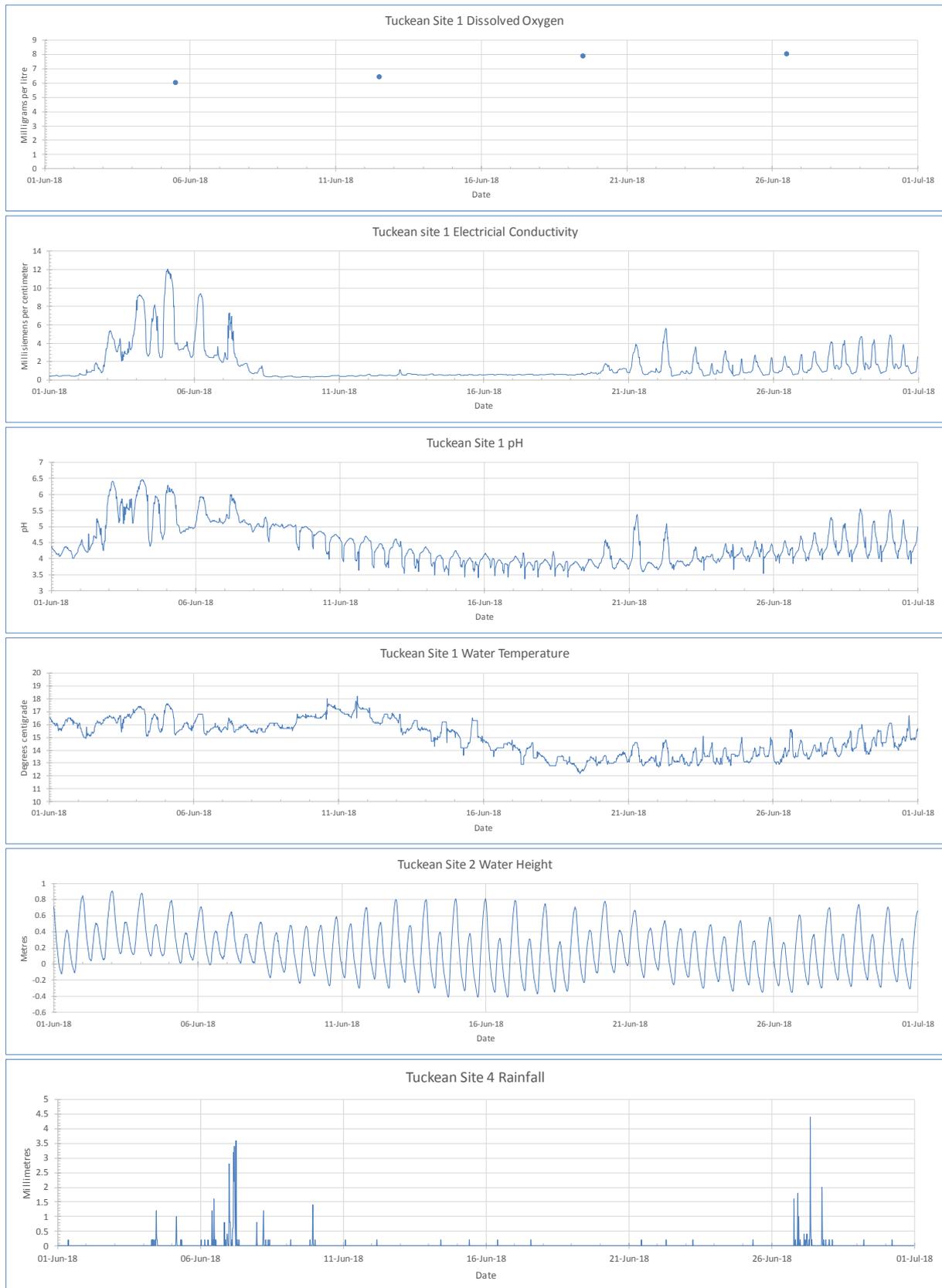


Tuckean Site 1 water quality – June 2018

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



Interpretation

Note: - The sensor float appears to have been hung up and stranded out of the water at low tide resulting in spikes of air temperature and zero EC, spikes have been removed from the data. The housing will be checked, repositioned or replaced. Dissolved oxygen readings are being substituted by weekly manual measurements.

- **Dissolved oxygen (DO)** in June was recorded by weekly manual measurement on the upstream side of the barrage between 6.1 and 8.1 mg/L with an average of 7.1 which has increased compared to the May average of 6.2 due to low rainfall. 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, chemical and biological oxygen demand.
- **Electrical conductivity (EC)** for June ranged between 0.27 and 12.02 ms/cm and averaged 1.55 ms/cm, which is considered fresh and has increased compared to the part May average of 0.41. 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 June ranged from 3.4 to 6.4 and averaged 4.5, which is acid and has risen by 0.1 when compared to the part May average readings of 4.4. 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 June ranged from 12.3° to 17.6°C ignoring spikes, giving a range of 5.3°C and averaging 14.95°C which has fallen from the May average of 19.4° 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 June between -0.41 m and +0.89 metres giving a range of 1.3 m and averaging 0.18 m compared to the May average of 0.24 m, however the depth housing has been replaced and the logger needs to be surveyed into AHD. The highest tides of the month at 1.93 m occurred on 15th at 9:44 pm at the Ballina River entrance, while the corresponding peak at the logger of 0.81m occurred at 11:30 pm on 15th giving a delay of 1hr 46min. Water height can be affected by river level, tides and rainfall and to a lesser extent temperature, wind and barometric pressure.
- **Rainfall** at the site 4 data logger situated 4 km to the north during June 2018 was 78.0 mm over 23 days while during May a nearby station recorded 73.4 mm over 13 days. Peak daily rainfall of 4.4 mm was recorded between 8.30 am and 8.45 am on 27th June. During June the Rocky Mouth Creek data logger located 19 km to the SSW recorded 72.4 mm over 25 days, while the Ballina AWS located 19 km to the NE recorded 99.0 mm over 13 days.