

**Real Time Water Quality Monthly Report
Lower Humber River at Humber Village Bridge
December 2006 – January 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 Humber River was removed on December 13th, 2006 for cleaning and calibration and then reinstalled on December 14th. The results from comparing the Minisonde values to the Datasonde values during removal and reinstallation on December 13th/14th, 2006 can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon removal/reinstallation on Dec. 13th/14th, 2006

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Humber River at Humber Village Bridge	December 13 th , 2006	Removal	Excellent	Fair	Good	Poor
	December 14 th , 2006	Installation	Excellent	Excellent	Excellent	NA*

* The dissolved oxygen probe was not reading to the surveyor.

- The instrument was deployed until January 16th (33-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 January 16th, 2006 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
Humber River at Humber Village Bridge	January 16 th , 2006	Removal	Fair	Fair	Excellent	NA*

* The dissolved oxygen probe was reading as 0.00mg/L on the surveyor which is an inaccurate reading.

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

Data Interpretation

- During the deployment period of December 14th – January 16th, 2006 the water quality remained relatively stable for most parameters.
- The water temperature (**Figure 1**) decreased slightly throughout the deployment period. Temperatures decreased from 4.9°C to 2.0°C.

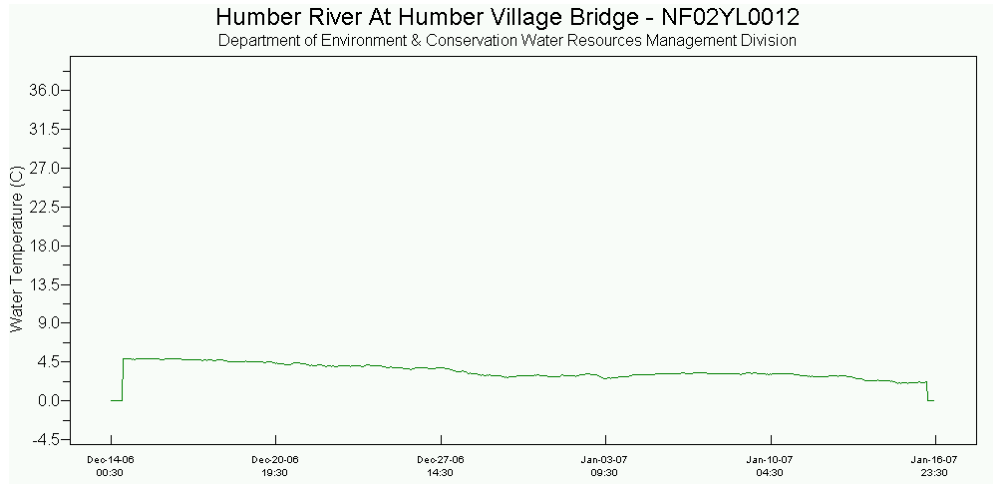


Figure 1

- The dissolved oxygen (**Figure 2**) increased slightly over the time period which corresponds to the increase in temperature seen in **Figure 1**. The dissolved oxygen values ranged from 11.22mg/L to 12.29mg/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).

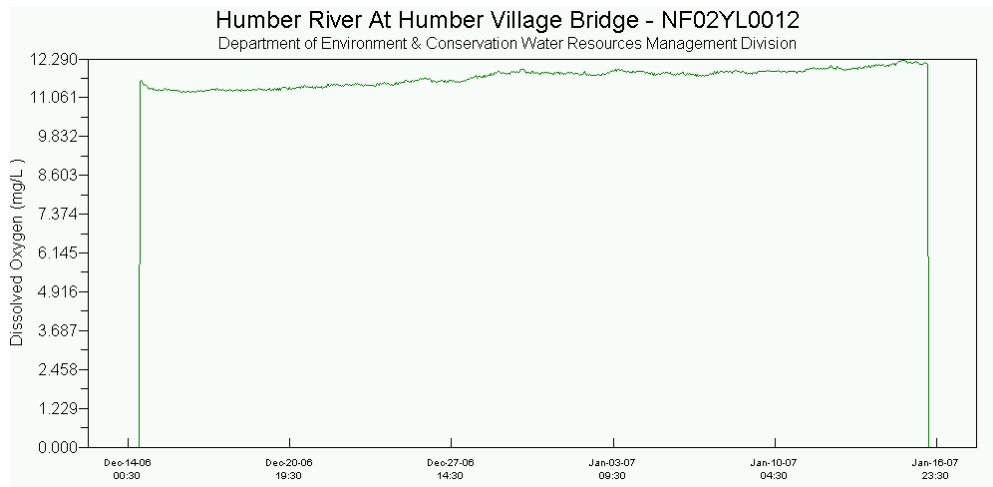


Figure 2

- pH values (**Figure 3**) remained relatively stable with a range between 7.05 and 7.48. All pH readings fell inside the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines.

