

# Real Time Water Quality Monthly Report Aur Resources Inc. January 17, 2007 - February 19, 2007

### 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**

- The hydrolab at Gills Pond Brook was removed on January 17<sup>th</sup>, 2007 for cleaning and calibration, after a deployment period of 40 days. It was reinstalled on January 19<sup>th</sup>. Data readings from a second hydrolab were collected during removal and reinstallation of the Gill's Pond Brook hydrolab, for QA/QC purposes. The results from comparing the second datasonde values to the Gill's Pond Brook datasonde values are ranked in **Table 1**.
- The instrument at East Pond Brook was removed on January 17<sup>th</sup>, 2007 for cleaning and calibration, and a freshly calibrated hydrolab was immediately installed in its place. Data readings from a second hydrolab were collected at this time and compared to the readings collected from the East Pond Brook hydrolab. The data comparison results are ranked in **Table 1** below.

Table 1: QA/QC Data Comparison Rankings upon removal/reinstallation on Jan. 17<sup>th</sup>/Jan 19<sup>th</sup>

Station	Date	Action	QA/QC Datasonde vs. Gill's Pond Bk Datasonde Comparison Ranking					
	Date	Action	Temperature pH		Conductivity	Dissolved Oxygen		
Tributary to Gills Pond Brook	January 17 <sup>th</sup> , 2007	Removal	Good	Good	Excellent	Good		
	January 19 <sup>th</sup> , 2007	Installation	Excellent	Poor	Fair	Excellent		
East Pond Brook	January 17 <sup>th</sup> , 2007	Removal*	N/A	N/A	N/A	N/A		
	January 17 <sup>th</sup> , 2007	Installation**	Excellent	Poor	Fair	Poor		

<sup>\*</sup>QA/QC data comparison could not be performed during removal because no data was collected between December 15<sup>th</sup>, 2006 and January 18<sup>th</sup>, 2007 due to a transmission problem caused by insufficient battery power.

- The Gills Pond Brook instrument was deployed until February 19<sup>th</sup>, 2007 (33-day period) at which point it was removed for maintenance and calibration. Results of QA/QC data comparison during removal are ranked in **Table 2.**
- The East Pond Brook hydrolab was deployed until February 19<sup>th</sup>, 2007 (33-day period) at which point it was removed for maintenance and calibration. Results of QA/QC data comparison during removal are ranked in **Table 2.**

<sup>\*\*</sup>Because of transmission problems QA/QC data comparison was done with the earliest available data after installation. The data used was from 10:32 on January 18<sup>th</sup>, 2007.

Table 2: QA/QC Data Comparison Rankings upon removal on February 19th, 2007

Station	Date	Action	QA/QC Datasonde vs. Gill's Pond Brook Datasonde Comparison Ranking					
	Date	Action	Temperature	pН	Conductivity	Dissolved Oxygen		
Tributary to Gills Pond Brook	February 19 <sup>th</sup> , 2007	Removal	Good	Good	Fair	Excellent		
East Pond Brook	February 19 <sup>th</sup> , 2007	Removal	Excellent	Poor	Fair	Fair		

## **Data Interpretation**

This monthly report interprets the data from the Gills Pond Brook station for the period of January 19<sup>th</sup> – February 19<sup>th</sup>, 2007 and East Pond Brook station for the period of January 17<sup>th</sup> – February 19<sup>th</sup>, 2007.

### TRIBUTARY TO GILLS POND BROOK

■ The water temperature (**Figure 1**) remained fairly steady over the deployment period with values ranging from -0.25°C to -0.16°C.

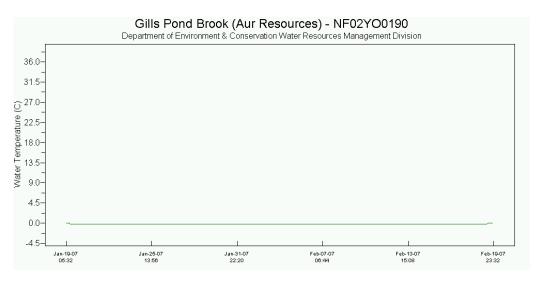


Figure 1

The dissolved oxygen (**Figure 2**) remained consistent throughout most of the deployment period. The fluctuations between January 19<sup>th</sup> and January 27<sup>th</sup> may be the result of a thickening ice cover and snow accumulation that was occurring during that period. Dissolved oxygen values ranged from 12.45 mg/L to 14.25 mg/L. These values fall within the recommended CCME Protection of Aquatic Life guidelines for dissolved oxygen (cold water/other life stages – above 6.5; warm water/other life stages – above 5.5; warm water/early life stages – above 6; cold water/early life stages-9.5 mg/L).

