Real Time Water Quality Monthly Report
for Vale Inco Newfoundland and Labrador Ltd.
June 2008

General

- The four Datasondes were taken out of winter storage in mid-May. Vale Inco staff cleaned/calibrated all instruments and set the parameter display order to ensure the data would read properly when the instruments were deployed.
- By early June, the ice in the rivers was breaking up and the conditions were suitable for deployment of the four Datasondes.
- On June 7th, the VBNC staff was equipped with a helicopter and installed the four Datasondes.
- The data and real-time water quality graphs were logging and transmitting the data successfully for three of the stations. The instrument at Camp Pond Brook was not reading accurately until July 3rd when the instrument was calibrated and reinstalled.
- Environment Canada staff and Department of Environment and Conservation staff were on-site July 7-8, 2008 to visit the real-time water quality/quantity stations.

Maintenance and Calibration of Instrumentation

- DOEC staff removed instruments from Camp Pond Brook, Tributary to Lower Reid Brook, Lower Reid Brook and Upper Reid Brook for cleaning and calibration on July 7th (after 31 day deployment period). Vale Inco and DOEC staff cleaned and calibrated the instruments and returned them to all four stations on July 8th.
- Minisonde readings which are usually taken for QA/QC purposes were not taken due to a malfunction with the charging cable for the Surveyor. Vale Inco staff has ordered a new charging cable for the Surveyor which will be available for the next removal/installation.

Data Interpretation

REID BROOK AT OUTLET OF REID POND (UPPER REID BROOK)

- The water temperature and dissolved oxygen (**Figures 1 & 2** respectively) remained relatively consistent throughout the deployment period without any significant water quality events captured. As expected for this time of the year there was an increase in water temperature and corresponding decrease in dissolved oxygen. All dissolved oxygen values remained above the minimum CCME Water Quality Guideline for the Protection of Aquatic Life.

