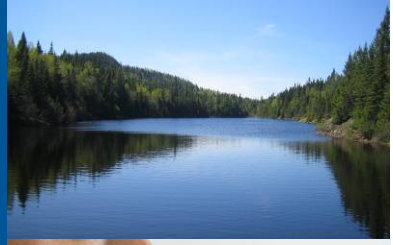
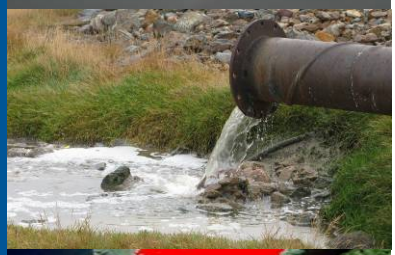
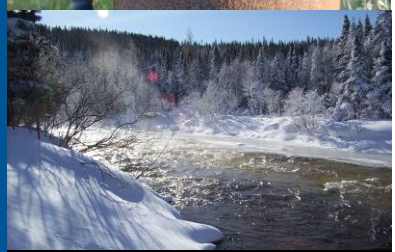




Waterford River @ Kilbride

NF02ZM0009

May 2010

Government of Newfoundland & Labrador
Department of Environment and Conservation
Water Resources Management Division
St. John's, NL, A1B 4J6 Canada

Real Time Water Quality Monthly Report
Waterford River - St. John's NL
May 2010

General

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

Maintenance and Calibration of Instrumentation

- The following table displays the dates when the Waterford River water quality probe was installed and removed during this deployment period for routine cleaning, maintenance and calibration.

Table 1: Table of Water Quality Probe Installation and Removal

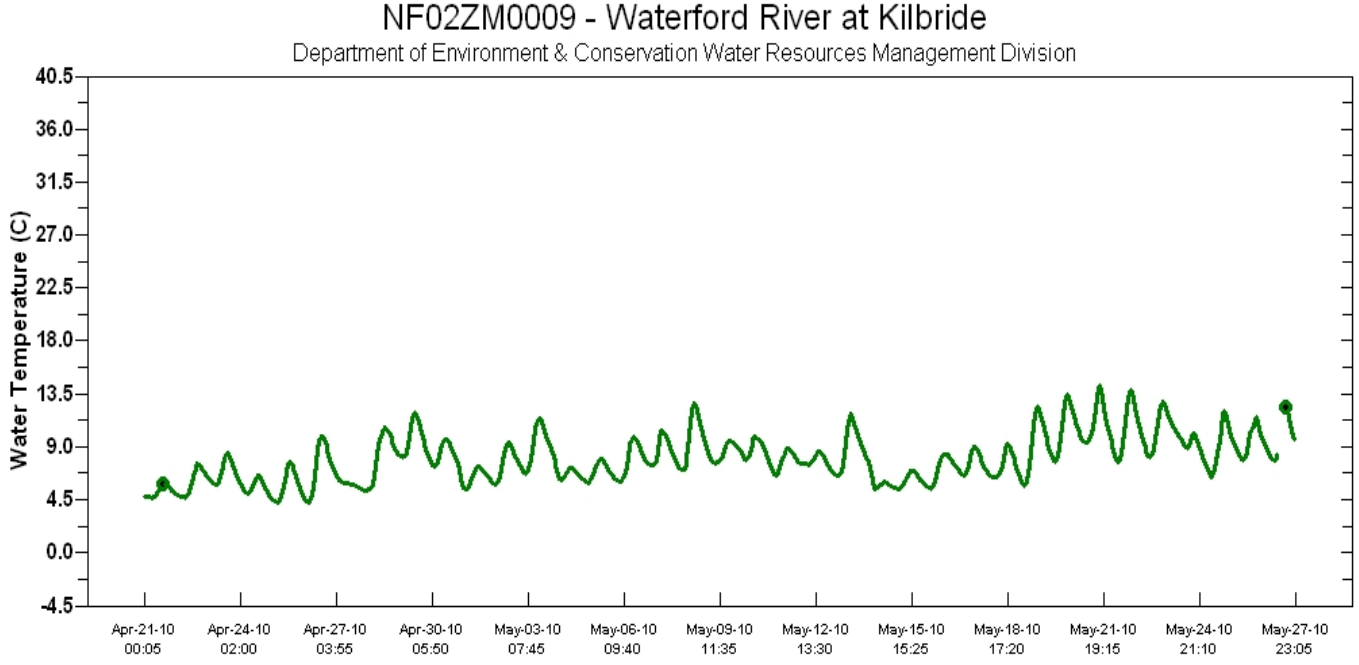
Date Installed	Date Removed
April 21, 2010	May 27 , 2010

- Water quality readings were taken with a second water quality instrument at the time of installation and removal for QAQC comparison. The QAQC instrument was calibrated prior to each use.
- There is a technical problem with transmitting dissolved oxygen data to the data logger at Waterford River. A new transmission cable will be installed when weather conditions permit, thus dissolved oxygen data will not be reported in the interim.

