Government of
Newfoundland
and Labrador

Real Time Water Quality Monthly Report
Leary's Brook
June 2005

General

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

Maintenance and Calibration of Instrumentation

- The following table displays the dates when the Datasonde was removed for routine cleaning, maintenance and calibration and when it was redeployed during the month of June.

Date Installed	Date Removed
	June 6, 2005
June 7, 2005	June 16, 2005
June 17, 2005	June 27, 2005
June 28, 2005	

- Water quality readings were taken with a Minisonde at the time of removal for comparison purposes. The Minisonde was calibrated prior to use.

Data Interpretation

- In general, water quality parameters were stable during the month of June with expected daily/nightly (diurnal) and seasonal changes occurring.
- **Stage height** (water level) rose and fell in response to daily precipitation as seen in **Figure 1**. Increases in stage height correspond to days with precipitation as seen in Table 1.
- **Water temperature** fluctuated in response to daily maximum and minimum air temperature. This is demonstrated by comparing the graph in **Figure 2** to the air temperature data in **Table 1**. An increase in water temperature is observed in response to an increase in daily mean temperatures. A warming trend in water temperature continued to the end of the month. Due to technical problems, temperature readings were not recorded from June 1st to June 12th.

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

Daily Data Report for June 2005

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†	13.0	3.6	8.3	9.7	0.0	0.0	0.0	0.0			<31
02†	21.5	4.0	12.8	5.2	0.0	0.0	0.0	0.0		26	37
03†	26.2	6.8	16.5	1.5	0.0	0.0	0.0	0.0		26	46
04†	15.9	2.9	9.4	8.6	0.0	2.0	0.0	2.0			<31
05†	14.3	1.3	7.8	10.2	0.0	0.0	0.0	0.0			<31
06†	13.3	2.2	7.8	10.2	0.0	0.0	0.0	0.0			<31
07†	17.5	5.9	11.7	6.3	0.0	8.2	0.0	8.2		18	52
08†	14.9	7.8	11.4	6.6	0.0	12.8	0.0	12.8		23	67
09†	12.7	5.5	9.1	8.9	0.0	T	0.0	T		18	33
10†	18.1	7.3	12.7	5.3	0.0	27.0	0.0	27.0		24	52
11†	11.7	6.0	8.9	9.1	0.0	3.0	0.0	3.0		24	52
12†	14.9	6.7	10.8	7.2	0.0	1.4	0.0	1.4			<31
13†	7.9	4.0	6.0	12.0	0.0	T	0.0	T		34	48
14†	6.3	4.2	5.3	12.7	0.0	2.6	0.0	2.6		32	59
15†	6.9	5.4	6.2	11.8	0.0	0.8	0.0	0.8		36	46
16†	8.8	3.4	6.1	11.9	0.0	T	0.0	T			<31
17†	10.2	5.1	7.7	10.3	0.0	11.8	0.0	11.8			<31
18†	6.2	4.5	5.4	12.6	0.0	10.4	0.0	10.4			<31
19†	6.1	3.0	4.6	13.4	0.0	0.8	0.0	0.8			<31
20†	20.2	3.0	11.6	6.4	0.0	0.0	0.0	0.0		26	57
21†	19.3	7.1	13.2	4.8	0.0	T	0.0	T		24	46
22†	20.5	8.6	14.6	3.4	0.0	0.0	0.0	0.0		24	52
23†	14.2	9.8	12.0	6.0	0.0	18.6	0.0	18.6			<31
24†	13.8	7.6	10.7	7.3	0.0	T	0.0	T			<31
25†	23.8	8.8	16.3	1.7	0.0	0.0	0.0	0.0			<31
26†	16.3	0.8	8.6	9.4	0.0	0.2	0.0	0.2		1	44
27†	19.5	0.8	10.2	7.8	0.0	0.0	0.0	0.0		25	41
28†	19.3	7.7	13.5	4.5	0.0	T	0.0	T		25	70
29†	21.9	7.2	14.6	3.4	0.0	5.4	0.0	5.4		26	63
30T†	8.9	6.2	7.6	10.4	0.0	T	0.0	T			<31
Sum				**238.6**	**0.0**	**105.0**	**0.0**	**105.0**			