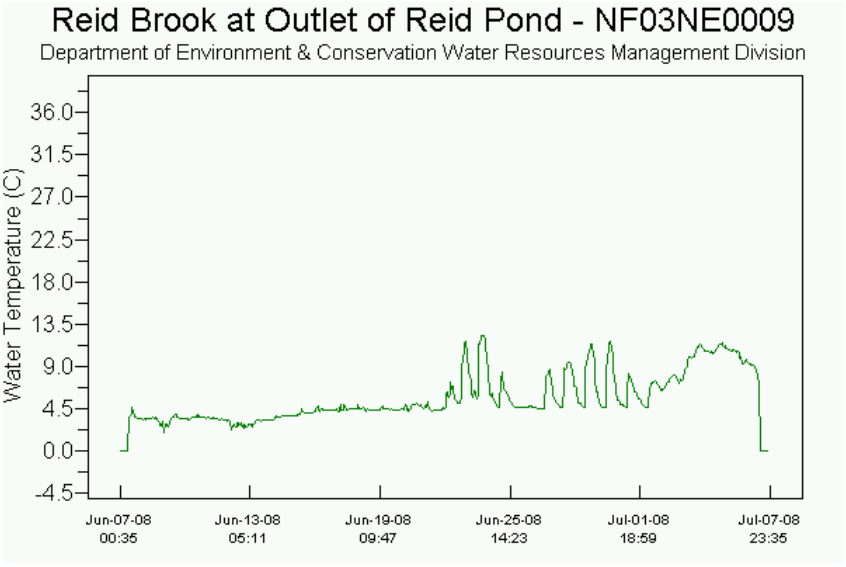

Figure 1

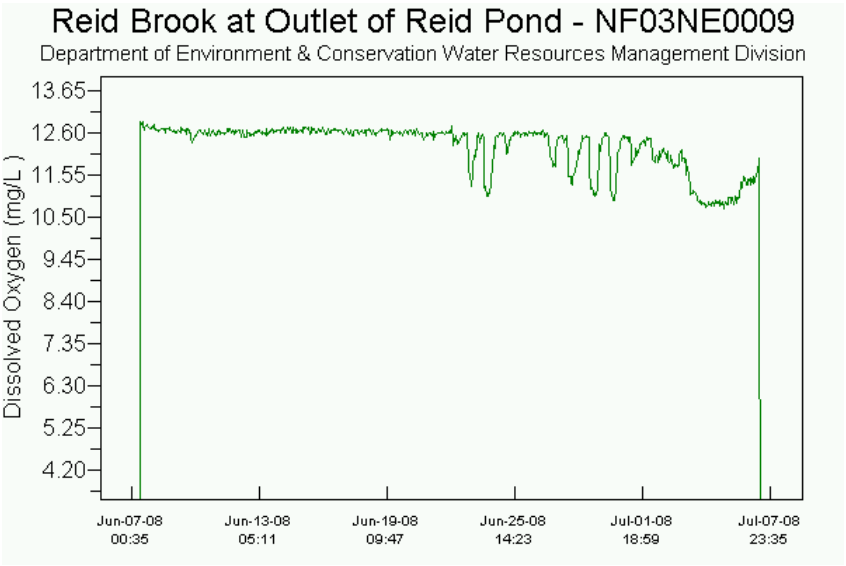

Figure 2

- The conductivity (**Figure 3**) remained consistent throughout the deployment period.

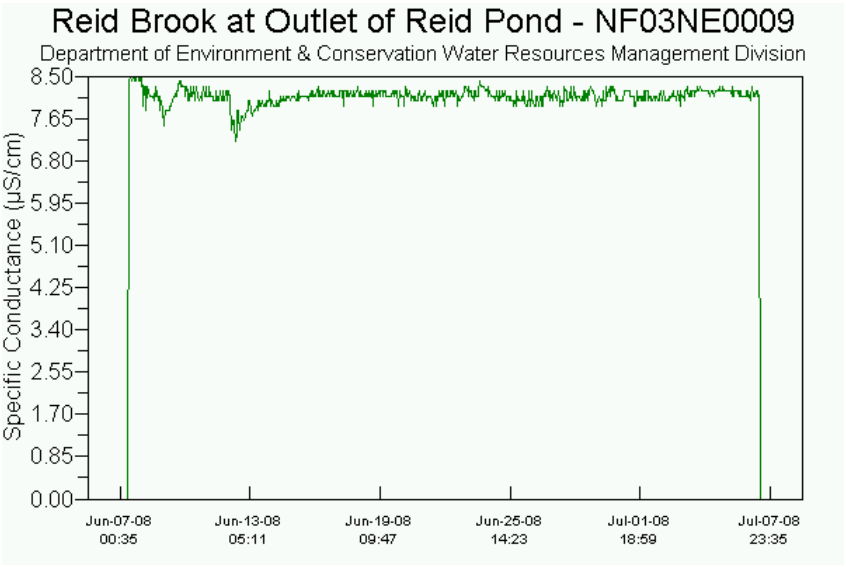

Figure 3

- The pH (**Figure 4**) values remained consistent throughout the deployment period and remained within CCME Water Quality Guidelines for Aquatic Life.

