

Tuckean site 4 water quality – January 2019

Data logger located in Tuckean Swamp, Northern NSW



Interpretation

Note – Site 4 was cleaned and calibrated on 17th January causing a drop in EC of 0.25 and increase in pH of 0.3.

Electrical conductivity (EC) was recorded in January between 0.3 and 0.59 ms/cm³ averaging 0.53 which compares to the December average of 0.43 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 was recorded in January between 6.6 and 7.2 with an average of 6.8. 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 January ranged between 23.6 and 27.8°C with an average of 25.7 deg C which has increased by 2.4°C compared to the December average of 23.3 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 January between -0.2 and -0.1 m AHD giving a range of 0.10 m with a max daily tidal range of 0.07 m and average height of -0.16 m AHD which is 0.04 m lower than the December average of -0.12m 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 January the site 4 data logger recorded 12.2 mm over 1 day which compares to 46.2 mm recorded over 12 days in December. Peak 15-minute rainfall of 10 mm was recorded between 10:15 pm and 10:30 pm on 23rd January during a thunder storm. The January 33-year average for this location is 160.8 mm therefore rainfall is well below average. During January the Rocky Mouth Creek data logger located 19 km to the SSW recorded 1.6 mm over 3 days, while the Ballina AWS located 19 km to the NE recorded 2.4 mm over 5 days.