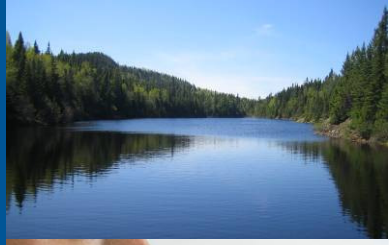
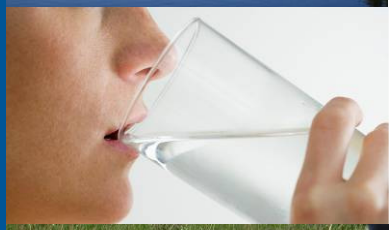








Waterford River @ Kilbride

NF02ZM0009

February 2010

Newfoundland Labrador

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
February 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

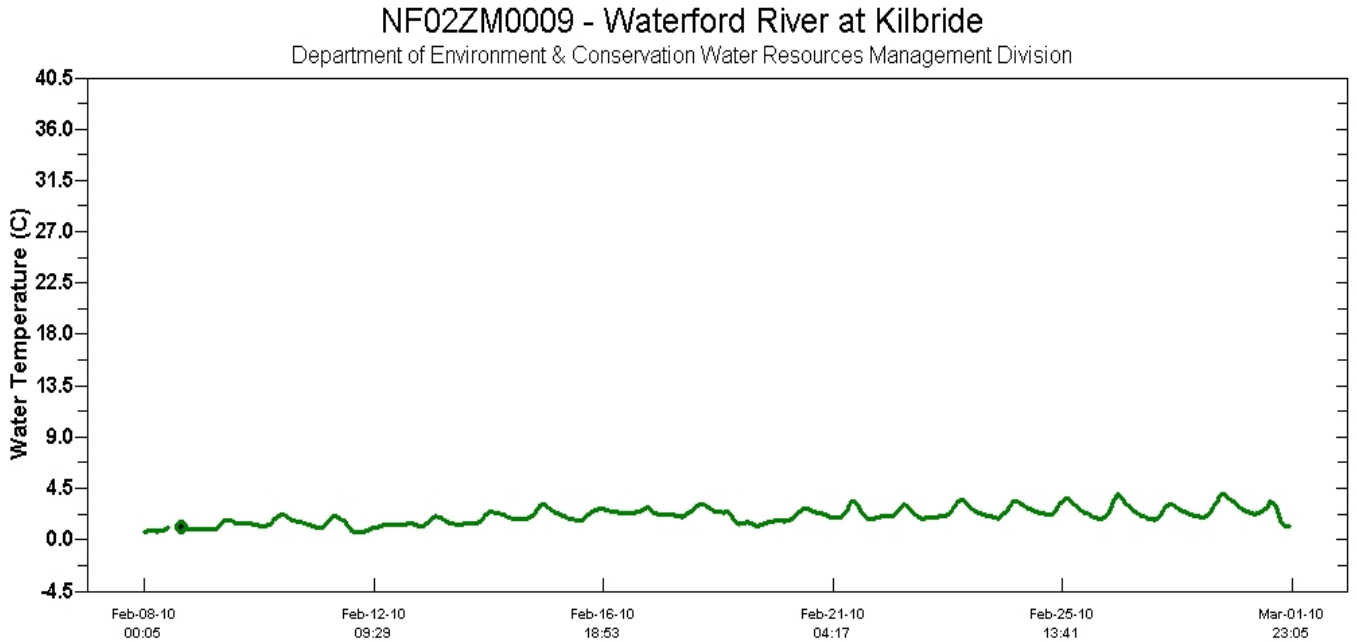
Date Installed	Date Removed
February 8, 2010	March 1, 2010

- 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, and dissolved oxygen data will not be collected in the interim.

Data Interpretation

- **Water temperatures** were fairly constant during this deployment, as shown in **Figure 1** below. Water temperatures ranged between 0.13 and 3.52^{o}C , which was within the seasonally expected range.

