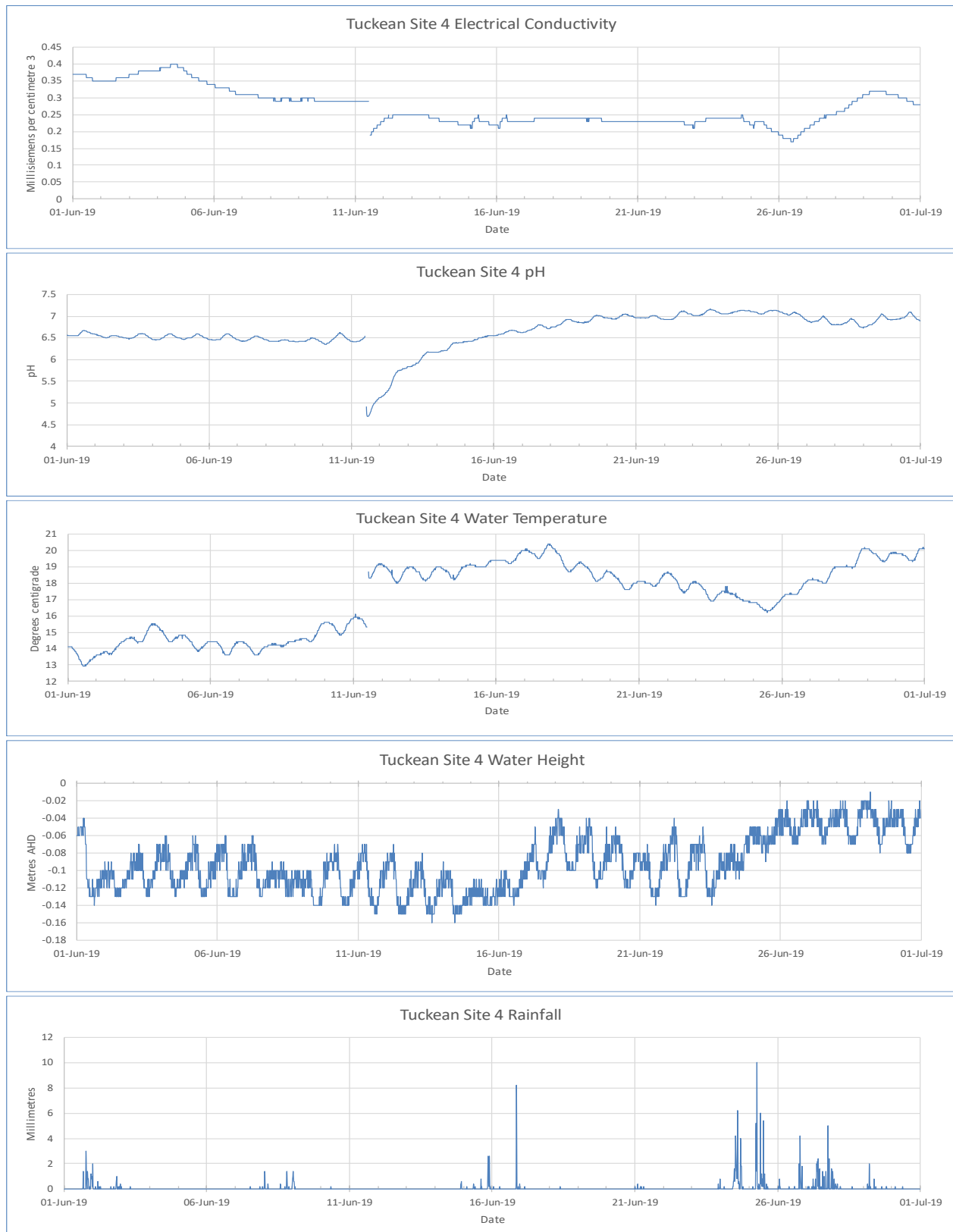


## Tuckean site 4 water quality – June 2019

Data logger located in Tuckean Swamp, Northern NSW



## **Interpretation**

Note – Site 4 was cleaned and calibrated on 11<sup>th</sup> June which caused a drop in EC & pH, however EC failed to calibrate and pH failed to calibrate on the first two attempts. The pH results are unreliable for the month due to slow response.

**Electrical conductivity (EC)** was recorded in June between 0.17 and 0.4 millisiemens per cubic centimetre (ms/cm<sup>3</sup>) averaging 0.27 ms which compares to the May average of 0.39 ms however the EC sensor failed to calibrate. EC measures the ability of the water to conduct an electric current, which is the inverse of electrical resistance (R expressed in ohms) and is affected by rain and runoff, acid water, tidal brackish water and temperature.

**pH** was recorded in June between 4.7 and 7.1 with an average of 6.6 which is acid and is equal to the May pH average of 6.6. Above average rainfall during June have allowed some runoff of acidity downstream, however low groundwater levels are restricting acid water from entering drains. Peaks of pH normally occur in late afternoon as plants draw CO<sub>2</sub> from the water, while troughs occur in early mornings as plants respire CO<sub>2</sub> forming carbonic acid. pH is measured on a logarithmic scale, therefore each consecutive whole number below neutral represents 10 times the acidity than the previous number.

**Water temperature.** Water temperature for June ranged between 12.9 and 20.4°C with an average of 17.1 deg C which has decreased by 0.6 °C compared to the May average of 17.7 deg C due to decreasing air temperature and seasonal change. Temperature variations are caused by season, time of day, solar radiation and air temperature, while cloud cover, rain and degree of shading also affect water temperature.

**Water level** was recorded for June between -0.16 and -0.02 m AHD giving a range of 0.14 m with a max daily tidal range of 0.1 m and average height of -0.09 m AHD, which has increased compared to the May average of -0.12m due to rainfall. Average water level at site 4 is 0.28 m lower than site 1 due to low yearly rainfall, evaporation, transpiration and the restricted entry of tidal water. For accuracy the depth sensor will need to be resurveyed in to AHD. Rainfall, tidal fluctuations, river level, sluice gate opening, in stream vegetation, sediment build up and drain blocks and to a lesser extent temperature, wind and barometric pressure can all affect the water level.

**Rainfall:** In June the site 4 data logger recorded 214.4 mm over 21 days which compares to 68.8 mm recorded over 21 days in May. Peak 15-minute rainfall of 10.0 mm was recorded between 6:15 am and 6:30 am on 25<sup>th</sup> June. The June 33-year average for this location is 165.5 mm therefore rainfall is above average for the first time in eight months. During June the Rocky Mouth Creek data logger located 19 km to the SSW recorded 191.0 mm over 24 days, while the Ballina AWS located 19 km to the NE recorded 268.2 mm over 15 days.