

Real Time Water Quality Monthly Report Come by Chance River May - June 2008

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.
- Newfoundland and Labrador Refining Company will be informed of any significant water quality events in the form of a monthly report.
- This monthly report interprets the data from the Come by Chance River RTWQ station for the period of May 14 to June 11, 2008.

Maintenance and Calibration of Instrumentation

- The Come by Chance instrument was deployed on May 14, 2008. A second set of data readings was collected at the time of installation, using a similar, freshly calibrated instrument. Data readings from both instruments were compared and their variability was ranked, as part of QA/QC protocol.
- The QA/QC rankings from comparing water quality data from both instruments at the time of installation are indicated in **Table 1**. Rankings of “excellent” for temperature, pH and dissolved oxygen and “good” for conductivity were achieved when comparing values from the two instruments indicating a high degree of confidence in the accuracy of the probe at the beginning of the deployment period.

Table 1: QA/QC Data Comparison Rankings upon reinstallation on May 14, 2008

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Come by Chance River	May 14	Installation	Excellent	Excellent	Good	Excellent

- The Come by Chance instrument was deployed for 28 days. The instrument was removed on June 11, 2008 for routine maintenance and calibration. A second set of data readings was collected at the time of removal using a similar, freshly calibrated instrument. Data readings from both instruments were compared and their variability was ranked, as part of QA/QC protocol.
- The QA/QC rankings from comparing water quality data from both instruments at the time of removal are indicated in **Table 2**. Rankings of “excellent” were achieved for all parameters when comparing values from the two instruments indicating a high degree of confidence in the accuracy of the probe for the entire deployment period.

Table 2: QA/QC Data Comparison Rankings upon removal on June 11, 2008

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Come by Chance River	June 11	Removal	Excellent	Excellent	Excellent	Excellent

Data Interpretation

- Water temperature values (**Figure 1**) for the deployment period display diurnal fluctuations and generally increased which is typical for the end of the spring season. Water temperature values ranged between 4.82 and 18.03°C.

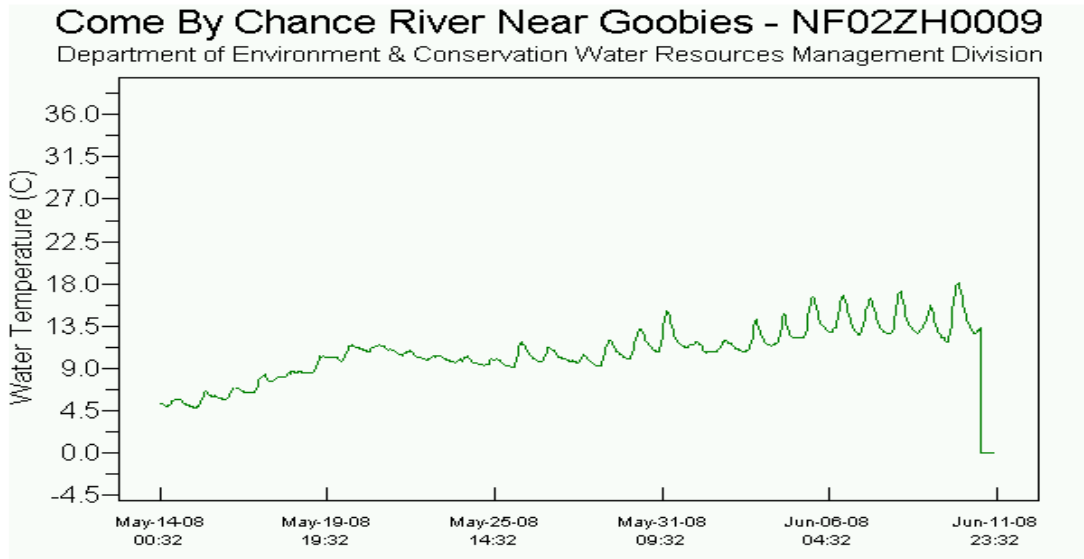


Figure 1

- Dissolved oxygen (DO) values (**Figure 2**) for the deployment period generally decreased, corresponding with the increase in water temperature. DO values ranged from 9.63 to 12.61 mg/L, all values were above the minimum DO concentrations recommended by the Canadian Council of Ministers of the Environment (CCME) Protection of Freshwater Aquatic Life Guidelines (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 – above 9.5 mg/L).