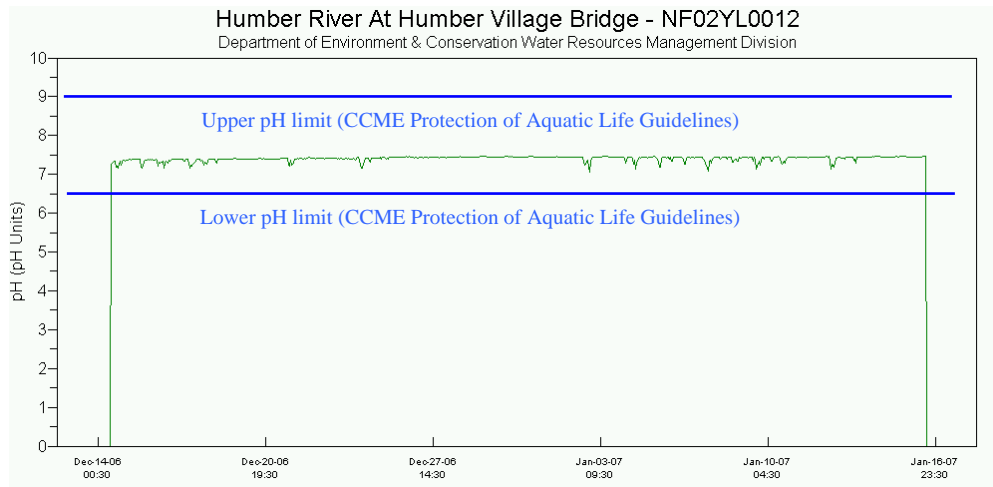


Figure 3

- Conductivity (**Figures 4**) remained constant throughout the deployment period. The conductivity values ranged from 36.9 μ S/cm to 39.0 μ S/cm.

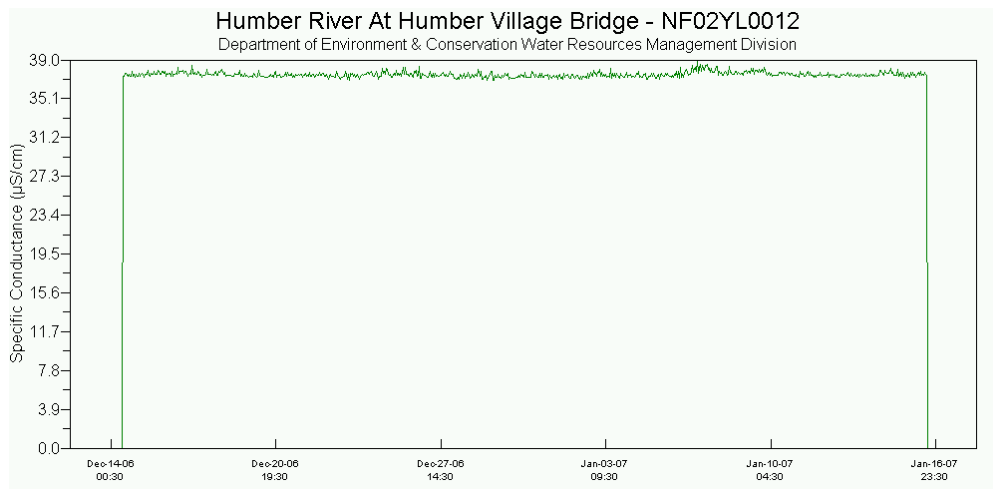


Figure 4

- The turbidity values (**Figure 5**) generally remained below 3 NTU which is the typical background concentration for this station. There were three small spikes (all below 4 NTU) that are consistent with slight increases in stage (**Figure 6**). Climate data for the area (Deer Lake) is available in **Appendix A**.

