

## Real Time Water Quality Monthly Report For Peter's River, December 5-January 6/04

### General

- The following is an analysis of the Peter's River water quality data from December 5/03 to January 6/04.

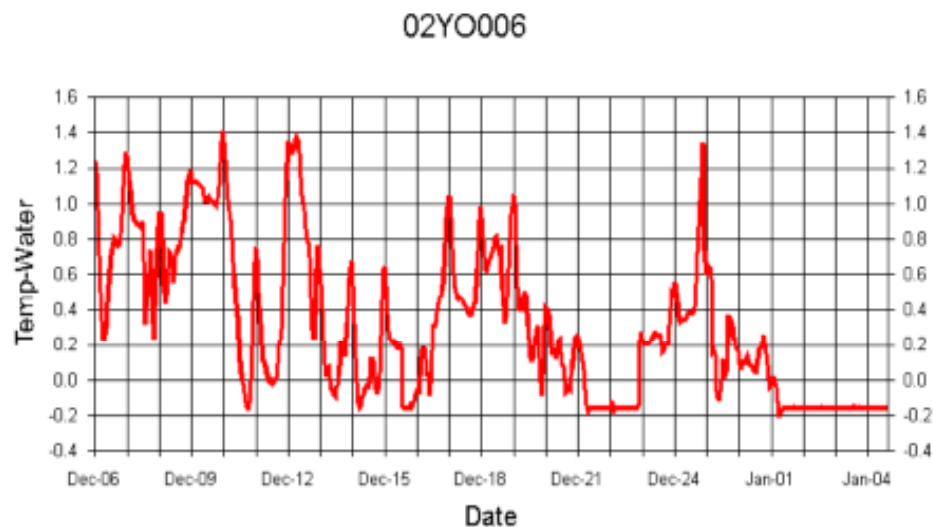
### Maintenance and Calibration of Instrumentation

- On December 2/03 the datasonde was removed from Peter's River for routine monthly maintenance and calibration.
- Minisonde readings were taken at the time of removal as required by the QA/QC protocol. The minisonde was calibrated before use.
- The datasonde and minisonde were cleaned and calibrated. Additional cleaning and maintenance was given to the specific conductance probes on each instrument (as per the Hydrolab Maintenance Manual) in an effort to bring the difference between the datasonde and minisonde conductivity readings to within the acceptable range for QA/QC.

### Data Interpretation:

- **Temperature:** water temperatures fluctuated above and below 0°C as ice ledges formed on both sides of Peter's River (see figure 1). The maximum water temperature during this period was 1.49°C, the minimum temperature was -0.21°C and the mean was 0.32°C.

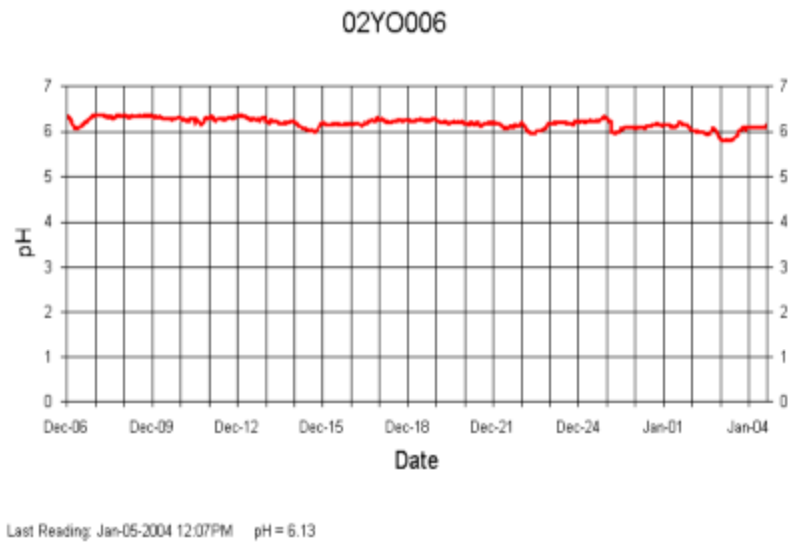
Figure 1



Last Reading: Jan-05-2004 12:07PM Temp-Water = -0.16

- pH:** pH levels remained fairly constant ranging from a maximum of 6.36 to a minimum of 5.79, with a mean of 6.12.

