

Real Time Water Quality Monthly Report For Peter's River June 2005

General

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

Maintenance and Calibration of Instrumentation

- The datasonde was removed from Peter's River June 29/05 for routine cleaning and calibration. It was returned to the river on June 30/05. Water quality readings were taken with a minisonde at the time of removal and reinstallation for QA/QC comparison purposes. The minisonde instrument was cleaned and calibrated prior to use.
- Water samples were taken from Peter's River for laboratory analysis on June 30/05 as part of QA/QC procedures.

Data Interpretation

- In general, water quality parameters were stable during the period of measure between June 01 and June 29, 2005.
- Environment Canada reported the following daily air temperatures, precipitation and maximum wind gusts for the Central NL region (Gander) during the month of June 2005, as seen in **Table 1**, below:

Table 1: Climate Data June 2005

Daily Data Report for June 2005				
D a y	Max Temp °C	Min Temp °C	Total Precip mm	Spd of Max Gust km/h
01†	20.0	4.6	0.0	33
02†	26.8	5.8	1.8	<31
03†	26.9	11.1	T	39
04†	14.6	4.4	0.0	<31
05†	13.6	3.5	T	35
06†	16.1	3.9	0.0	52
07†	14.6	4.6	6.8	52
08†	19.3	5.0	2.6	35
09†	16.9	4.9	4.4	<31
10†	19.5	7.0	2.2	<31
11†	15.9	7.9	0.4	35
12†	15.7	6.5	7.4	<31
13†	11.5	3.7	T	37
14†	6.1	3.6	4.0	56
15†	8.8	5.1	1.4	37
16†	8.8	3.5	0.2	<31
17†	13.3	3.7	3.0	<31
18†	13.1	4.7	T	<31

19†	8.8	2.7	8.8	<31
20†	23.5	2.8	T	35
21†	27.1	10.7	T	50
22†	24.2	12.7	0.0	32
23†	15.2	8.3	T	<31
24†	23.7	8.3	T	<31
25†	25.9	10.6	T	32
26†	14.0	6.0	1.0	46
27†	23.7	5.9	0.0	32
28†	22.2	9.9	0.0	61
29†	27.3	6.0	7.4	50
30†	16.5	5.4	0.2	<31

*T=trace amount; † = daily data has undergone only preliminary checking

- **Stage height** decreased significantly during the month of June as the total amount of precipitation for the month was only 51.6mm, and the average daily maximum air temperature rose to 17.8°C. Rainfall activity on June 8-10, 12 and 22 can be seen as water level peaks in **figure 1** below, on the corresponding dates.
- **Water temperatures** fluctuated from a minimum of 9.48°C to a maximum of 25.06°C during the month of June, as can be seen in **figure 2**, below:

Figure 1: Stage Height

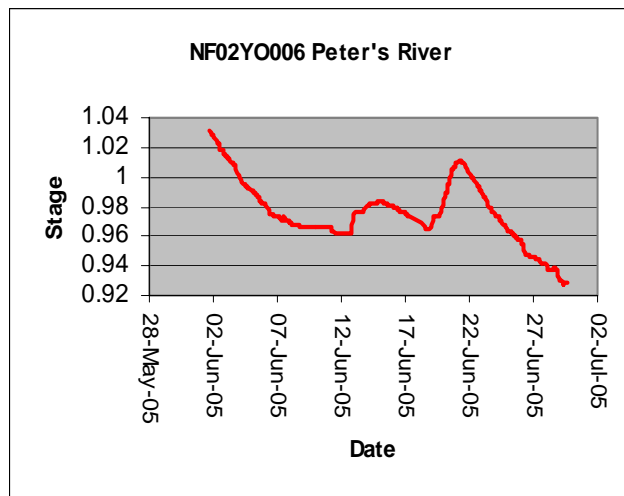
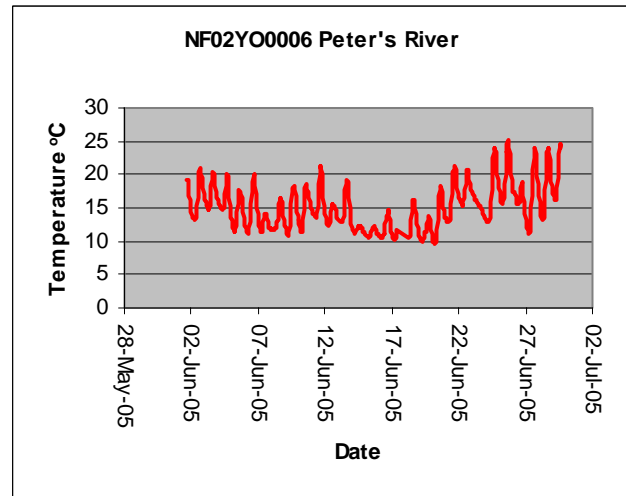