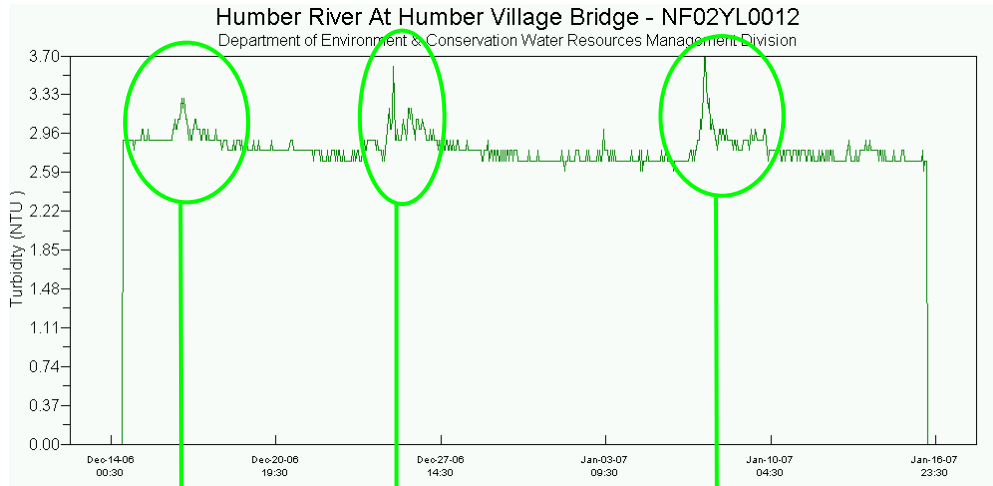


Figure 5

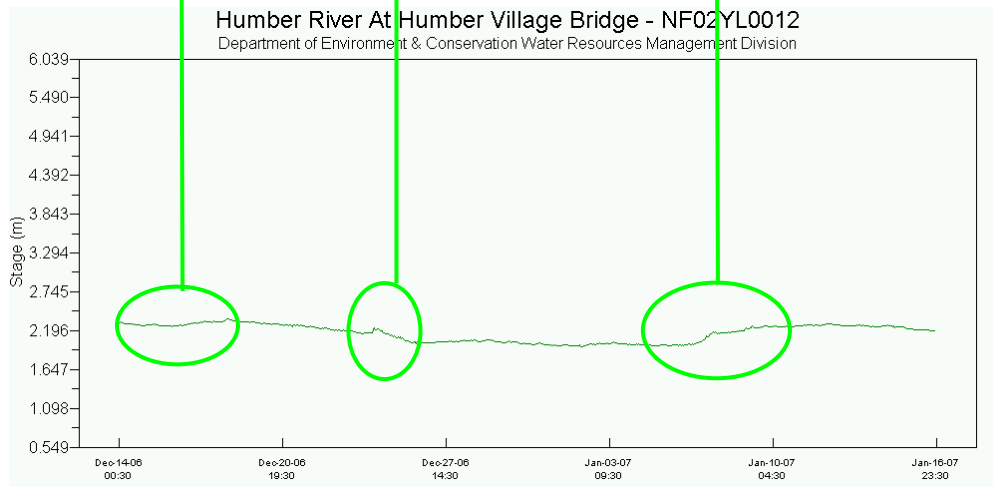


Figure 6

Prepared by: Annette Tobin
Department of Environment and Conservation
Environmental Scientist
Ph: (709) 637-2431
Fx: (709) 637-2541
Email: annettetobin@gov.nl.ca

Appendix A: Climate Data for Deer Lake (December 2006 & January 2007)

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	7.8	-3.6	2.1	15.9	0.0	4.2	0.0	4.2	T		
02	-1.8	-4.0	-2.9	20.9	0.0	0.0	26.0	24.4	4		
03	-0.7	-8.2	-4.5	22.5	0.0	0.0	5.8	5.2	24		
04	-2.5	-9.0	-5.8	23.8	0.0	0.0	18.4	18.4	21		
05	-2.0	-6.7	-4.4	22.4	0.0	0.0	19.0	19.0	43		
06	-5.0	-11.0	-8.0	26.0	0.0	0.0	1.4	1.2	49		
07	5.5	-5.1	0.2	17.8	0.0	3.4	T	3.4	45		
08	5.5	-8.2	-1.4	19.4	0.0	10.4	5.8	16.2	20		
09	-4.5	-10.8	-7.7	25.7	0.0	0.0	4.4	4.4	15		
10	2.4	-9.9	-3.8	21.8	0.0	1.0	1.0	2.0	15		
11	2.0	-7.2	-2.6	20.6	0.0	T	3.4	3.2	13		
12	-3.4	-8.6	-6.0	24.0	0.0	0.0	T	T	16		
13	1.9	-8.2	-3.2	21.2	0.0	1.0	T	1.0	15		
14	5.5	1.1	3.3	14.7	0.0	0.8	0.0	0.8	11		
15	6.1	-1.0	2.6	15.4	0.0	0.0	0.0	0.0	7		
16	2.7	-0.3	1.2	16.8	0.0	9.4	0.0	9.4	5		
17	3.0	-1.9	0.6	17.4	0.0	0.2	1.2	1.4	2		
18	2.1	-6.3	-2.1	20.1	0.0	0.0	1.2	1.2	3		
19	-3.0	-7.2	-5.1	23.1	0.0	0.0	0.6	0.6	2		
20	-2.8	-10.2	-6.5	24.5	0.0	0.0	T	T	2		
21	2.0	-4.4	-1.2	19.2	0.0	0.0	5.6	5.6	2		
22	-2.2	-5.9	-4.1	22.1	0.0	0.0	3.2	3.2	8		
23	-0.1	-8.8	-4.5	22.5	0.0	0.0	T	T	6		
24	3.4	-4.7	-0.7	18.7	0.0	1.4	3.4	4.8	9		
25	1.9	-2.1	-0.1	18.1	0.0	0.0	1.6	1.6	7		
26	-0.7	-4.3	-2.5	20.5	0.0	0.0	4.2	4.2	5		
27	-2.9	-9.2	-6.1	24.1	0.0	0.0	3.5	3.5	12		
28	-5.8	-10.5	-8.2	26.2	0.0	0.0	T	T	12		
29	-9.8	-13.0	-11.4	29.4	0.0	0.0	3.8	3.8	11		
30	-4.0	-9.9	-7.0	25.0	0.0	0.0	2.2	2.2	12		
31	-3.6	-21.3	-12.5	30.5	0.0	0.0	3.6	3.6	13		
Sum				670.3	0.0	31.8	119.3	148.5			
Avg	-0.1	-7.1	-3.6								
Xtrm	7.8	-21.3									