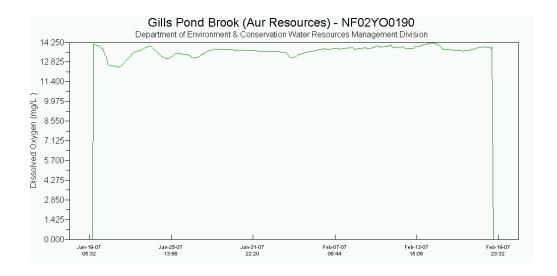


Figure 2

• The QA/QC ranking for pH at the time the Gill's Pond Brook hydrolab was installed on January 19 is "poor" (see Table 1 above). This means that the difference between the pH value recorded by the Gill's Pond Brook hydrolab when compared to the pH value recorded by the second hydrolab, fell outside the acceptable range for difference. As a result, the pH values for this deployment period will be viewed as "suspect" and cannot be meaningfully analysed.

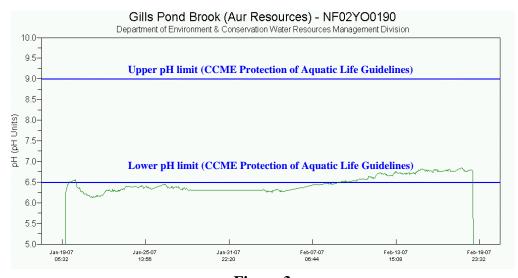


Figure 3

Specific conductivity values (**Figure 4**) fluctuated throughout the deployment period. The decrease in conductivity between January 19<sup>th</sup> and January 24<sup>th</sup> is likely due to increased precipitation that occurred during the same period, as shown in Appendix A. The increased precipitation is reflected in the increased stage height over the same period, as shown in (**Figure 5**) Conductivity values generally exhibited an increasing trend for the remainder of the deployment period, and an inverse decreasing trend is shown in stage height for the rest of the deployment. Conductivity values ranged from 17.5mg/L to 27.8mg/L, reflective of natural background levels.

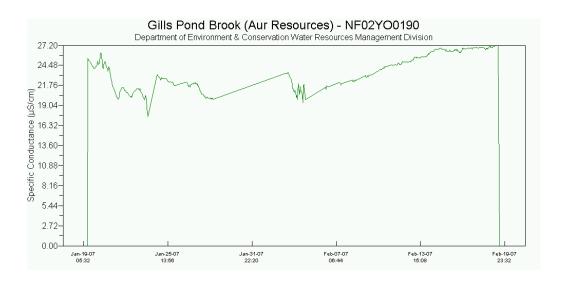
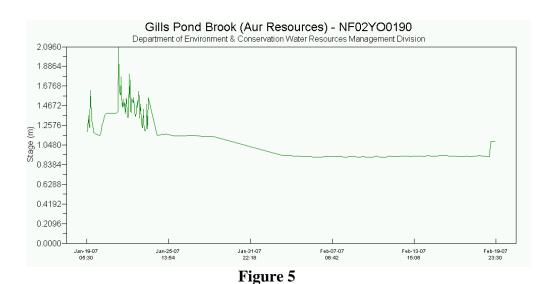


Figure 4



 Due to sensor calibration issues, the data for turbidity, nitrate and ammonium are considered to be unreliable for this deployment period. Consequently the graphs representing these parameters have been excluded from the report.

#### EAST POND BROOK

- East Pond Brook transmitted data from January 18<sup>th</sup> February 19<sup>th</sup>.
- Water temperatures (**Figure 6**) fluctuated slightly throughout the deployment period with a range of -0.07°C to -0.03°C.

**East Pond Brook (Aur Resources)** NFO2YO0192 0 -0.01 -0.02 Temperature -0.03 -0.04 -0.05 -0.06 -0.07 -0.08 01/25/07 02/08/07 01/18/07 02/01/07 02/15/07

Figure 6

The dissolved oxygen values (**Figure 7**) remained fairly consistent after the initial deployment. The dissolved oxygen values ranged from 13.22 mg/L to 14.81 mg/L. As is the case in most NL water, these values fall within the recommended CCME Protection of Aquatic Life guidelines for dissolved oxygen (cold water/other life stages – above 6.5; warm water/other life stages – above 5.5; warm water/early life stages – above 6; cold water/early life stages – 9.5 mg/L).

