Real Time Water Quality Monthly Report
Aur Resources Inc.
May/June 2006

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.
- Aur Resources Inc. will be informed of any significant water quality events in the future in the form of a monthly report.

Maintenance and Calibration of Instrumentation

- On May 10th, 2006, a Datasonde was installed and deployed in the Tributary to Gills Pond Brook (**Photos in Appendix A)**.
- As per the specified QA/QC protocols, a Minisonde reading is taken at the time the Datasonde is deployed. The values of the parameters from the two instruments are compared and ranked using a set ranking schema. The results from comparing the Minisonde values to the Datasonde values can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon initial installation on May 10th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Tributary to Gills Pond Brook	May 10th, 2006	Installation	Poor	Excellent	Poor	Excellent

- On May 15th, 2006, the Datasonde was removed from the station and sent to have repairs to the turbidity sensor that was not functioning/calibrating properly. At that point in time, a spare Datasonde was immediately deployed so that data would continue to be collected while awaiting repairs to the original instrument. As per the specified QA/QC protocols, a Minisonde reading is also taken at the time the Datasonde is removed. The results from comparing the Minisonde values to the Datasonde values during removal and reinstallation on May 15th, 2006 can be seen in **Table 2**.

Table 2: QA/QC Data Comparison Rankings upon removal/reinstallation on May 15th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Tributary to Gills Pond Brook	May 15th, 2006	Removal	Marginal	Excellent	Good	Excellent
	May 15th, 2006	Installation	Excellent	Excellent	Good	Fair

- On May 17th, 2006, the spare Datasonde that was deployed just two days earlier was removed, recalibrated and reinstalled due to concerns with the dissolved oxygen and turbidity readings. The results from comparing the Minisonde values to the Datasonde values during removal and reinstallation on May 17th, 2006 can be seen in **Table 3**.

Table 3: QA/QC Data Comparison Rankings upon removal/reinstallation on May 17th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Tributary to Gills Pond Brook	May 17th, 2006	Removal	Good	Good	Good	Fair
	May 17th, 2006	Installation	Good	Good	Excellent	Excellent

- On May 26th, 2006, the spare Datasonde was removed from the station while the original Datasonde (with the turbidity sensor repaired) was reinstalled. . The results from comparing the Minisonde values to the Datasonde values during removal and reinstallation on May 26th, 2006 can be seen in **Table 4**.

Table 4: QA/QC Data Comparison Rankings upon removal/reinstallation on May 26th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Tributary to Gills Pond Brook	May 26th, 2006	Removal	Good	Excellent	Poor	Poor
	May 26th, 2006	Installation	Excellent	Excellent	Poor	Poor

- The Datasonde was deployed from May 26th, 2006 to June 20th, 2006 (period of 26 days). The results from comparing the Minisonde values to the Datasonde values during removal June 20th, 2006 can be seen in **Table 5**.

Table 5: QA/QC Data Comparison Rankings upon removal on June 20th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Tributary to Gills Pond Brook	June 20th, 2006	Removal	Fair	Excellent	Poor	Fair

- It is important to note that during the initial deployment months of May and June, there were numerous issues with instrumentation that needed to be addressed thus there were a greater number of removals and reinstallations. Essentially, when the instruments are functioning properly, the optimal deployment period is estimated to be approximately one month.

Data Interpretation

- This monthly report interprets the data from the Gills Pond Brook station for the period of May 10th – June 20th, 2006.

- As can be seen in **Figure 1** the water temperature fluctuated over the deployment period with a very strong diurnal pattern being detected in the data. The temperature ranged from 5.36 °C to 23.74 °C.