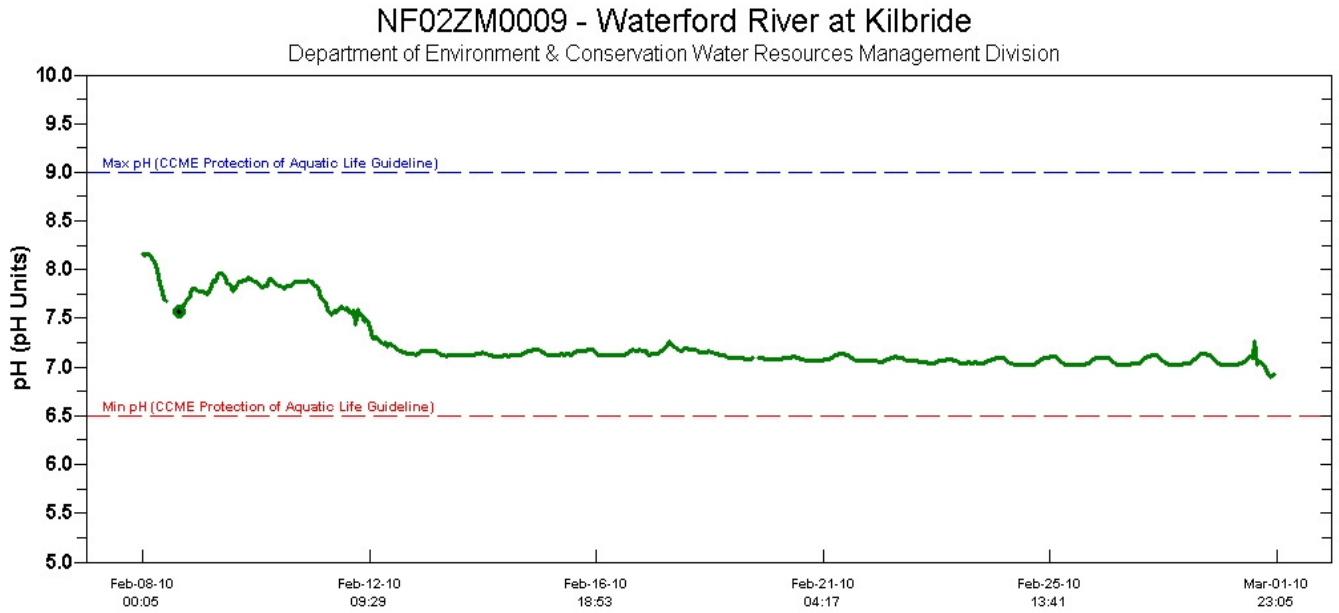
Figure 1: Water Temperature



- **pH** levels were fairly constant throughout this deployment ranging from 7.02 to 7.96 units, as seen in **Figure 2** below. A decreasing trend is seen in pH levels

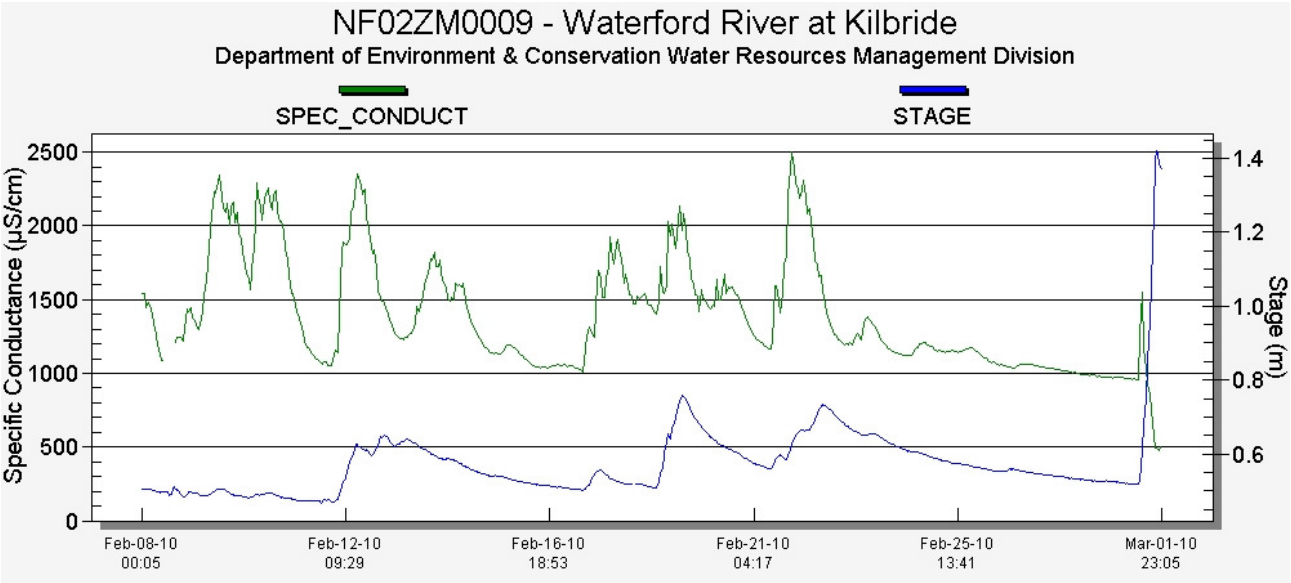
from the time the instrument was deployed on February 8th until about February 12th, when values became more constant. This period of decrease corresponds with a period of steady rainfall and air temperatures rising above freezing, as seen in the Environment Canada climate data presented in Appendix 1 at the end of this report. Both climate factors resulted in increased land based run-off into Waterford River, which had an impact on pH levels. 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).**

