Real Time Water Quality Monthly Report
Peter's River near Botwood
February - March 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 February 12th, 2007 for cleaning and calibration and then reinstalled on February 13th, 2007. The East Pond Brook Datasonde was used for QA/QC. The results from comparing the East Pond Brook Datasonde values to the Peter's River Datasonde values during removal and reinstallation on February 12th/13th, 2007 can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon removal/reinstallation on February 12th/13th, 2007

Station	Date	Action	EPB Datasonde/Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Peter's River near Botwood	February 12th, 2007	Removal	Excellent	Good*	Fair	Excellent
	February 13th, 2007	Installation	Excellent	Poor**	Excellent	Excellent

*pH reading for QA/QC measured with Minisonde
**pH reading from East Pond Brook Datasonde suspect due to damaged pH sensor.

- The instrument was deployed until March 14th (29-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 March 14th, 2007 can be seen in **Table 2**.

Table 2: QA/QC Data Comparison Rankings upon removal on March 14th, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Peter's River near Botwood	March 14th, 2007	Removal	Good	Poor	Poor	Poor

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

Data Interpretation

- Data collected from March 7th, 2007 to the end of the deployment period should be considered unreliable as the water receded leaving the sensors unexposed to water.
- The water temperature (**Figure 1**) remained fairly consistent throughout the deployment period. There was a range from -0.73˚C to 0.34˚C over the deployment period.

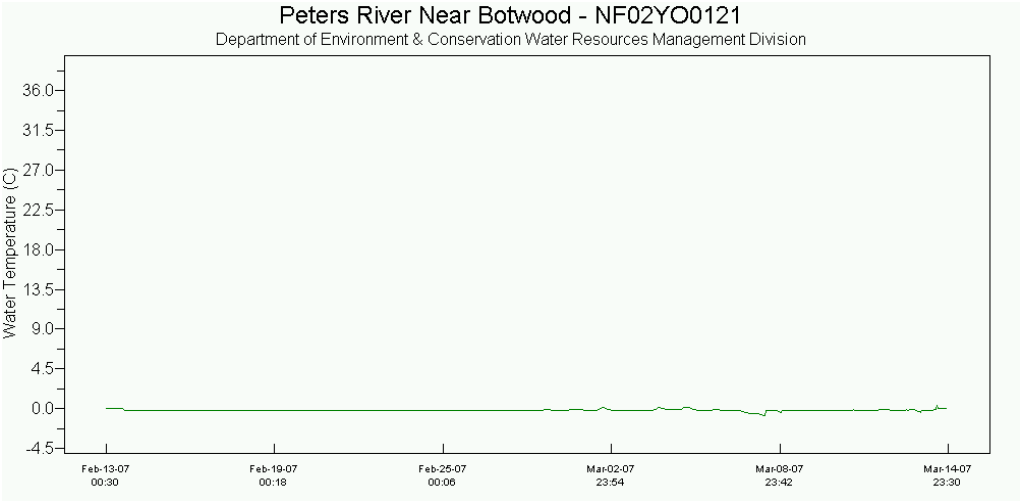

Figure 1

- The dissolved oxygen graph (**Figure 2**) showed fluctuations in dissolved oxygen values over the deployment period. The dissolved oxygen values ranged from 10.35mg/L to 15.12mg/L. 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).