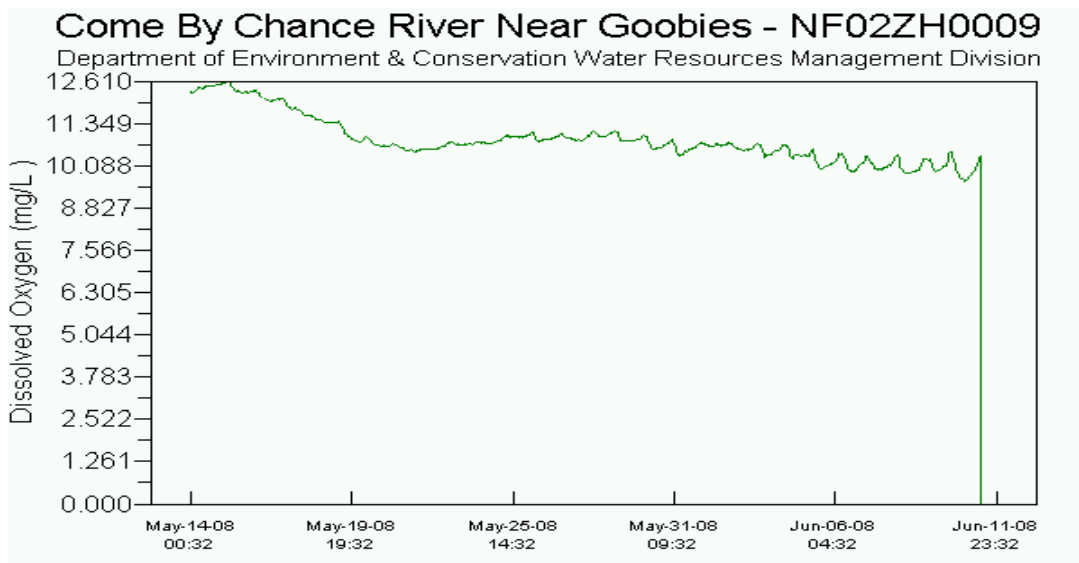


Figure 2

- pH values (**Figure 3**) were stable over the deployment period, ranging between 6.39 and 6.86. pH values were close to the minimum pH level of 6.5 recommended by the CCME Guidelines for the Protection of Freshwater Aquatic Life (due to the naturally acidic nature of NL waters).

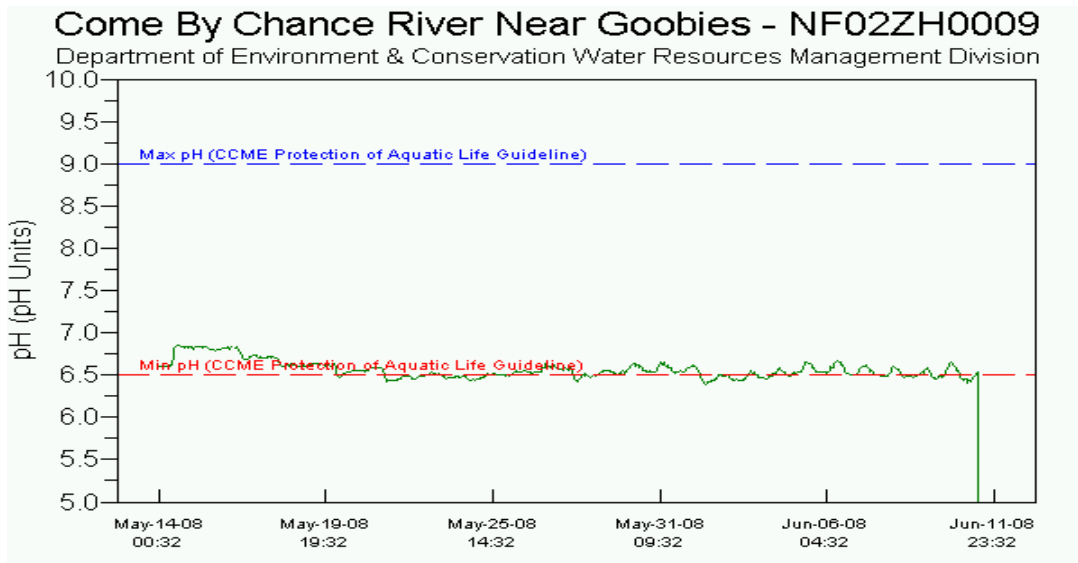


Figure 3

- Specific conductance values (**Figure 4**) at the beginning of the deployment period fluctuated due to fluctuation in stage and experienced an increase in the second half of the deployment period due to a steady drop in stage. Specific conductance ranged from 46.1 to 66.3 $\mu\text{S}/\text{cm}$.

