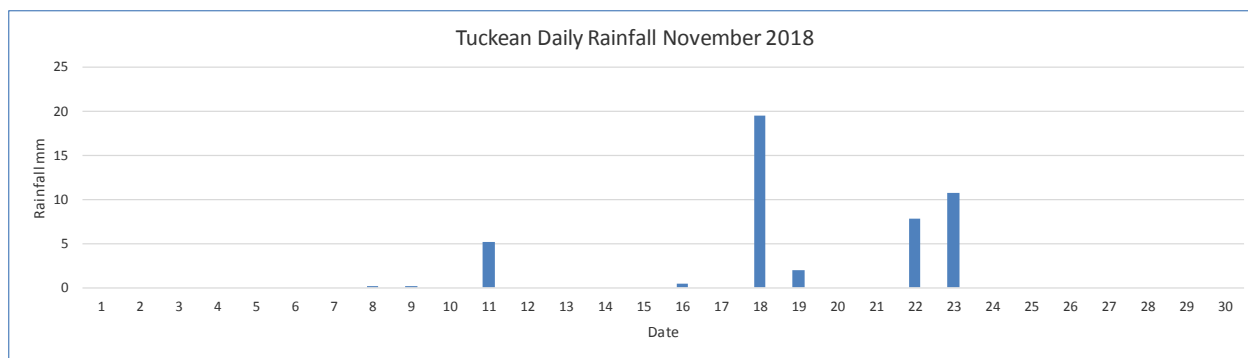


Tuckean site 4 water quality – November 2018

Data logger located in Tuckean Swamp, Northern NSW





Interpretation

Note – The pH sensor was replaced however data was spiking far out of range. The logger was removed for repair between 12th and 21st and data was lost. The original sensors and meter were sent back to the supplier for repair. The original meter and sensors have now been repaired and will be reinstalled.

Electrical conductivity (EC) during November EC was recorded between 0.09 and 0.22 ms/cm averaging 0.11 which compares to the October average of 0.25 ms. 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 during November recorded spikes which were well outside the possible range as the pH range is 0 to 14 indicating a sensor or meter problem. Peaks of pH normally occur in late afternoon as plants draw CO₂ from the water, while troughs occur in early mornings as plants respire CO₂ forming carbonic acid. pH is measured on a logarithmic scale, therefore each consecutive whole number below neutral represents 10 times the acidity that the previous number.

Water temperature. Water temperature for November ranged between 13.9 and 28.4°C with an average of 21.4 deg C which has decreased by 1.7°C compared to the October average of 23.1 deg C. Temperature variations are caused by time of day affecting solar radiation and air temperature, while cloud cover, rain, degree of shading and season also affect water temperature.

Water level was recorded for November between -0.13 and +0.10 m AHD giving a range of 0.23 m with a max daily tidal range of 0.12 m and average height of -0.05 m AHD which is 0.23 m lower than the October average of +0.18m due to decreased rainfall and increased evaporation and transpiration. For accuracy the 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 November the site 4 data logger 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 17th and 9:00 am on 18th 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.

