

**Real Time Water Quality Monthly Report
Southwest Brook below Southwest Pond (Conne River)
November 2006-January 2007**

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.
- The Miawpukek First Nation will be informed of any significant water quality events in the future in the form of a monthly report.
- The initial installation of the RTWQ instrumentation at Southwest Brook below Southwest Pond occurred on November 21st, 2006. Pictures of the installation site are in **Appendix A**.

Maintenance and Calibration of Instrumentation

- The instrument at Southwest Brook was initially installed on November 21st, 2006. The results from comparing the Minisonde values to the Datasonde values during the initial installation on November 21st can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon initial installation on November 21st, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Southwest Brook (Conne River)	November 21 st , 2006	Initial Installation	Good	Excellent	Excellent	Excellent

- The Southwest Brook instrument was deployed until January 16th, 2006 (57-day deployment period) at which point it was removed for maintenance and calibration. Data stopped transmitting on December 25th, 2006 due to technical difficulties with the datalogger. This problem was rectified on January 16th, 2007. The results from comparing the Minisonde values to the Datasonde values during removal on January 16th can be seen in **Table 2**.

Table 2: QA/QC Data Comparison Rankings upon removal on January 16th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Southwest Brook (Conne River)	January 16 th , 2006	Removal	NA*	NA*	NA*	NA*

* Due to technical difficulties with the datalogger, no water quality data was transmitted from December 25, 2006 – January 16, 2007. QA/QC could not be completed for removal of the instrument due to lack of Datasonde data available for January 16, 2007.

- The installation of the instrument at Southwest Brook on November 21st, 2006 showed all probes with excellent or good QA/QC rankings.

Data Interpretation

- This monthly report interprets the data from the Southwest Brook RTWQ station at Conne River for the period of November 21st – December 25th, 2006. The instrument was not removed until January 16th, 2007 but there is no data available from December 25th, 2006 – January 16th, 2007 due to unforeseen problems with the datalogger.
- The water temperature (**Figure 1**) readings for Southwest Brook decreased slightly throughout the deployment period. This is consistent for this time of year of November/December. Temperatures ranged from -0.2 °C to 6.33 °C.

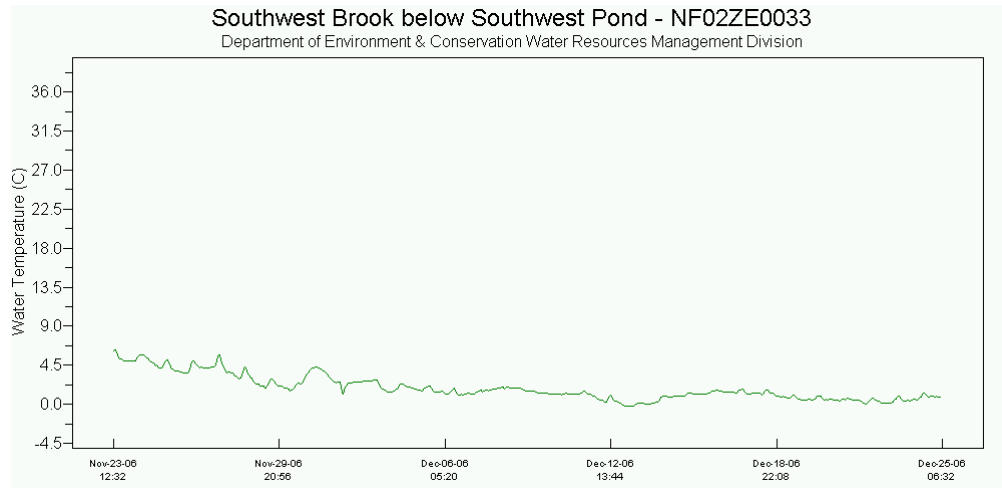


Figure 1

- The dissolved oxygen values (**Figure 2**) showed a slight increase throughout the deployment period as would be expected during this time of the year. This is consistent with the slight decrease in temperature seen in Figure 1. The dissolved oxygen values ranged from 11.99 mg/L to 14.62 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).

