

Real Time Water Quality Monthly Report For Peter's River November 2004

General

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

Maintenance and Calibration of Instrumentation

- The Datasonde was removed from Peter's River November 30/04 for routine cleaning, maintenance and calibration.
- Water quality readings were taken with a Minisonde at the time of removal for comparison purposes. The minisonde was calibrated prior to use.
- Water samples were taken at the time of removal for laboratory analysis as part of QA/QC procedures.
- The Datasonde was reinstalled on December 2/04. Comparative water quality readings were taken at this time with a Minisonde as required by QA/QC protocol.

Data Interpretation

- In general, water quality parameters were stable during the period of measure between November 01/04 and November 30/04, with expected daily/nightly (diurnal) and seasonal changes occurring.
- Environment Canada reported the following daily precipitation and maximum wind gusts for the Central NL region during the month of November 2004, as follows:

Table 1

Daily Precipitation & Wind Gust for Nov/04 2004						
Day	Max Temp °C	Min Temp °C	Rain mm	Snow mm	Total Precip mm	Max Wind Gust km/h
1	9.0	2.7	M	M	M	69.0
2	4.1	1.6	M	M	M	54.0
3	6.3	-3.9	0.0	16.7	16.7	245.0
4	3.2	-1.5	0.0	4.4	4.4	50.0
5	3.9	-5.8	0.0	3.7	3.7	32.0
6	7.6	2.2	0.0	0.6	0.6	72.0
7	6.6	-2.3	0.0	1.2	1.2	67.0
8	14.2	0.1	0.0	2.0	2.0	52.0
9	6.1	-9.4	*M	M	0.0	39.0
10	1.0	-11.0	M	M	0.0	<31
11	3.8	-6.8	M	M	0.0	<31
12	7.7	-8.5	M	M	0.0	<31
13	2.3	-10.7	M	M	0.0	33.0
14	0.7	-1.9	M	M	0.0	<31
15	0.6	-1.2	M	M	M	<31
16	0.7	-1.3	M	M	20.4	65.0
17	2.5	0.7	M	M	0.0	59.0
18	3.3	0.6	M	M	0.7	37.0
19	5.1	-1.7	M	M	0.0	<31
20	2.8	-0.3	M	M	6.3	56.0
21	3.2	-0.2	M	M	0.0	52.0
22	3.1	-2.6	M	M	0.7	<31

23	5.6	-2.5	M	M	2.4	32.0
24	5.0	-3.8	M	M	0.0	<31
25	10.6	1.8	M	M	8.5	52.0
26	13.7	-0.7	M	M	5.6	61.0
27	3.6	-1.7	M	M	0.0	67.0
28	5.2	-9.8	M	M	0.0	33.0
29	7.5	-10.6	M	M	19.5	63.0
30	6.7	-8.0	M	M	0.8	<31
M=missing data						

- The effects of precipitation and wind on various parameters can be seen in the graphs below:

Figure 1

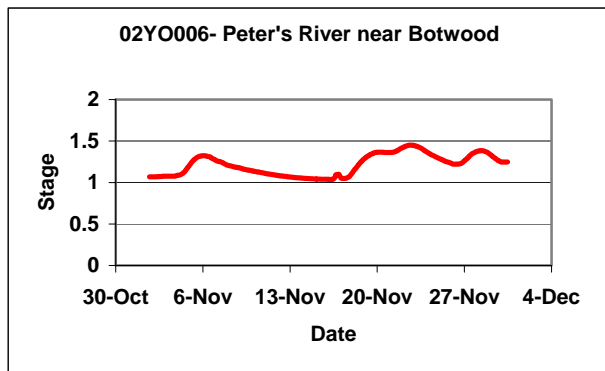


Figure 2

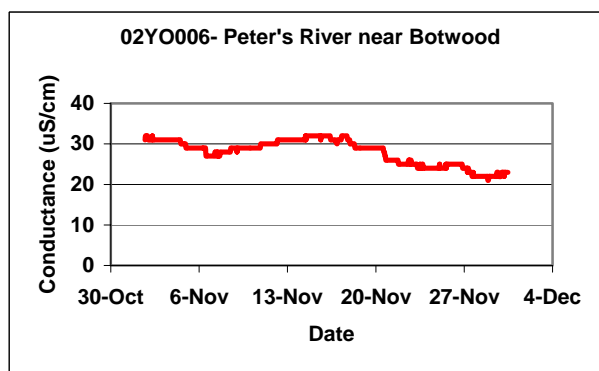


Figure 3

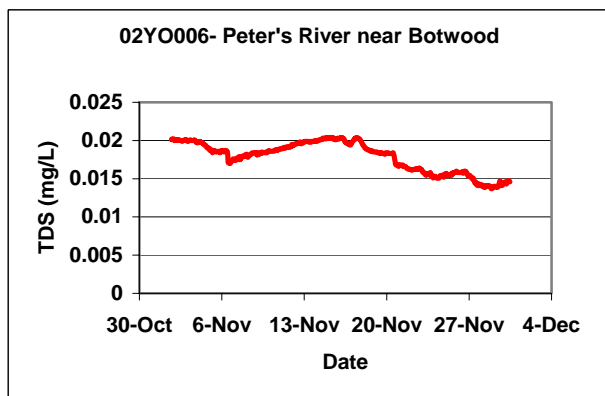
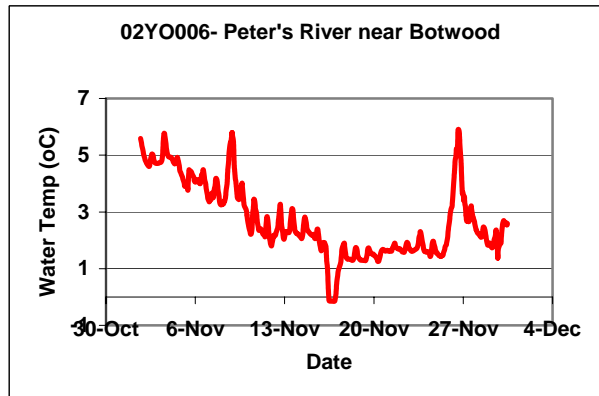


