



## Real Time Water Quality Monthly Report Waterford River March 2006

### General

- Data from the Waterford River monitoring station is monitored by the Water Resources Management Division staff on a monthly basis.

### Maintenance and Calibration of Instrumentation

- The following table displays the dates when the Datasonde was removed for routine cleaning, maintenance and calibration and when it was redeployed during the month of March.

Table 1: Table of Datasonde removal and installation dates

| Date Installed | Date Removed   |
|----------------|----------------|
|                | March 16, 2006 |
| March 17, 2006 |                |

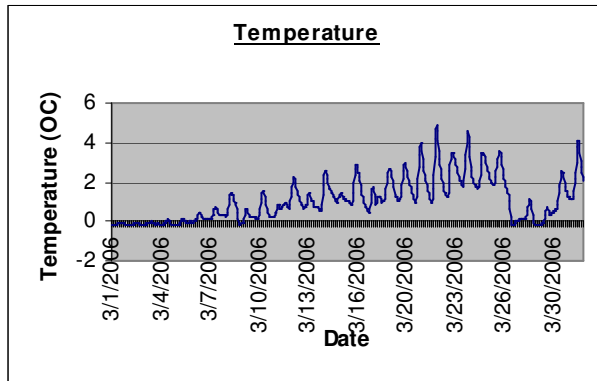
- Water quality readings were taken with a Minisonde at the time of removal for comparison purposes. The Minisonde was calibrated prior to use.

### Data Interpretation

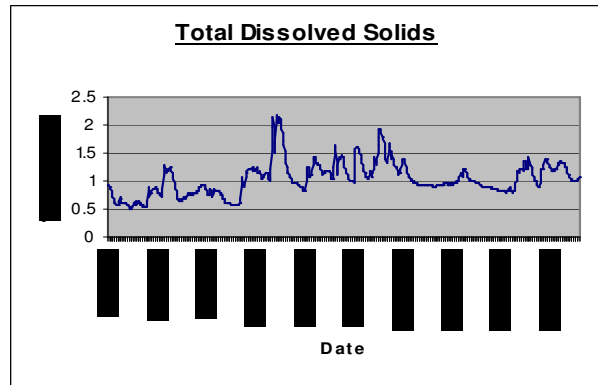
- Areas in the graphs where the data lines go abruptly down to the x axis and show no readings occur when the datasonde is removed for routine cleaning, maintenance and calibration. The dates where this occurs correspond to Table 1 above.
- In general, water quality parameters were stable during the month of March with expected daily/nightly (diurnal) and seasonal changes occurring.
- Water temperatures fluctuated in response to daily maximum and minimum air temperatures. This is demonstrated by comparing the graph in **Figure 1** to the air temperature data in **Table 2**. A warming trend was experienced during the second half of the month.



