

## Real Time Water Quality Monthly Report Leary's Brook- St. John's NL July-August 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 Datasonde was installed and later removed at the end of the deployment period for routine cleaning, maintenance and calibration:

**Table 1:** Table of Datasonde installation and removal dates

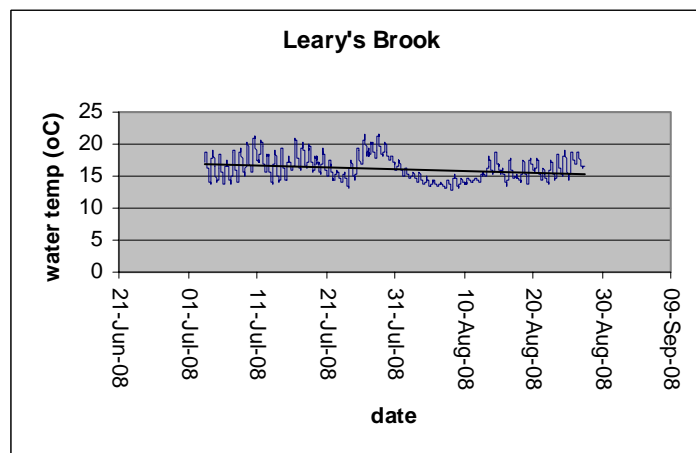
Date Installed	Date Removed
July 3, 2008	August 27, 2008

- Water quality readings were taken with a hydrolab probe at the time of installation and removal for QAQC comparison. The QAQC probe was calibrated prior to each use.

### Data Interpretation

- Water quality parameter levels fluctuated within expected ranges during the deployment period with daily/nightly (diurnal) variations and changes in response to seasonally increasing air temperatures.
- Water temperatures** fluctuated 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** (bottom of report):

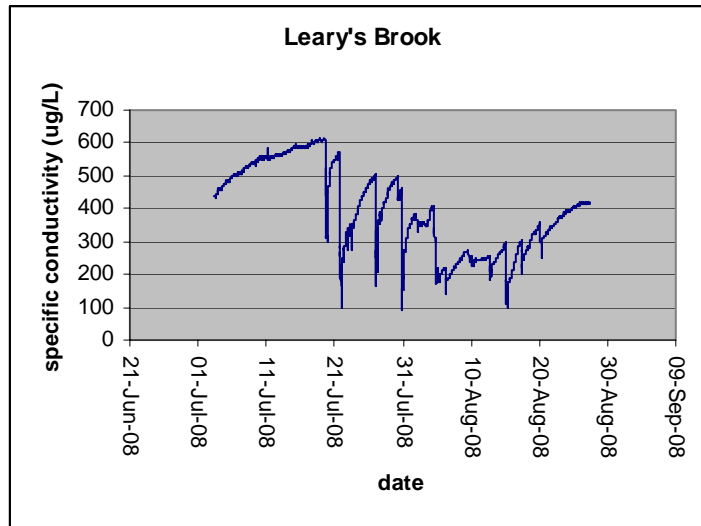
**Figure 1**



- Conductivity** levels fluctuated throughout the deployment period as observed in **Figure 2**, ranging from 90 to 616µS/cm. Significant rainfall was recorded on July 19<sup>th</sup>, 21<sup>st</sup>, 22<sup>nd</sup>, 26<sup>th</sup>, 27<sup>th</sup> and 30<sup>th</sup>, as well as on August 4<sup>th</sup> and 15<sup>th</sup> as shown in the climate data in