**Figure 2**

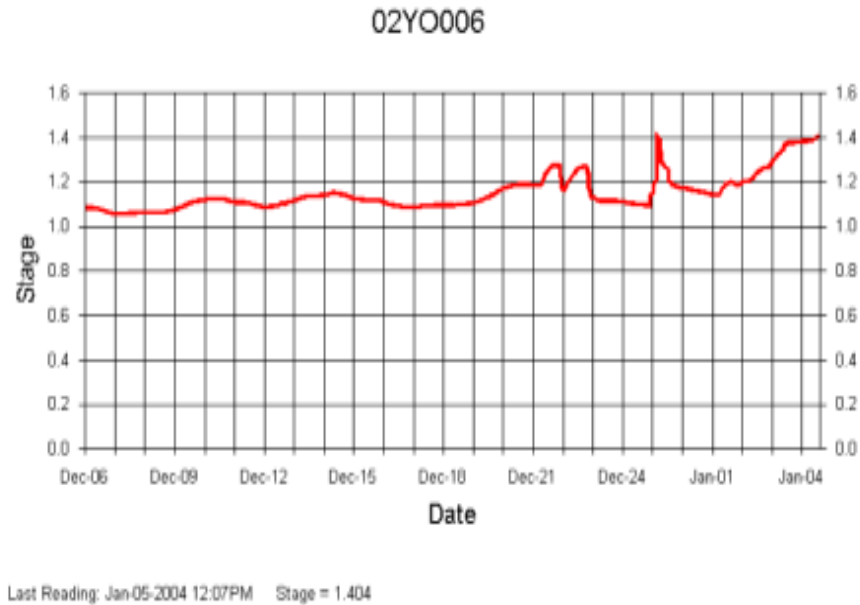


- Specific Conductance:** significant snowfall events on December 8th, 9th and 16th may have influenced small increases in conductivity as seen in **figure 3** below. The impact of a sharp rise in temperature (see **table 1**) on December 25th and 26th can be seen as the stage increased (see **figure 4**) and conductivity decreased (see **figure 3**) on these dates. Conductivity values ranged from a maximum of 34uS/cm to a minimum of 21 uS/cm, with a mean value of 30 for this period.

**Figure 3**

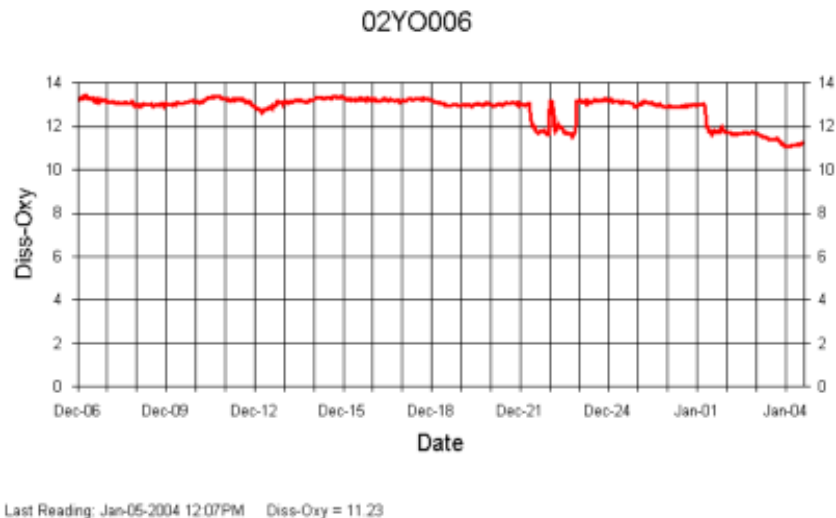


**Figure 4**



- **Dissolved Oxygen:** Dissolved oxygen levels were fairly constant during this time period with the levels dipping on the 21<sup>st</sup> and 22<sup>nd</sup> of December, as well as on the 1<sup>st</sup> of January (see **figure 5**). These lower oxygen levels correspond with some of the lowest water temperatures recorded for the same period (see **table 1**). The maximum DO level recorded for this time period was 13.74 mg/l, the minimum level was 10.95 mg/l, and the mean was 12.78 mg/l.

**Figure 5**

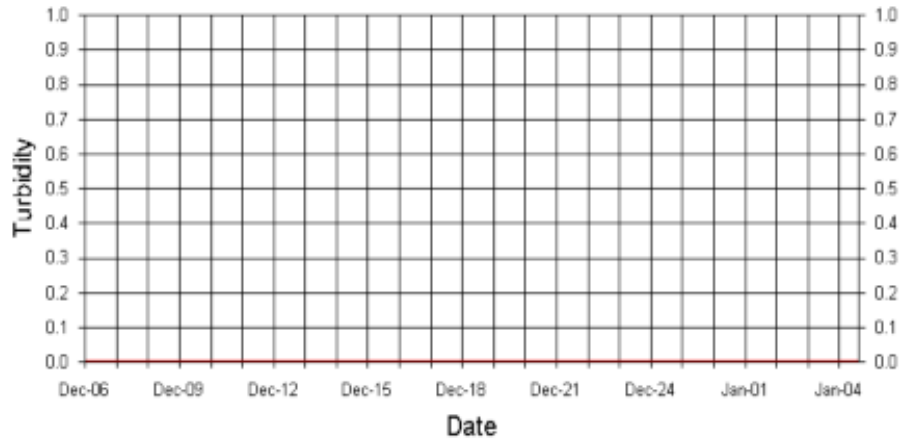


- **Turbidity:** turbidity levels were recorded as 0.0 NTU (see **figure 6**) for the duration of this monitoring period. This may be a true reflection of constant near zero turbidity levels at this monitoring site, or it may be an indication of a malfunction with the turbidity sensor. The

datasonde will be shipped to Campbell-Scientific for a warranty check before it is returned to Peter's River, and the turbidity sensor will be assessed.