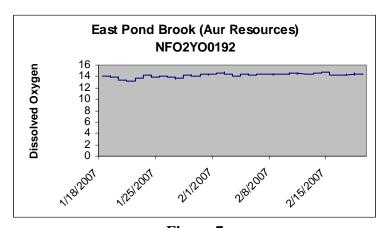


Figure 7

■ pH values (**Figure 8**) showed an increasing trend during the deployment period. pH values ranged from 6.45 – 8.19, with few values falling outside the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines.

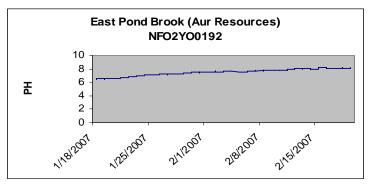


Figure 8

• The specific conductivity (**Figure 9**) showed a general increase in values throughout the deployment period. The increase in conductivity values may be due to the decreasing stage height over the same period. Specific conductivity values ranged from 17.7μS/cm to 25.6μS/cm, reflecting natural background levels.

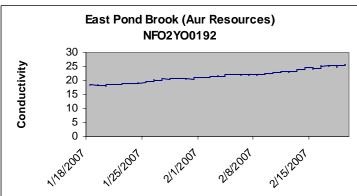


Figure 9

■ The turbidity values (**Figure 11**) remained at approximately 0 NTU throughout the majority of the deployment period. The range of values were between 0.0 – 1.6 NTU with one spike of 1.6 NTU on February 2<sup>nd</sup>. The spike occurred for only a one recorded measurement and dropped immediately back to 0 NTU, which may indicate that suspended matter (leaf, branch, fish) passed directly in front of the sensor as it was taking a reading.

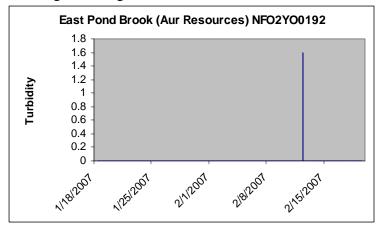


Figure 11

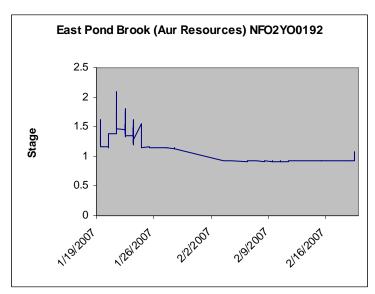


Figure 12

• Due to calibration issues, the data for nitrate and ammonium are considered to be unreliable. For this reason the graphs representing these parameters have been excluded from the report.

## Appendix A – Climate Data for Badger, NL (January 2007 & February 2007)

Daily Data Report for January 2007											
D a y	Max Temp °C	Min Temp °C ₩	Mean Temp °C M	Heat Deq Days C	Cool Deq 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	-2.0	-16.1	-9.1	27.1	0.0			0.0	21	Deg	
02	2.3		-4.8	22.8	0.0			12.0	21		
03	-2.3	-7.6	-5.0	23.0	0.0			0.6	20		
04	1.9	-7.6	-2.9	20.9	0.0			0.0	21		
05	3.9	-0.3	1.8	16.2	0.0			0.7	20		
06	6.0	1.0	3.5	14.5	0.0			15.0	18		
07	4.5	1.5	3.0	15.0	0.0			0.0	14		
08	6.4	-1.2	2.6	15.4	0.0			16.3	13		
09	6.1	-1.0	2.6	15.4	0.0			0.0	15		
10	1.8	-1.4	0.2	17.8	0.0			0.0	12		
11	-2.7	-4.9	-3.8	21.8	0.0			0.0	12		
12	0.5	-6.0	-2.8	20.8	0.0			4.0	12		
13	-2.9	-3.7	-3.3	21.3	0.0			7.5	19		
14	-6.0	-28.2	-17.1	35.1	0.0			0.0	26		
15	-10.1	-15.1	-12.6	30.6	0.0			1.3	24		
<u>16</u>	-10.0	-14.5	-12.3	30.3	0.0			2.0	23		
17	-13.6	-23.2	-18.4	36.4	0.0			0.0	28		
18	-6.7	-29.0	-17.9	35.9	0.0			0.0	26		
19	2.8	-13.9	-5.6	23.6	0.0			7.7	25		
20	3.7	-1.4	1.2	16.8	0.0			2.8	20		
21	-1.3	-6.4	-3.9	21.9	0.0			0.0	18		
22	-7.7	-11.0	-9.4	27.4	0.0			0.0	18		
23	-6.3	-20.5	-13.4	31.4	0.0			0.7	17		
24	-1.5	-21.9	-11.7	29.7	0.0			8.0	18		
<u>25</u>	-1.4	-4.3	-2.9	20.9	0.0			0.0	40		
26	0.4	-19.9	-9.8	27.8	0.0			11.4	39		
27	-1.0	-4.2	-2.6	20.6	0.0			1.2	59		
28	-2.8		-5.0	23.0	0.0			0.0	62		
29	-6.2	-14.0	-10.1	28.1	0.0			0.6	59		
<u>30</u>	-8.1	-11.6	-9.9	27.9	0.0			0.6	57		
<u>31</u>	-7.1	-15.2	-11.2	29.2	0.0			0.0	56		
Sum				748.6	0.0			92.4			
Avg	-1.9	-10.3	-6.1								
Xtrm	6.4	-29.0									