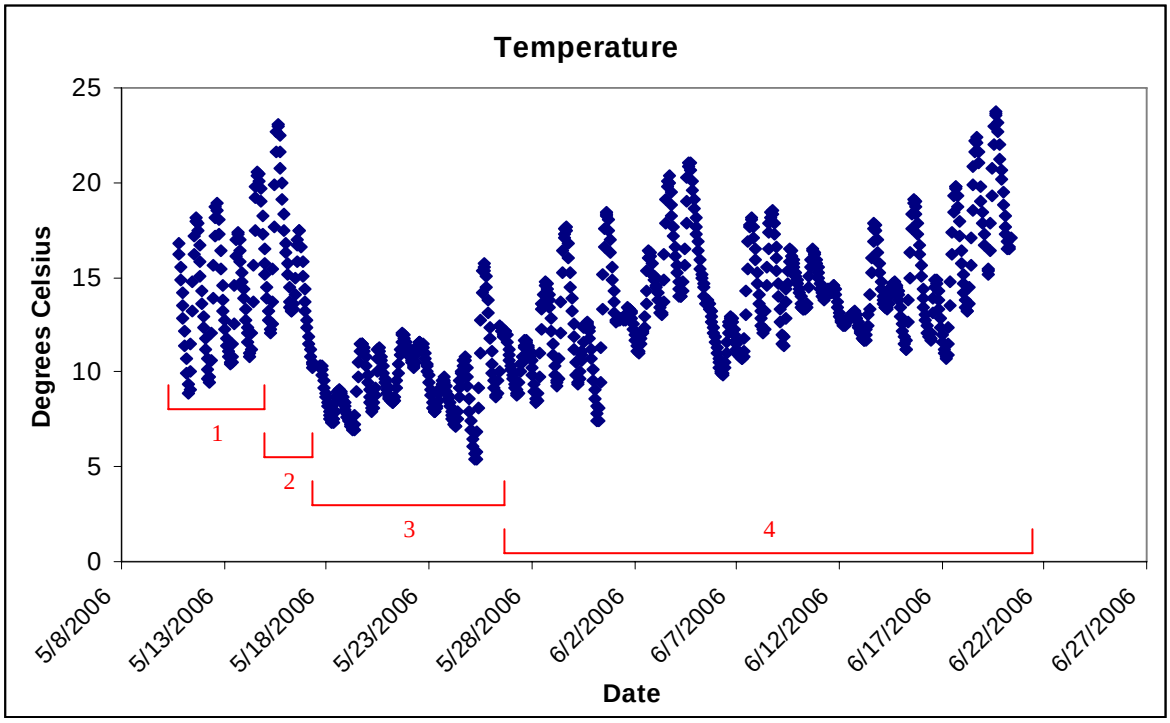

Figure 1

Notes:

On all water quality parameter graphs the following remains the same:

1 – Original instrument deployed from May 10th – May 15th; removed due to problems with turbidity sensor

2 & 3 – Spare instrument deployed from May 15th-17th; removed and recalibrated on May 17th; redeployed from May 17th – May26th

4 – Original instrument (with turbidity sensor replaced) deployed from May 26th - June 20th

- The pH values for the Gills Pond Brook station fluctuated slightly over the deployment period (**Figure 2**). Some of the values fell outside the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines with actual values ranging from 6.94 – 5.71 due to the naturally acidic nature of NL waters. There are four distinct instances whereby the pH values took noticeable decreases. In each case, the decreases in pH values correspond to the increases in stage at the same time (**Figure 3**). **Appendix B** provides the daily precipitation data for the months of May and June at Badger. The increases in stage occur around the days when heavy precipitation is recorded.

