Real Time Water Quality Monthly Report
Peter's River near Botwood
January - February 2007

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.

Maintenance and Calibration of Instrumentation

- The instrument at Peter's River was removed on January 4, 2007 for cleaning and calibration and then reinstalled on January 5, 2007. The results from comparing the Minisonde values to the Datasonde values during removal and reinstallation on January 4/5, 2007 can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon removal/reinstallation on January 4/5, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Peter's River near Botwood	January 4, 2007	Removal	Excellent	Poor	Marginal	Fair
	January 5, 2007	Installation	N/A*	N/A*	N/A*	N/A*

*The instrument was deployed on January 5th, but did not transmit until January 10th. QA/QC could not be completed for the installation of the instrument due to the lack of Datasonde data available for January 5, 2007.

- The instrument was deployed until February 12th (38-day deployment period) at which point it was removed for maintenance and calibration. The results from comparing the Minisonde values to the Datasonde values during removal on February 12th, 2007 can be seen in **Table 2**.

Table 2: QA/QC Data Comparison Rankings upon removal on February 12, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Peter's River near Botwood	February 12th, 2007	Removal	Excellent	Good	Fair	Excellent

- A water sample was taken for laboratory analysis as part of QA/QC procedures upon reinstallation.

Data Interpretation

- During the deployment period of January 5th to February 12th, 2007 the water quality remained relatively stable for most parameters.

- The water temperature (**Figure 1**) remained fairly consistent throughout the deployment period. There was a range from -0.17˚C to 0.36˚C over the deployment period.

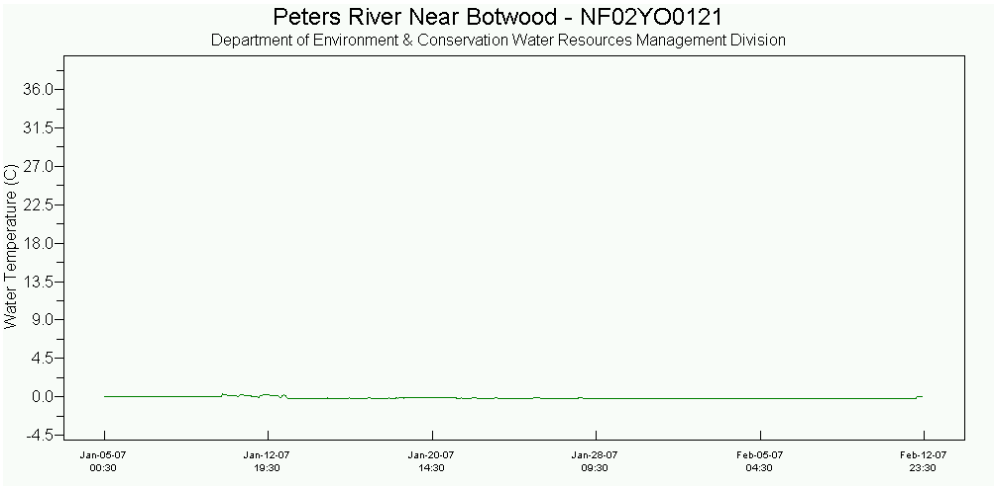

Figure 1

- The dissolved oxygen graph (**Figure 2**) showed fluctuations in dissolved oxygen values over the deployment period. The dissolved oxygen values ranged from 11.67mg/L to 13.97mg/L. There is a decrease in dissolved oxygen levels throughout the deployment period. The decrease in dissolved oxygen values is most likely caused by an increasing amount of ice cover over the deployment period. All dissolved oxygen values fall within the recommended CCME Protection of Aquatic Life guidelines for dissolved oxygen (cold water/other life stages – above 6.5 mg/L; cold water/early life stages – above 9.5 mg/L; warm water/other life stages – above 5.5 mg/L; warm water/early life stages – above 6 mg/L).

