

Real Time Water Quality Deployment Report
NF02YL0012 – Humber River at Humber Village Bridge
March - April 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 March 27th, 2008 to April 28th, 2008.

Maintenance and Calibration of Instrumentation

- The instrument was deployed from March 27th, 2008 to April 28th, 2008 (32-day deployment period) at which point it was removed for maintenance and calibration.
- The results from comparing the Minisonde values to the Datasonde values at the time of installation on March 27th and upon removal on April 28th can be seen in **Table 1**. This 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 and good for pH while conductivity received a poor ranking and dissolved oxygen a fair ranking. For removal a ranking of good was achieved for temperature and pH while conductivity received an excellent ranking and dissolved oxygen a poor ranking. The poor ranking for conductivity may be attributed to a poorly calibrated Minisonde possibly due to contamination of the calibration solution while the poor ranking for DO on removal is possibly due to drift of the field probe during deployment.

Table 1: QA/QC Data Comparison Rankings for installation - March 27th & removal - April 28th

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Humber River at Humber Village Bridge	March 27 th , 2008	Installation	Excellent	Good	Poor	Fair
	April 28 th , 2008	Removal	Good	Good	Excellent	Poor

Data Interpretation

- During the deployment period of March 27th, 2008 to April 28th, 2008 the water quality remained relatively stable for all parameters.
- Water temperature values (**Figure 1**) for the deployment period displayed diurnal fluctuations and showed a slight increase as expected for the early spring season. Water temperature ranged between 0.2 °C and 2.4 °C which is quite typical of the season.

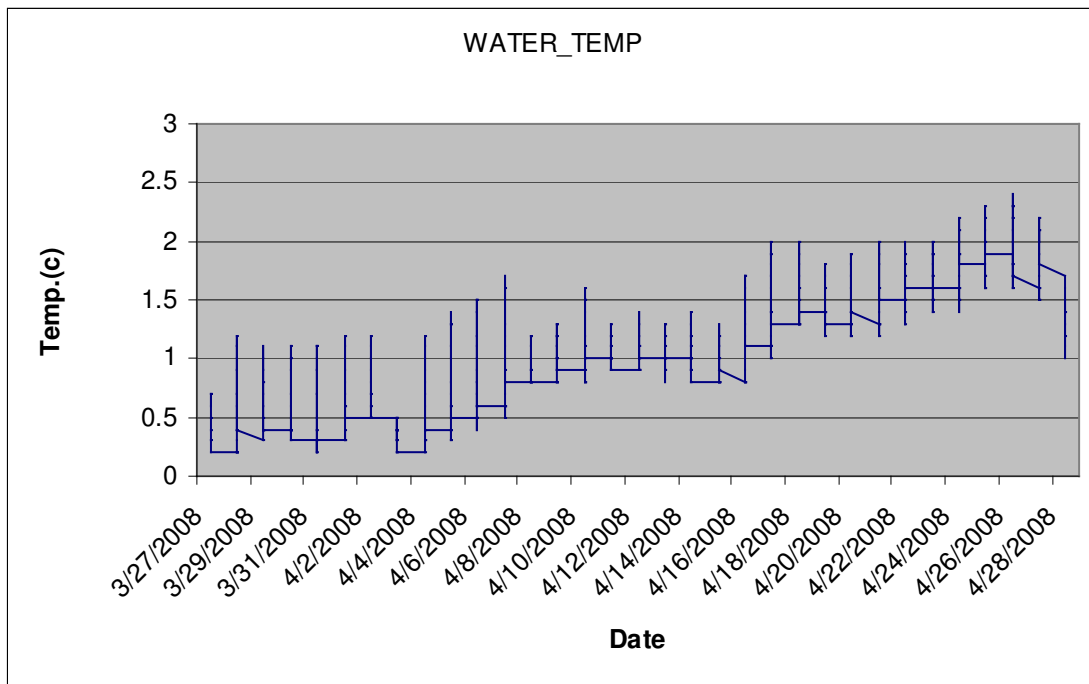


Figure 1

- Dissolved oxygen (DO) values (**Figure 2**) for the deployment period showed a gradual decline which can be at least partially attributed to the increasing temperature trend, i.e. as the water temperature increased the dissolved oxygen concentration decreased. It should be noted that this trend is also likely related to instrument drift over the deployment period.
- 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). All DO values for this deployment period were well above the maximum 9.5 mg/l guideline.