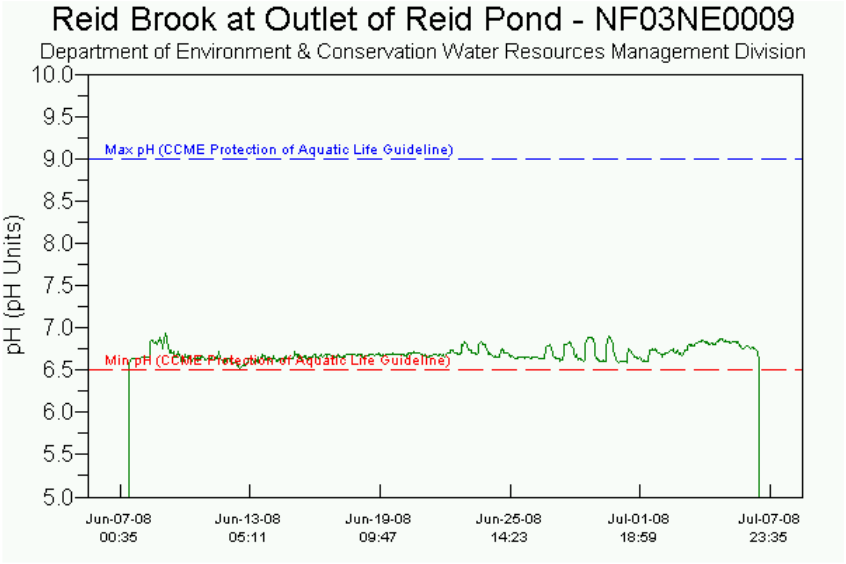

Figure 4

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

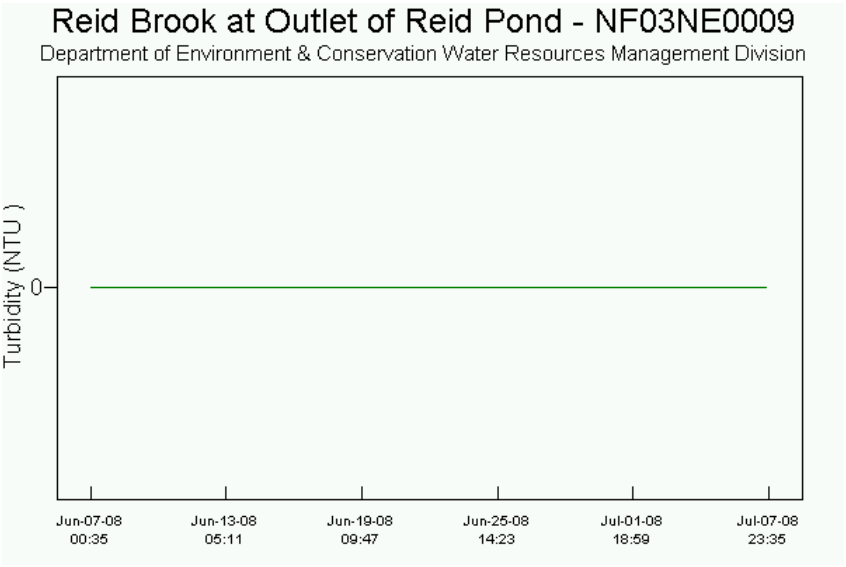

Figure 5

CAMP POND BROOK BELOW CAMP POND

- The instrument at the Camp Pond Brook station was not reading for the first part of the deployment period. The instrument was initially installed on June 7th and readings were not accurate. On June 29th Vale Inco staff removed the instrument and returned to the laboratory to maintain and calibrate the instrument. It was reinstalled on July 3rd and all sensors with the exception of conductivity were reading accurately. The instrument was then removed again on July 7th to determine if the conductivity sensor was malfunctioning. For the 5 day period that the instrument was installed and reading accurately, water temperature, dissolved oxygen, pH and turbidity remained consistent at background levels.

LOWER REID BROOK BELOW TRIBUTARY

- Water temperature and dissolved oxygen (**Figures 6 & 7** respectively) remained fairly consistent throughout the deployment period. As expected for this time of the year there was a slight increase in temperature and corresponding decrease in dissolved oxygen over the deployment period.