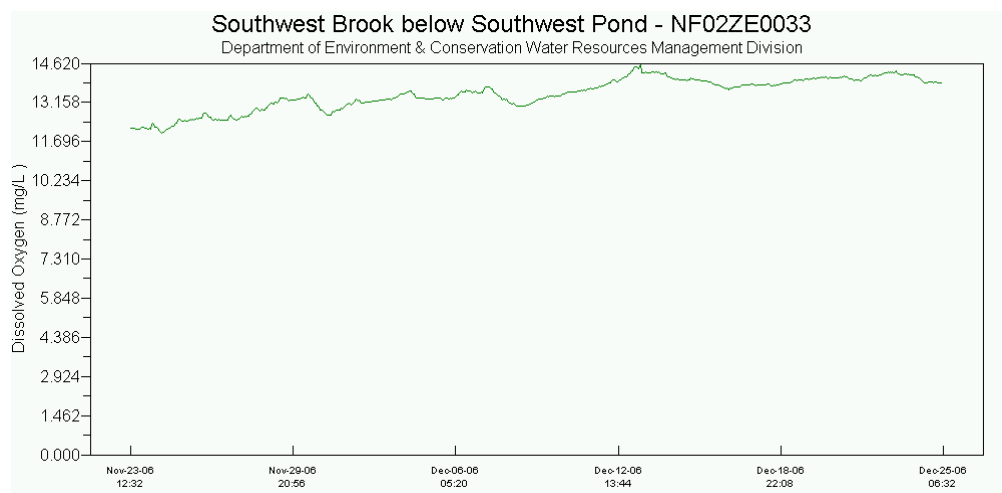


Figure 2

- The pH values (**Figure 3**) for Southwest Brook station remained fairly consistent throughout the deployment period with values slightly above 5.0. There was one decrease/increase in pH on December 8th when pH values dropped below 5.0. There were heavy rainfall periods (Appendix A) on December 4th and December 8th which likely caused the drop in pH values during this period. pH returned to background levels by December 9th. pH values ranged from 4.94 – 5.34 with all values falling outside the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines due to the naturally acidic nature of NL waters.

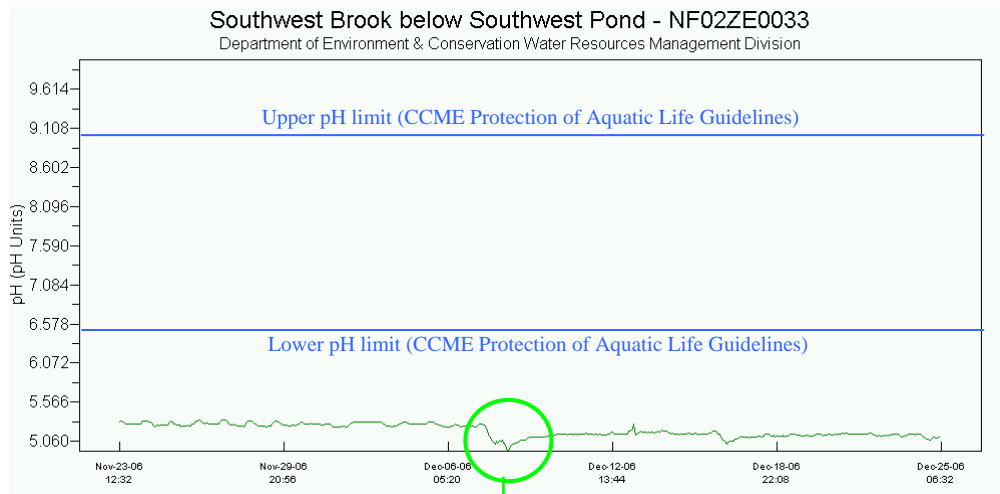


Figure 3

- The specific conductivity values (**Figure 4**) showed a slight decrease in conductivity values throughout the deployment period. Conductivity ranged from 12.0 – 13.6 $\mu\text{S}/\text{cm}$ for November 21 – December 15th, 2006. There was one increase/decrease in conductivity values on December 8th. As seen previously, there was significant rainfall (**Appendix B**) on December 4th and 8th which is likely the cause of the increase/decrease in conductivity on December 8th.

