

**Real Time Water Quality Monthly Report  
Leary's Brook - St. John's NL  
October 2006**

**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.

Table 1: Table of Datasonde removal and installation dates

Date Installed	Date Removed
	October 10, 2006
October 11, 2006	

- 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**

- Areas in the graphs where the data lines go abruptly down to the x axis and show no readings occur when the datasonde is removed for routine cleaning, maintenance and calibration. The dates where this occurs correspond to Table 1 above.
- In general, water quality parameters were stable during the month of October with expected daily/nightly (diurnal) and seasonal changes occurring.
- Water temperatures fluctuated in response to daily maximum and minimum air temperatures. This is demonstrated by comparing the graph in **Figure 1** to the air temperature data in **Appendix 1**. A gradual cooling trend was experienced during the second half of the month.

Figure 1

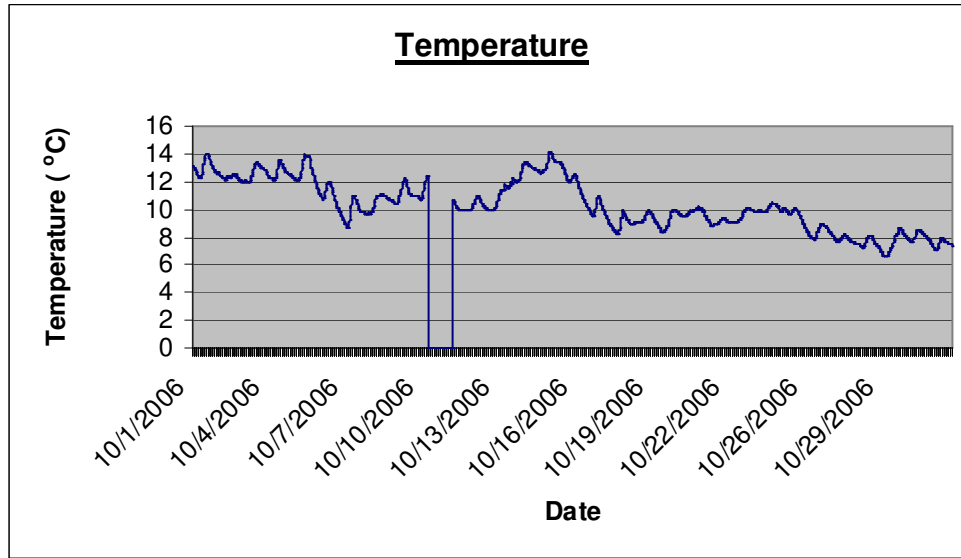
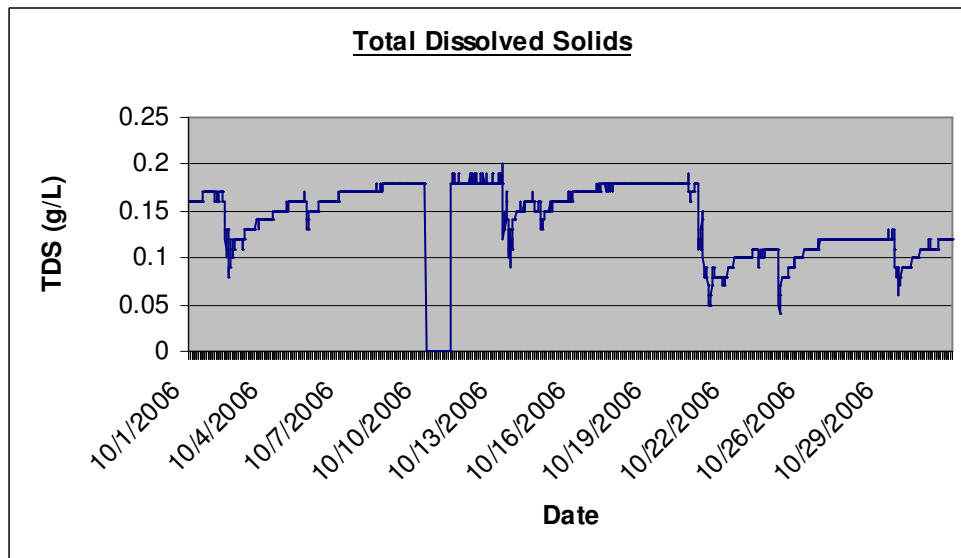
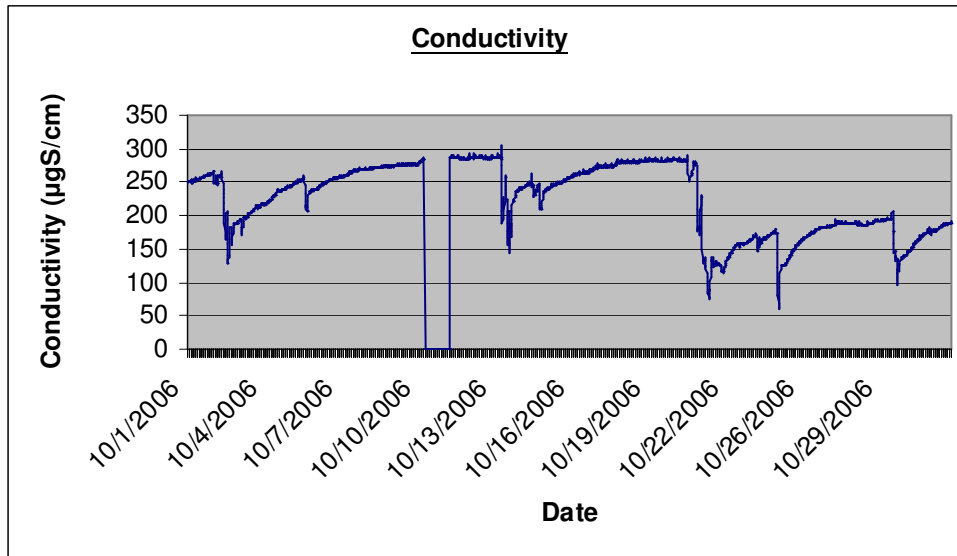