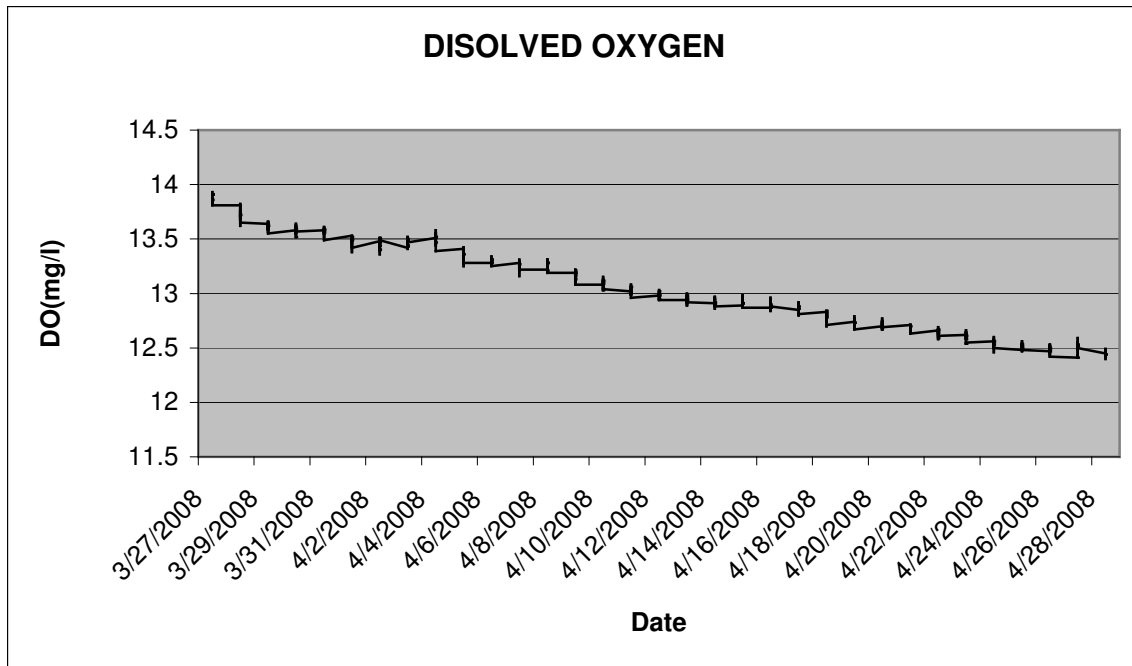


Figure 2

- pH values (**Figure 3**) were consistent over the deployment period. pH values ranged between 6.52 and 6.86 with all values within the 6.5 – 9.0 range recommended by the CCME Guidelines for the Protection of Freshwater Aquatic Life.

