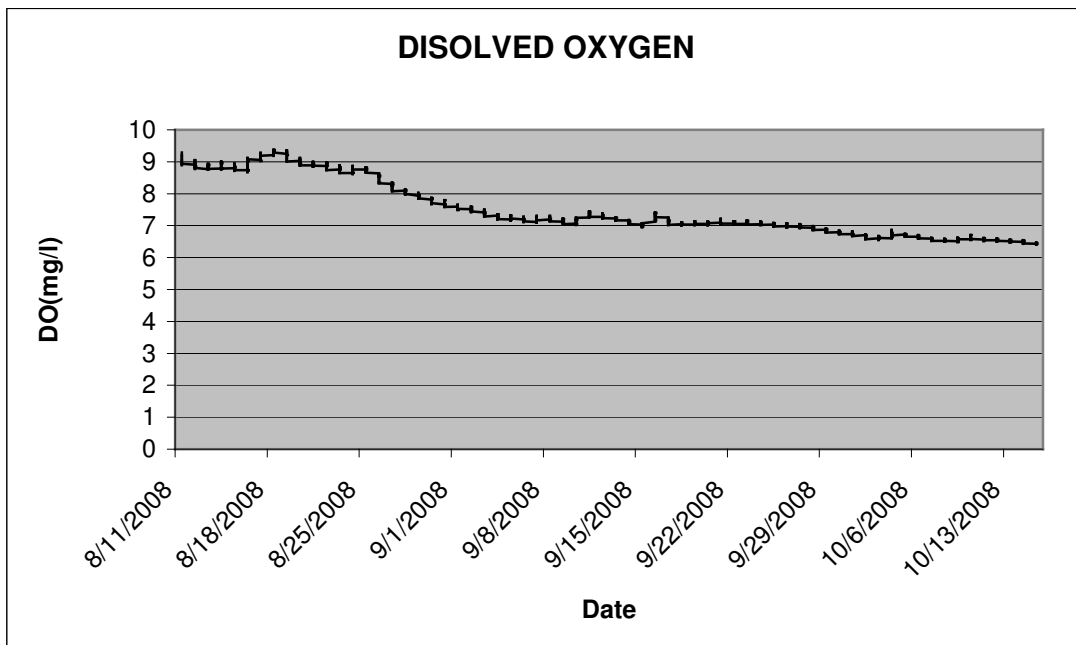


Figure 2

- There are 4 different guidelines for DO depending on the life cycle stage and water temperature (cold water/other life stages – above 6.5 mg/L; warm water/other life stages – above 5.5 mg/L; warm water/early life stages – above 6 mg/L; cold water/early life stages – 9.5 mg/L). Because of the significant instrument drift it is difficult to determine if these guidelines are being met or not.
- pH values (**Figure 3**) were fairly consistent over the deployment period. pH values ranged between 6.6 and 7.14 with all values within the 6.5 – 9.0 range recommended by the CCME Guidelines for the Protection of Freshwater Aquatic Life.

