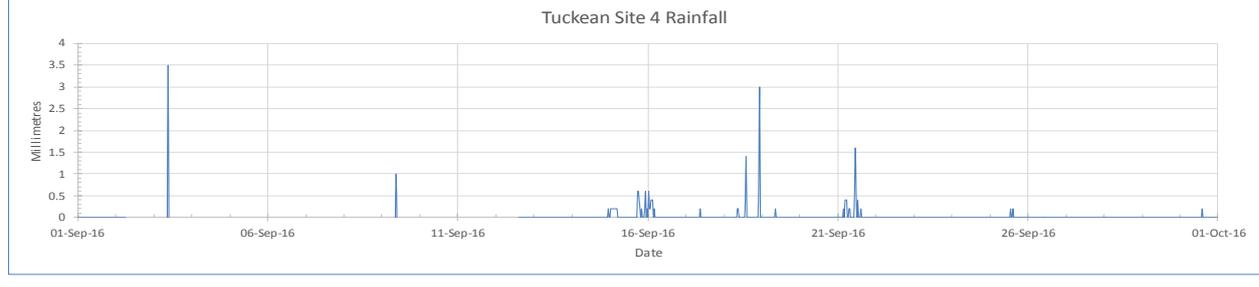
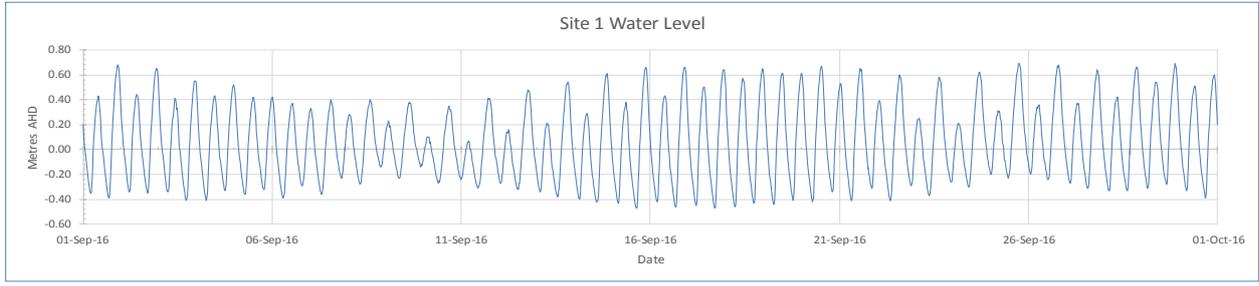
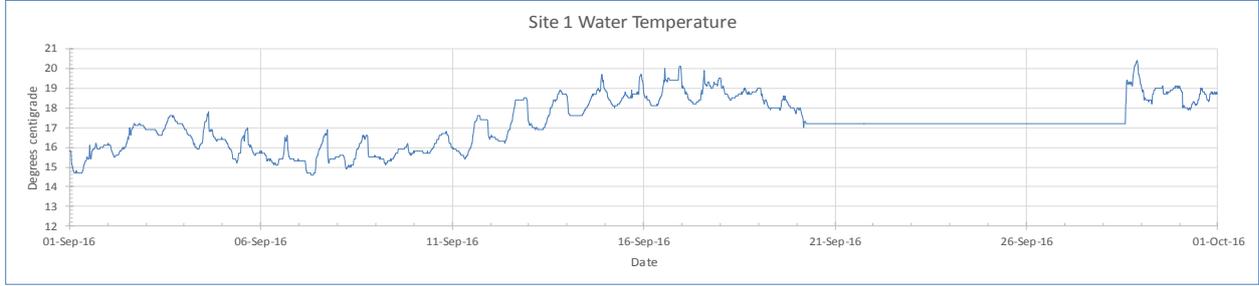
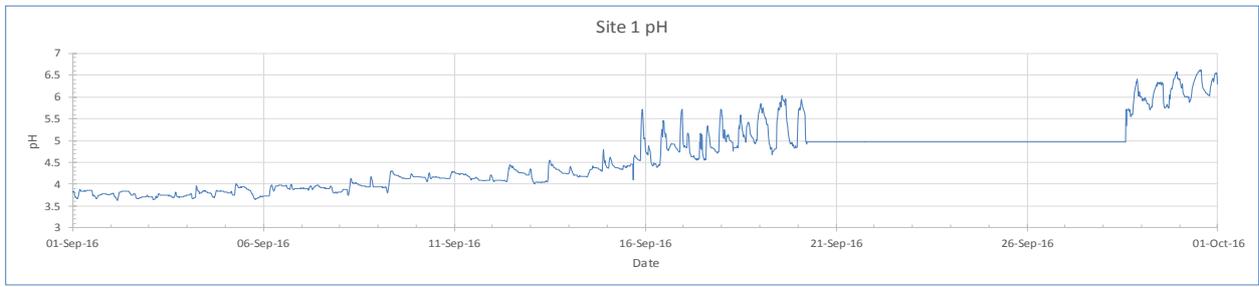
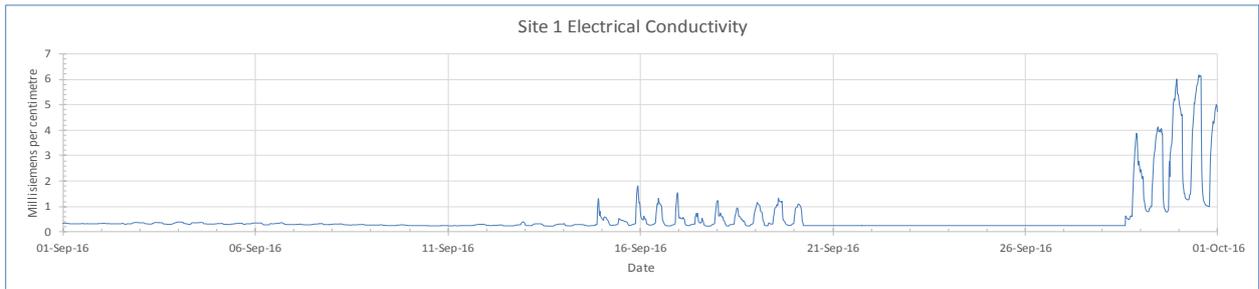
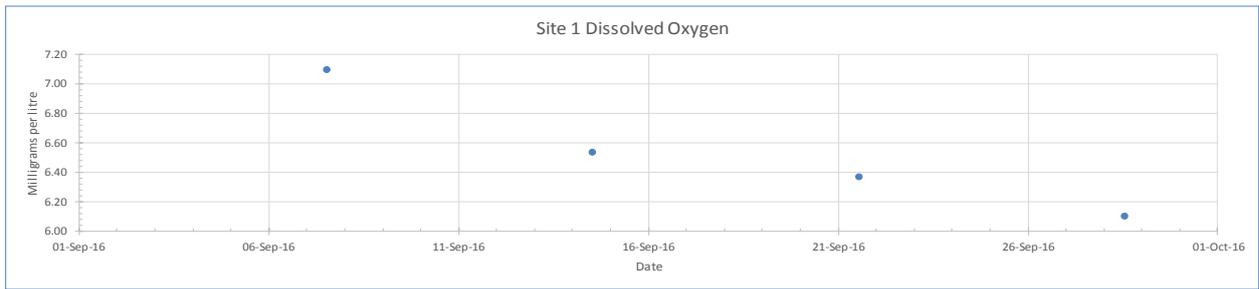


