Government of Newfoundland and Labrador
Department of Environment and Conservation
Water Resources Management Division

Real Time Water Quality Monthly Report
Waterford River - St. John's NL
March 2007

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.

  Table 1: Table of Datasonde removal and installation dates

Date Installed	Date Removed
February 7, 2007	
	April 2, 2007

- The Datasonde remained installed in the river continuously for the month of March.
- 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 **Appendix 1**.

Figure 1

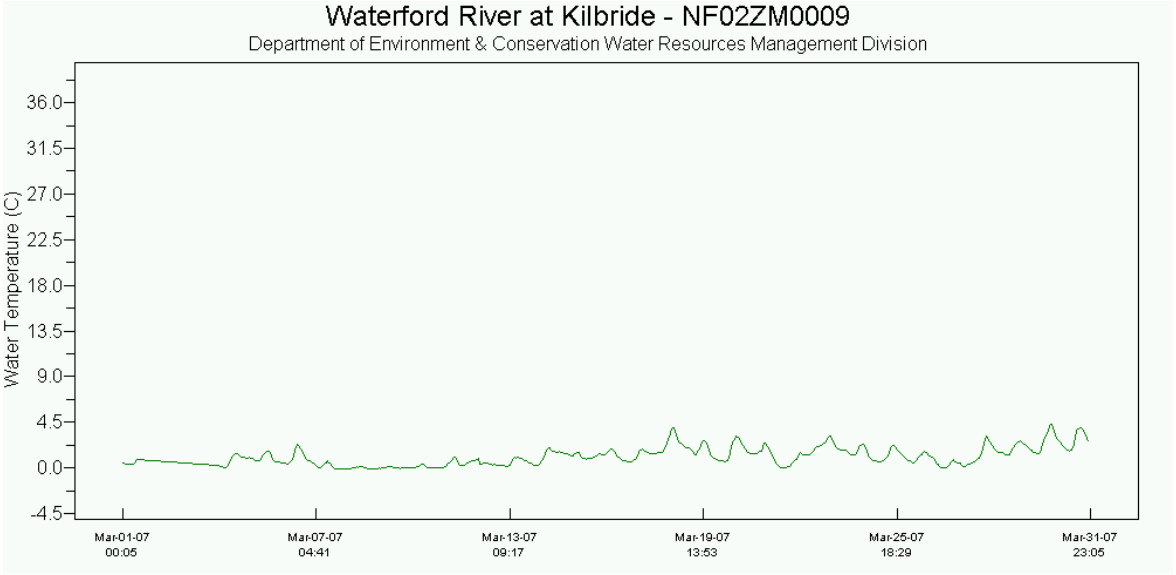
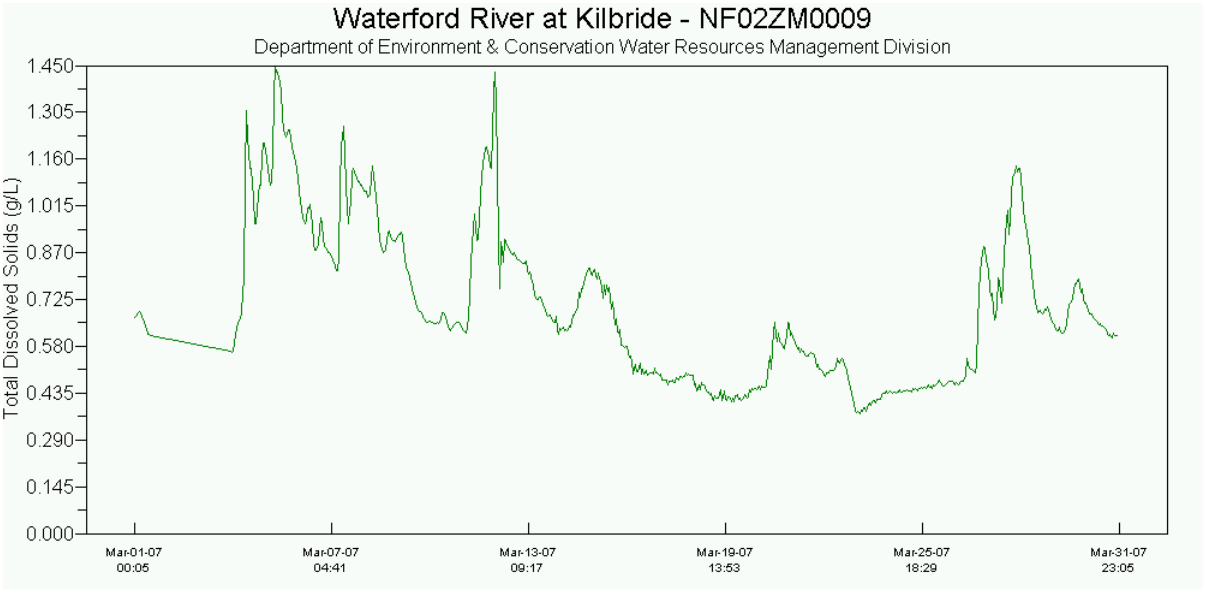
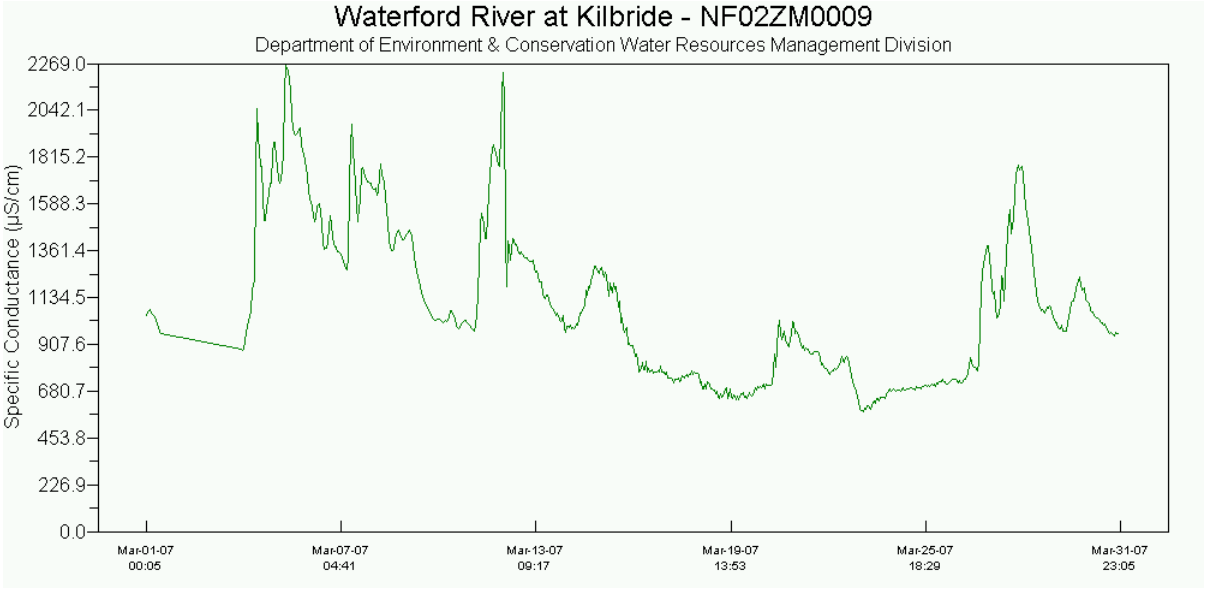