**Figure 6**

02YO006



Last Reading: Jan-05-2004 12:07PM Turbidity = 0

**Table 1**

## Daily Climate Data for December 2003

Daily Data Report for December 2003											
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
<a href="#">01</a>	6.4	0.9	3.7	14.3	0.0	0.0	T	T	M	15	41
<a href="#">02</a>	7.6	-4.5	1.6	16.4	0.0	0.0	T	T	M	23	70
<a href="#">03</a>	-2.0	-6.6	-4.3	22.3	0.0	0.0	11.2	11.2	5		<31
<a href="#">04</a>	-1.7	-4.0	-2.9	20.9	0.0	0.0	20.0	17.6	24	28	52
<a href="#">05</a>	-1.6	-6.8	-4.2	22.2	0.0	0.0	T	T	31		<31
<a href="#">06</a>	-4.9	-10.0	-7.5	25.5	0.0	0.0	T	T	30		<31
<a href="#">07</a>	-0.6	-7.7	-4.2	22.2	0.0	0.0	1.4	1.2	29	6	59
<a href="#">08</a>	0.4	-1.3	-0.5	18.5	0.0	0.0	27.0	28.6	37	4	74
<a href="#">09</a>	0.4	-0.3	0.1	17.9	0.0	0.2	10.8	11.8	61	2	69
<a href="#">10</a>	-0.1	-4.9	-2.5	20.5	0.0	0.2	1.0	1.4	65	35	46
<a href="#">11</a>	-1.8	-8.0	-4.9	22.9	0.0	0.0	0.0	0.0	63		<31
<a href="#">12</a>	5.7	-5.5	0.1	17.9	0.0	3.0	0.0	3.0	60	19	56

<a href="#">13</a>	2.4	-7.1	-2.4	20.4	0.0	0.2	T	0.2	43	24	63
<a href="#">14</a>	-4.1	-9.6	-6.9	24.9	0.0	0.0	T	T	43	28	46
<a href="#">15</a>	-3.2	-8.7	-6.0	24.0	0.0	0.0	T	T	43	10	35
<a href="#">16</a>	0.1	-3.4	-1.7	19.7	0.0	0.0	20.6	19.6	47	8	59
<a href="#">17</a>	1.2	-0.9	0.2	17.8	0.0	0.8	1.0	1.8	63	35	46
<a href="#">18</a>	3.8	-1.2	1.3	16.7	0.0	3.0	0.0	3.0	53	13	46
<a href="#">19</a>	3.9	0.8	2.4	15.6	0.0	2.4	T	2.4	45	14	39
<a href="#">20</a>	0.8	-3.6	-1.4	19.4	0.0	0.2	8.6	8.4	38		<31
<a href="#">21</a>	-3.4	-6.8	-5.1	23.1	0.0	0.0	7.2	6.0	45		<31
<a href="#">22</a>	-4.2	-9.4	-6.8	24.8	0.0	0.0	2.6	1.4	52	29	41
<a href="#">23</a>	1.4	-8.4	-3.5	21.5	0.0	0.0	T	T	54		<31
<a href="#">24</a>	2.4	-0.7	0.9	17.1	0.0	0.6	T	0.6	48		<31
<a href="#">25</a>	9.8	0.9	5.4	12.6	0.0	3.6	0.0	3.6	42	21	52
<a href="#">26</a>	9.8	0.5	5.2	12.8	0.0	1.8	0.0	1.8	22	25	33
<a href="#">27</a>	3.0	-1.3	0.9	17.1	0.0	0.0	4.8	4.4	13		<31
<a href="#">28</a>	-0.2	-2.9	-1.6	19.6	0.0	0.4	2.2	2.2	18		<31
<a href="#">29</a>	-1.4	-5.1	-3.3	21.3	0.0	0.0	T	T	17	35	32
<a href="#">30</a>	3.0	-2.3	0.4	17.6	0.0	0.0	0.0	0.0	17		<31
<a href="#">31</a>	1.2	-1.0	0.1	17.9	0.0	2.6	5.0	7.6	15		<31
<b>Sum</b>				<b>605.4</b>	<b>0.0</b>	<b>19.0</b>	<b>123.4</b>	<b>137.8</b>			
<b>Avg</b>	<b>1.1</b>	<b>-4.2</b>	<b>-1.5</b>								
<b>Xtrm</b>	<b>9.8</b>	<b>-10.0</b>								<b>4</b>	<b>74</b>

The datasonde will be returned to Peter's River in the Spring, when ice conditions improve in the area. As indicated above, the datasonde, as well as the minisonde will be returned to Campbell Scientific for a warranty check, which will include calibration and assessment of all sensors.

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