Figure 4



- The heaviest precipitation for the month occurred on November 3rd, 16th and 29th. A rise in water level (stage) is seen in figure 1, shortly after periods of precipitation.
- Precipitation had a dilution effect on the concentration of ions in Peter's River, as conductance decreased after precipitation occurred (figure 2). Conductivity values were in the expected range for this period.
- TDS values decreased following periods of precipitation, and fell within the expected range for Peter's River.
- Water temperature decreased, as seen in figure 4, coinciding with the seasonal decrease in ambient air temperature.

Figure 5

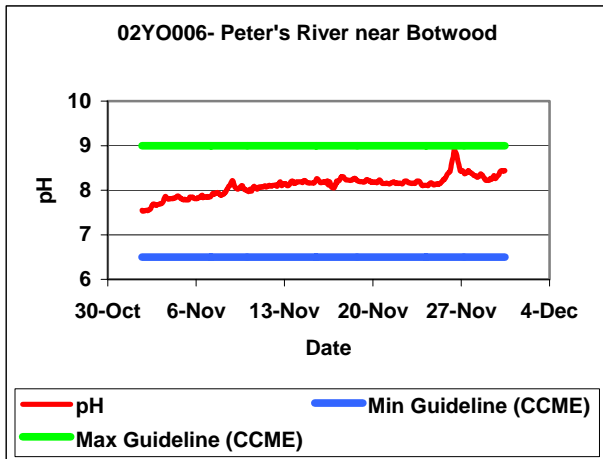
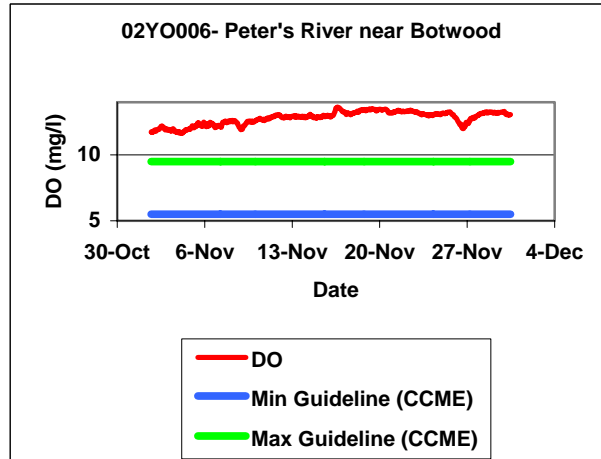
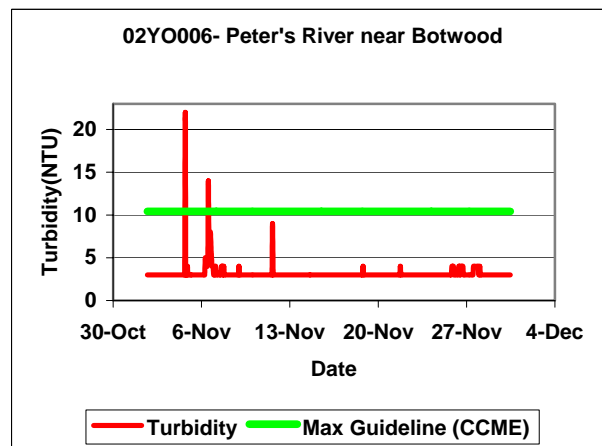


Figure 6



- pH levels remained fairly constant during this period, with all measured values falling within the CCME recommended range of 6.5-9 pH units.
- Dissolved oxygen (DO) levels increased corresponding to the decrease in water temperature. All DO values measured during this period were higher than the recommended maximum value of 9.5mg/L, indicated in the Guidelines for Freshwater Aquatic Life. These measured values coincide with background DO levels, which are also above the recommended maximum of 9.5mg/L at this time of year.



- Turbidity was fairly stable, as seen in figure 7, however, spikes outside the CCME maximum recommended guideline occurred on November 4th and 6th. The CCME recommends that turbidity should not increase more than 8 NTU above background levels. These exceedences coincide with periods of heavy precipitation and high winds, as seen in table 1.

Additional Information

- Table 2 provides summary statistics on water quality parameters for Peter's River during this period:

	Temp-Water	pH	Conductance	Diss-Solids	Percent-Satur	Diss-Oxy
Max	5.91	7.72	31.96	0.0202	104.47	14.22
Min	-0.15	6.27	9.32	0.0064	92.01	11.71
Average	2.74	7.09	21.79	0.0140	98.62	13.26
Standard Deviation	1.31	0.42	6.28	0.0040	2.99	0.72

* Probe data was available for turbidity; no statistics were calculated for this parameter

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