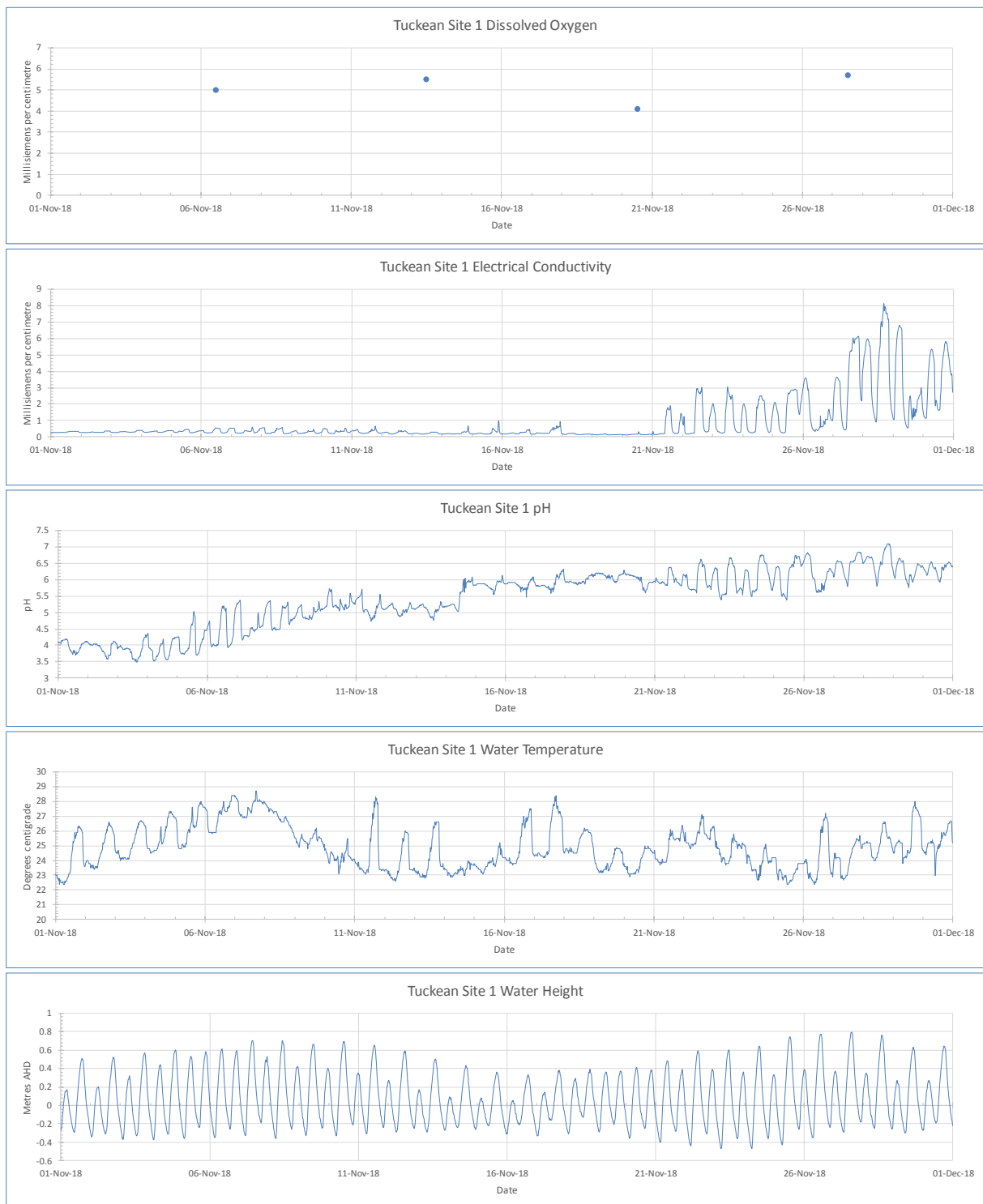
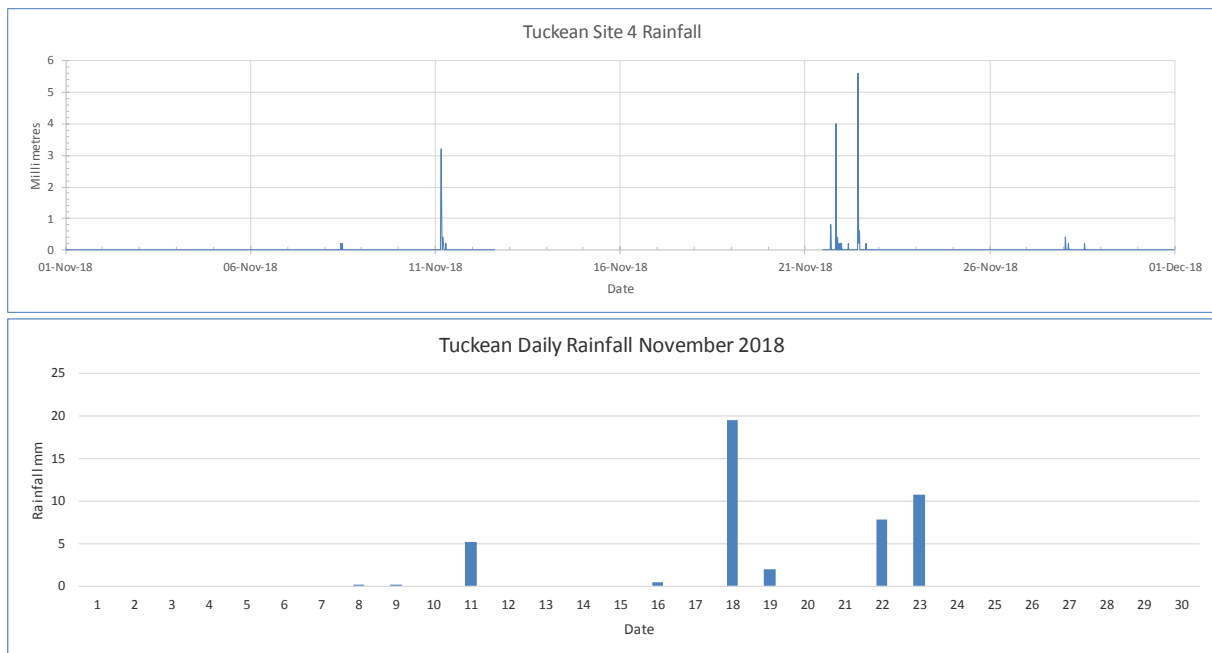