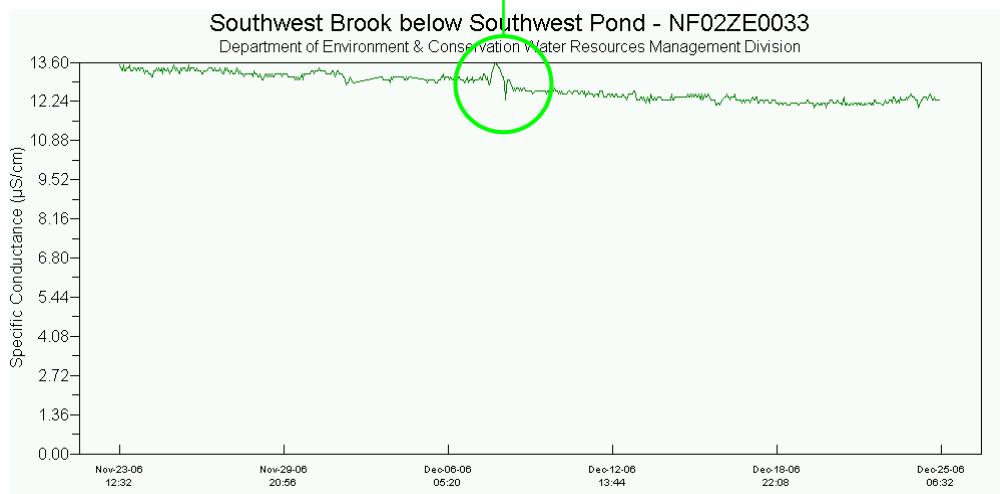


Figure 4

- The turbidity values (**Figure 5**) consistently spiked throughout the deployment period. The range of turbidity values was 0 – 61.4 NTU but the majority of spikes remained below 12 NTU. Each turbidity spike occurred within a 1-2 hour time period and consistently dropped back down to 0 NTU. This is a new RTWQ station and subsequently background turbidity values are currently unknown. The turbidity will continue to be monitored to determine background levels and the general nature of the water quality at Southwest Brook.

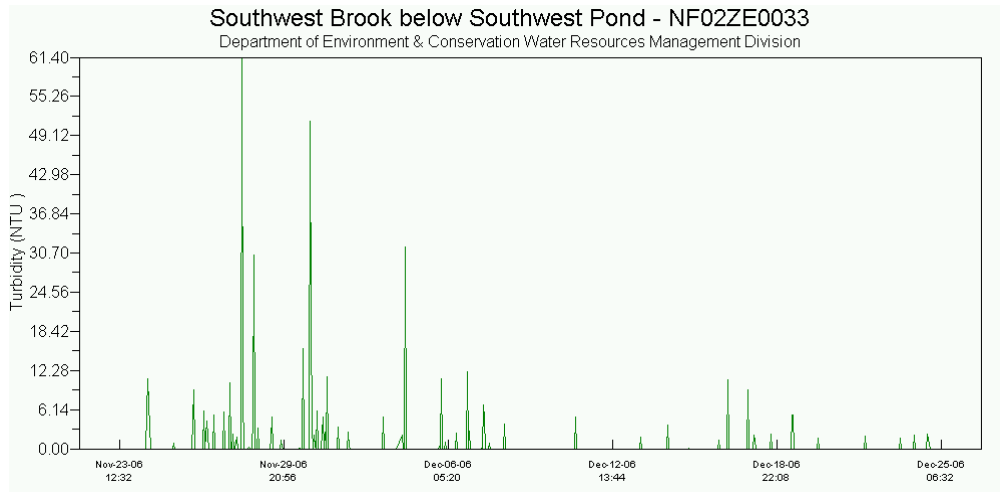


Figure 5

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Appendix A - Pictures of Southwest Brook RTWQ Station during Initial Installation



Picture 1: Southwest Brook RTWQ Station Location



Picture 2: Hydrometric Hut at Southwest Brook



Picture 3: Southwest Brook RTWQ Station Location

Appendix B – Climate Data for Argentina, NL (November & December 2006)