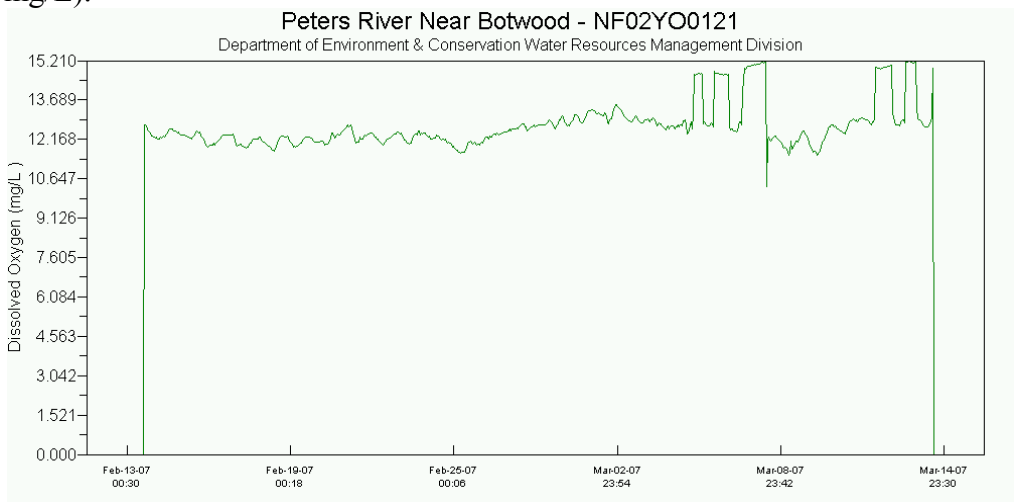

Figure 2

- pH values (**Figure 3**) fluctuated throughout the deployment period between February 13th and March 14th, 2007. The pH values ranged from 2.49 to 7.17 with most of 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.

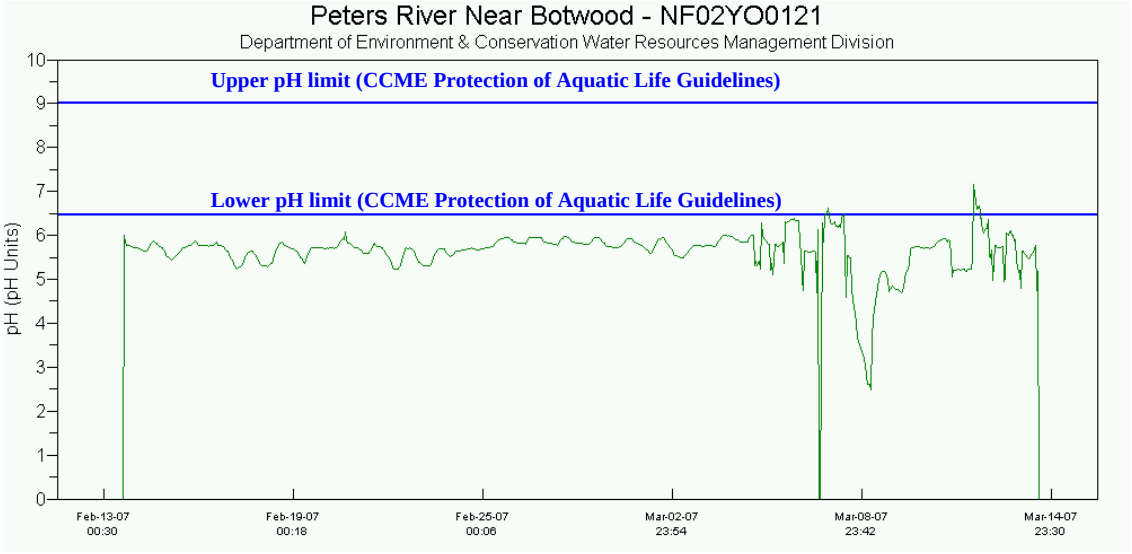

Figure 3

- The majority of the turbidity values **(Figure 4)** remained below 3 NTU which is the typical background concentration for this station. There were four spikes of 136, 26, 9 and 22 NTU; on March 6th, March 6th, March 12th and March 13th respectively, each of which occurred for only one hour time periods. These spikes were likely due to a slight disturbance of the turbidity sensor. From 02:30 on March 8th to 11:30 on March 9th there was an extended period of high turbidity.

