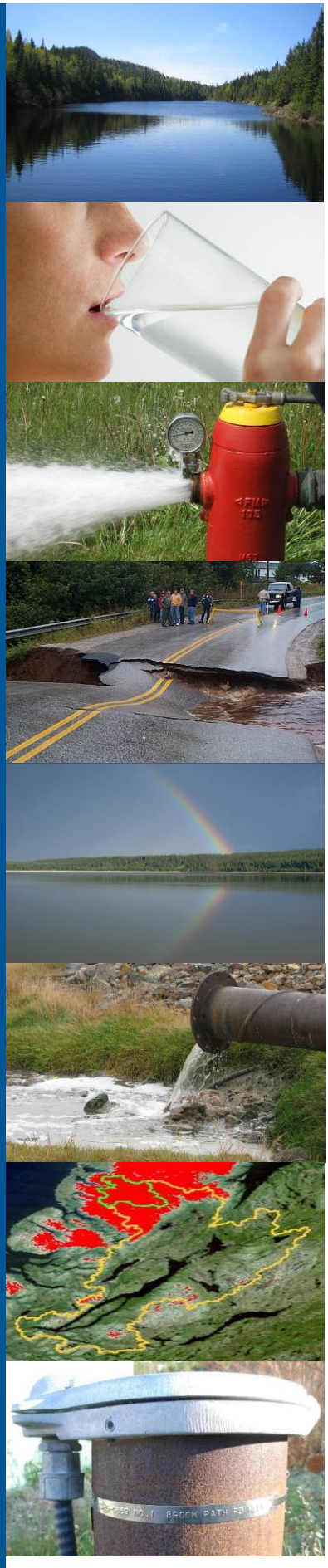


Waterford River @ Kilbride

NF02ZM0009

June 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
June 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

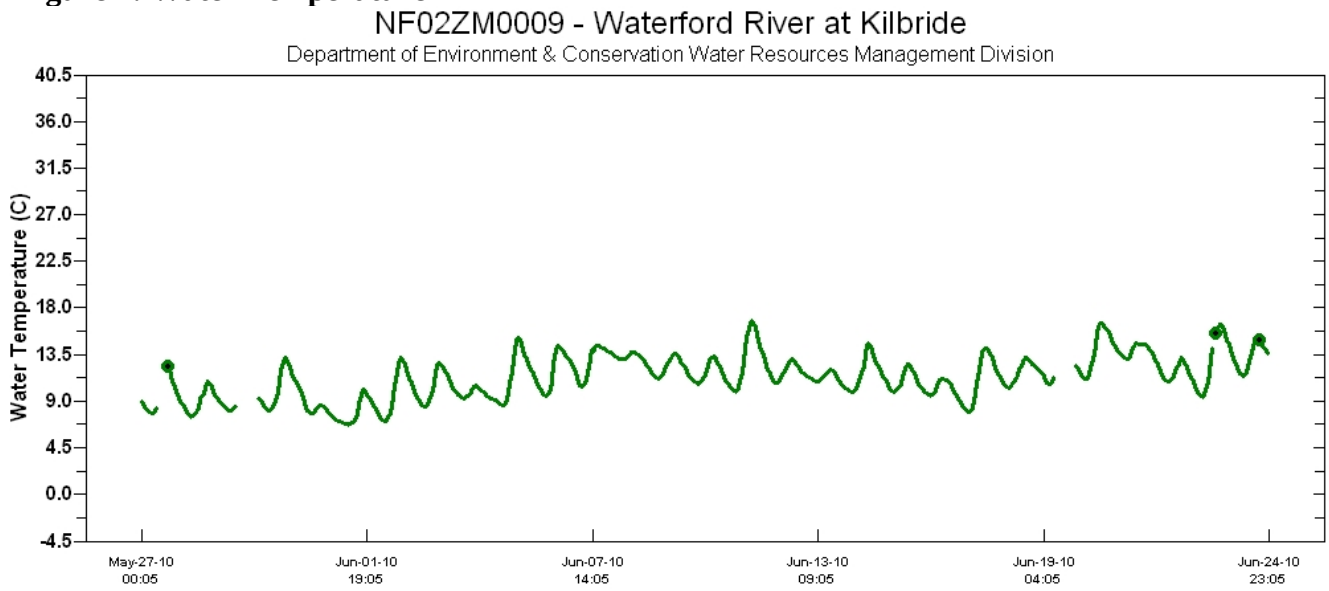
Date Installed	Date Removed
May 27, 2010	June 24, 2010

- 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 reported in the interim.