Figure 1

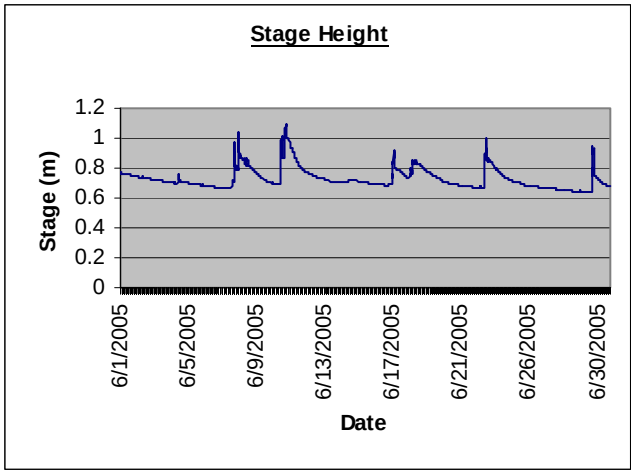
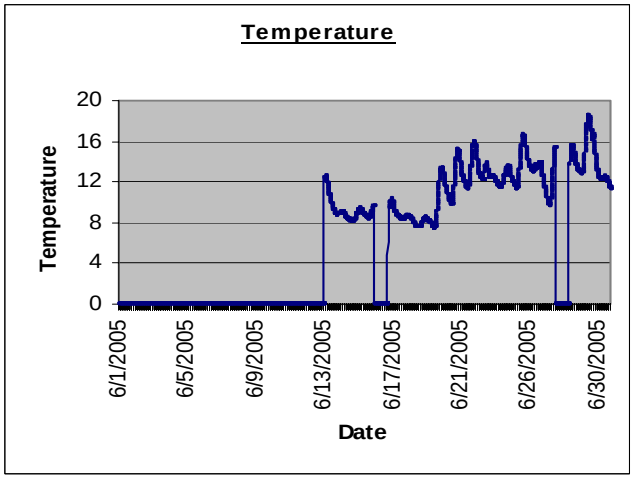


Figure 2



- **Conductivity** levels fluctuated throughout the month with several notable spikes as observed in Figure 3. These spikes usually occurred in response to precipitation events.

- **Total dissolved solids** (**Figure 4)** levels reflected the variations in conductivity. Conductivity measurements are a good indication of total dissolved solids and total dissolved ion concentrations, although this is not an exact linear relationship.

Figure 3

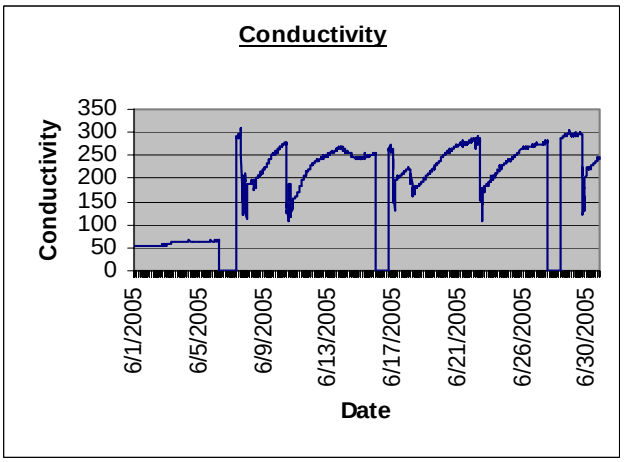
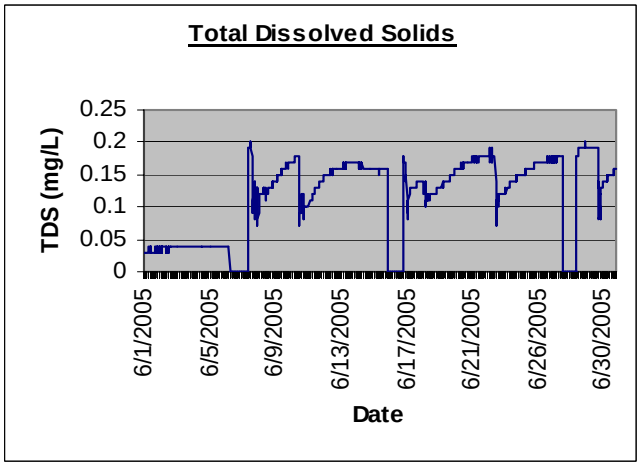