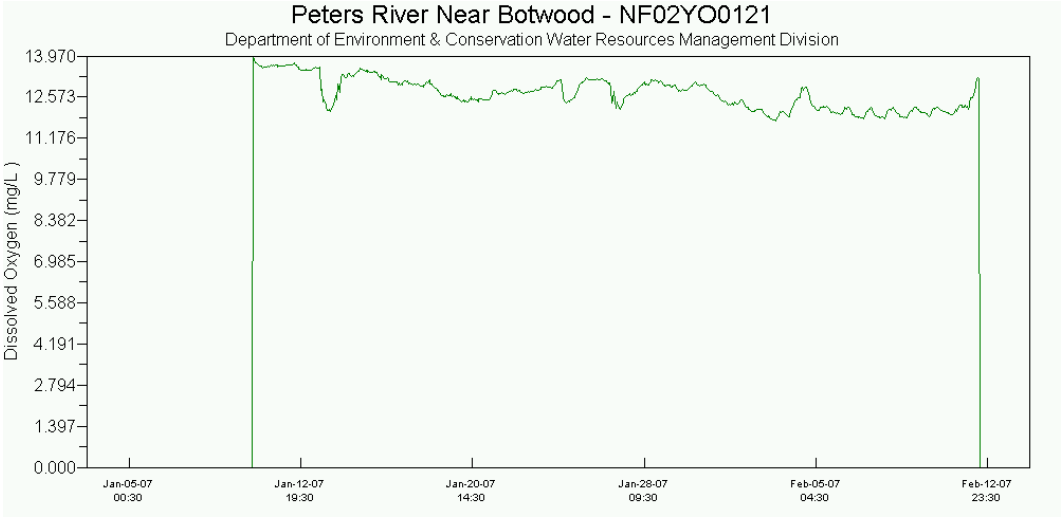

Figure 2

- pH values (**Figure 3**) remained fairly consistent throughout the deployment period. The pH values ranged from 4.88 to 6.14 with all the 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 Peter's River.

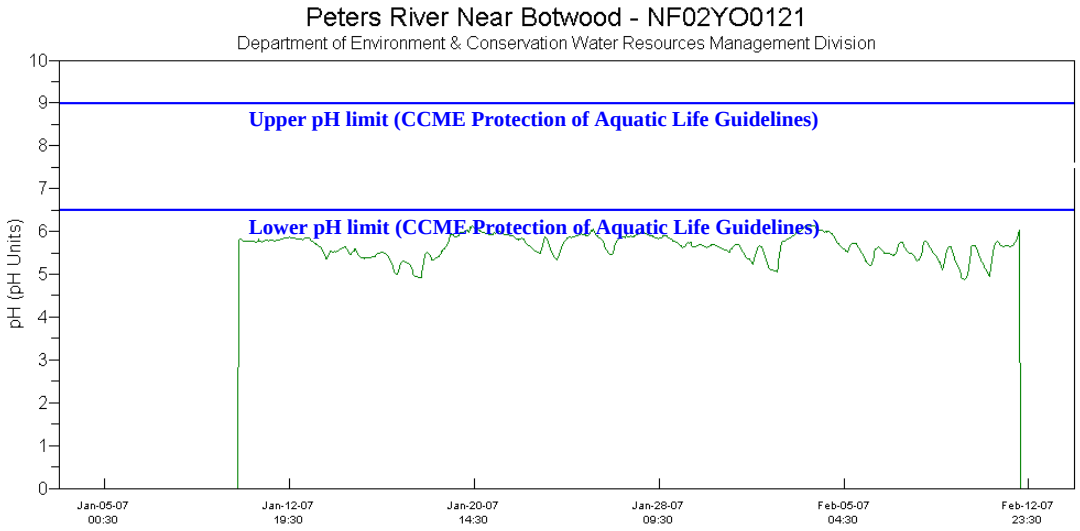

Figure 3

- The majority of the turbidity values **(Figure 4)** remained below 3 NTU which is the typical background concentration for this station. There were three spikes of 11, 51 and 664 NTU; on January 19th, January 21st and January 24th respectively, each of which occurred for only one hour time periods. These spikes were likely due to a slight disturbance of the turbidity sensor.