Data Interpretation

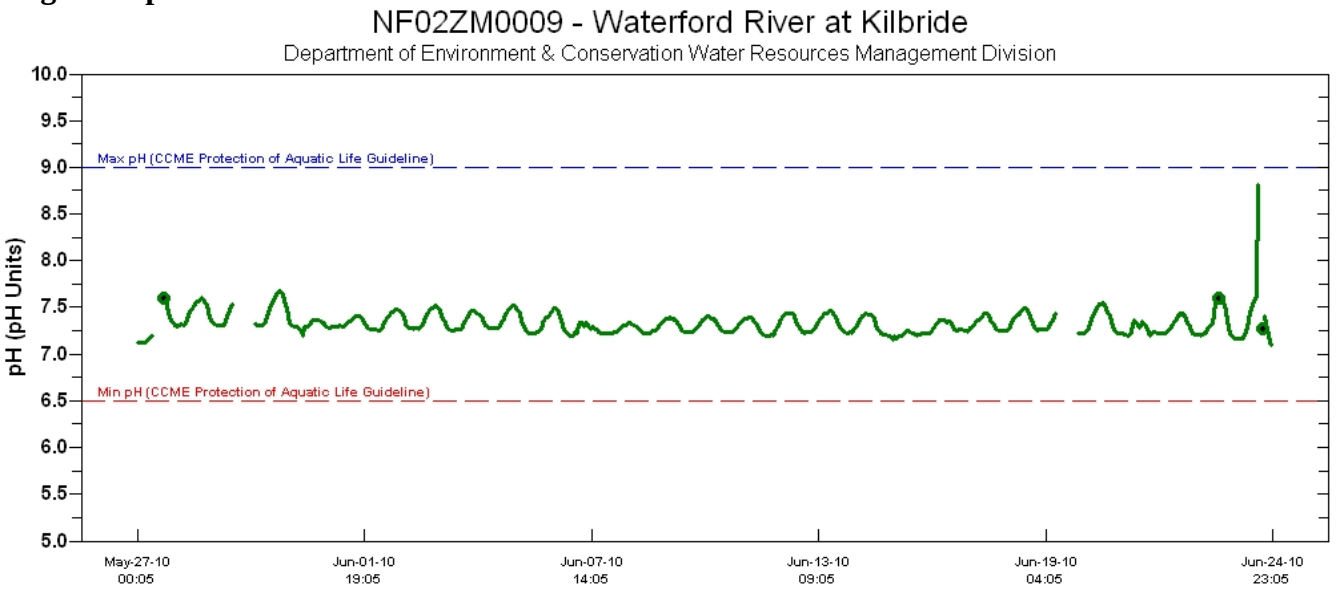
- **Water temperatures** were fairly constant during this deployment showing an increasing trend in response to seasonally warmer air temperatures, as seen in **Figure 1** below. Water temperatures ranged between 6.25 and 16.24^{o}C during this deployment.