Figure 2



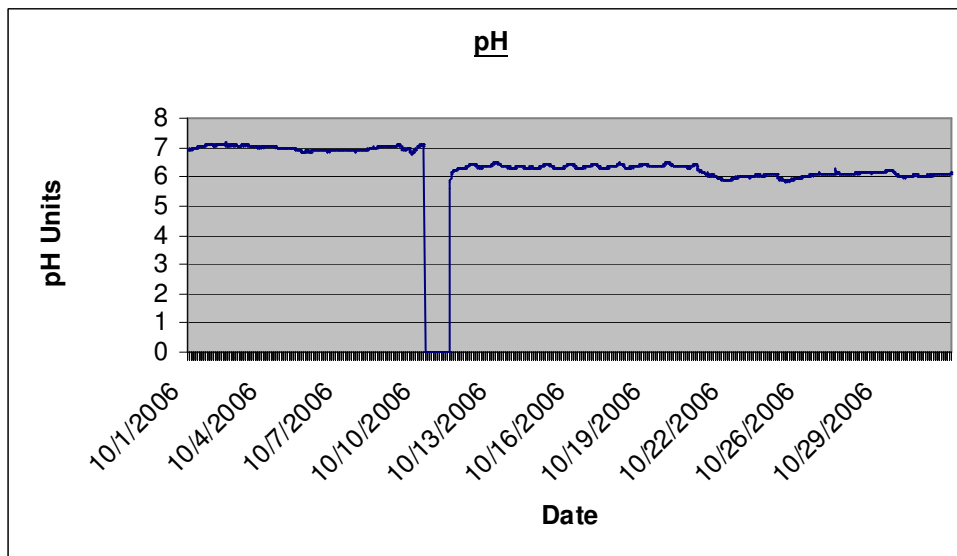
- Total dissolved solids levels reflected the changes in conductivity as observed in Figure 2. Conductivity measurements are a good indication of total dissolved solids and total dissolved ion concentrations, although this is not an exact linear relationship.