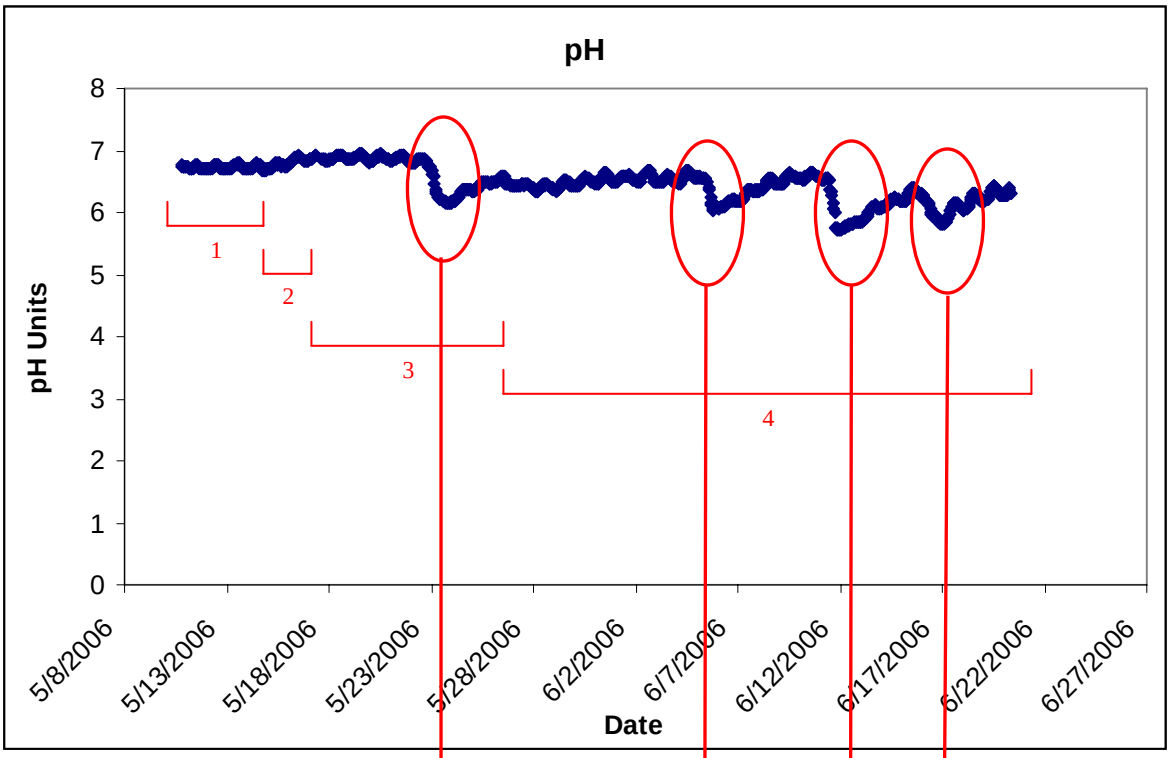

Figure 2

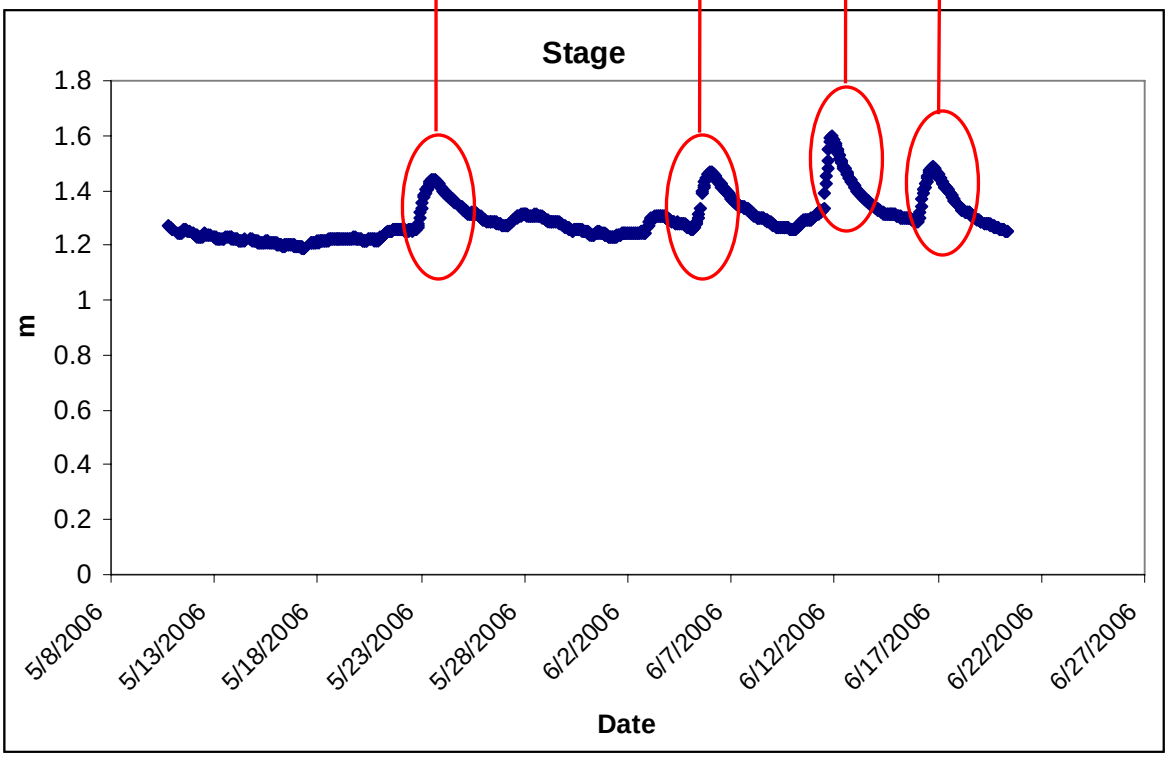

Figure 3

- The dissolved oxygen values (and subsequent % saturation) remained fairly consistent throughout May and June with slight fluctuations (**Figure 4a & b**). The dissolved oxygen values ranged from 12.24 mg/L – 7.2 mg/L. These values fall within the recommended CCME Protection of Freshwater Aquatic Life guidelines for dissolved oxygen in most cases (cold water/other life stages – above 6.5; warm water/other life stages – above 5.5; warm water/early life stages – above 6); however, they fall below the most conservative limit for cold water/early life stages – 9.5 mg/L.