Figure 1: Water Temperature



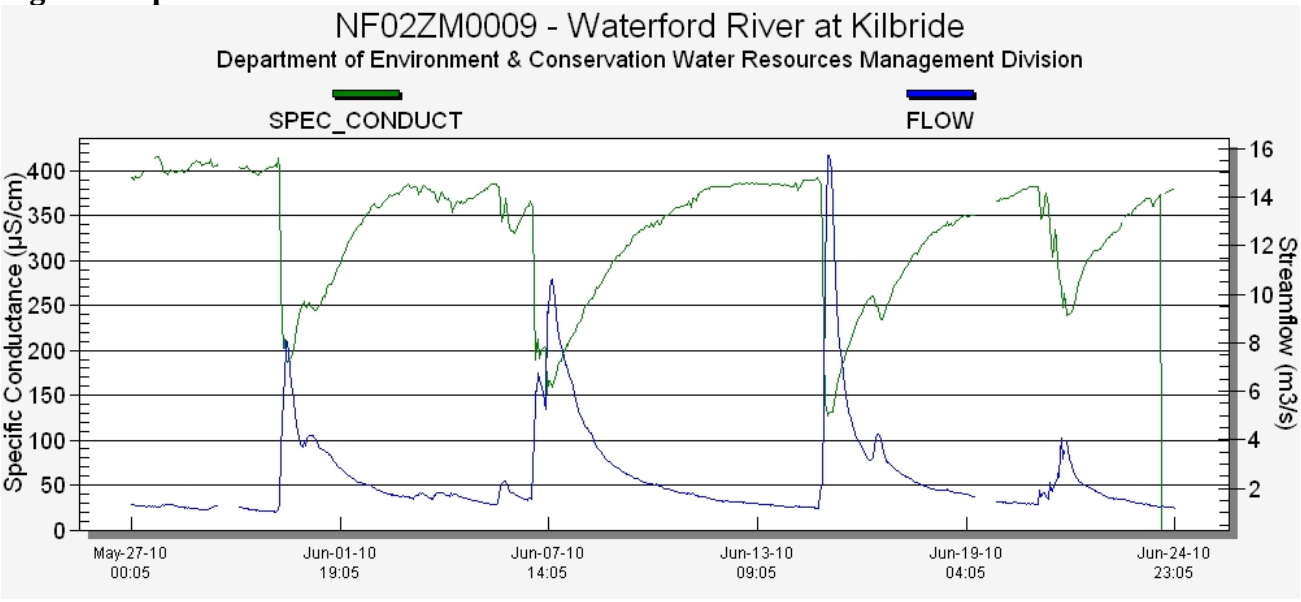
- **pH** levels were fairly constant and within the expected range for this station throughout the deployment, ranging from 7.15 to 7.68 units, as seen in **Figure 2** below. pH levels for the month of June are consistently higher than in May, as a result of increased daylight hours and photosynthesis. 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. The pH spike at the end of the deployment period is false data, and was caused by removing the probe.

Figure 2: pH Levels



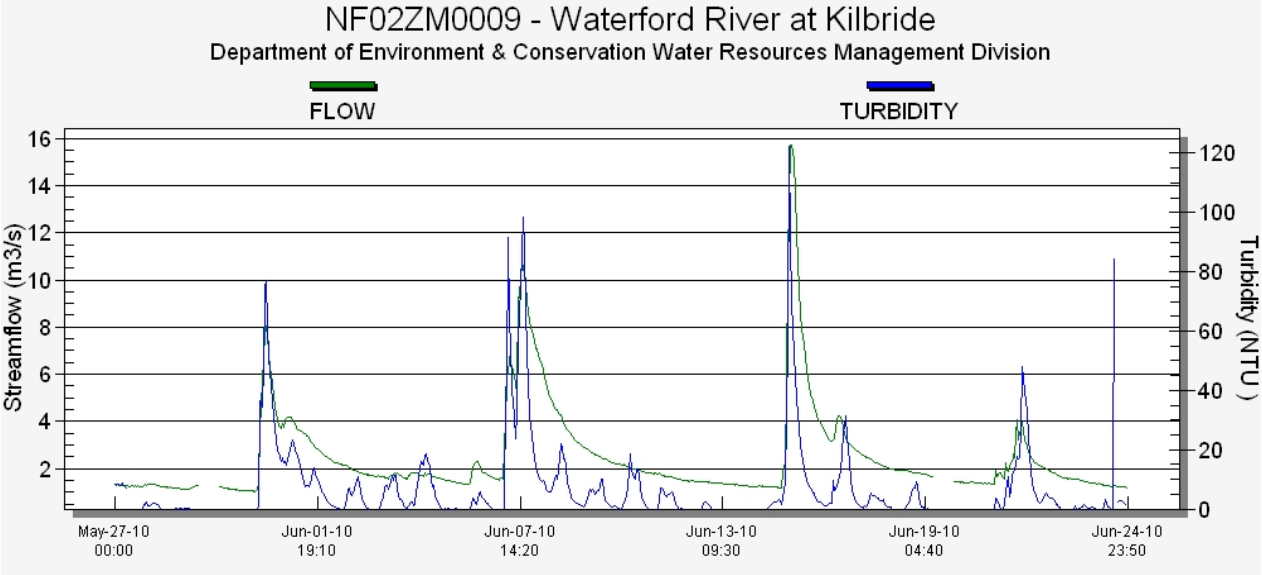
- **Specific conductivity** levels typically share an inverse relationship with stage height and flow, showing decreasing levels as stage height and flow increase due to precipitation. This is caused by the dilution effect increased water level and flow usually has on conductivity. Conversely, specific conductivity levels typically increase as flow decreases. Specific conductivity values are shown in green and flow is shown in blue in **Figure 3** below. Specific conductivity values ranged between 127-416 µS/cm during this deployment.