**Figure 3**



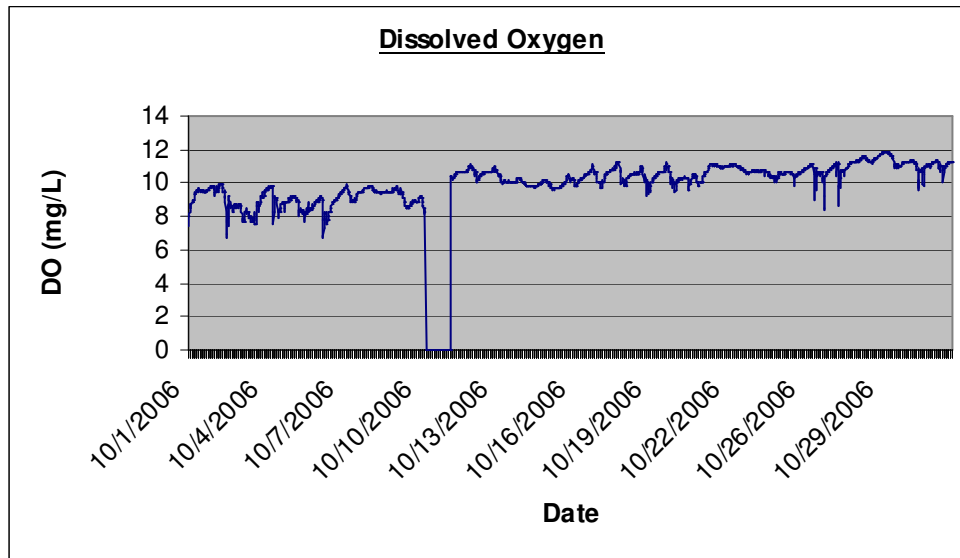
- Conductivity levels fluctuated throughout the month as observed in Figure 3 and responded to precipitation events.

**Figure 4**



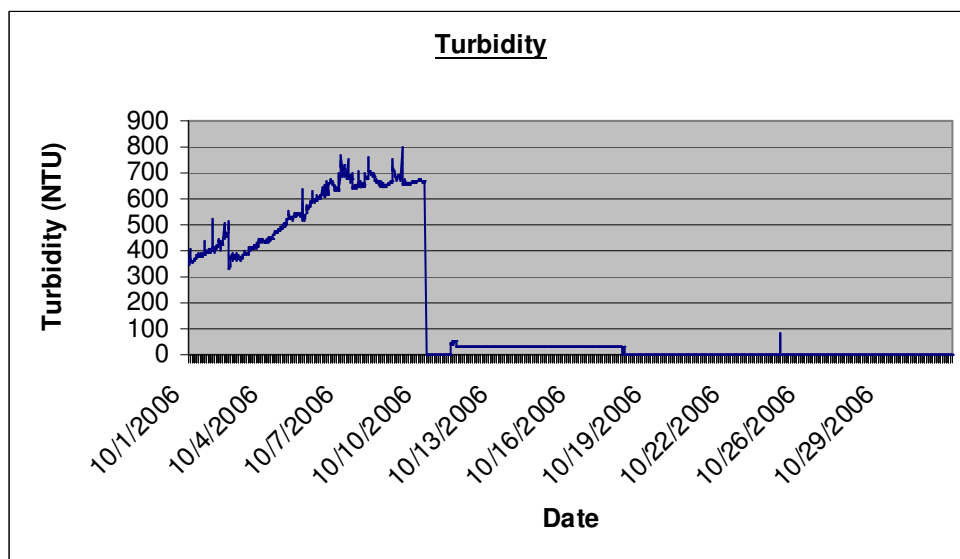
- The pH measurements were within the CCME recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life of 6.5 to 9 (Figure 4). The higher pH values experienced during the first half of the month were likely due to a calibration issue. Once the Hydrolab was cleaned, calibrated and reinstalled, the pH values returned to more normal values for this monitoring station.

Figure 5



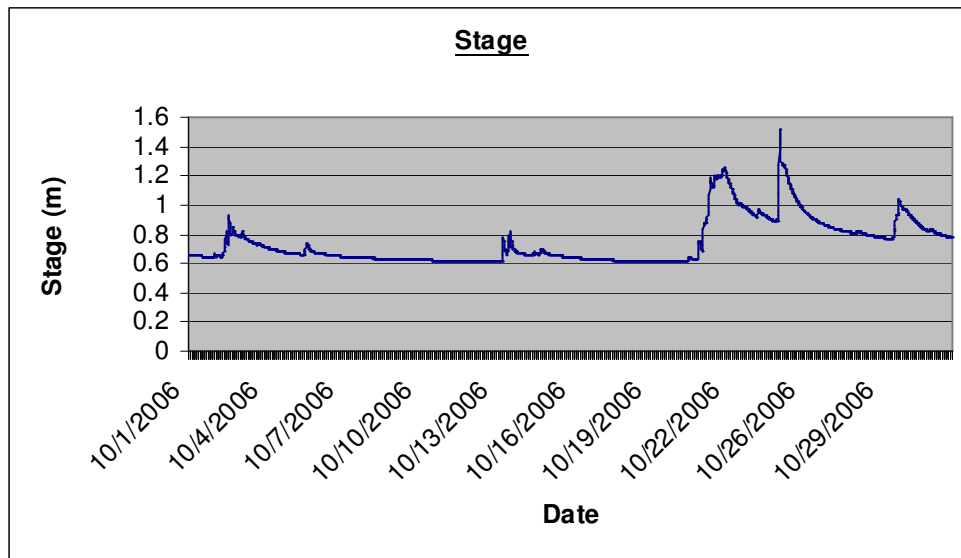
- During the month of October, dissolved oxygen measurements were stable with higher DO values occurring in response to the lower water temperatures generally experienced during the last two weeks of the month.