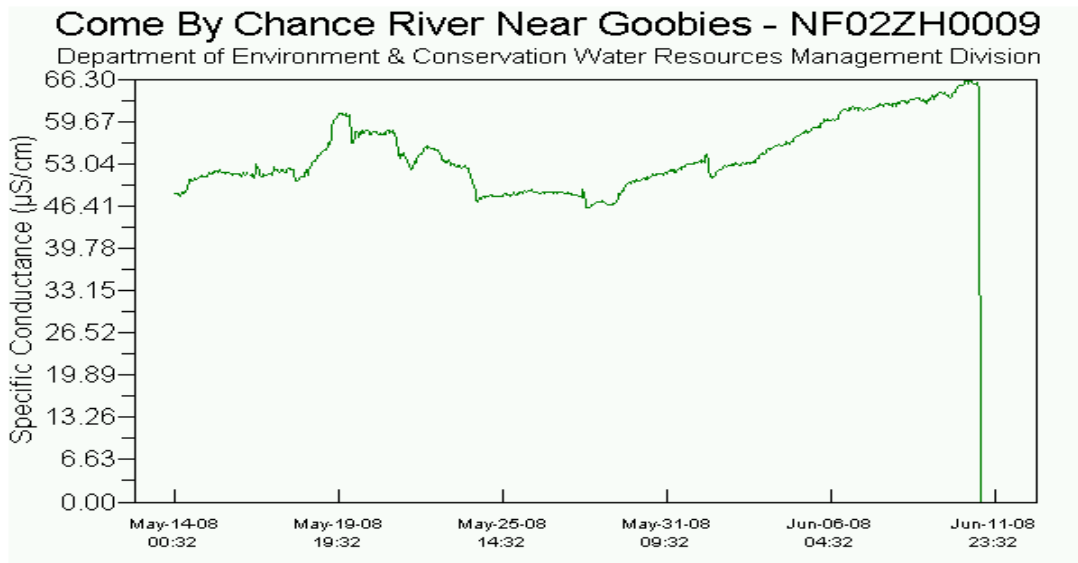


Figure 4

- Turbidity values (**Figure 5**) remained constant at 0 NTU for the deployment period.

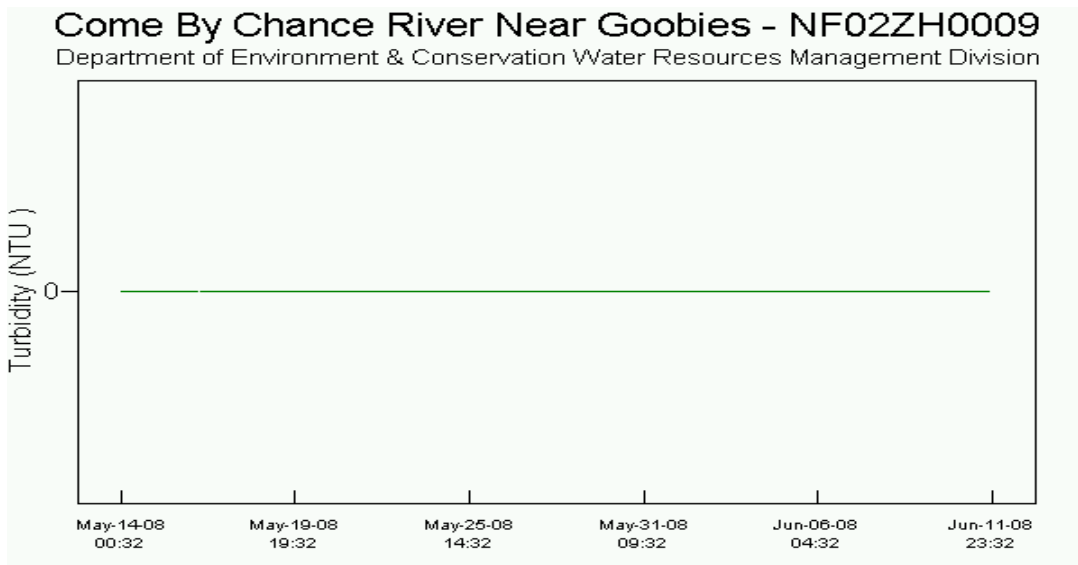


Figure 5

- Stage values (**Figure 6**) at the beginning of the deployment period fluctuated due to the periods of precipitation (**Appendix A**) and experienced a decrease in the second half of the deployment period due to a dry period. Stage ranged between 0.676 and 1.271 meters.