Figure 4



- Due to technical problems, pH readings were not recorded from June 1st to June 12th. **pH** levels for the rest of the month ranged between 6.51 to 8.01. There were some exceedances above the CCME recommended Guideline for Freshwater Aquatic Life of 6.5 (see **Figure 5**). The average pH level for the deployment of the datasonde instrument during the month of June was 7.05. (see **Table 2**).
- Due to technical problems that were experienced with the DO probe during the month of June, the DO data was unreliable and is not presented in this report. Problems with the DO probe will be corrected as soon as possible.

Figure 5

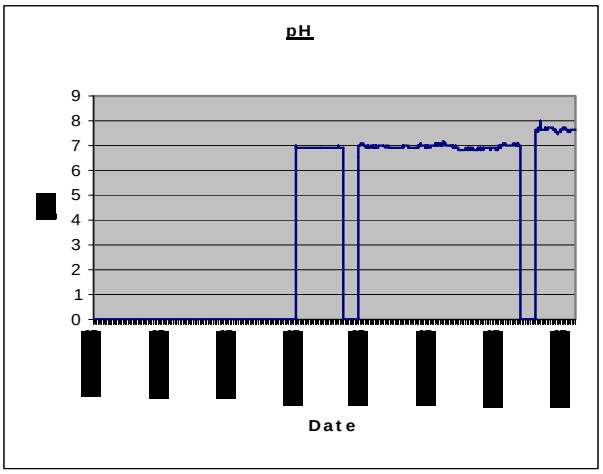
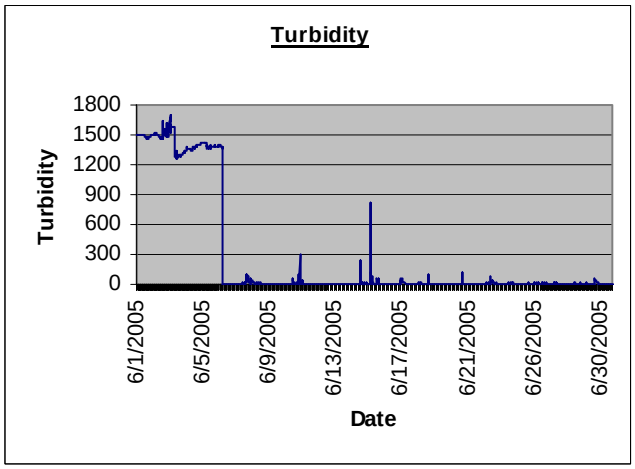


Figure 6



- **Turbidity** levels fluctuated and had several minor spikes noted throughout the month. The turbidity spikes (see **Figure 6) a**re normally in response to precipitation. Continuously high turbidity readings occurred during the first week of the month. This is likely due to construction activity in the Kenmount Road area. Drainage from this construction area enters Leary's Brook via a storm drain where Pippy Place crosses Leary's Brook. Many turbidity spikes exceeded the CCME recommended maximum of 8 NTU above background levels.

Additional Information

- Table 2 provides summary statistics on water quality parameters for Leary's Brook during the month of June 2005.

Table 2: Summary statistics for June 2005.

	Water Temp	pH	Conductivity	Diss-Solids	Turbidity
Max	18.59	8.01	309.00	0.2000	1696
Min	7.47	6.51	53.20	0.0300	0
Average	11.45	7.05	201.35	0.1293	290.57
Standard Deviation	2.58	0.26	78.82	0.0508	571.03

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