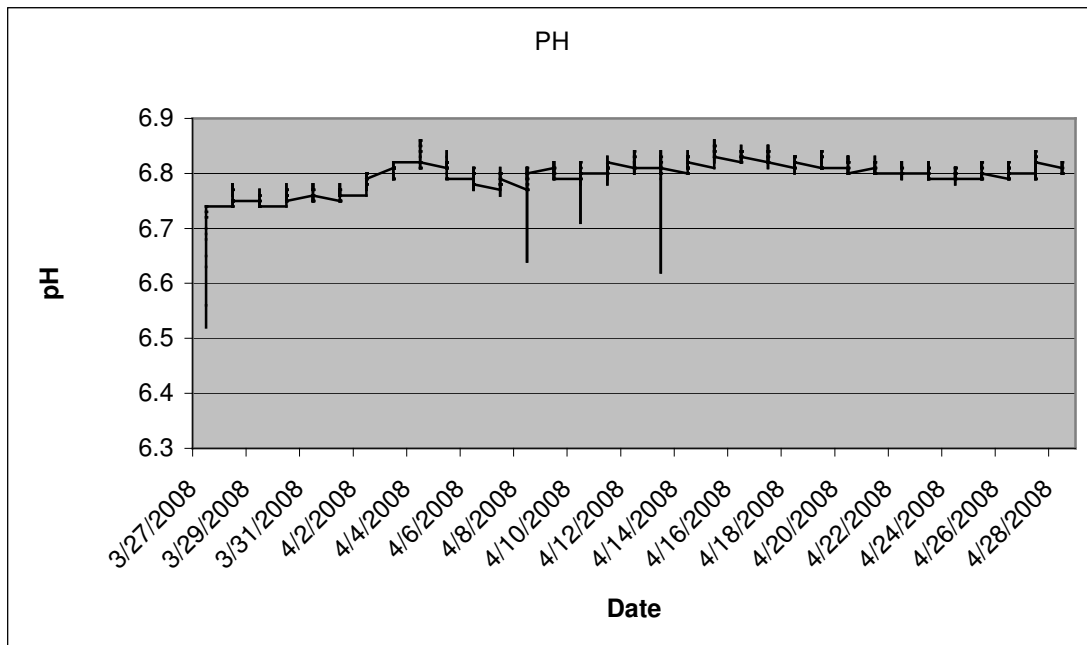


Figure 3

- Specific conductance values (**Figure 4**) were consistent over the deployment period. Values ranged from 39.5 to 45.7 $\mu\text{S}/\text{cm}$ which is typical for this station.

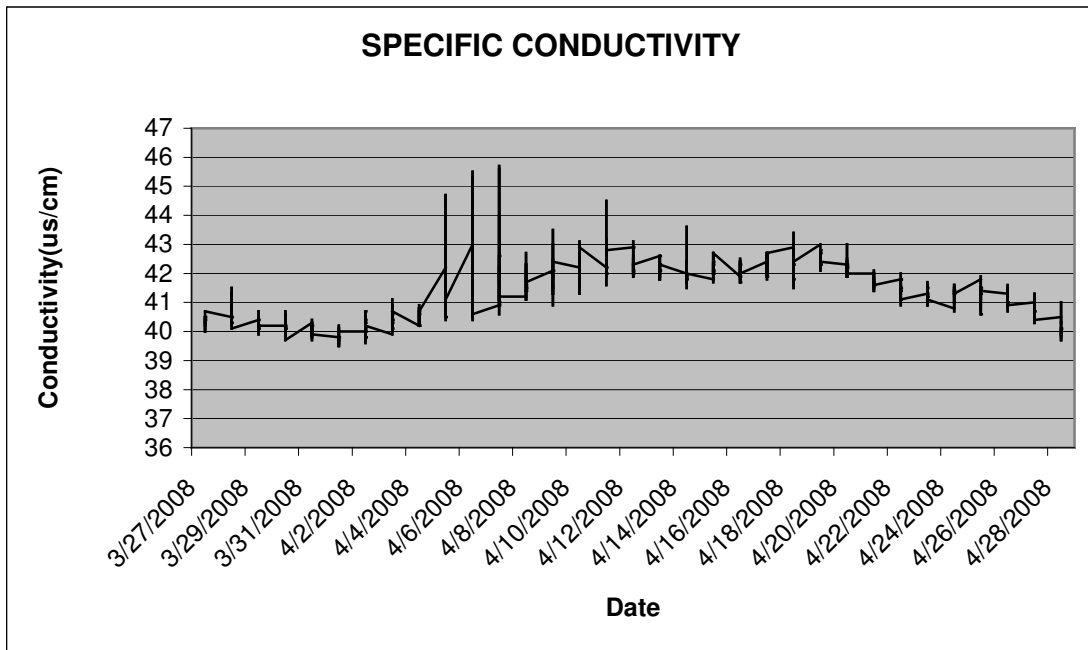


Figure 4

- Turbidity values (**Figure 5**) were relatively consistent over the deployment period and ranged from 1.3 – 2.8 NTUs, which is typical of this station.