Tuckean Site 1 water quality – September 2016

Data logger located at Bagotville in the Broadwater downstream from Bagotville Barrage



Interpretation

The Dissolved oxygen sensor failed for the whole of September and is awaiting replacement. The logger failed between 20 and 28 September.

- **Dissolved oxygen (DO)** in September was recorded by weekly manual measurement on the upstream side of the barrage between 6.1 and 7.1 mg/litre, with an average of 6.5, which is 0.2 lower than last month's 6.7. Levels below 3 mg/L are considered critical to fish, while between 3 and 6 mg/L is considered marginal and above 6 mg/L is optimal. DO is influenced by temperature, rainfall, tidal movement and chemical and biological oxygen demand.
- **Electrical conductivity (EC)** for September ranged between 0.25 and 6.11 and averaged 0.52 ms/cm, which is considered fresh and compares to the August freshwater average reading of 0.92 ms/cm. EC was low for the first half of September and increased during the second half due to reduced rainfall and increased tidal exchange. Levels below 1.8 ms/cm are considered freshwater, while from 1.8 to 4.8 is considered brackish and above 4.8 ms/cm saline with seawater equal to approximately 60 ms/cm. EC is influenced by rainfall, runoff, temperature and tidal movement.
- **pH** in September ranged from 3.6 to 6.6 and averaged 4.4, which is 0.2 units or 1.58 times more acid than last month's 4.6. pH was low for the first half of the month following on from last month's high rainfall and runoff, and increased during the second half due to reduced rainfall and runoff. River water under normal conditions is generally near neutral (pH 7), while brackish or saline water moving upstream during dry periods may be higher. pH is measured on a logarithmic scale with each consecutive whole number different by a factor of 10.
- **Water temperature** for September ranged from 14.6° to a spike of 20.4°C, giving a range of 5.8°C and averaging 17.2°C, which has increased by 2.8°C when compared to the August average of 14.4°C due to seasonal change. Water temperature is influenced by season, air temperature, solar radiation, cloud cover, day/night, turbidity, tidal movement and rainfall.
- **Water height** for September ranged between -0.47 m and +0.69 m giving a range of 1.16 m and averaging +0.06 m, which is 0.32 m lower than last month's +0.38 m. The highest tides of the month at 1.78 m occurred on 16 September at 7:54 pm and on 17 September at 8:41pm at the Ballina River entrance, while the corresponding peak at the logger of 0.66 m AHD occurred at 9:30 pm on 16 September and 0.64 m on 17 September at 10:15 pm, giving a delay of 1hr 36 min and 1hr 34 min respectively. Water height can be affected by river level, tides and rainfall and to a lesser extent temperature, wind and barometric pressure.
- **Rainfall** recorded during September at the site 4 data logger situated 4 km to the north was 24.3 mm over 11 days (note - rainfall did not record during the first 10 days therefore daily rainfall was added from a nearby station), which compares to the August reading of 224.9 mm over 10 days. Peak daily rainfall of 4.6 mm was recorded between 9 am on 18 September and 9 am on 19 September. During September, the Rocky Mouth Creek data logger located 19 km to the SSW recorded 27.4 mm over 24 days, while the Ballina AWS located 19 km to the NE recorded 26.0 mm over 10 days.