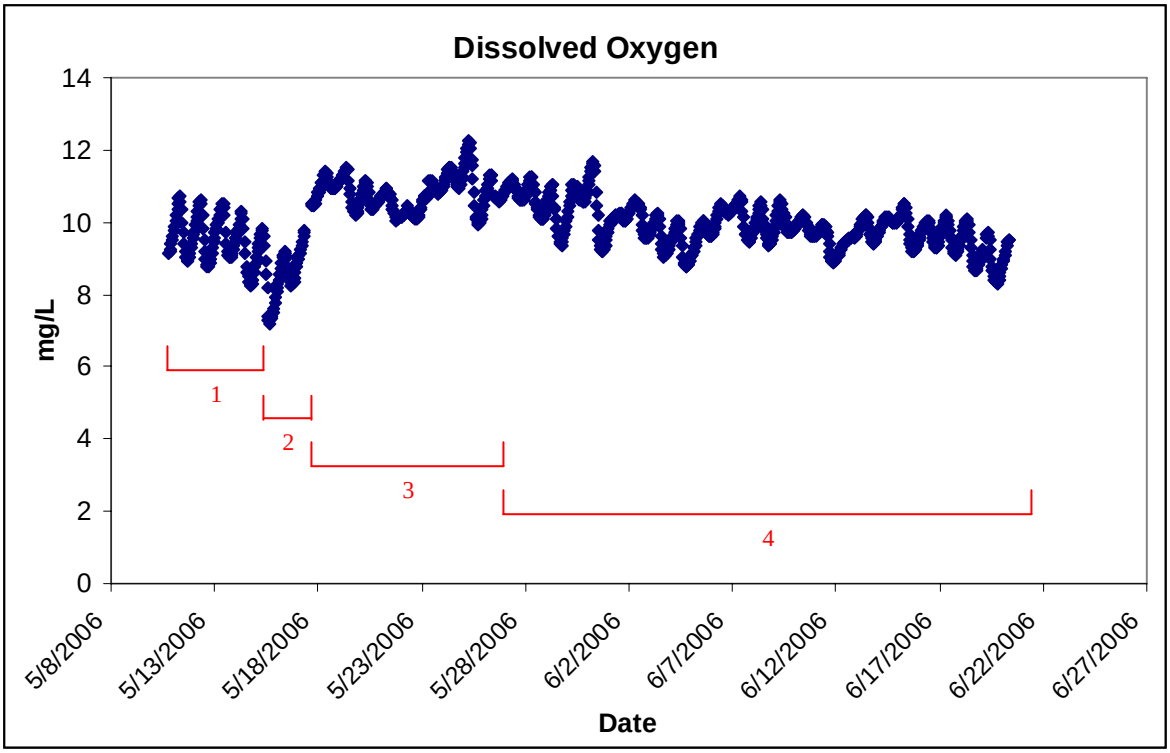

Figure 4a

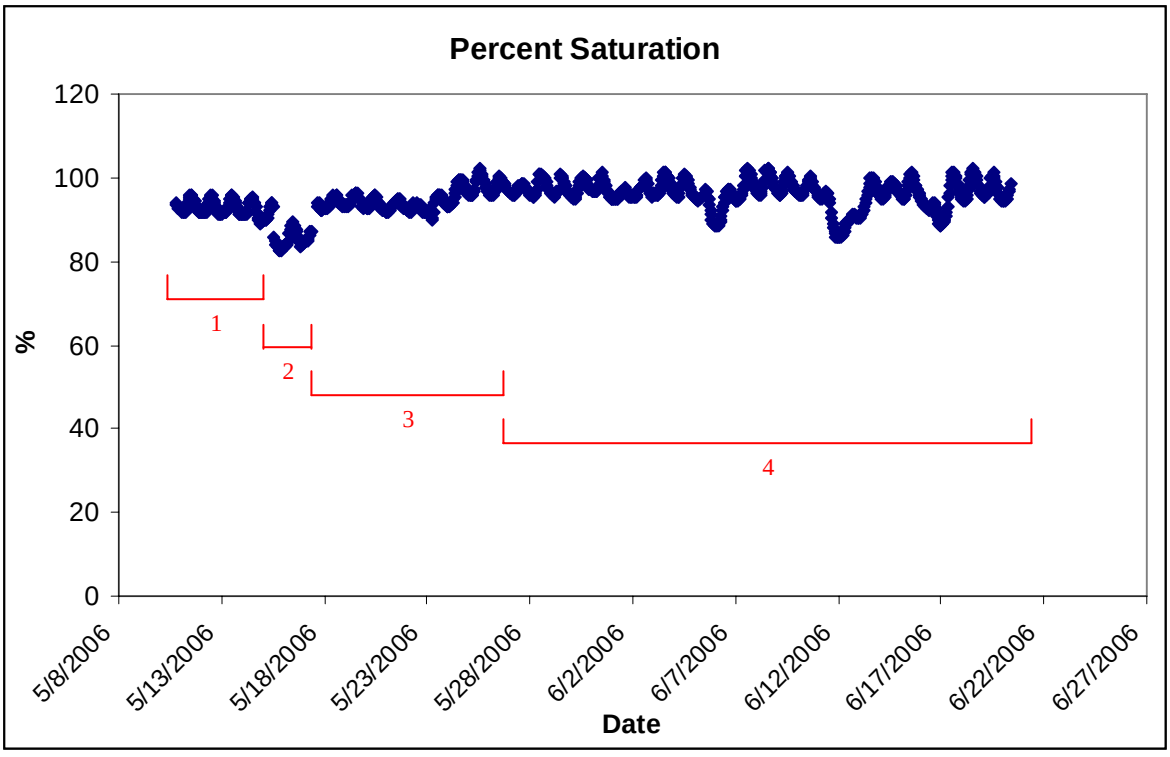

Figure 4b

- The specific conductivity values (and associated total dissolved solids calculated from conductivity and temperature values) fluctuated significantly over the deployment period (**Figure 5a & b**). There was a definite shift in values each time the instruments were removed/recalibrated/reinstalled throughout the deployment period. There were noticeably higher specific conductivity values at the beginning of the deployment period. At the end of the deployment period, the specific conductivity values dropped off significantly. It is highly likely that the instrument lost calibration because when compared to Minisonde readings at the same time, the values were off by ~ 20 uS/cm. Some of the decreases in specific conductivity values (shown in **red** circles) can be attributed to the periods of heavy rainfall (dilution effect) as seen earlier in the stage graph (Figure 3).