Figure 2



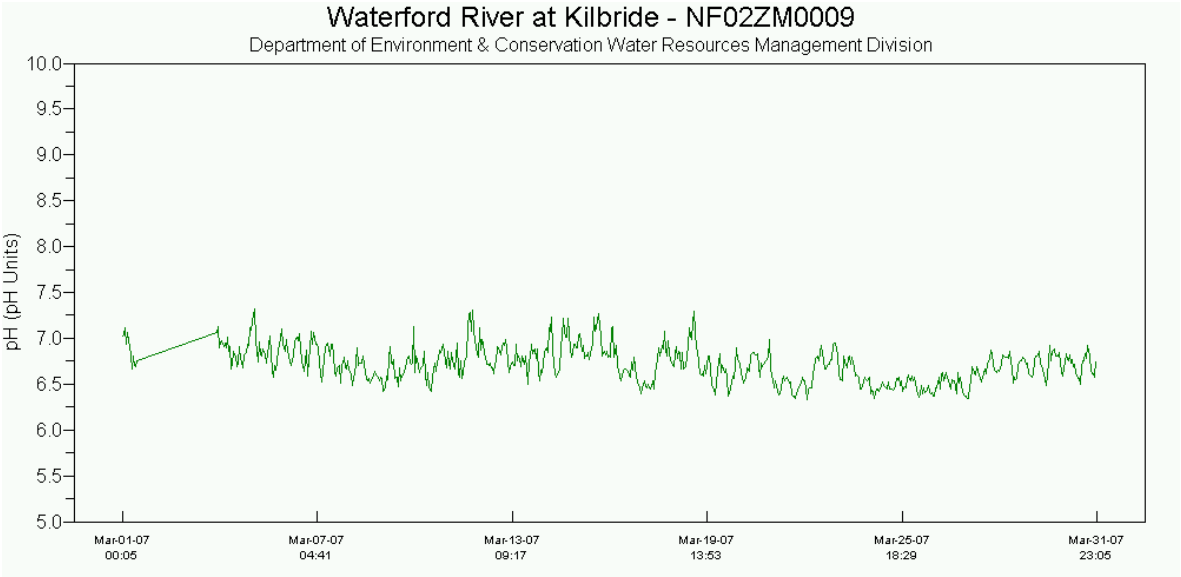
- Total dissolved solids levels reflected the changes in conductivity as observed in Figure 2. Conductivity measurements are a good indication of total dissolved solids and total dissolved ion concentrations, although this is not an exact linear relationship.

Figure 3



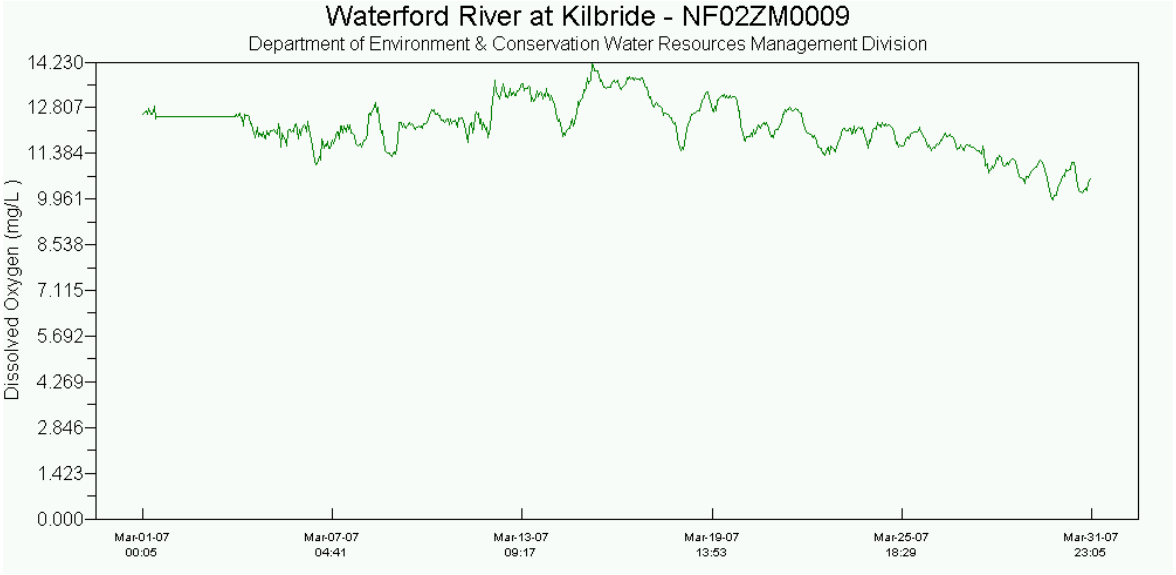
- Conductivity levels fluctuated throughout the month as observed in Figure 3.