Figure 2: Water Temperature



Diurnal temperature variations, with night time lows and daytime highs, are evident in the graph in **figure 2**.

- **Specific conductivity** increased during the month of June as can be expected with warmer water temperatures, as seen in **figure 3**. Conductivity values ranged from 45.65 -66.14uS/cm, which is within the anticipated range for this site at this time of year.
- **Total dissolved solids** levels reflected the changes in conductivity, as seen in **figure 4**. Conductivity measurements are a good indication of total dissolved solids and total dissolved ion concentrations, although this is not an exact linear relationship.

Figure 3: Specific Conductance

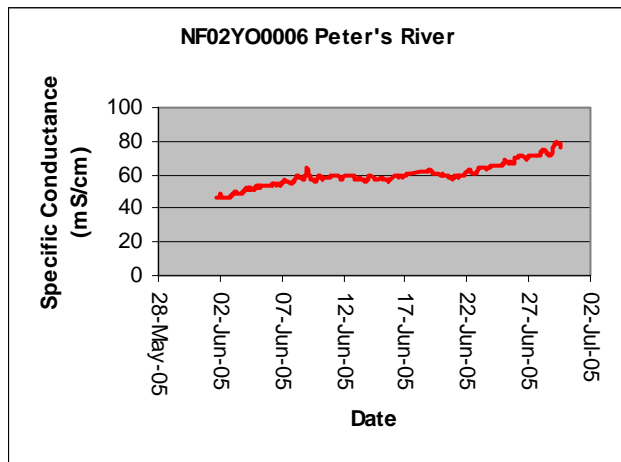
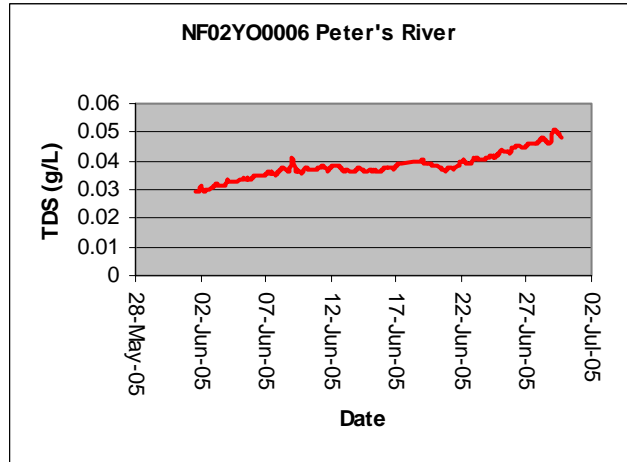


Figure 4: Total Dissolved Solids



- pH** levels increased during the period of measure, ranging from 7.01 to 8.36, as can be seen in **figure 5**. pH can be expected to increase during the summer months as the hours of daylight and photosynthetic activity increase. All pH values were between the CCME recommended minimum guideline of 6.5 and maximum guideline of 9.0.
- Dissolved oxygen (DO)** levels ranged from 7.18-9.68mg/L during the period of measure (see **figure 6**). The optimum DO range for freshwater aquatic life, as recommended by CCME Guidelines, is 5.5-9.5mg/L. Some of the measured DO values exceeded the recommended maximum DO concentration of 9.5mg/L, however the DO concentration is decreasing as compared to the measured DO range in May 2005, of 8.49-10.59mg/L.