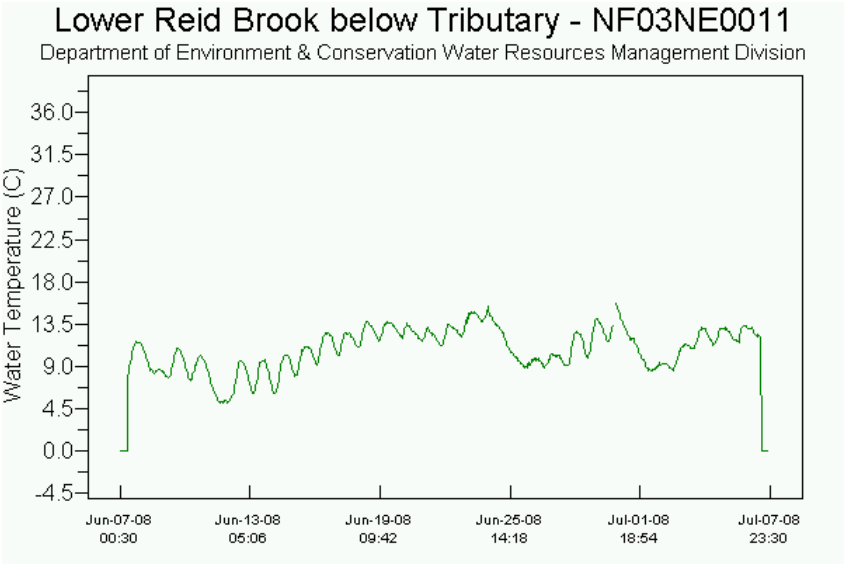

Figure 6

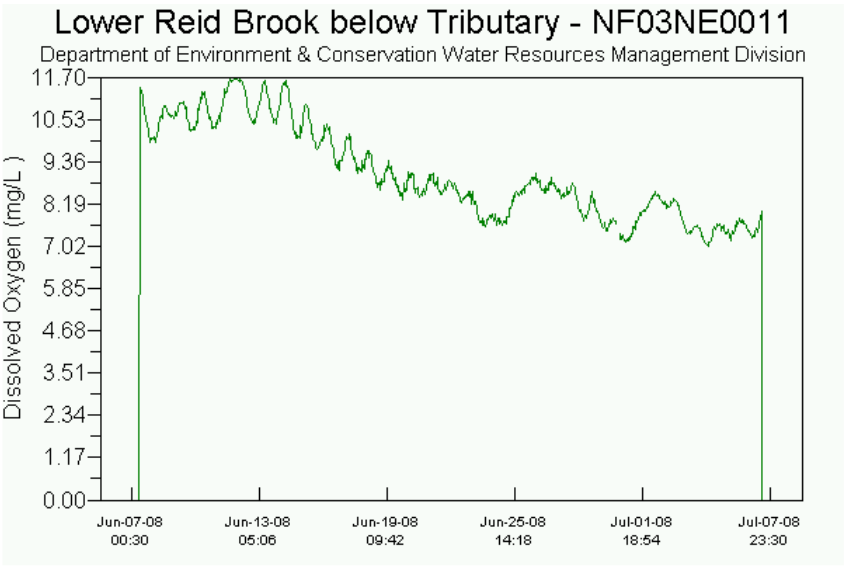

Figure 7

- The pH and specific conductivity (**Figures 8 & 9** respectively) remained at fairly constant background levels for this station over the deployment period. All pH values remained within CCME Water Quality Guidelines for Aquatic Life (6.5 – 9.0).