## Tuckean Site 1 water quality – November 2018

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





## Interpretation

Note: - Dissolved oxygen readings are being substituted by weekly manual measurements.

- Dissolved oxygen (DO)** in November was recorded by weekly manual measurement on the upstream side of the barrage between 4.2 and 5.8 mg/L with an average of 5.2 which has decreased compared to the October average of 5.7. 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 November ranged between 0.13 and 8.06 ms/cm and averaged 0.92 ms/cm, which is considered fresh and has decreased compared to the October brackish average of 3.6. 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** for November ranged from 3.5 to 7.1 and averaged 5.4, which is acid and has increased by 0.2 equivalent to 1.6 times decreased acidity when compared to the October average readings of 5.2. pH rose throughout the month due to decreased rainfall and decreasing acid water runoff from drains. River water under normal conditions is generally near neutral (pH 7), while brackish or saline water moving upstream during dry periods may be higher. Acid water is normally discharged from the Tuckean drains following rain. pH is measured on a logarithmic scale with each consecutive whole number different by a factor of 10.
- Water temperature** for November ranged from 22.4° to 28.7°C giving a range of 6.3°C and averaging 24.9°C which has risen by 2.4° compared to the October average of 22.5° 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** was recorded for November between -0.47 m and +0.78 metres giving a range of 1.25 m and averaging +0.08 m which has fallen by 0.03 m when compared to the October average of +0.11 m, however the logger needs to be surveyed into AHD. The highest tides of the month at 1.85 m occurred on 25<sup>th</sup> at 10:28 am at Evans Head, while the corresponding peak

at the logger of 0.74m occurred at 12:15 pm on 25<sup>th</sup> giving a delay of 1hr 47 min. Water height can be affected by river level, tides and rainfall and to a lesser extent temperature, wind and barometric pressure.

- **Rainfall:** In November the site 4 data logger situated 4 km to the north did not record for the entire month however a nearby station recorded 45.8 mm over 8 days which compares to 243.8 mm recorded over 20 days in October. Peak rainfall of 19.6 mm was recorded between 9:00 am on 17<sup>th</sup> and 9:00 am on 18<sup>th</sup> November. During November the Rocky Mouth Creek data logger located 19 km to the SSW recorded 96.0 mm over 14 days, while the Ballina AWS located 19 km to the NE recorded 106 mm over 6 days.