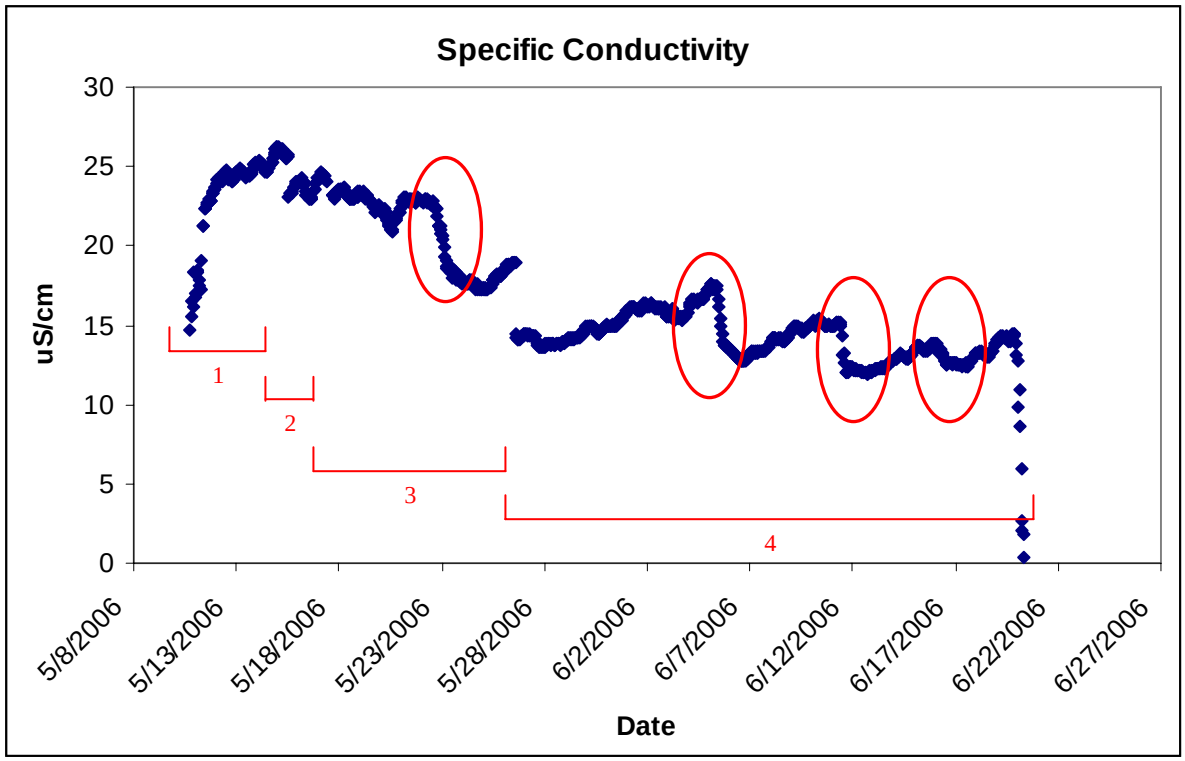

Figure 5a

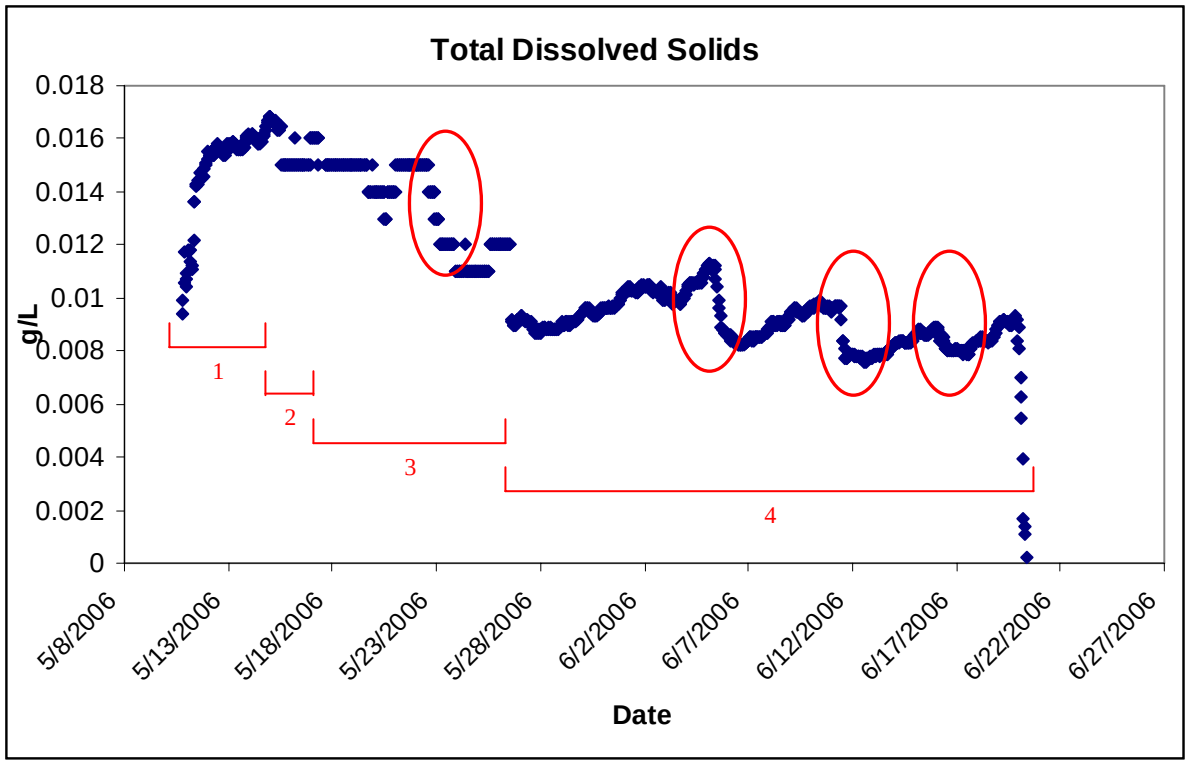

Figure 5b

- The turbidity values (**Figure 6a &b**) at the beginning of the deployment period are not accurate because the turbidity sensor was not functioning / calibrating properly. This instrument was removed on May 15th and the turbidity sensor was sent to be replaced. After May 15th, the turbidity values remained at very low background levels with the exception of a period of heavy rainfall that occurred on May 23rd whereby the turbidity values increased to a maximum reading of 26.2 NTU.