Daily Data Report for November 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	9.5	5.8	7.7	10.3	0.0			2.9	0		
02	15.2	7.1	11.2	6.8	0.0			37.5	0		
03	15.2	8.8	12.0	6.0	0.0			29.1	0		
04	6.7	3.5	5.1	12.9	0.0			5.8	0		
05	6.3	1.3	3.8	14.2	0.0			0.0	0		
06	5.7	0.2	3.0	15.0	0.0			0.6	0		
07	8.5	-1.4	3.6	14.4	0.0			0.0	0		
08	9.0	2.5	5.8	12.2	0.0			0.6	0		
09	13.2	7.7	10.5	7.5	0.0			11.0	0		
10	14.6	9.2	11.9	6.1	0.0			9.5	0		
11	8.7	7.8	8.3	9.7	0.0			0.0	0		
12	9.1	4.1	6.6	11.4	0.0			0.0	0		
13	4.2	2.8	3.5	14.5	0.0			0.0	0		
14	8.4	-0.5	4.0	14.0	0.0			0.0	0		
15	13.6	3.7	8.7	9.3	0.0			0.6	0		
16	10.1	9.1	9.6	8.4	0.0			0.0	0		
17	12.5	8.0	10.3	7.7	0.0			0.0	0		
18	12.4	9.9	11.2	6.8	0.0			5.5	0		
19	15.1	9.6	12.4	5.6	0.0			12.4	0		
20	9.9	8.5	9.2	8.8	0.0			0.0	0		
21	7.2	5.7	6.5	11.5	0.0			0.0	0		
22	6.2	2.2	4.2	13.8	0.0			0.0	0		
23	6.5	-0.5	3.0	15.0	0.0			0.0	0		
24	9.3	4.5	6.9	11.1	0.0			11.5	0		
25	4.5	-1.4	1.6	16.4	0.0			0.0	0		
26	6.7	0.4	3.6	14.4	0.0			0.0	0		
27	8.2	5.3	6.8	11.2	0.0			0.0	0		
28	0.9	-0.7	0.1	17.9	0.0			0.0	0		
29	0.2	-4.3	-2.1	20.1	0.0			1.4	0		
30	8.1	-4.2	2.0	16.0	0.0			4.5	0		
Sum				349.0	0.0			132.9			
Avg	8.9	3.8	6.4								
Xtbn	15.25	-4.3									

Daily Data Report for December 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	8.0	2.0	5.0	13.0	0.0			4.9	0		
02	9.0	-0.3	4.4	13.6	0.0			8.6	0		
03	2.1	0.2	1.2	16.8	0.0			0.0	0		
04	2.1	-1.6	0.3	17.7	0.0			17.5	0		
05	2.2	0.3	1.3	16.7	0.0			1.6	M		
06	1.9	-3.9	-1.0	19.0	0.0			0.0	M		
07	11.8	-3.2	4.3	13.7	0.0			4.2	M		
08	12.9	3.5	8.2	9.8	0.0			18.4	M		
09	1.3	-4.0	-1.4	19.4	0.0			0.0	M		
10	5.5	-3.5	1.0	17.0	0.0			0.7	M		
11	4.2	2.7	3.5	14.5	0.0			0.0	M		
12	-0.9	-6.5	-3.7	21.7	0.0			0.0	M		
13	4.2	-3.4	0.4	17.6	0.0			0.0	M		
14	8.6	1.6	5.1	12.9	0.0			5.1	M		
15	5.3	3.9	4.6	13.4	0.0			11.0	M		
16	10.4	3.2	6.8	11.2	0.0			9.8	M		
17	5.0	4.0	4.5	13.5	0.0			0.0	M		
18	5.3	2.1	3.7	14.3	0.0			0.0	M		
19	-0.4	-4.7	-2.6	20.6	0.0			0.0	M		
20	0.6	-4.7	-2.1	20.1	0.0			0.6	M		
21	2.9	-2.8	0.1	17.9	0.0			1.6	M		
22	-0.6	-3.3	-2.0	20.0	0.0			0.0	M		
23	4.3	-3.9	0.2	17.8	0.0			3.3	M		
24	7.8	-0.8	3.5	14.5	0.0			3.7	M		
25	3.0	2.0	2.5	15.5	0.0			0.0	M		
26	1.9	0.0	1.0	17.0	0.0			6.8	M		
27	0.7	-0.2	0.3	17.7	0.0			0.0	M		
28	-2.2	-4.9	-3.6	21.6	0.0			0.0	M		
29	-5.0	-6.8	-5.9	23.9	0.0			0.0	M		
30	-0.5	-8.9	-4.7	22.7	0.0			0.0	M		
31	-0.2	-4.7	-2.5	20.5	0.0			2.0	M		
Sum				525.6	0.0			99.8			
Avg	3.6	-1.5	1.0								
Xtbn	12.9	-8.9									

Days when heavy precipitation was recorded during the deployment period