Figure 4



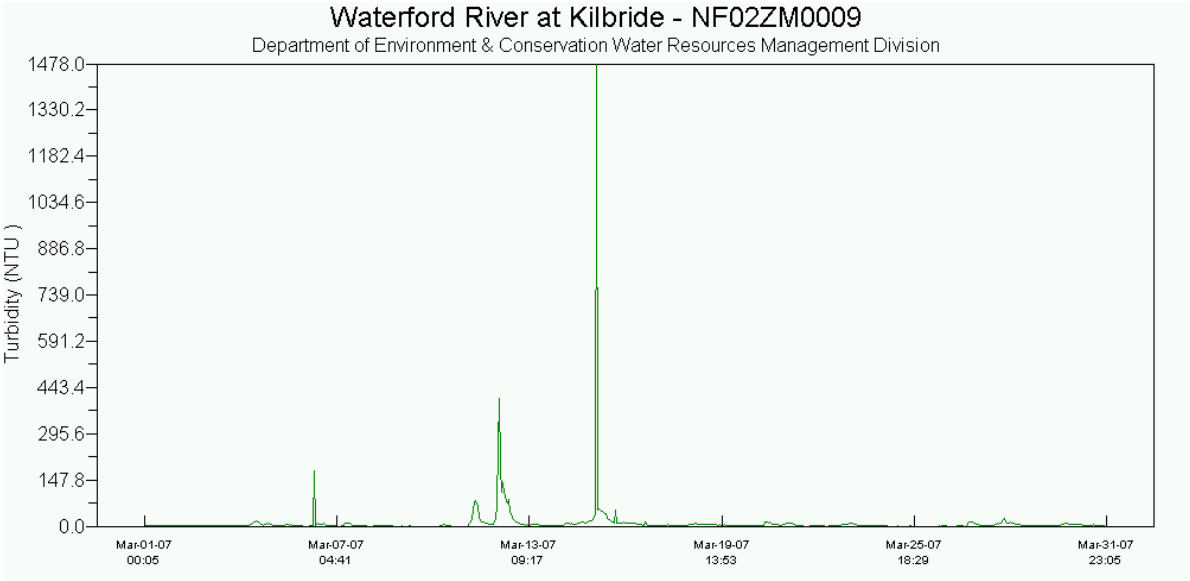
- The pH levels for the month of March were stable. There were some instances where the pH measurements were outside the CCME recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 (Figure 4).

Figure 5



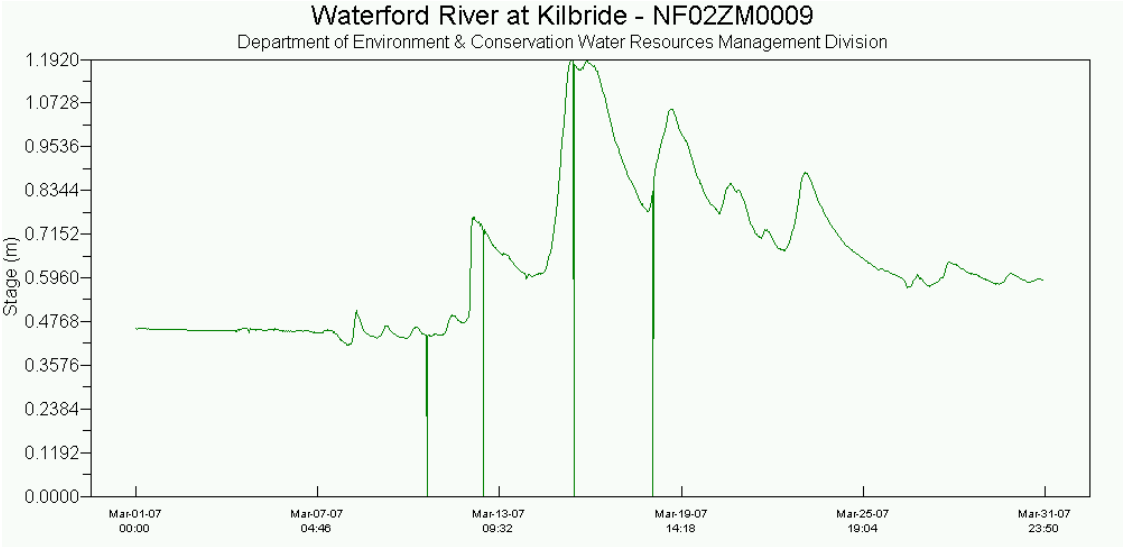
- Dissolved oxygen levels were stable during the period of measurement (Figure 5)**.** During the month of March, there was a slight reduction towards the end of the month in response to the increase in water temperature.