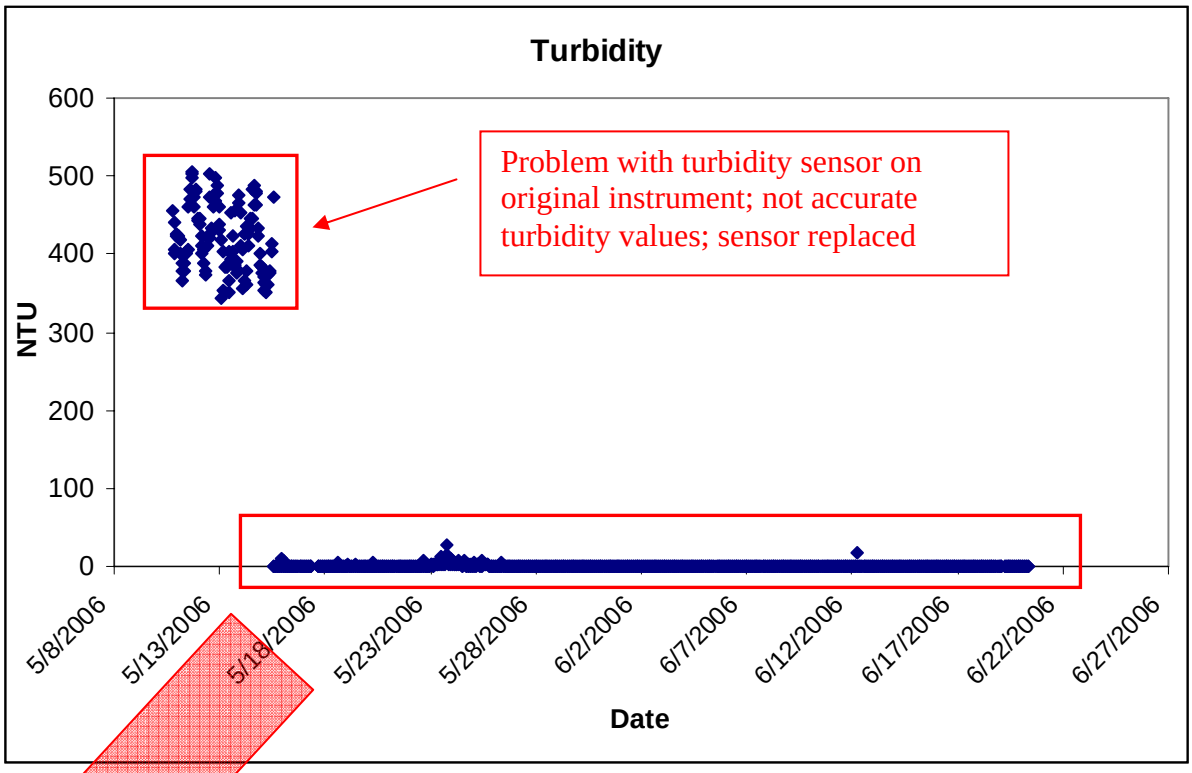

Figure 6a

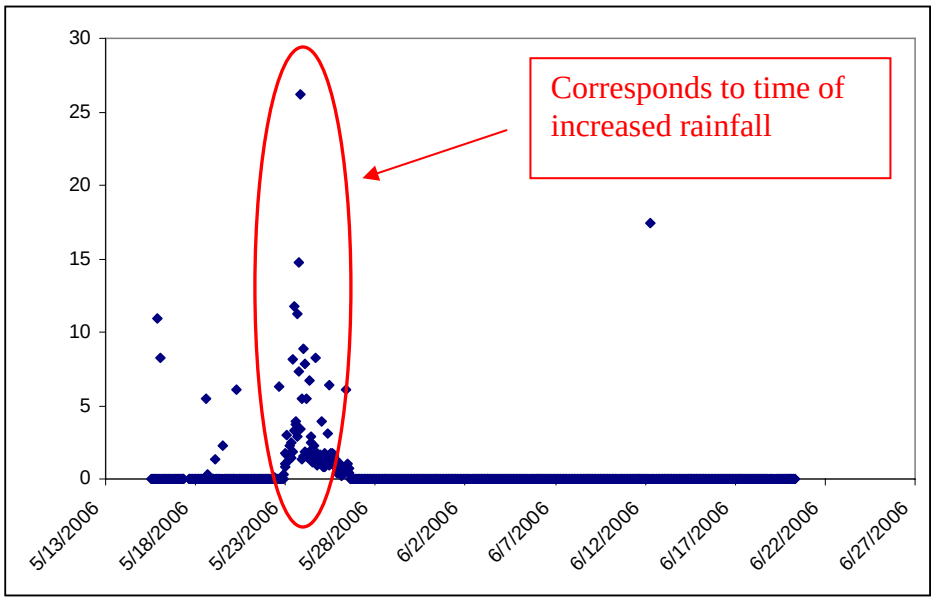

Figure 6b

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Appendix A – Photos of Deployment at Gills Pond Brook

Appendix B – Climate Data for Badger, NL (May & June 2006)