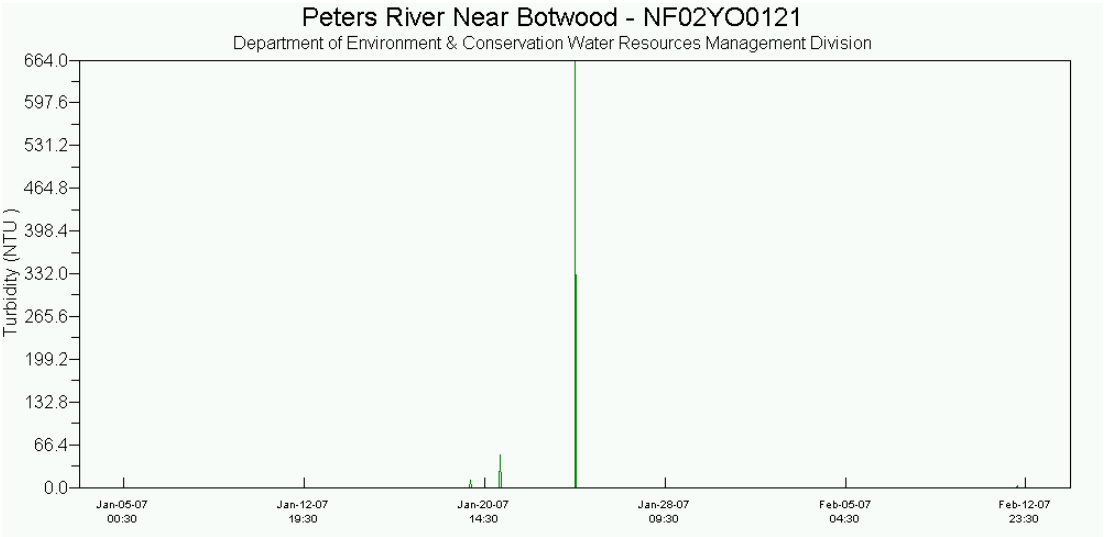

Figure 4

- The conductivity graph **(Figure 5)** showed fluctuations in specific conductance values over the deployment period with an increase in conductivity values between January 5th and February 12th. The conductivity values increased from 25 to 69µS/cm over the deployment period.