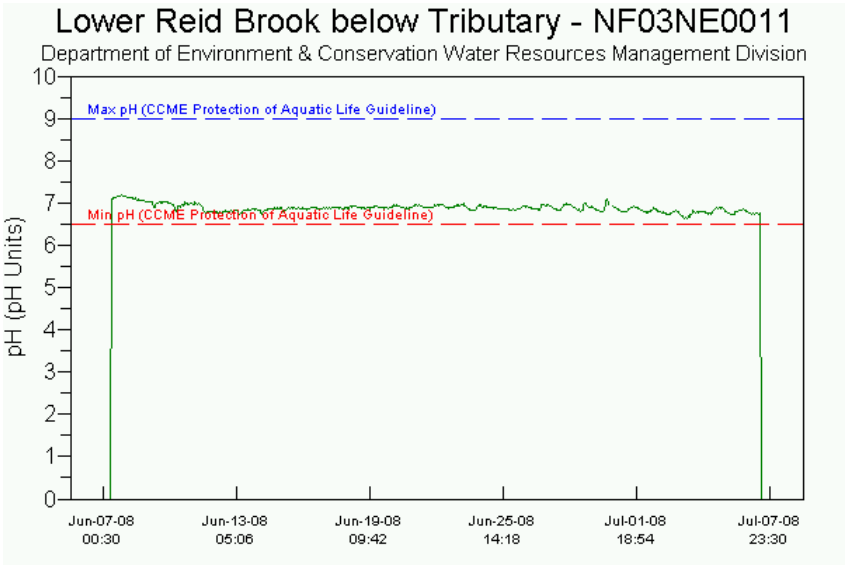

Figure 8

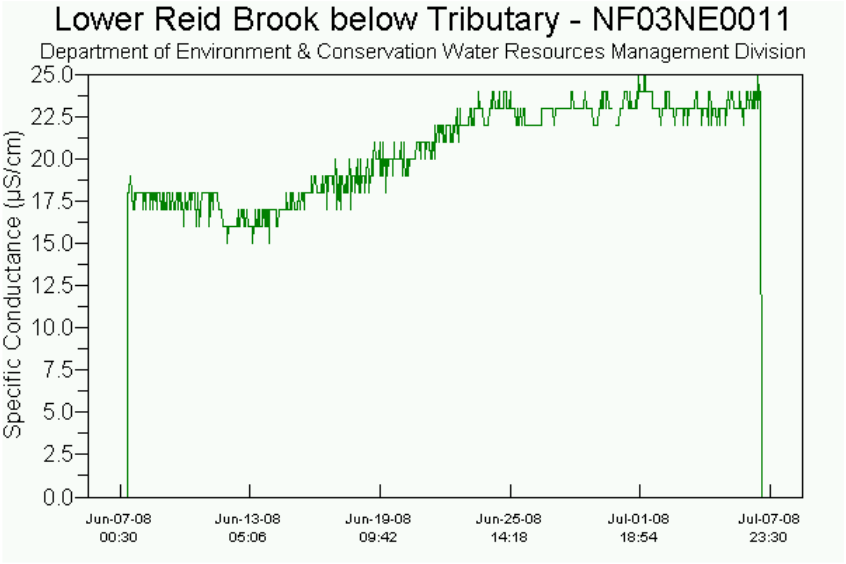

Figure 9

- Turbidity values (**Figure 10**) remained relatively consistent until the beginning of July until the instrument was removed. Sedimentation of the equipment was evident when the instrument was removed on July 7th.

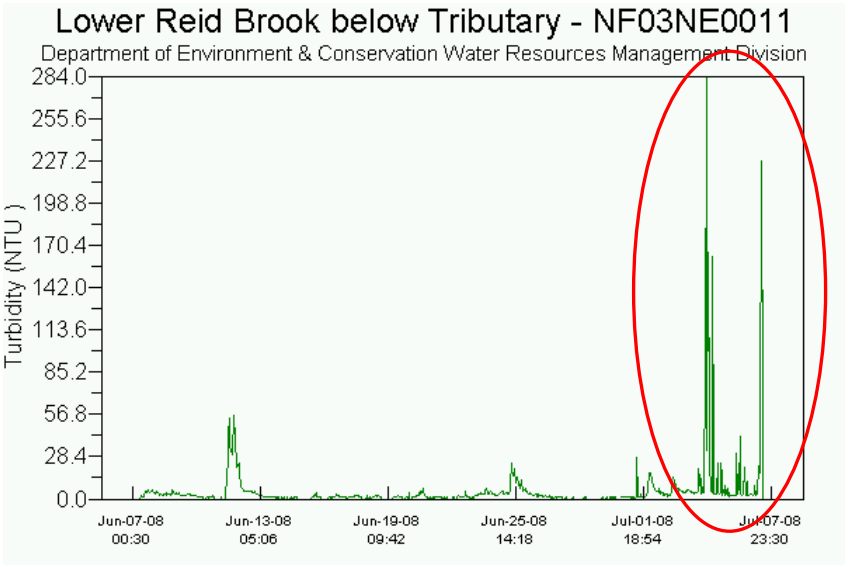

Figure 10

TRIBUTARY TO REID BROOK

- Water temperature and dissolved oxygen (**Figures 11 & 12** respectively) remained fairly consistent throughout the deployment period. As expected for this time of the year there was a slight increase in temperature and corresponding decrease in dissolved oxygen over the deployment period.

