

Real Time Water Quality Monthly Report Leary's Brook- St. John's NL September 2008

General

- Data from Leary's Brook monitoring station is monitored by the Water Resources Management Division staff.

Maintenance and Calibration of Instrumentation

- The following table displays the dates when the water quality probe was installed and later removed at the end of the deployment period for routine cleaning, maintenance and calibration:

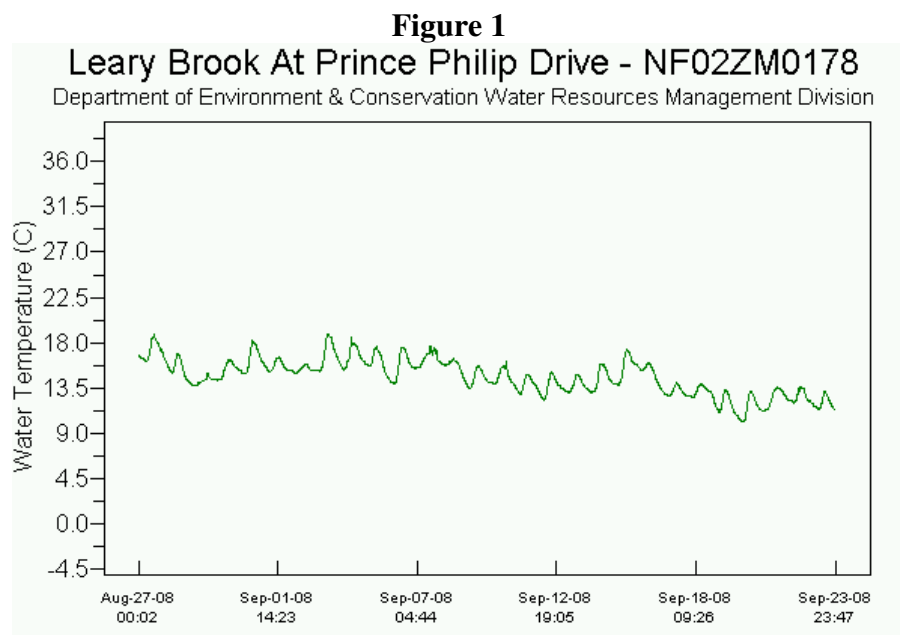
Table 1: Table of probe installation and removal dates

Date Installed	Date Removed
August 27, 2008	September 23, 2008

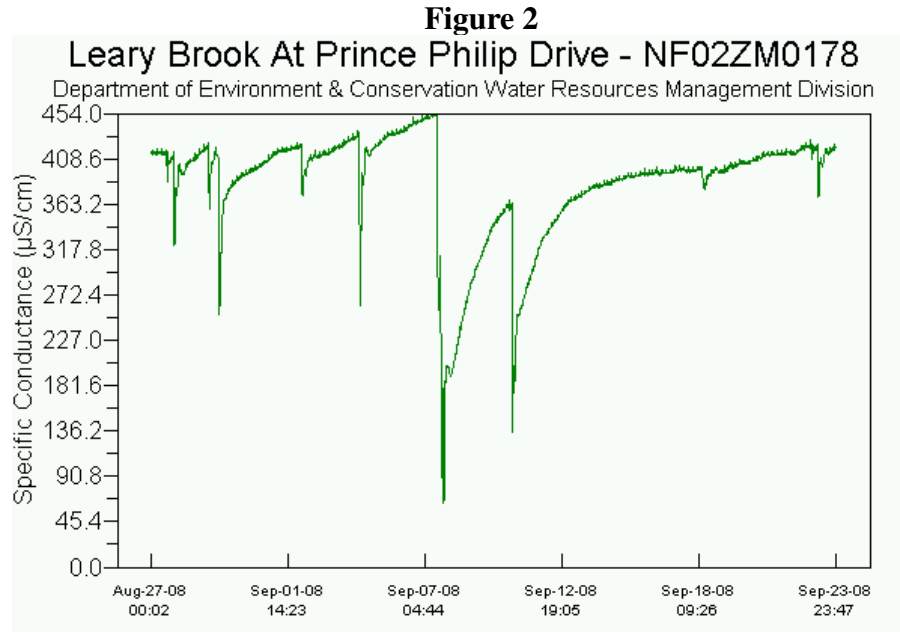
- Water quality readings were taken with a second, freshly calibrated water quality probe at the time of installation and removal for QAQC comparison.