Figure 2: pH Levels



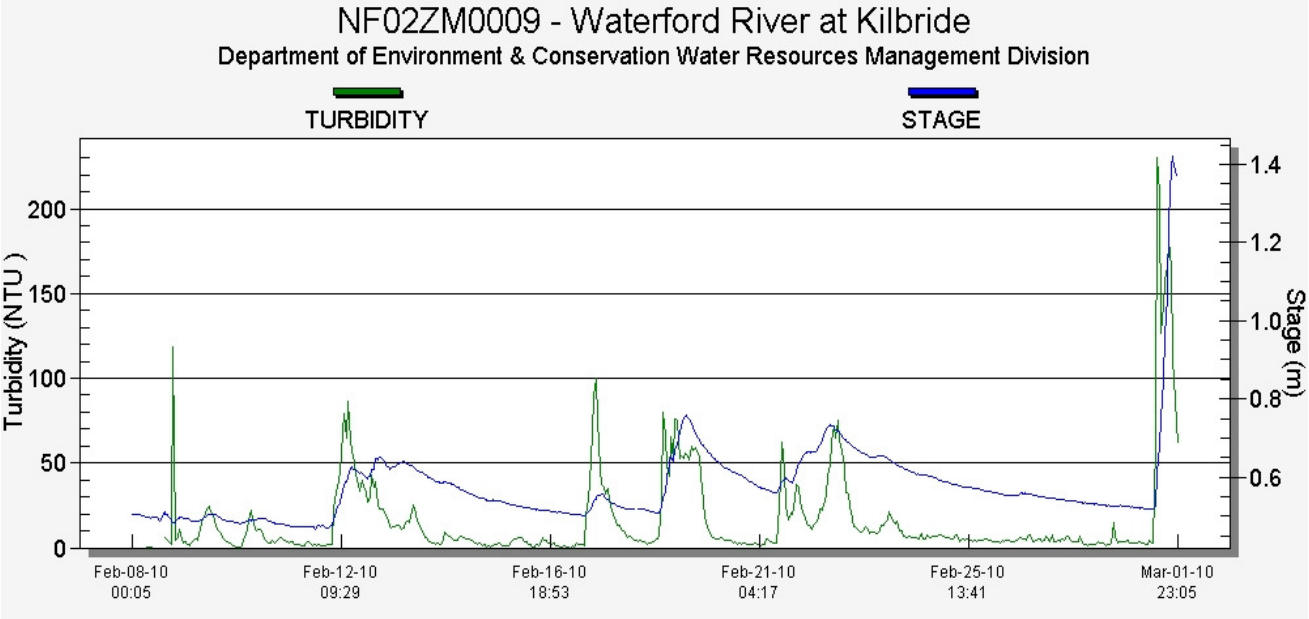
- **Specific conductance levels** showed several peaks during this deployment, which are seen in Figure 3 (green ink) below. Figure 3 also shows stage height (blue ink) and demonstrates that most peaks in specific conductance correspond with peaks in stage height caused by precipitation and increased run-off due to warmer air temperatures. Specific conductance levels are expected to be high this time of year when road salting operations are in effect. Specific conductance values ranged between 956 and 2503µS/cm during this deployment.