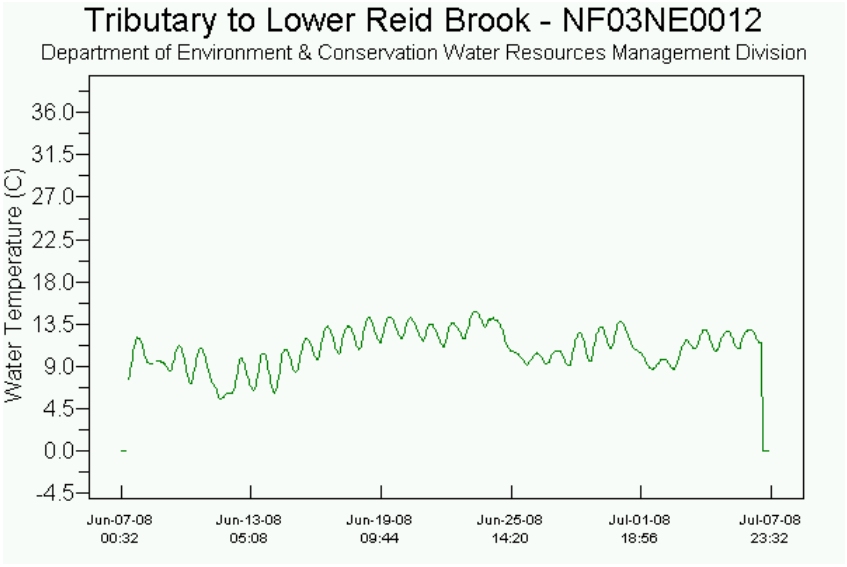

Figure 11

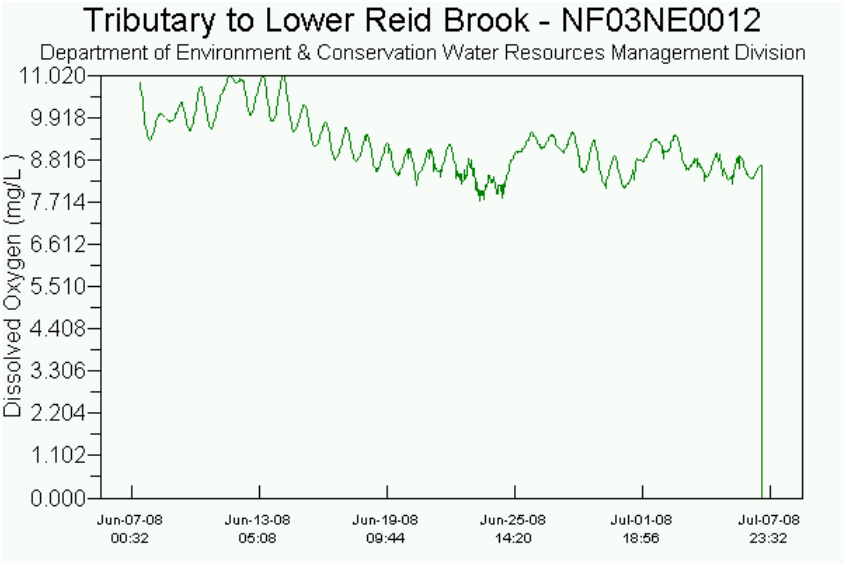

Figure 12

- The pH (**Figure 13**) remained consistent and within CCME Water Quality Guidelines for Aquatic Life (6.5 – 9.0) over the deployment period.

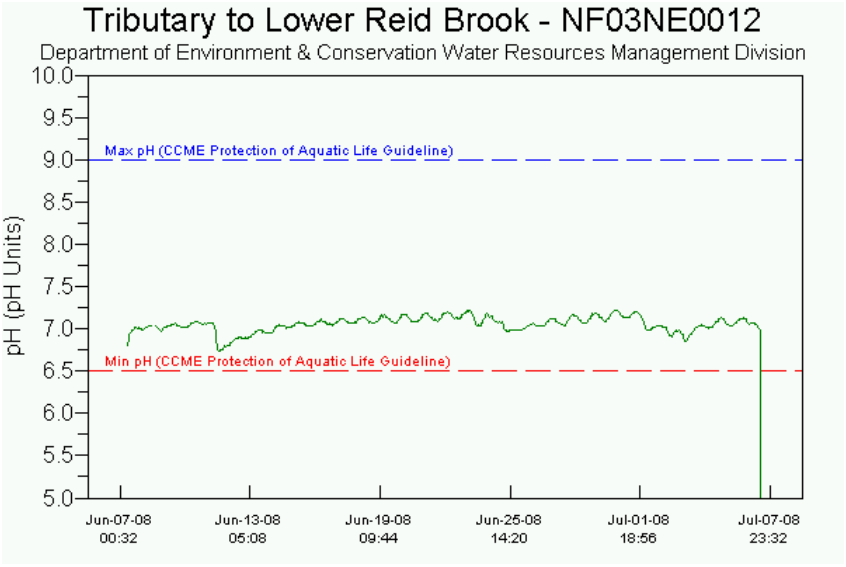

Figure 13

- The specific conductivity (**Figure 14**) showed a general increase in values throughout the deployment period.