Figure 5: pH

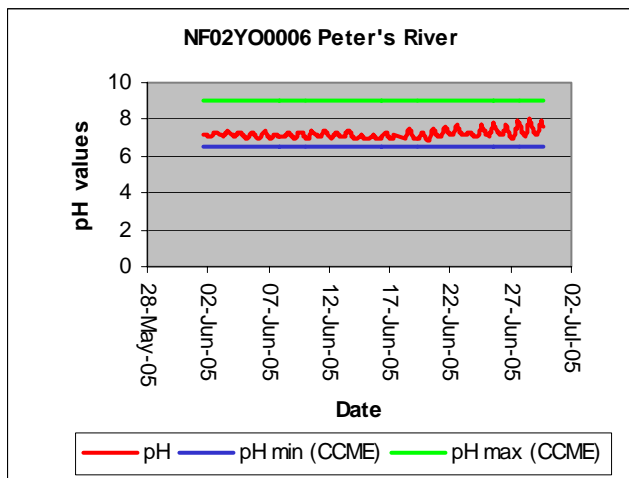
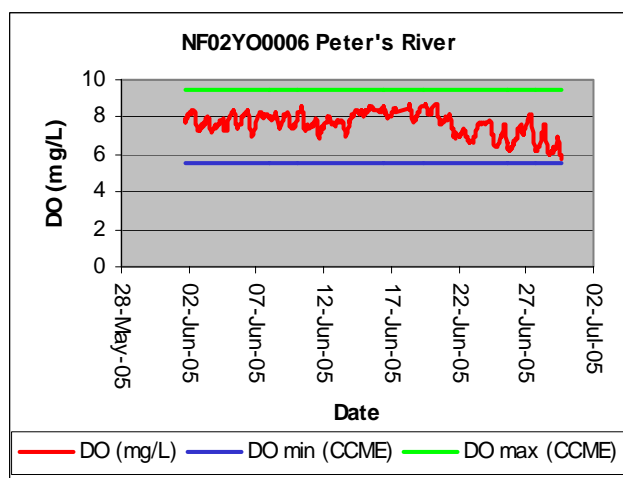
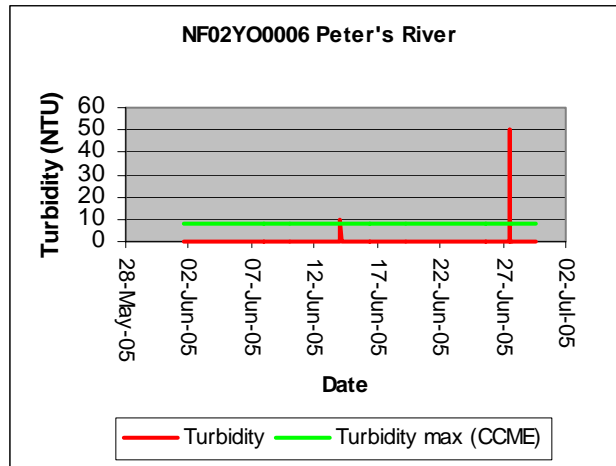


Figure 6: DO



- Turbidity** values remained constant at 0 NTUs for most of June, with the exception of 2 spikes, occurring June 14 (10 NTUs) and June 27 (50 NTUs), as seen in **figure 7**. The data indicate that each of these spikes occurred over a duration of less than 1 hour, and thus can likely be attributed to fish or debris passing in front of the turbidity sensor at the time of measure.

Figure 7: Turbidity



Additional Information

- Table 2 provides summary statistics on water quality parameters for Peter’s River from June 01 to June 29, 2005:

Table 2

	Temp-Water	pH	Conductance	Diss-Solids	Percent-Sat	Diss-Oxy	Turbidity
Max	25.06	8.36	66.14	0.0422	95.08	9.68	50
Min	9.48	7.01	45.65	0.0291	77.20	7.18	0
Average	15.17	7.39	52.91	0.0339	85.02	8.35	0.09
Standard Dev	3.38	0.26	3.71	0.0024	4.19	0.57	2.0

*Turbidity stats are taken from raw data; stats for all other parameters are taken from corrected data.

Report prepared by: Joanne Sweeney
 Dept of Environment
 Grand Falls-Windsor NL
 Ph. 292-4220