Figure 6



- Turbidity levels fluctuated and had several spikes noted throughout the month. The large spike that occurred during the middle of the month is likely related to the runoff created by several days with above zero temperatures resulting in runoff from snow melt. Several turbidity spikes exceeded the CCME recommended maximum of 8 NTU above background levels.

Figure 7



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Appendix 1: Weather information for St. John's, NL provided by Environment Canada for March 2007

Daily Data Report for March 2007											
Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days C	Cool Deg Days C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
01†	-2.4	-5.0	-3.7	21.7	0.0	0.0	1.0	0.8	65		<31
02†	-2.1	-10.0	-6.1	24.1	0.0	0.0	T	T	66		<31
03†	0.1	-9.0	-4.5	22.5	0.0	0.0	6.6	6.6	65	15	56
04†	1.7	-6.1	-2.2	20.2	0.0	0.0	2.0	2.0	68	23	43
05†	-1.1	-4.2	-2.7	20.7	0.0	0.0	T	T	67	26	52
06†	-0.1	-6.5	-3.3	21.3	0.0	0.0	T	T	66	25	46
07†	-5.0	-11.7	-8.4	26.4	0.0	0.0	3.4	2.4	66	27	89
08†	-7.8	-13.4	-10.6	28.6	0.0	0.0	1.4	0.6	68	26	46
09†	-9.5	-15.6	-12.6	30.6	0.0	0.0	T	T	69	29	74
10†	-4.5	-11.8	-8.2	26.2	0.0	0.0	0.0	0.0	68	28	67
11†	5.8	-4.6	0.6	17.4	0.0	0.0	0.0	0.0	65	24	56
12†	3.3	-5.6	-1.2	19.2	0.0	22.0	0.0	22.0	54	34	48
13†	-1.2	-7.6	-4.4	22.4	0.0	0.0	T	T	40		<31
14†	8.0	-8.7	-0.4	18.4	0.0	0.0	0.0	0.0	38	22	70
15†	9.8	6.6	8.2	9.8	0.0	0.0	0.0	0.0	26	23	65
16†	7.8	-5.8	1.0	17.0	0.0	0.2	0.0	0.2	20	24	56
17†	-0.1	-5.8	-3.0	21.0	0.0	T	0.0	T	18	6E	41E
18†	9.2	-1.8	3.7	14.3	0.0	1.6	0.0	1.6	18	17	50
19†	5.4	-3.2	1.1	16.9	0.0	T	0.0	T	12	24	54
20†	2.6	-6.3	-1.9	19.9	0.0	0.0	5.0	5.0	12	17	59
21†	1.4	-11.4	-5.0	23.0	0.0	0.0	0.4	0.4	12	33	69
22†	2.8	-11.3	-4.3	22.3	0.0	0.6	0.0	0.6	12	24	93
23†	5.4	-1.5	2.0	16.0	0.0	T	0.0	T	9	23	89
24†	-1.5	-6.8	-4.2	22.2	0.0	0.0	0.6	0.6	8	1	33
25†	-3.2	-6.6	-4.9	22.9	0.0	0.0	1.0	0.6	9		<31
26†	-2.0	-4.6	-3.3	21.3	0.0	0.0	2.4	2.4	9	1	59
27†	-0.4	-2.2	-1.3	19.3	0.0	0.0	12.0	12.0	18	1	70
28†	4.4	-1.5	1.5	16.5	0.0	0.2	T	0.2	20	32	44
29†	0.4	-2.5	-1.1	19.1	0.0	0.0	1.2	0.4	19	25	41
30†	2.0	-2.5	-0.3	18.3	0.0	0.0	1.2	0.8	18	30	33
31†	2.1	-2.7	-0.3	18.3	0.0	0.0	T	T	16		<31
Sum				**637.8**	**0.0**	**24.6**	**38.2**	**59.2**			