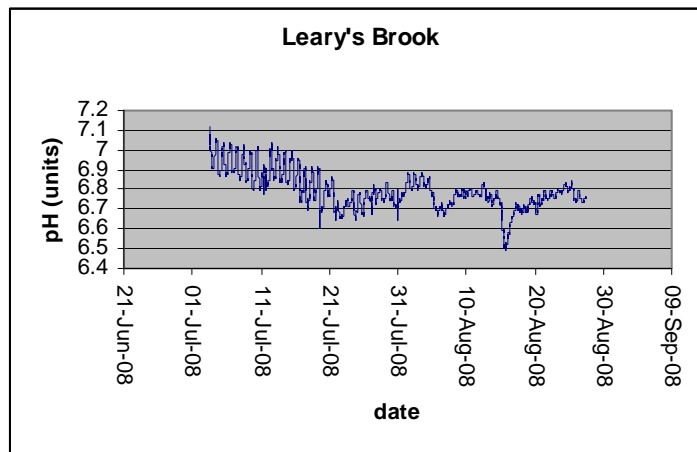
**Appendix 1** at the end of the report. This rainfall had a dilution effect as conductivity levels decreased during periods of rainfall, as shown in **Figure 2** below.

**Figure 2**



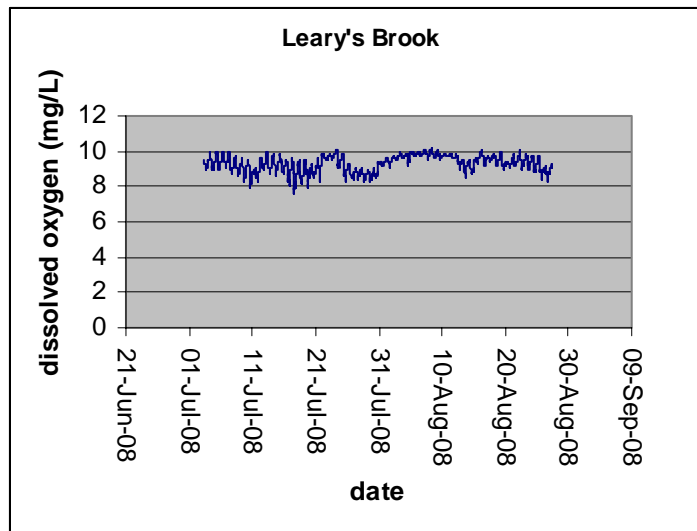
- **pH** values ranged from 6.49 to 7.12 pH units during the deployment period, as shown in **Figure 3** below. Most values fell within the range recommended by the Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 pH units. The most noticeable pH decrease occurred near August 15, which was most likely in response to the 37.8mm of rainfall that was recorded on that day, as shown in **Appendix 1** below.

**Figure 3**



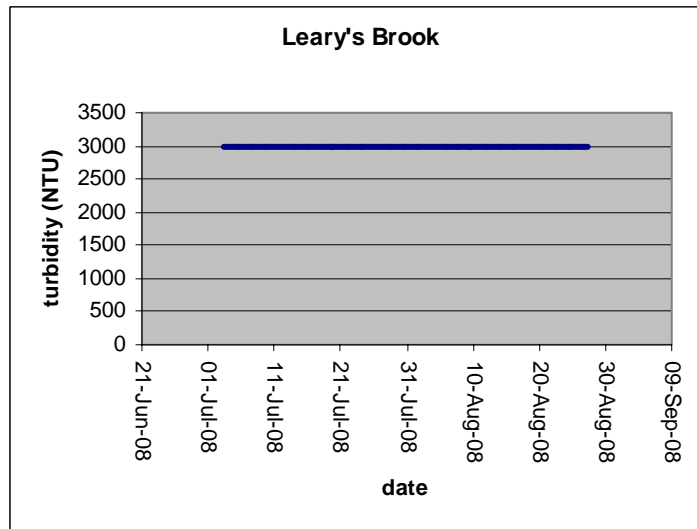
- **Dissolved oxygen** measurements ranged from 7.63 to 10.17mg/L during the deployment period, as shown in **Figure 4** below. Dissolved oxygen levels fluctuated in response to fluctuating water temperatures, with the dissolved oxygen levels decreasing as water temperatures increased.

**Figure 4**



- The **turbidity** sensor saturated immediately upon deployment, indicating that contamination/fouling of the sensor occurred during the deployment process (see **Figure 5**). Turbidity data are therefore not valid for this deployment period.