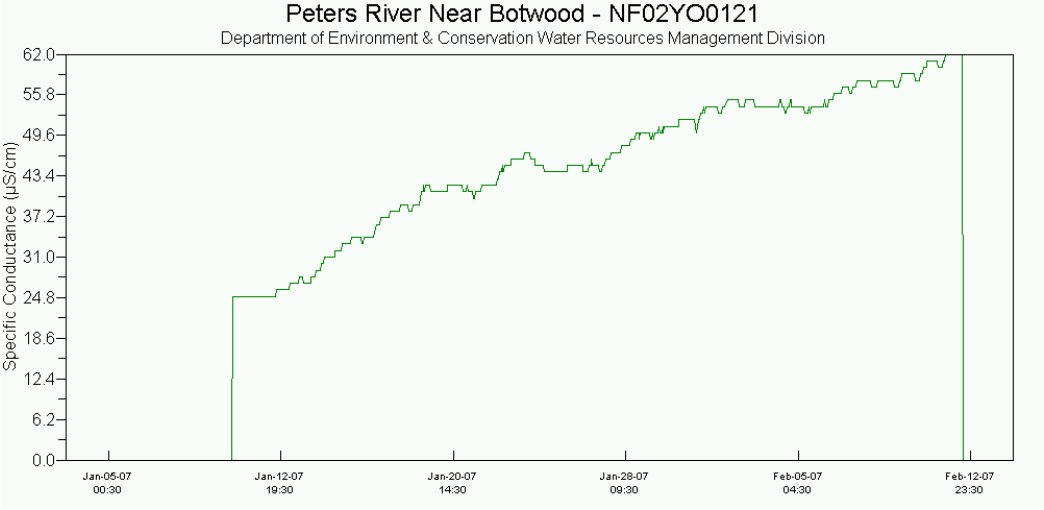

Figure 5

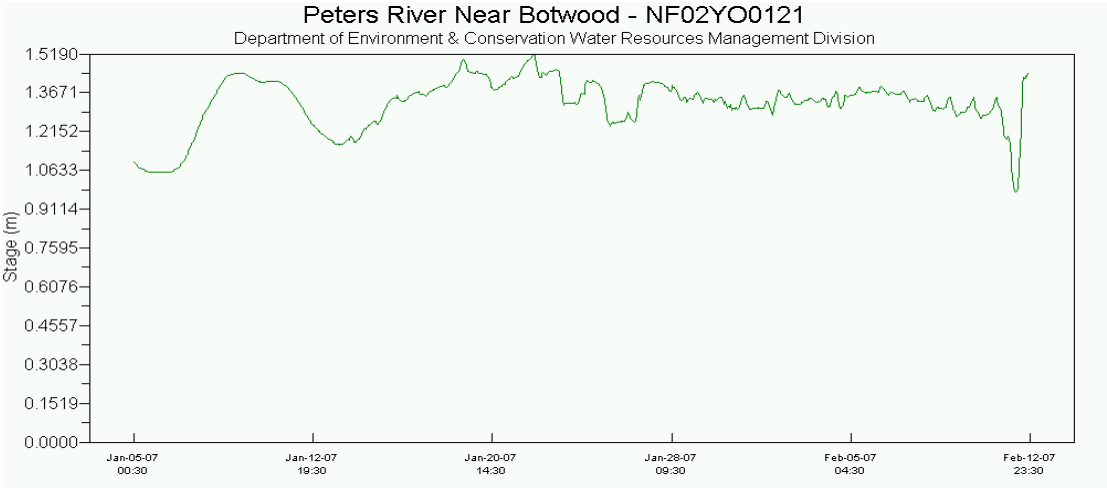

Figure 6

Appendix A: Climate Data for Gander (January & February 2007)

Daily Data Report for January 2007

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	-4.3	-10.0	-7.2	25.2	0.0	T	0.6	0.6	15		
02	4.4	-5.9	-0.8	18.8	0.0	10.8	1.6	13.4	15		
03	-0.6	-8.0	-4.3	22.3	0.0	0.0	T	T	9		
04	1.3	-3.7	-1.2	19.2	0.0	0.0	0.0	0.0	9		
05	3.7	0.3	2.0	16.0	0.0	2.6	T	2.6	8		
06	6.2	2.6	4.4	13.6	0.0	14.0	0.0	14.0	6		
07	7.0	0.0	3.5	14.5	0.0	4.4	1.0	5.4	2		
08	1.9	-1.1	0.4	17.6	0.0	1.8	3.8	6.4	2		
09	8.6	0.0	4.3	13.7	0.0	0.8	0.0	0.8	1		
10	1.8	-1.9	-0.1	18.1	0.0	0.0	0.0	0.0	T		
11	-1.7	-4.7	-3.2	21.2	0.0	0.0	0.4	0.4	T		
12	0.2	-5.5	-2.7	20.7	0.0	0.0	1.6	1.4	T		
13	-0.2	-8.9	-4.6	22.6	0.0	0.0	13.4	11.4	2		
14	-5.9	-11.9	-8.9	26.9	0.0	0.0	T	T	14		
15	-6.0	-13.7	-9.9	27.9	0.0	0.0	T	T	13		
16	-10.3	-15.6	-13.0	31.0	0.0	0.0	15.6	4.2	14		
17	-14.3	-20.0	-17.2	35.2	0.0	0.0	0.0	0.0	29		
18	-9.8	-20.3	-15.1	33.1	0.0	0.0	0.0	0.0	29		
19	0.7	-9.9	-4.6	22.6	0.0	T	0.4	0.4	29		
20	2.9	-2.5	0.2	17.8	0.0	9.4	T	9.4	27		
21	-0.9	-5.2	-3.1	21.1	0.0	0.0	15.0	14.2	19		
22	-4.8	-12.9	-8.9	26.9	0.0	0.0	0.8	0.6	35		
23	-7.4	-13.6	-10.5	28.5	0.0	0.0	0.0	0.0	34		
24	0.2	-10.8	-5.3	23.3	0.0	0.6	22.6	22.4	37		
25	0.2	-8.1	-4.0	22.0	0.0	T	5.4	5.4	58		
26	0.6	-11.2	-5.3	23.3	0.0	0.4	16.4	16.0	57		
27	0.9	-4.0	-1.6	19.6	0.0	0.2	8.0	7.2	73		
28	-4.0	-7.5	-5.8	23.8	0.0	0.0	0.4	0.4	80		
29	-6.8	-10.8	-8.8	26.8	0.0	0.0	2.6	2.2	79		
30	-7.8	-12.3	-10.1	28.1	0.0	0.0	17.0	15.4	96		
31	-8.0	-14.1	-11.1	29.1	0.0	0.0	0.0	0.0	97		
Sum				710.5	0.0	45.0	126.6	154.2			
Avg	-1.7	-8.1	-4.9								
Xtrm	8.6	-20.3									