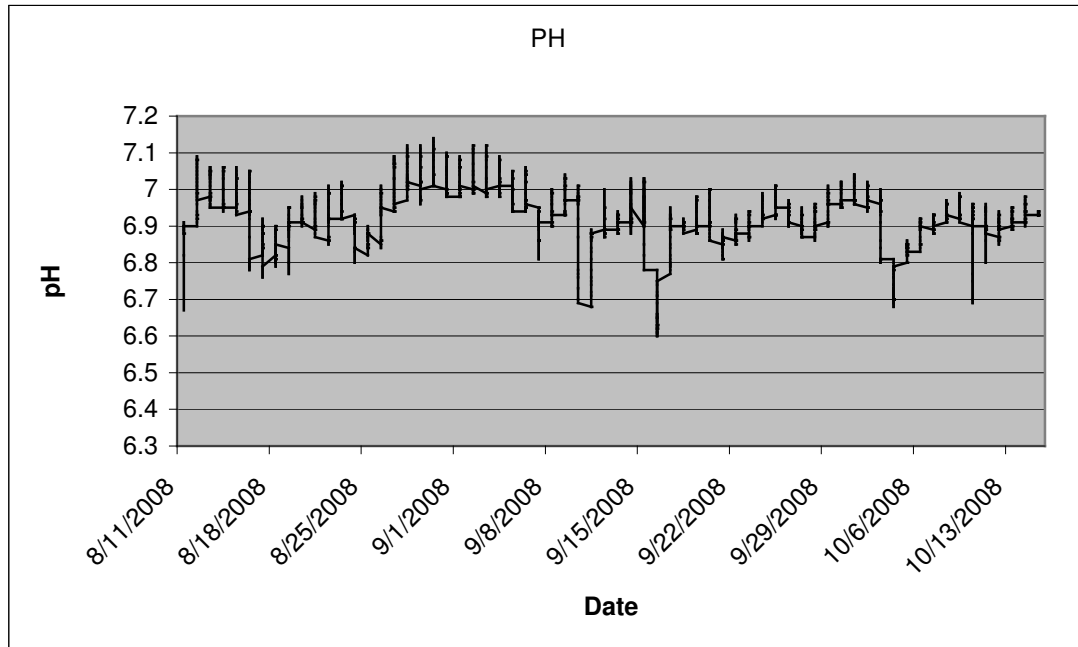


Figure 3

- Specific conductance values (**Figure 4**) were relatively consistent over the deployment period. Values ranged from 37.7 to 41.8 $\mu\text{S}/\text{cm}$, which is typical for this station.