**Figure 5**



**Appendix 1:** Weather information for St. John's, NL provided by Environment Canada for July and August 2008:

Daily Data Report for July 2008					
D a y	Max Temp °C	Min Temp °C	Mean Temp °C	Total Rain mm	Spd of Max Gust km/h
01†	21.4	12.4	16.9	2.6	56

<u>02†</u>	26.2	13.0	19.6	0.0	37
<u>03†</u>	23.9	12.4	18.2	T	54
<u>04†</u>	21.9	12.5	17.2	0.0	61
<u>05†</u>	24.4	11.8	18.1	0.0	35
<u>06†</u>	21.9	11.8	16.9	0.0	44
<u>07†</u>	26.5	11.9	19.2	0.0	35
<u>08†</u>	27.4	14.3	20.9	0.0	44
<u>09†</u>	29.5	13.7	21.6	0.0	32
<u>10†</u>	26.2	15.7	21.0	0.0	59
<u>11†</u>	26.7	14.3	20.5	1.8	41
<u>12†</u>	19.6	9.4	14.5	0.0	<31
<u>13†</u>	21.6	8.8	15.2	T	<31
<u>14†</u>	24.4	11.4	17.9	0.0	35
<u>15†</u>	21.0	15.2	18.1	0.6	48
<u>16†</u>	27.9	16.9	22.4	0.0	35
<u>17†</u>	25.8	16.4	21.1	0.0	37
<u>18†</u>	25.5	15.3	20.4	0.0	<31
<u>19†</u>	24.0	14.4	19.2	10.8	<31
<u>20†</u>	21.2	11.2	16.2	0.0	<31
<u>21†</u>	20.9	10.7	15.8	36.3	35
<u>22†</u>	18.4	12.4	15.4	12.8	<31
<u>23†</u>	14.3	7.3	10.8	2.8	32
<u>24†</u>	22.1	6.4	14.3	0.0	<31
<u>25†</u>	25.8	12.9	19.4	0.0	<31
<u>26†</u>	26.1	18.8	22.5	7.2	52
<u>27†</u>	24.9	18.5	21.7	6.6	46
<u>28†</u>	25.9	18.0	22.0	0.4	37
<u>29†</u>	25.4	17.8	21.6	T	<31
<u>30†</u>	18.4	14.6	16.5	22.4	<31
<u>31†</u>	19.5	12.8	16.2	2.8	<31

Daily Data Report for August 2008					
D a y	Max Temp °C 	Min Temp °C 	Mean Temp °C 	Total Rain mm 	Spd of Max Gust km/h 
<u>01†</u>	15.0	12.7	13.9	6.2	<31
<u>02†</u>	15.4	12.4	13.9	1.4	32
<u>03†</u>	14.5	10.0	12.3	0.6	<31
<u>04†</u>	13.7	11.0	12.4	16.4	<31
<u>05†</u>	14.2	12.0	13.1	7.6	<31
<u>06†</u>	14.0	12.0	13.0	3.9	33
<u>07†</u>	14.9	8.2	11.6	0.4	<31

08†	20.5	7.4	14.0	0.0	<31
09†	15.4	11.3	13.4	5.4	<31
10†	15.3	13.6	14.5	3.0	<31
11†	15.9	13.8	14.9	2.8	<31
12†	19.0	14.9	17.0	5.2	33
13†	25.6	15.1	20.4	T	46
14†	22.9	15.0	19.0	6.0	41E
15†	21.3	12.0	16.7	37.8	85
16†	22.9	11.1	17.0	0.0	35
17†	17.2	12.6	14.9	8.8	89
18†	22.6	12.4	17.5	1.2	44
19†	23.8	10.4	17.1	0.0	50
20†	22.9	12.4	17.7	4.0	39
21†	18.9	12.3	15.6	T	48
22†	23.9	11.3	17.6	0.0	41
23†	24.2	14.2	19.2	0.0	54
24†	25.3	14.3	19.8	0.0	56
25†	25.2	14.8	20.0	0.8	50
26†	22.2	15.6	18.9	T	54
27†	23.7	13.3	18.5	1.6	39
28†	15.3	11.3	13.3	0.0	44
29†	16.6	11.0	13.8	9.8	37
30†	20.7	14.4	17.6	T	<31
31†	22.3	13.4	17.9	T	35

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