Data Interpretation

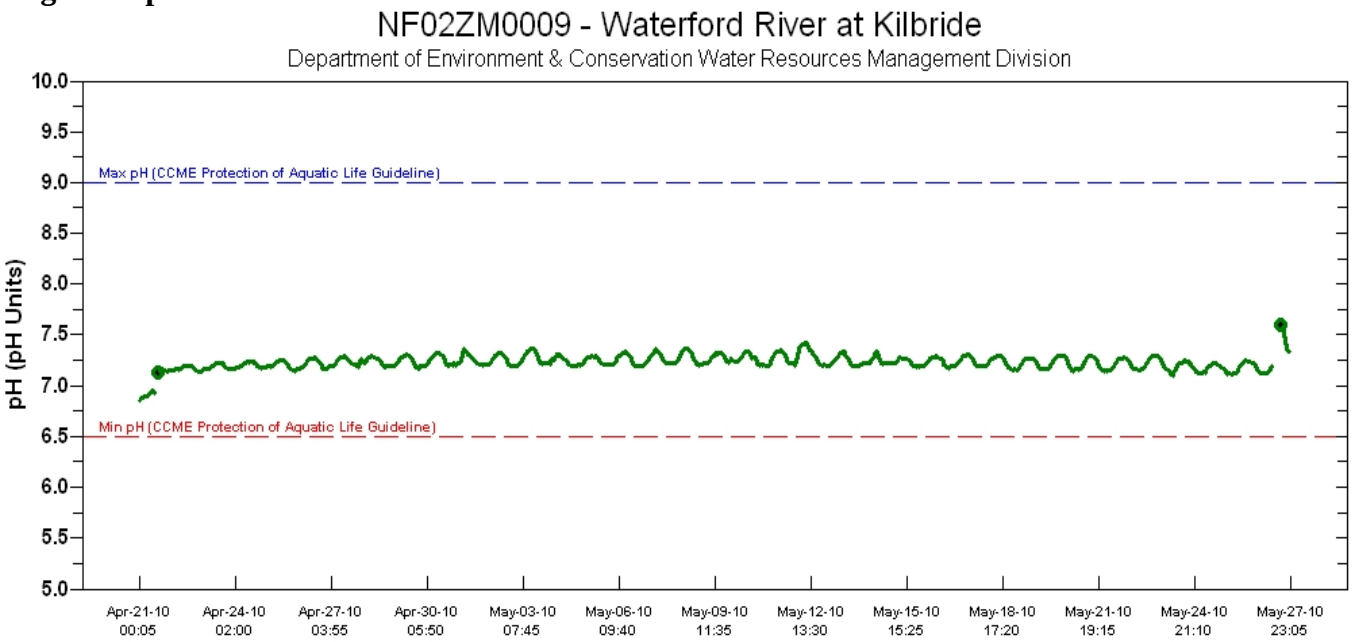
- **Water temperatures** were fairly constant during this deployment showing an increasing trend in response to seasonally warmer air temperatures, as seen in **Figure 1** below. Water temperatures ranged between 3.78 and 13.68^{o}C during this deployment.