Figure 3: Specific Conductance



Turbidity values were less than 50 NTU for most of the deployment period, with the exception of spikes which occurred on May 31st and June 7th and 15th. These spikes were the result of increased flows on these dates caused by heavy rainfall. Turbidity data is shown in **Figure 4** below. The apparent spike on June 24th was actually caused by removal of the probe on that day. Climate data on these dates is given in **Appendix 1**. Turbidity values ranged from 0.0-122.4 NTU during this deployment.

Figure 4: Turbidity



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

Daily Data Report for June 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	9.5	2.4	6.0	12.0	0.0	1.6	0.0	1.6	0	35E	59E
02	11.4	0.8	6.1	11.9	0.0	T	0.0	T	0		<31
03	13.8	0.9	7.4	10.6	0.0	3.0	0.0	3.0	0	27E	33E
04	9.7	4.8	7.3	10.7	0.0	2.2	0.0	2.2	0	31E	76E
05	15.5	4.7	10.1	7.9	0.0	T	0.0	T	0	31E	56E
06	17.1	4.0	10.6	7.4	0.0	7.8	0.0	7.8	0	15E	56E
07	19.4	4.6	12.0	6.0	0.0	30.4	0.0	30.4	0	23E	65E
08	16.1	8.2	12.2	5.8	0.0	1.6	0.0	1.6	0	23E	46E
09	14.0	6.7	10.4	7.6	0.0	T	0.0	T	0		<31
10	14.5	6.3	10.4	7.6	0.0	T	0.0	T	0	27E	48E
11	21.5	7.5	14.5	3.5	0.0	0.0	0.0	0.0	0	25E	56E
12	13.3	8.1	10.7	7.3	0.0	T	0.0	T	0		<31
13	11.5	4.4	8.0	10.0	0.0	T	0.0	T	0		<31
14	13.9	5.5	9.7	8.3	0.0	2.8	0.0	2.8	0	18E	35E
15	14.3	4.6	9.5	8.5	0.0	36.0	0.0	36.0	0	15E	72E
16	8.9	4.3	6.6	11.4	0.0	2.9	0.0	2.9	0	33E	69E
17	17.8	3.7	10.8	7.2	0.0	0.0	0.0	0.0	0	30E	41E
18	16.5	7.2	11.9	6.1	0.0	0.4	0.0	0.4	0	34E	41E

19	15.2	5.6	10.4	7.6	0.0	T	0.0	T	0	M	M
20	24.0	11.1	17.6	0.4	0.0	0.0	0.0	0.0	0	26E	59E
21	18.8	4.9	11.9	6.1	0.0	20.0	0.0	20.0	0	24E	33E
22	8.9	3.3	6.1	11.9	0.0	0.2	0.0	0.2	0	2E	39E
23	22.5	6.5	14.5	3.5	0.0	0.0	0.0	0.0	0	27E	56E
24	15.9	8.1	12.0	6.0	0.0	3.0	0.0	3.0	0	18E	52E
25	19.7	10.4	15.1	2.9	0.0	4.2	0.0	4.2	0	26E	52E
26	21.1	9.9	15.5	2.5	0.0	0.0	0.0	0.0	0	30E	44E
27	17.7	10.0	13.9	4.1	0.0	0.2	0.0	0.2	0	22E	44E
28	18.4	8.2	13.3	4.7	0.0	1.2	0.0	1.2	0		<31
29	11.9	6.3	9.1	8.9	0.0	2.4	0.0	2.4	0		<31
30	11.2	6.5	8.9	9.1	0.0	2.2	0.0	2.2	0	14E	39E

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