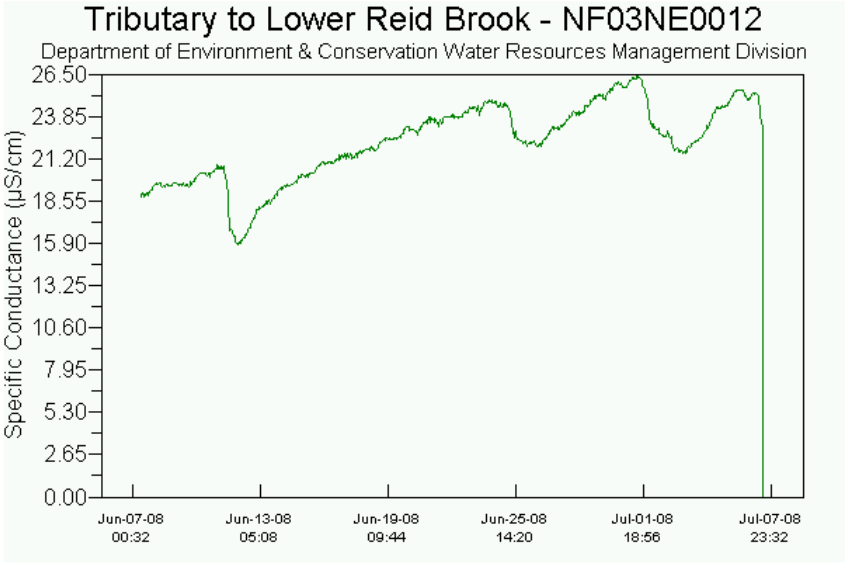

Figure 14

- Turbidity values (**Figure 15**) fluctuated throughout the deployment period, however, concentration remained below 62 NTU. Turbidity spikes appear to be related to the increases in stage (**Figure 16**) seen in the same time periods.

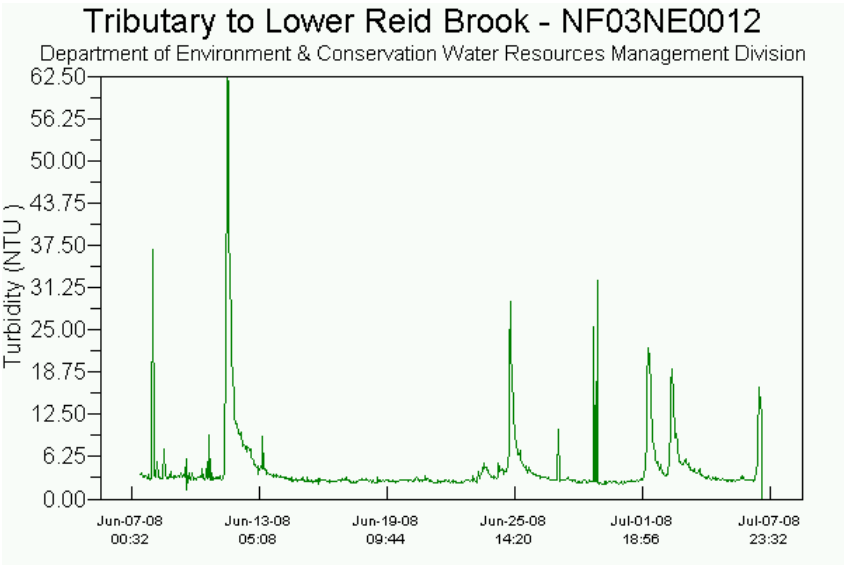

Figure 15

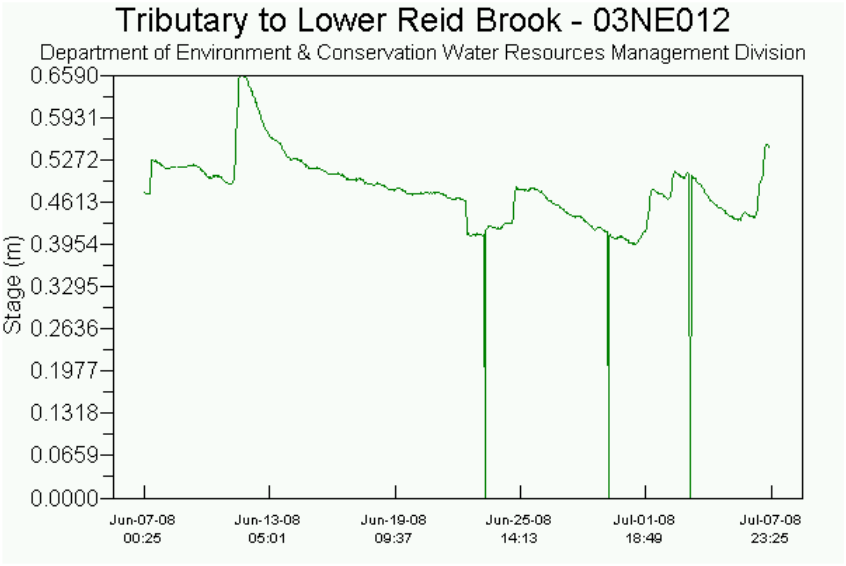

Figure 16

Prepared by: Annette Tobin
Environmental Scientist
Department of Environment and Conservation