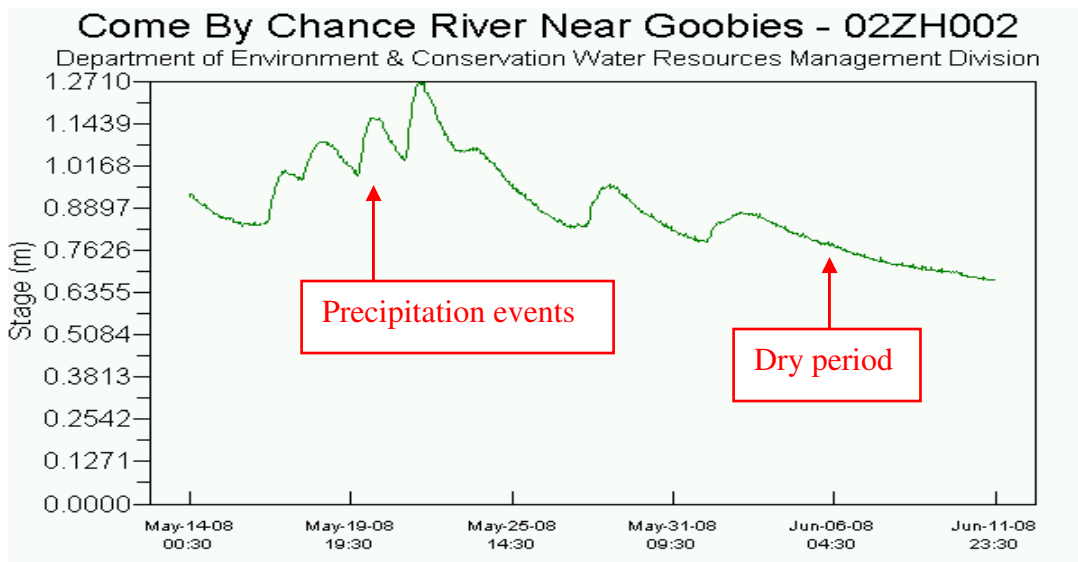
















Figure 6

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Appendix A – Climate Data for Argentina, NL (May 14 to June 11, 2008)

Daily Data Report for May 2008											
D a y	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 
<u>14</u> †	4.2	0.9	2.6	15.4	0.0	M	M	0.0		4	57
<u>15</u> †	9.8	1.8	5.8	12.2	0.0	M	M	3.3		5	48
<u>16</u> †	9.2	3.1	6.2	11.8	0.0	M	M	1.9			<31
<u>17</u> †	9.9	2.9	6.4	11.6	0.0	M	M	7.9		12	59
<u>18</u> †	11.9	2.0	7.0	11.0	0.0	M	M	3.0		15	74
<u>19</u> †	14.8	1.6	8.2	9.8	0.0	M	M	3.6		13	56
<u>20</u> †	11.3	3.5	7.4	10.6	0.0	M	M	8.1		16	48
<u>21</u> †	12.1	4.2	8.2	9.8	0.0	M	M	13.5		13	82
<u>22</u> †	6.7	3.0	4.9	13.1	0.0	M	M	0.0		20	67
<u>23</u> †	13.2	3.1	8.2	9.8	0.0	M	M	3.8		10	44
<u>24</u> †	5.1	2.2	3.7	14.3	0.0	M	M	2.0		21	44
<u>25</u> †	5.9	1.3	3.6	14.4	0.0	M	M	0.0		20	39
<u>26</u> †	9.2	2.7	6.0	12.0	0.0	M	M	0.0		20	52
<u>27</u> †	11.4	5.5	8.5	9.5	0.0	M	M	2.8		21	87
<u>28</u> †	7.3	2.7	5.0	13.0	0.0	M	M	6.4		21	63
<u>29</u> †	9.4	3.1	6.3	11.7	0.0	M	M	0.0		19	61
<u>30</u> †	7.9	4.2	6.1	11.9	0.0	M	M	0.0		21	63
<u>31</u> †	9.3	4.0	6.7	11.3	0.0	M	M	0.0		21	41

Daily Data Report for June 2008											
D a y	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 
<u>01</u> †	12.5	5.2	8.9	9.1	0.0	M	M	6.8		15	67
<u>02</u> †	10.2	5.3	7.8	10.2	0.0	M	M	5.5		20	44
<u>03</u> †	8.8	4.9	6.9	11.1	0.0	M	M	0.0		20	33
<u>04</u> †	8.8	4.9	6.9	11.1	0.0	M	M	0.0		19	35
<u>05</u> †	10.7	5.4	8.1	9.9	0.0	M	M	1.2			<31
<u>06</u> †	17.4	4.3	10.9	7.1	0.0	M	M	0.0		1	39
<u>07</u> †	10.1	4.0	7.1	10.9	0.0	M	M	0.0			<31
<u>08</u> †	12.4	3.5	8.0	10.0	0.0	M	M	0.0		14	52
<u>09</u> †	13.1	4.6	8.9	9.1	0.0	M	M	0.0		13	54
<u>10</u> †	14.9	5.0	10.0	8.0	0.0	M	M	0.0		3	43
<u>11</u> †	15.7	6.3	11.0	7.0	0.0	M	M	0.0		3	35