	Daily Data Report for February 2007										
D a y	<u>Max</u> <u>Temp</u> °C ☑	Min Temp °C ₩	<u>Mean</u> Temp °C ☑	Heat Deq Days C	Cool Deq Days C	Rain	Total Snow cm	Total Precip mm	Snow on Grnd cm		Spd of Max Gust km/h
<u>01</u>	-5.7	-26.3E	-16.0E	34.0E	0.0E			0.0	55		
<u>02</u>	0.8	-27.6E		31.4E	0.0E			7.3	55		
03	3.4	-4.0	-0.3	18.3	0.0			4.0	56		
<u>04</u>	-5.8	-8.4	-7.1	25.1	0.0			0.0	54		
<u>05</u>	-7.9	-13.0	-10.5	28.5	0.0			0.0	54		
<u>06</u>	-9.8	-20.0	-14.9	32.9	0.0			0.0	54		
<u>07</u>	-6.4	-17.3	-11.9	29.9	0.0			0.0	53		
08	-7.1	-23.8	-15.5	33.5	0.0			0.7	53		
<u>09</u>	-8.6	-27.6E		36.1E	0.0E			0.0	53		
<u>10</u>	-6.8	-28.8E		35.8E	0.0E			0.0	53		
11	-6.0	-28.1E		35.1E	0.0E			0.0	53		
12	-5.9	-11.2	-8.6	26.6	0.0			0.0	53		
<u>13</u>	-1.1	-17.0	-9.1	27.1	0.0			0.0	53		
14	-0.8	-13.2	-7.0	25.0	0.0			0.0	53		
<u>15</u>	0.7	-15.0	-7.2	25.2	0.0			4.1	53		
<u>16</u>	-3.3	-5.3	-4.3	22.3	0.0			0.6	55		
<u>17</u>	-4.5	-16.7	-10.6	28.6	0.0			0.0	55		
18	0.1	-18.7E	-9.3E	27.3E	0.0E			0.0	55		
19	-3.4	-19.1E	-11.3E	29.3E	0.0E			0.0	55		
20	0.0	-6.1	-3.1	21.1	0.0			0.0	54		
21	-2.1	-10.8	-6.5	24.5	0.0			0.0	54		
22	-2.6	-22.3E	-12.5E	30.5E	0.0E			0.0	54		
23	-2.9	-21.9E	-12.4E	30.4E	0.0E			0.6	54		
24	0.2	-14.1	-7.0	25.0	0.0			0.6	57		
<u>25</u>	3.9	-5.9	-1.0	19.0	0.0			1.2	59		
<u>26</u>	3.4	-2.4	0.5	17.5	0.0			0.7	58		
27	1.4	-7.2	-2.9	20.9	0.0			0.0	57		
28	1.9	-4.1	-1.1	19.1	0.0			0.6	57		
Sum				760.0E	0.0E			20.4			
Avg		-15.6E	-9.1E								
Xtrm	3.9	-28.8E									

Days when heavy precipitation was recorded during the deployment period of January 17<sup>th</sup> to February 19<sup>th</sup>, 2007 are highlighted in red.