**Figure 1**

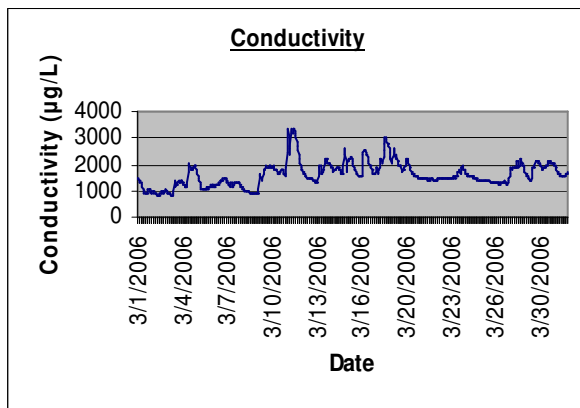


**Figure 2**

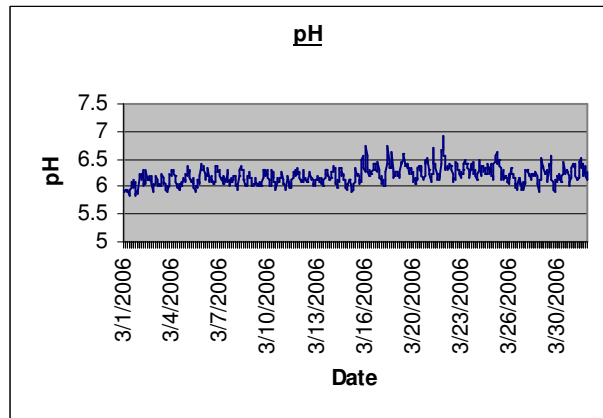


- Total dissolved solids levels reflected the changes in conductivity as observed in Figure 2. Conductivity measurements are a good indication of total dissolved solids and total dissolved ion concentrations, although this is not an exact linear relationship.

**Figure 3**

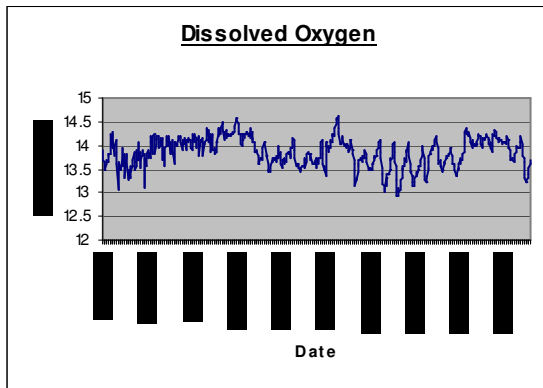


**Figure 4**

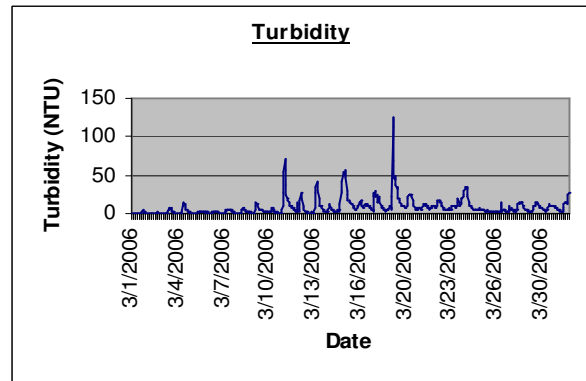


- Conductivity levels fluctuated throughout the month as observed in Figure 3. The higher conductivity readings usually occurred in response to precipitation events and warmer temperatures causing runoff from melting snow.
- The pH levels for the month of March ranged from 5.82 to 6.92. There were some instances where the pH measurements were outside the CCME recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 (Figure 4). The average pH level for March was 6.20. (Table 3).

**Figure 5**



**Figure 6**



- Dissolved oxygen levels ranged between 12.93 mg/L to 14.60 mg/L during the period of measurement (Figure 5). During the month of March, dissolved oxygen measurements were consistently above the CCME recommended maximum guideline of 9.5 mg/L. The average DO level for the period of measure was 13.85 mg/L (Table 3).
- Turbidity levels fluctuated and had several spikes noted throughout the month. The turbidity spikes (Figure 6) are normally in response to precipitation events. The high turbidity readings can be attributed to warm air temperatures causing snow melt and subsequent runoff and precipitation events. Several turbidity spikes exceeded the CCME recommended maximum of 8 NTU above background levels.

**Additional Information**

- Table 3 provides summary statistics on water quality parameters for Waterford River during the month of March 2006.

Table 3: Summary statistics for March 2006.

|                    | Water Temperature | pH   | Conductance | Dissolved Solids | % Saturated | Dissolved Oxygen | Turbidity |
|--------------------|-------------------|------|-------------|------------------|-------------|------------------|-----------|
| Max                | 4.84              | 6.92 | 3387.00     | 2.17             | 103.90      | 14.60            | 126.30    |
| Min                | -0.22             | 5.82 | 786.00      | 0.50             | 89.30       | 12.93            | 0.00      |
| Average            | 1.09              | 6.20 | 1621.29     | 1.04             | 98.28       | 13.85            | 8.15      |
| Standard Deviation | 1.10              | 0.16 | 470.15      | 0.30             | 2.47        | 0.31             | 11.36     |

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