Daily Data Report for February 2007

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	-7.6	-14.4	-11.0	29.0	0.0	0.0	0.2	0.2	96		
02	0.4	-13.6	-6.6	24.6	0.0	1.4	4.6	6.2	95		
03	3.7	-2.1	0.8	17.2	0.0	8.4	3.0	12.2	93		
04	-2.1	-10.9	-6.5	24.5	0.0	0.0	T	T	86		
05	-8.4	-16.9	-12.7	30.7	0.0	0.0	T	T	86		
06	-10.5	-17.9	-14.2	32.2	0.0	0.0	T	T	86		
07	-7.4	-13.6	-10.5	28.5	0.0	0.0	T	T	86		
08	-7.7	-15.1	-11.4	29.4	0.0	0.0	T	T	85		
09	-9.4	-15.4	-12.4	30.4	0.0	0.0	T	T	85		
10	-8.3	-16.2	-12.3	30.3	0.0	0.0	0.2	0.2	84		
11	-6.8	-15.4	-11.1	29.1	0.0	0.0	0.0	0.0	83		
12	-5.2	-11.2	-8.2	26.2	0.0	0.0	0.4	0.4	82		
13	-3.3	-10.7	-7.0	25.0	0.0	0.0	2.6	1.6	81		
14	-2.6	-8.5	-5.6	23.6	0.0	0.0	T	T	84		
15	0.9	-7.9	-3.5	21.5	0.0	0.0	11.4	10.6	82		
16	-1.4	-12.6	-7.0	25.0	0.0	0.0	1.0	0.6	93		
17	-7.2	-12.0	-9.6	27.6	0.0	0.0	0.6	0.4	93		
18	-0.8	-11.9	-6.4	24.4	0.0	0.0	0.0	0.0	93		
19	-4.3	-8.4	-6.4	24.4	0.0	0.0	4.8	4.4	92		
20	0.4	-7.4	-3.5	21.5	0.0	0.4	1.8	2.2	99		
21	-1.9	-10.0	-6.0	24.0	0.0	0.0	0.0	0.0	98		
22	-4.5	-11.5	-8.0	26.0	0.0	0.0	T	T	96		
23	-4.1	-12.5	-8.3	26.3	0.0	0.0	0.4	0.4	95		
24	-2.9	-6.1	-4.5	22.5	0.0	T	27.6	26.0	105		
25	0.1	-2.9	-1.4	19.4	0.0	0.2	7.0	7.2	122		
26	0.1	-3.6	-1.8	19.8	0.0	0.2	5.6	5.2	123		
27	-2.4	-4.4	-3.4	21.4	0.0	T	0.2	0.2	126		
28	-3.6	-6.4	-5.0	23.0	0.0	T	T	T	124		
Sum				707.5	0.0	10.6	71.4	78.0			
Avg	-3.8	-10.7	-7.3								
Xtrm	3.7	-17.9									

Days when heavy precipitation was recorded during the deployment period of January 5 to February 12, 2007 are highlighted in red.