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†	-3.8	-21.0	-12.4	30.4	0.0	0.0	0.0	0.0			<31
02†	1.1	-5.3	-2.1	20.1	0.0	1.4	5.2	6.6	10		<31
03†	-1.1	-8.3	-4.7	22.7	0.0	0.0	3.2	3.2	14	26	50
04†	1.5	-1.5	0.0	18.0	0.0	0.0	T	T			<31
05†	3.8	-3.1	0.4	17.6	0.0	0.6	0.0	0.6	12	24	37
06†	4.8	1.3	3.1	14.9	0.0	15.8	0.0	15.8	10	24	41
07†	4.9	0.3	2.6	15.4	0.0	9.4	0.4	9.8	4	23	56
08†	4.5	-1.1	1.7	16.3	0.0	2.0	9.2	11.2	3		<31
09†	7.3	-0.8	3.3	14.7	0.0	0.6	1.2	1.8	6	23	56
10†	1.1	-4.5	-1.7	19.7	0.0	0.0	T	T	4		<31
11†	-2.5	-4.0	-3.3	21.3	0.0	0.0	1.0	1.0	4	27	46
12†	0.0	-3.9	-2.0	20.0	0.0	0.0	5.4	5.4	4	24	56
13†	-2.7	-22.3	-12.5	30.5	0.0	0.0	19.4	19.0	13	3	46
14†	-4.3	-27.3	-15.8	33.8	0.0	0.0	3.2	3.0	23	25	43
15†	-7.4	-14.3	-10.9	28.9	0.0	0.0	T	T	23	24	37
16†	-9.3	-16.8	-13.1	31.1	0.0	0.0	3.2	3.2	24		<31
17†	-13.7	-20.4	-17.1	35.1	0.0	0.0	0.4	0.4	24	27	44
18†	-6.1	-16.8	-11.5	29.5	0.0	0.0	1.0	1.0	21	27	37
19†	3.3	-6.3	-1.5	19.5	0.0	0.0	0.4	0.4	19	21	37
20†	5.3	-3.2	1.1	16.9	0.0	4.2	T	4.2	15	12	65
21†	-2.0	-7.3	-4.7	22.7	0.0	0.0	0.2	0.2	10		<31
22†	-7.2	-10.8	-9.0	27.0	0.0	T	0.0	T	10	27	46
23†	-5.3	-21.3	-13.3	31.3	0.0	T	0.0	T	10		<31
24†	-3.0	-20.0	-11.5	29.5	0.0	0.0	15.4	15.4	10	5	44
25†	-2.8	-10.0	-6.4	24.4	0.0	0.0	2.8	2.8	23	28	65
26†	-2.6	-17.0	-9.8	27.8	0.0	0.0	10.0	10.0	12	6	93
27†	1.3	-5.0	-1.9	19.9	0.0	0.0	4.6	4.6	22	5	98
28†	-3.3	-6.8	-5.1	23.1	0.0	0.0	0.4	0.4	16	27	46
29†	-5.4	-12.2	-8.8	26.8	0.0	0.0	T	T	15		<31
30†	-8.3	-11.0	-9.7	27.7	0.0	5.4	0.0	5.4	12	25	46
31†	-7.6	-11.6	-9.6	27.6	0.0	0.0	1.4	1.4	12	22	46
Sum				744.2	0.0	39.4	88.0	126.8			
Avg	-1.9	-10.1	-6								
Xtrm	7.3	-27.3							5		98