Figure 3: Specific Conductance



Turbidity levels were variable during this deployment, ranging from 0-230 NTU, as seen in Figure 4 (green ink), below. Figure 4 also displays stage height (blue ink) during this deployment, and it is apparent that turbidity levels rise as stage height rises. Increased run-off resulting from precipitation and rising air temperatures (causing melting) had an impact on turbidity during this deployment.

Figure 4: Turbidity



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

Daily Data Report for February 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	-4.9	-10.3	-7.6	25.6	0.0	0.0	T	T	10	30E	50E
02	-9.4	-14.1	-11.8	29.8	0.0	0.0	0.0	0.0	10	30E	57E
03	-8.4	-13.0	-10.7	28.7	0.0	0.0	0.0	0.0	10	29E	52E
04	-7.5	-13.6	-10.6	28.6	0.0	0.0	6.0	3.0	3	36E	54E
05	-0.2	-8.6	-4.4	22.4	0.0	0.0	24.7	17.6	14	35E	76E
06	0.1	-1.4	-0.7	18.7	0.0	T	8.6	5.3	30	32E	61E
07	0.5	-1.8	-0.7	18.7	0.0	0.2	0.0	0.2	34	27E	54E
08	1.3	-1.5	-0.1	18.1	0.0	T	1.8	1.8	34	27E	44E
09	0.7	-0.8	-0.1	18.1	0.0	T	5.4	3.6	36	29E	48E
10	2.2	-1.5	0.4	17.6	0.0	0.4	2.4	2.8	34	30E	46E
11	0.4	-5.6	-2.6	20.6	0.0	0.0	5.5	5.5	28	7E	59E
12	1.4	-0.2	0.6	17.4	0.0	16.0	T	16.0	23	2E	52E
13	1.5	-0.8	0.4	17.6	0.0	1.6	2.4	4.0	15	25E	44E
14	-0.1	-1.4	-0.8	18.8	0.0	0.0	0.2	T	14		<31
15	-0.1	-2.3	-1.2	19.2	0.0	0.0	T	T	13	31E	41E
16	0.2	-2.7	-1.3	19.3	0.0	0.4	T	0.4	12	29E	48E
17	0.0	-2.0	-1.0	19.0	0.0	3.8	0.4	4.0	12	15E	37E
18	1.0	-1.2	-0.1	18.1	0.0	1.4	T	1.4	11	21E	44E
19	1.7	-1.0	0.4	17.6	0.0	8.4	2.6	11.0	8	7E	70E
20	0.2	-2.8	-1.3	19.3	0.0	T	0.6	0.6	7	16E	39E
21	1.3	-2.3	-0.5	18.5	0.0	2.0	7.4	8.8	7	9E	41E
22	2.3	-0.5	0.9	17.1	0.0	0.0	0.0	0.0	8	9E	57E

23	1.3	-2.5	-0.6	18.6	0.0	T	1.0	0.6	9	4E	35E
24	-0.1	-2.8	-1.5	19.5	0.0	T	1.2	0.2	9		<31
25	-1.4	-4.7	-3.1	21.1	0.0	0.0	0.4	0.2	9		<31
26	-0.3	-5.3	-2.8	20.8	0.0	0.0	T	T	9		<31
27	-2.4	-6.3	-4.4	22.4	0.0	0.0	0.2	T	9		<31
28	-0.4	-2.7	-1.6	19.6	0.0	0.0	0.4	0.2	9	13E	35E
Sum				**570.8**	**0.0**	**34.2**	**71.2**	**87.2**			
Avg	**-0.7**	**-4.1**	**-2.4**								
Xtrm	**2.3**	**-14.1**								**35E**	**76E**

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