Figure 1: Water Temperature



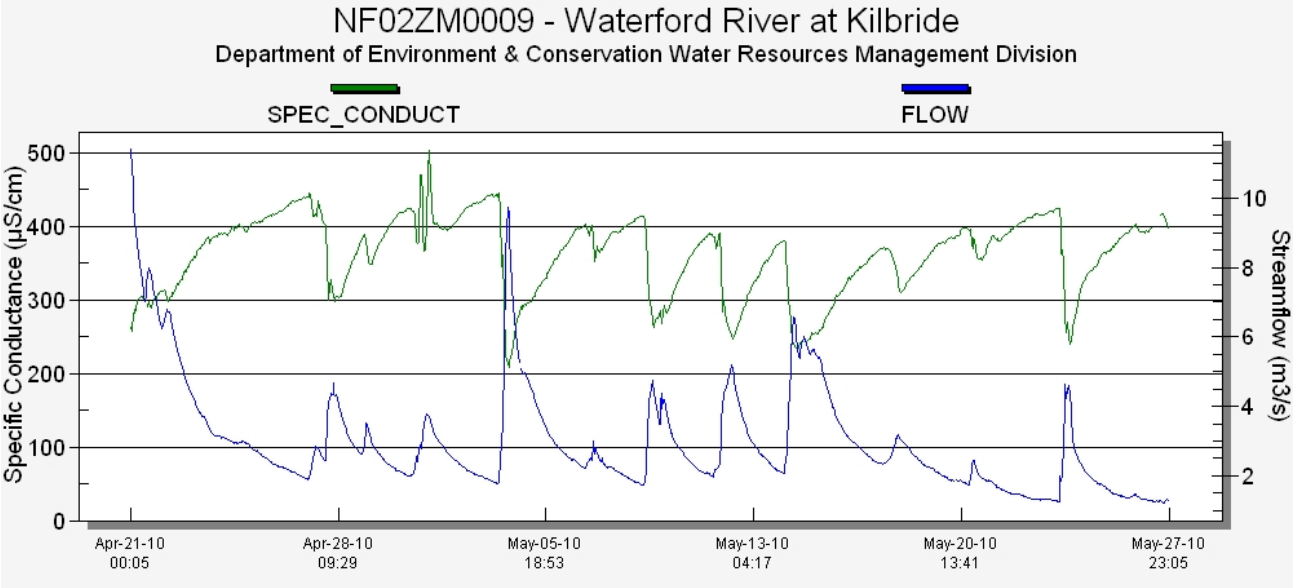
- **pH** levels were fairly constant and within the expected range for this station throughout the deployment, ranging from 6.86 to 7.59 units, as seen in **Figure 2** below. All pH values were within the range recommended by the Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 pH units.

Figure 2: pH Levels



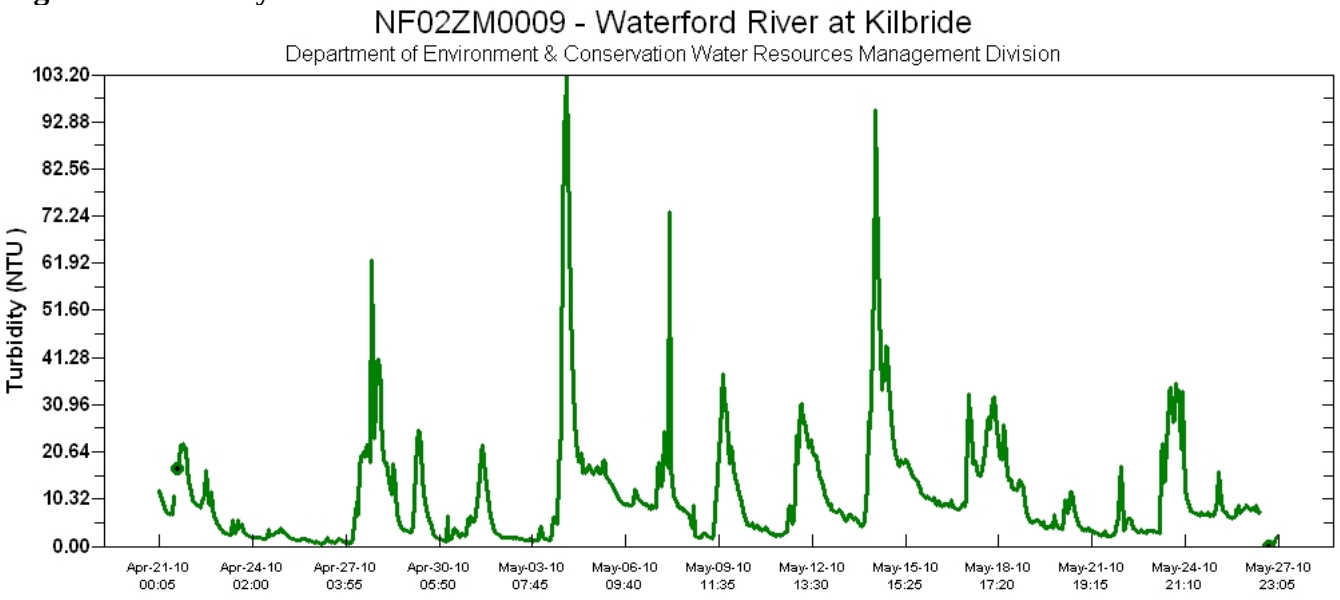
- **Specific conductivity** levels typically share an inverse relationship with stage height and flow, showing decreasing levels as stage height and flow increase due to precipitation. This is caused by the dilution effect increased water level and flow usually has on conductivity. Conversely, specific conductivity levels typically increase as flow decreases. Specific conductivity values are shown in green and flow is shown in blue in **Figure 3** below. The exception to this occurs during the winter months when road salting operations are in effect, and increased run-off and flow may increase specific conductivity levels. Specific conductivity values ranged between 208-503 µS/cm during this deployment.