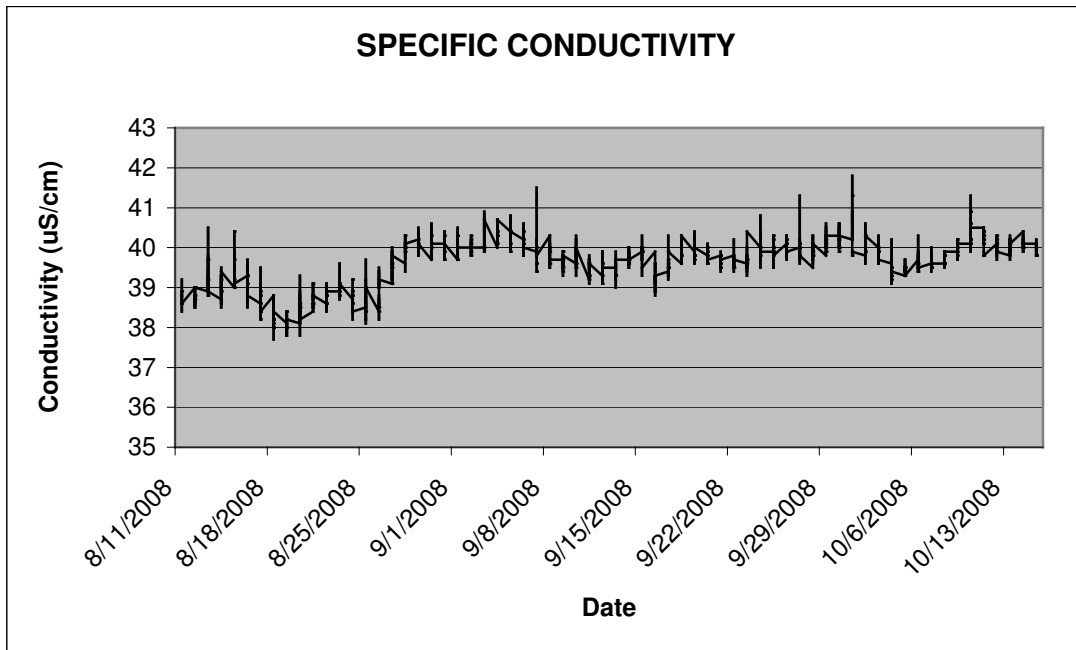


Figure 4

- Turbidity values (**Figure 5**) were relatively consistent over the deployment period and ranged from 0 to 2.3 NTUs, which is typical of this station.
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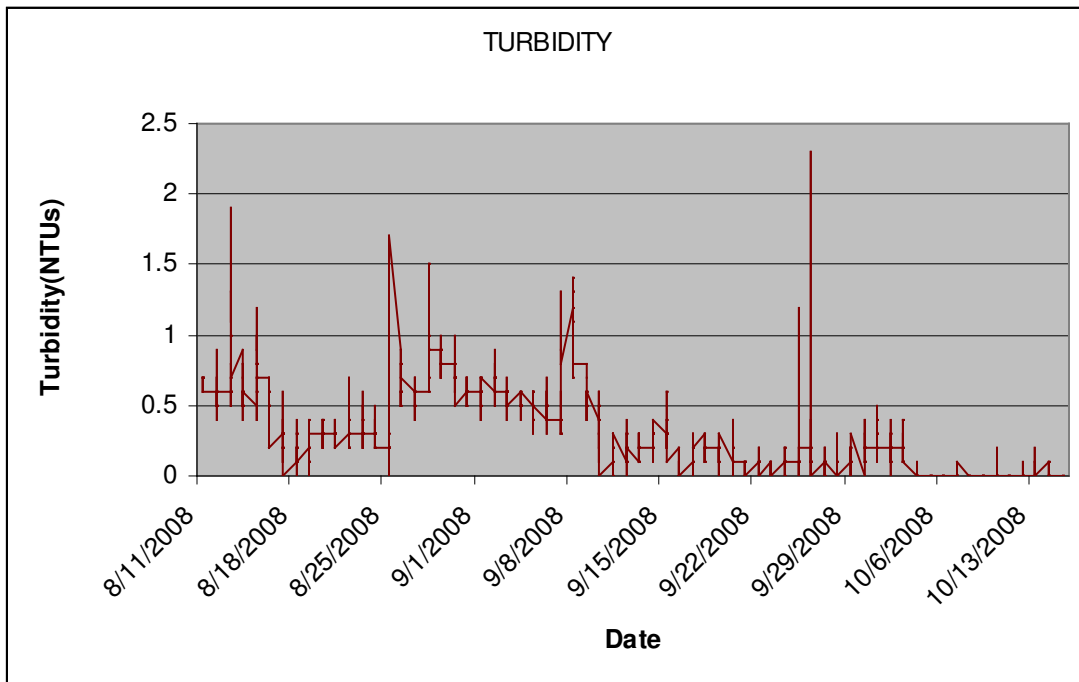


Figure 5

- Stage readings (**Figure 6**) were very consistent with little variation over the deployment period. The height of the river ranged from 1.524 m to 2.094 m, which translates to a range of 148 m³/s to 240 m³/s.

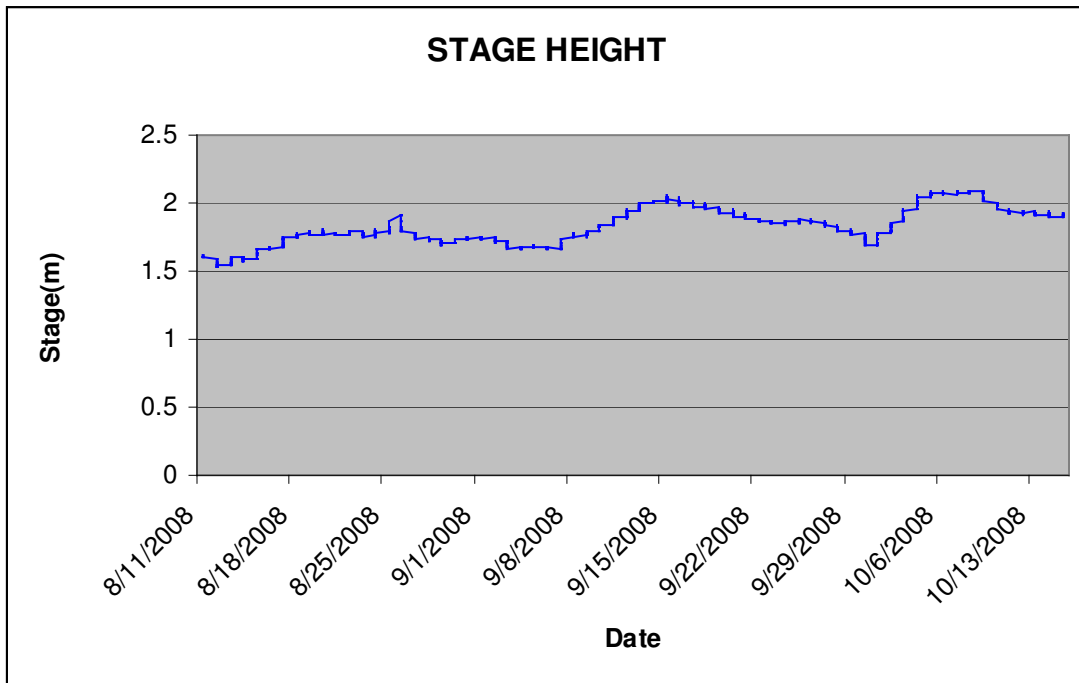


Figure 6

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