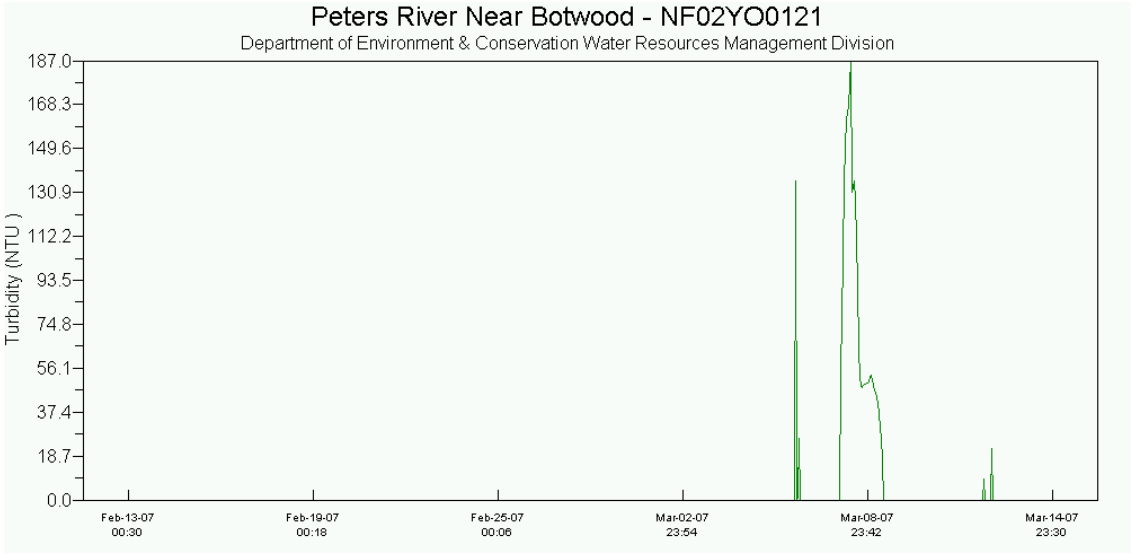

Figure 4

- The conductivity graph **(Figure 5)** showed fluctuations in specific conductance values over the deployment period with an increase in conductivity values between February 13th and March 5th. This increase in conductivity values is most likely due to the decrease in stage height over the same period. Conductivity values ranged from 0µS/cm to 70µS/cm.