Data Interpretation

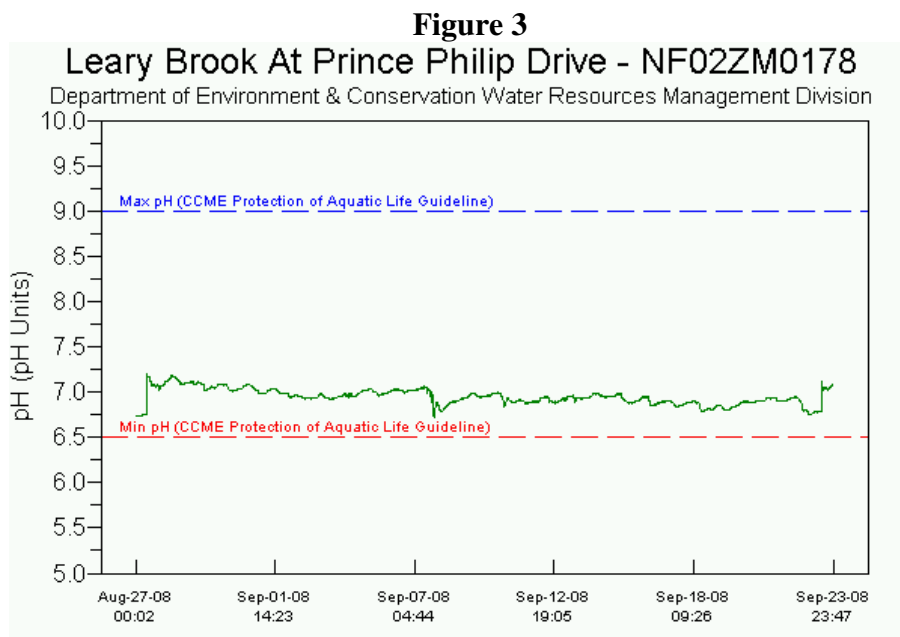
- Water quality parameter levels fluctuated within expected ranges during the deployment period with daily/nightly (diurnal) variations and changes.
- Water** temperatures ranged between 10.1 and 18.9°C in response to daily maximum and minimum air temperatures. This is demonstrated by comparing the graph in **Figure 1** (below) to the air temperature data in **Appendix 1** (end of report):



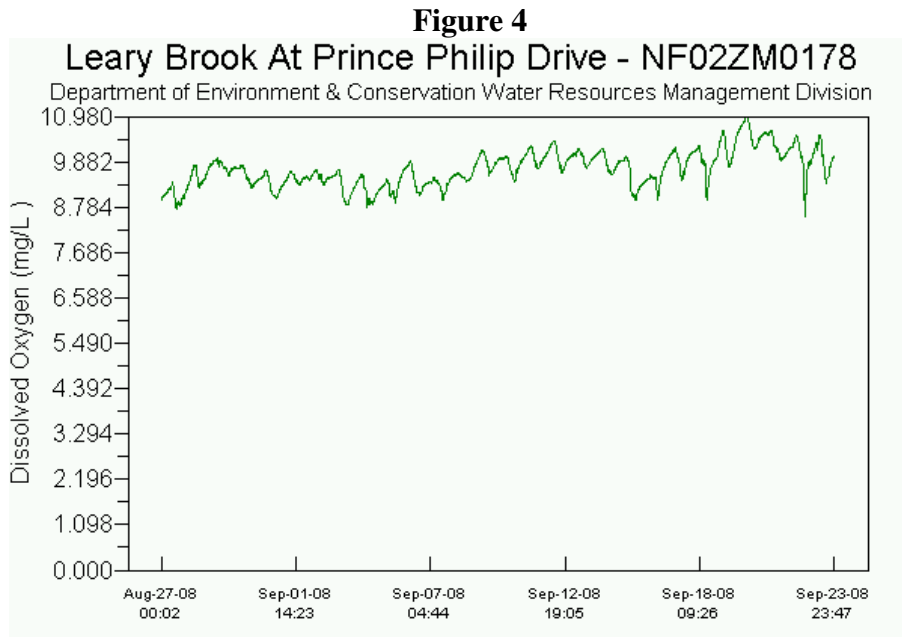
- Conductivity** levels fluctuated during the deployment period as observed in **Figure 2**, ranging from 63.5 to 454 $\mu\text{S}/\text{cm}$. Significant declines in conductivity levels were recorded on August 29th, September 2nd, 4th, 7th and 10th which correspond with rainfall events recorded in Environment Canada's Daily Data report in **Appendix 1**. The rainfall had a dilution effect on conductivity levels, as shown in **Figure 2** below.