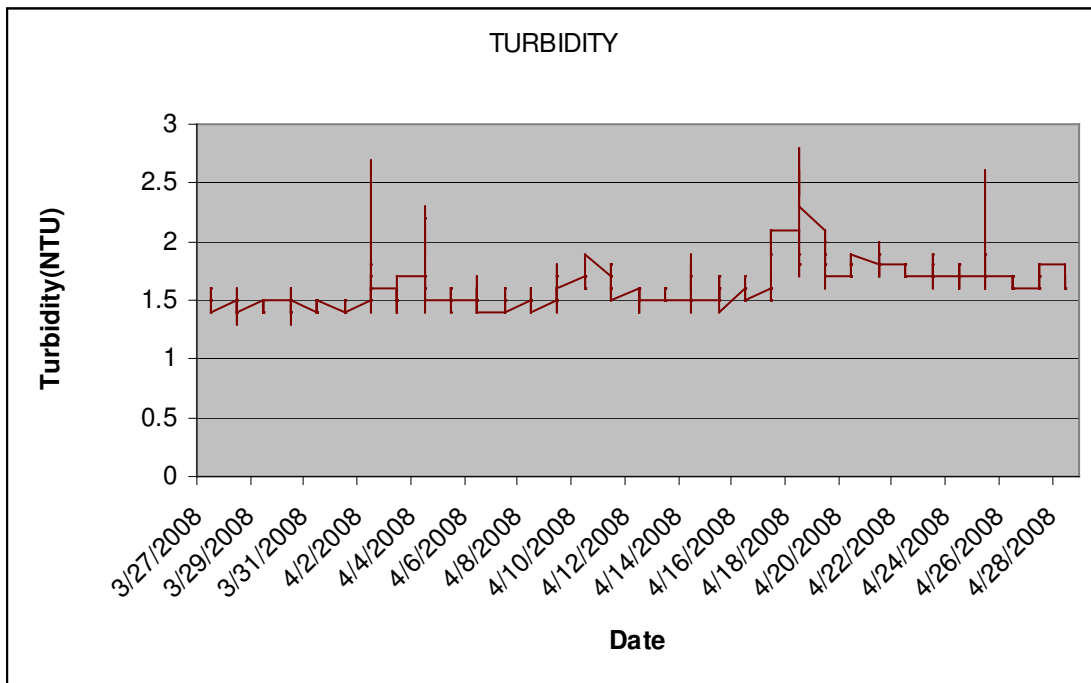


Figure 5

- Stage readings (**Figure 6**) showed a significant increase over the deployment period. The height of the river ranged from 1.392 m to 1.605 m, which translates to a range of 171 m³/s to 339 m³/s and is the beginning of spring runoff.

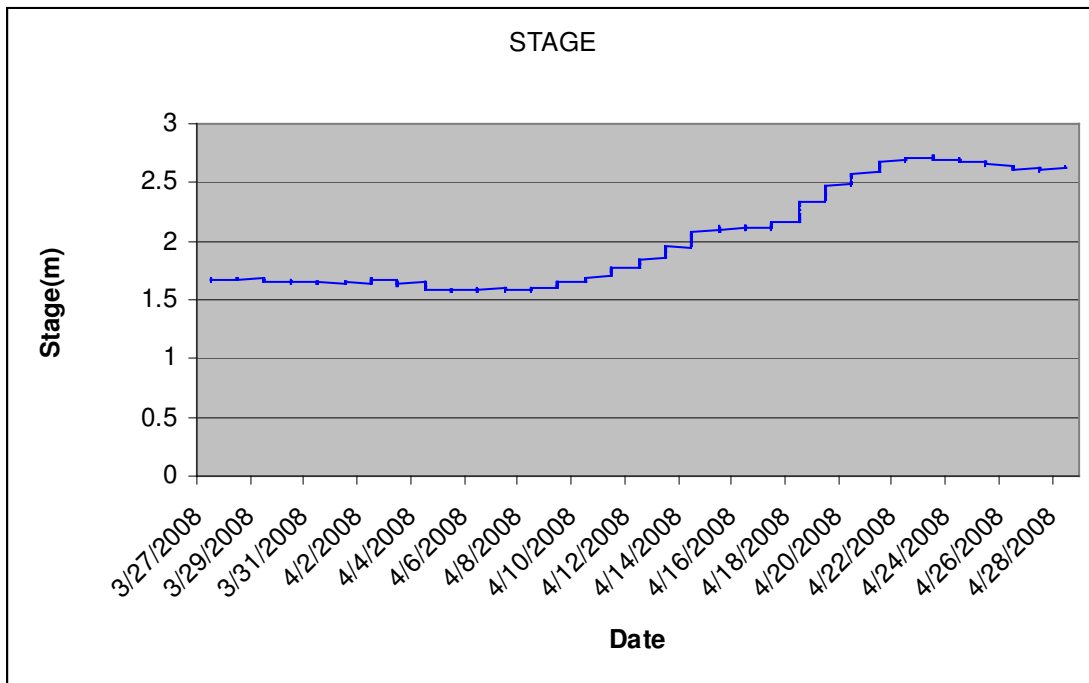


Figure 6

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