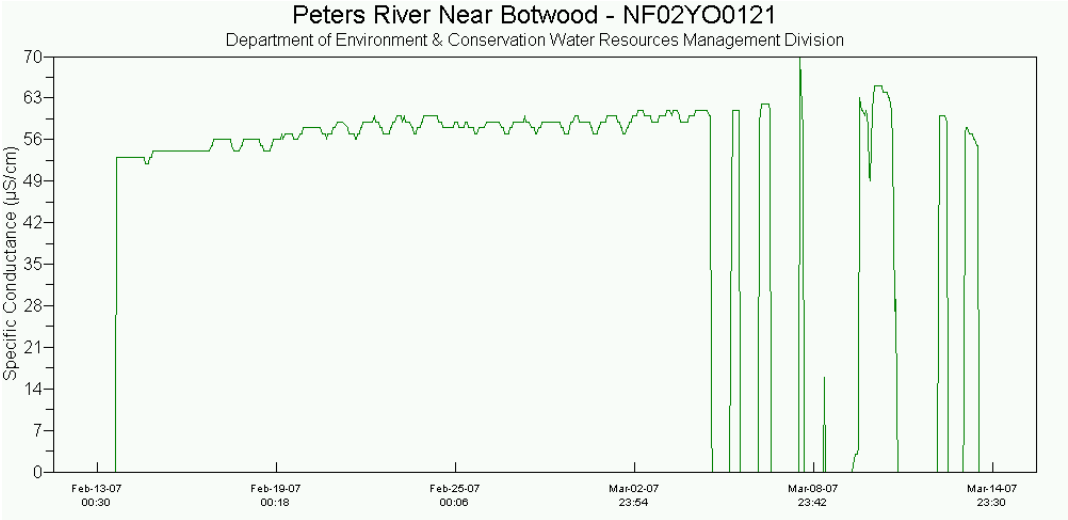

Figure 5

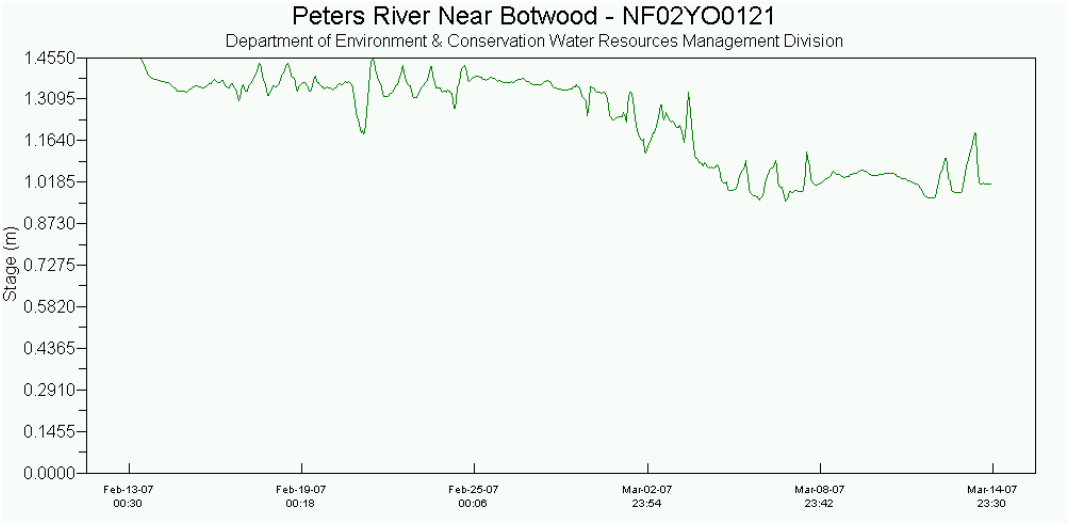

Figure 6

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

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**									

Daily Data Report for March 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†	-0.2	-7.7	-4.0	22.0	0.0	0.0	0.0	0.0	120		<31
02†	-2.0	-8.6	-5.3	23.3	0.0	0.0	T	T	116		<31
03†	-1.7	-9.0	-5.4	23.4	0.0	0.0	5.0	4.2	112	13	44
04†	2.5	-4.0	-0.8	18.8	0.0	0.0	0.6	0.6	117		<31
05†	-0.7	-5.9	-3.3	21.3	0.0	0.0	T	T	112	26	35
06†	-1.0	-6.5	-3.8	21.8	0.0	0.0	1.0	0.6	110	22	44
07†	-6.4	-15.5	-11.0	29.0	0.0	0.0	0.4	0.2	109	25	65
08†	-9.5	-17.7	-13.6	31.6	0.0	0.0	0.0	0.0	109	25	46
09†	-9.3	-19.9	-14.6	32.6	0.0	0.0	0.4	0.4	107	27	52
10†	-2.3	-13.7	-8.0	26.0	0.0	0.0	0.0	0.0	107	27	48
11†	7.3	-4.4	1.5	16.5	0.0	0.4	0.0	0.4	106	23	59
12†	3.0	-8.5	-2.8	20.8	0.0	4.4	2.6	6.8	90	33	48
13†	-0.8	-10.5	-5.7	23.7	0.0	0.0	0.0	0.0	88	27	33
14†	5.5	-12.5	-3.5	21.5	0.0	T	0.0	T	87	19	54
15†	6.9	3.6	5.3	12.7	0.0	1.2	0.0	1.2	74	20	63
16†	4.4	-7.4	-1.5	19.5	0.0	0.2	T	0.2	58	29	41
17†	-0.3	-7.7	-4.0	22.0	0.0	0.2	T	0.2	53	10	41
18†	8.9	-0.3	4.3	13.7	0.0	0.6	0.0	0.6	53	15	46
19†	3.0	-7.2	-2.1	20.1	0.0	0.0	T	T	35	21	57
20†	1.5	-7.9	-3.2	21.2	0.0	1.8	2.4	4.2	31	15	56
21†	0.7	-13.6	-6.5	24.5	0.0	0.0	6.2	5.2	36	33	70
22†	1.6	-13.3	-5.9	23.9	0.0	0.0	0.6	0.4	39	20	67
23†	8.6	-4.1	2.3	15.7	0.0	0.2	0.6	0.4	38	26	54
24†	-4.1	-10.2	-7.2	25.2	0.0	0.0	0.4	0.2	32	31	39
25†	0.1	-11.0	-5.5	23.5	0.0	0.0	0.0	0.0	30		<31
26†	2.0	-9.3	-3.7	21.7	0.0	0.0	0.0	0.0	29		<31
27†	3.8	-6.4	-1.3	19.3	0.0	0.0	0.0	0.0	22	34	50
28†	4.4	-3.0	0.7	17.3	0.0	0.0	2.4	2.4	16	28	33
29†	1.4	-1.8	-0.2	18.2	0.0	0.0	10.2	9.8	18	32	44
30†	1.0	-1.8	-0.4	18.4	0.0	0.0	8.0	7.6	24	32	52
31†	0.3	-5.7	-2.7	20.7	0.0	0.0	1.8	1.4	24		<31
Sum				**669.9**	**0.0**	**9.0**	**42.6**	**47.0**			
Avg	**0.9**	**-8.1**	**-3.6**								
Xtrm	**8.9**	**-19.9**								**33**	**70**

Days when heavy precipitation was recorded during the deployment period of February 13th to March 14th, 2007 are highlighted in red.