Daily Data Report for May 2006

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	18.7	-7.4	5.7	12.3	0.0			0.0	2		
02	25.1	-3.0	11.1	6.9	0.0			0.0	2		
03	24.9	-2.9	11.0	7.0	0.0			0.0	2		
04	23.1	1.6	12.4	5.6	0.0			0.0	2		
05	15.9	1.8	8.9	9.1	0.0			1.3	2		
06	23.6	9.4	16.5	1.5	0.0			0.0	0		
07	14.4	9.5	12.0	6.0	0.0			3.7	0		
08	18.4	2.6	10.5	7.5	0.0			0.0	0		
09	18.1	1.0	9.6	8.4	0.0			0.0	0		
10	18.9	-4.2	7.4	10.6	0.0			0.0	0		
11	18.2	-6.1	6.1	11.9	0.0			0.0	0		
12	17.4	-3.4	7.0	11.0	0.0			0.0	0		
13	14.6	2.7	8.7	9.3	0.0			0.0	0		
14	21.1	3.2	12.2	5.8	0.0			0.0	0		
15	29.6	1.5	15.6	2.4	0.0			0.0	0		
16	12.0	4.9	8.5	9.5	0.0			0.0	0		
17	6.2	4.0	5.1	12.9	0.0			10.6	0		
18	6.8	2.4	4.6	13.4	0.0			0.6	0		
19	12.0	3.6	7.8	10.2	0.0			0.0	0		
20	14.0	2.0	8.0	10.0	0.0			14.0	0		
21	13.2	7.2	10.2	7.8	0.0			0.6	0		
22	13.5	8.3	10.9	7.1	0.0			17.7	0		
23	10.6	5.2	7.9	10.1	0.0			0.7	0		
24	8.7	3.5	6.1	11.9	0.0			0.0	0		
25	16.4	-2.1	7.2	10.8	0.0			0.0	0		
26	15.5	3.3	9.4	8.6	0.0			3.3	0		
27	14.2	7.6	10.9	7.1	0.0			1.3	0		
28	18.1	3.1	10.6	7.4	0.0			0.0	0		
29	21.8	-1.0	10.4	7.6	0.0			0.0	0		
30	14.2	0.9	7.6	10.4	0.0			0.0	0		
31	21.9	-0.5	10.7	7.3	0.0			0.0	0		
Sum				267.4	0.0			53.8			
Avg	16.8	1.9	9.4								
Xtrm	29.6	-7.4									

Days when heavy precipitation was recorded during the deployment period

Daily Data Report for June 2006

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	15.1	1.2	8.2	9.8	0.0			7.9	0		
02	19.8	6.7	13.3	4.7	0.0			0.0	0		
03	23.3	8.9	16.1	1.9	0.0			0.0	0		
04	22.6	8.6	15.6	2.4	0.0			4.2	0		
05	14.3	11.0	12.7	5.3	0.0			4.2	0		
06	11.7	4.7	8.2	9.8	0.0			0.0	0		
07	20.4	7.6	14.0	4.0	0.0			0.0	0		
08	19.6	6.5	13.1	4.9	0.0			0.0	0		
09	20.6	-0.3	10.2	7.8	0.0			1.6	0		
10	23.2	11.6	17.4	0.6	0.0			4.6	0		
11	18.8	13.9	16.4	1.6	0.0			10.4	0		
12	17.1	13.3	15.2	2.8	0.0			0.0	0		
13	18.7	9.7	14.2	3.8	0.0			0.0	0		
14	15.0	9.8	12.4	5.6	0.0			3.3	0		
15	22.8	4.7	13.8	4.2	0.0			7.3	0		
16	20.9	8.4	14.7	3.3	0.0			0.7	0		
17	28.7	4.9	16.8	1.2	0.0			0.0	0		
18	28.5	10.9	19.7	0.0	1.7			0.0	0		
19	28.9	14.0	21.5	0.0	3.5			0.0	0		
20	23.2	13.1	18.2	0.0	0.2			0.0	0		
21	22.8	13.9	18.4	0.0	0.4			0.0	0		
22	23.9	14.6	19.3	0.0	1.3			0.0	0		
23	23.9	12.4	18.2	0.0	0.2			13.4	0		
24	19.6	14.2	16.9	1.1	0.0			3.9	0		
25	26.6	14.7	20.7	0.0	2.7			0.0	0		
26	23.3	6.5	14.9	3.1	0.0			0.0	0		
27	28.2	8.9	18.6	0.0	0.6			4.1	0		
28	26.3	17.2	21.8	0.0	3.8			0.0	0		
29	27.9	17.3	22.6	0.0	4.6			0.0	0		
30	30.5	19.8	25.2	0.0	7.2			0.0	0		
Sum				77.9	26.2			65.6			
Avg	22.2	10.3	16.3								
Xtrm	30.5	-0.3									