Figure 3: Specific Conductance



Turbidity values were less than 50 NTU for almost all of the deployment period, with the exception of spikes occurring on April 28th, May 4th, 7th and 14th. These spikes were the result of increased flows on these dates caused by heavy rainfall. Turbidity data is shown in **Figure 4** below. Climate data on these dates is given in **Appendix 1**. Turbidity values ranged from 0.0-103.2 NTU during this deployment.

Figure 4: Turbidity



APPENDIX 1: Weather information for St. John's, NL provided by Environment Canada for May 2010:

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	4.4	0.1	2.3	15.7	0.0	0.2	3.2	3.4	2	31E	44E
02	6.7	0.6	3.7	14.3	0.0	T	0.0	T	0	36E	35E
03	10.3	1.9	6.1	11.9	0.0	1.2	0.0	1.2	0		<31
04	5.8	1.6	3.7	14.3	0.0	34.6	0.0	34.6	0	M	M
05	7.3	2.4	4.9	13.1	0.0	1.2	0.0	1.2	0	31	59
06	11.6	3.4	7.5	10.5	0.0	1.4	0.0	1.4	0	30E	57E
07	11.6	2.8	7.2	10.8	0.0	6.8	0.0	6.8	0	25E	44E
08	13.2	2.9	8.1	9.9	0.0	T	0.0	T	0	26E	52E
09	13.6	4.3	9.0	9.0	0.0	8.9	0.0	8.9	0	17E	76E
10	10.6	2.3	6.5	11.5	0.0	0.2	0.0	0.2	0	24E	35E
11	8.3	1.6	5.0	13.0	0.0	14.0	0.0	14.0	0		<31
12	7.2	3.0	5.1	12.9	0.0	5.8	0.0	5.8	0	17E	57E
13	12.0	1.7	6.9	11.1	0.0	0.0	0.0	0.0	0	23E	39E
14	2.2	0.0	1.1	16.9	0.0	12.0	5.7	17.7	2	33E	46E
15	5.5	2.1	3.8	14.2	0.0	1.6	0.0	1.6	0	32E	50E
16	6.5	1.5	4.0	14.0	0.0	2.2	0.0	2.2	0	26E	41E
17	6.7	0.2	3.5	14.5	0.0	4.2	0.0	4.2	0	34E	57E
18	7.7	0.2	4.0	14.0	0.0	1.2	0.0	1.2	0	33E	52E
19	10.0	-0.2	4.9	13.1	0.0	0.0	0.0	0.0	0		<31
20	16.9	5.5	11.2	6.8	0.0	4.2	0.0	4.2	0	18E	69E
21	13.4	0.7	7.1	10.9	0.0	0.2	T	0.2	0	27E	50E
22	12.9	0.6	6.8	11.2	0.0	0.0	0.0	0.0	0	26E	46E
23	16.3	5.1	10.7	7.3	0.0	1.5	0.0	1.5	0	27E	65E
24	8.6	0.4	4.5	13.5	0.0	9.4	0.0	9.4	0	1E	33E
25	8.7	0.6	4.7	13.3	0.0	0.0	0.0	0.0	0	35E	54E
26	7.9	3.0	5.5	12.5	0.0	0.4	0.0	0.4	0	29E	56E
27	7.5	2.0	4.8	13.2	0.0	2.0	0.0	2.0	0		<31
28	6.2	1.6	3.9	14.1	0.0	1.4	0.0	1.4	0		<31
29	8.3	2.4	5.4	12.6	0.0	3.8	0.0	3.8	0	34E	50E
30	11.4	3.7	7.6	10.4	0.0	2.2	0.0	2.2	0	11E	46E
31	5.4	2.4	3.9	14.1	0.0	34.9	T	34.9	0	36E	72E

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