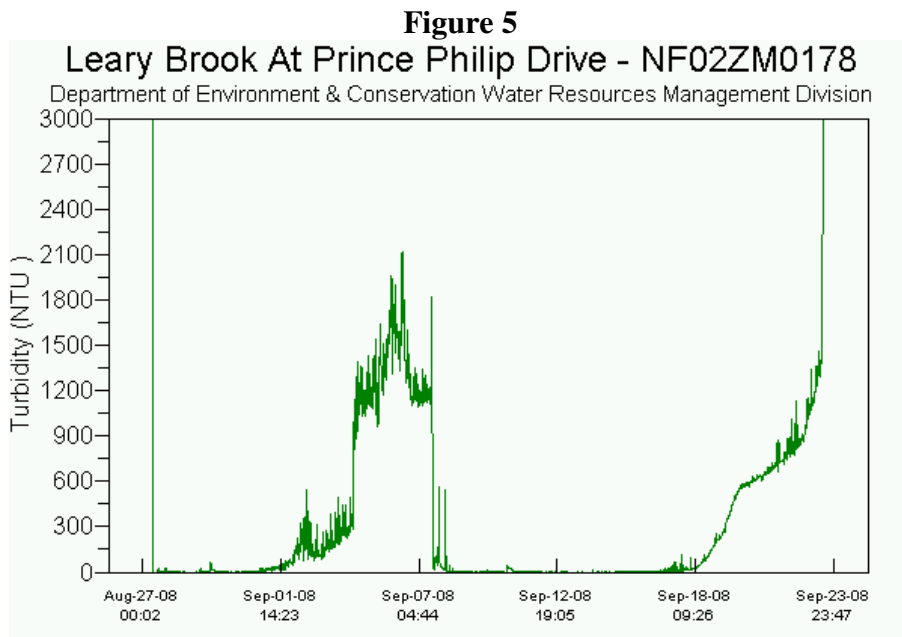
- pH** values ranged from 6.72 to 7.18 pH units during the deployment period, as shown in **Figure 3** below. All values fell within the range recommended by the Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 pH units.











- **Dissolved oxygen** measurements displayed typical diurnal variations during the deployment period, ranging from 8.56 to 10.98mg/L, as shown in **Figure 4** below.



- **Turbidity** levels were high from September 2nd -7th, when they returned background levels until September 19th, when they spiked again (see **Figure 5**, below). Fluctuating turbidity levels from September 2nd to 7th were likely an indication of land-based inputs, while the spike that occurred on the 19th and remained high for the rest of the deployment period is more likely to be an indication of sensor fouling.



Appendix 1: Weather information for St. John's, NL provided by Environment Canada for September 2008:

Daily Data Report for September 2008									
D a y	Max Temp °C 	Min Temp °C 	Mean Temp °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 
<u>01</u>	17.3	12.5	14.9	0.8	0.0	0.8	0		<31
<u>02</u>	18.0	14.4	16.2	3.0	0.0	3.0	0		<31
<u>03</u>	26.6	13.4	20.0	0.0	0.0	0.0	0	28E	32E
<u>04</u>	22.4	13.3	17.9	1.6	0.0	1.6	0	26E	39E
<u>05</u>	21.4	10.0	15.7	T	0.0	T	0	27E	41E
<u>06</u>	22.4	12.2	17.3	0.0	0.0	0.0	0	26E	46E
<u>07</u>	20.7	15.8	18.3	39.4	0.0	39.4	0	25E	44E
<u>08</u>	17.9	10.1	14.0	3.0	0.0	3.0	0	32E	56E
<u>09</u>	17.4	8.7	13.1	0.0	0.0	0.0	0		<31
<u>10</u>	18.8	10.9	14.9	9.0	0.0	9.0	0	21E	61E
<u>11</u>	17.1	8.6	12.9	0.0	0.0	0.0	0	30E	46E
<u>12</u>	18.8	9.3	14.1	0.0	0.0	0.0	0	28E	54E
<u>13</u>	17.9	11.4	14.7	0.0	0.0	0.0	0	27E	37E
<u>14</u>	20.7	10.9	15.8	0.0	0.0	0.0	0		<31
<u>15</u>	23.6	12.2	17.9	0.0	0.0	0.0	0	20E	52E
<u>16</u>	19.0	9.1	14.1	T	0.0	T	0	24E	48E
<u>17</u>	12.7	8.7	10.7	0.0	0.0	0.0	0		<31
<u>18</u>	15.0	5.8	10.4	2.0	0.0	2.0	0	23E	37E
<u>19</u>	12.4	4.1	8.3	0.0	0.0	0.0	0	33E	46E
<u>20</u>	16.1	4.0	10.1	0.0	0.0	0.0	0	24E	48E
<u>21</u>	16.4	8.9	12.7	T	0.0	T	0		<31
<u>22</u>	13.7	6.8	10.3	T	0.0	T	0	34E	37E
<u>23</u>	11.8	3.7	7.8	3.4	0.0	3.4	0		<31
<u>24</u>	9.9	1.6	5.8	2.0	0.0	2.0	0	34E	50E
<u>25</u>	10.0	1.4	5.7	1.4	T	1.4	0	26E	50E
<u>26</u>	19.2	8.3	13.8	0.0	0.0	0.0	0	27E	56E
<u>27</u>	21.0	8.8	14.9	0.0	0.0	0.0	0	29E	32E

Report prepared by:

Joanne Sweeney
 Environmental Scientist
 Water Resources Management Division
 Department of Environment and Conservation
 Confederation Building West Block 4th Floor
 PO Box 8700
 St. John's NL A1B 4J6
 Ph. (709) 729-0351

Fax (709) 729-0320