Figure 6



- Turbidity levels fluctuated and had several spikes noted throughout the month. The turbidity spikes (Figure 6) are normally in response to precipitation events. Several turbidity spikes exceeded the CCME recommended maximum of 8 NTU above background levels.

**Figure 7**












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Appendix 1: Weather information for St. John's, NL provided by Environment Canada for October 2006

Daily Data Report for October 2006											
D a y	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
<u>01</u>	14.8	8.9	11.9	6.1	0.0	1.8	0.0	1.8	0		
<u>02</u>	12.4	9.6	11.0	7.0	0.0	13.0	0.0	13.0	0		
<u>03</u>	14.6	10.4	12.5	5.5	0.0	4.4	0.0	4.4	0		
<u>04</u>	14.1	10.4	12.3	5.7	0.0	0.4	0.0	0.4	0		
<u>05</u>	18.4	5.2	11.8	6.2	0.0	4.2	0.0	4.2	0		
<u>06</u>	9.7	1.6	5.7	12.3	0.0	0.0	0.0	0.0	0		
<u>07</u>	12.0	-0.4	5.8	12.2	0.0	0.0	0.0	0.0	0		
<u>08</u>	13.4	7.0	10.2	7.8	0.0	0.0	0.0	0.0	0		
<u>09</u>	14.9	5.9	10.4	7.6	0.0	0.0	0.0	0.0	0		
<u>10</u>	14.6	5.4	10.0	8.0	0.0	0.0	0.0	0.0	0		
<u>11</u>	10.1	4.2	7.2	10.8	0.0	T	0.0	T	0		
<u>12</u>	8.7	5.5	7.1	10.9	0.0	T	0.0	T	0		
<u>13</u>	14.1	8.1	11.1	6.9	0.0	12.0	0.0	12.0	0		
<u>14</u>	19.0	11.9	15.5	2.5	0.0	0.2	0.0	0.2	0		
<u>15</u>	14.9	9.1	12.0	6.0	0.0	2.0	0.0	2.0	0		
<u>16</u>	9.5	4.8	7.2	10.8	0.0	0.0	0.0	0.0	0		
<u>17</u>	9.8	-1.4	4.2	13.8	0.0	0.0	0.0	0.0	0		
<u>18</u>	8.7	1.8	5.3	12.7	0.0	T	0.0	T	0		
<u>19</u>	8.5	2.2	5.4	12.6	0.0	T	0.0	T	0		
<u>20</u>	9.1	2.5	5.8	12.2	0.0	T	0.0	T	0		
<u>21</u>	8.5	7.4	8.0	10.0	0.0	19.0	0.0	19.0	0		
<u>22</u>	8.5	7.1	7.8	10.2	0.0	28.8	0.0	28.8	0		
<u>23</u>	9.3	7.0	8.2	9.8	0.0	8.2	0.0	8.2	0		
<u>24</u>	12.9	8.3	10.6	7.4	0.0	30.8	0.0	30.8	0		
<u>25</u>	12.1	5.7	8.9	9.1	0.0	0.4	0.0	0.4	0		
<u>26</u>	9.3	4.5	6.9	11.1	0.0	1.2	0.0	1.2	0		
<u>27</u>	6.2	4.0	5.1	12.9	0.0	1.2	0.0	1.2	0		
<u>28</u>	6.5	-0.3	3.1	14.9	0.0	0.8	0.0	0.8	0		
<u>29</u>	11.3	0.1	5.7	12.3	0.0	13.4	0.0	13.4	0		
<u>30</u>	10.4	3.5	7.0	11.0	0.0	2.2	0.0	2.2	0		
<u>31</u>	7.8	2.8	5.3	12.7	0.0	1.4	0.0	1.4	0		
<b>Sum</b>				<b>299.0</b>	<b>0.0</b>	<b>145.4</b>	<b>0.0</b>	<b>145.4</b>			