Coulta

Eyre Peninsula Groundwater Dependent Ecosystems monitoring site

2018 Report Card

The **Coulta** Groundwater Dependent Ecosystems monitoring site is situated three kilometres south of Coulta, on the Flinders Highway. The site includes a remnant patch (approximately 17 ha) of Red gum (*Eucalyptus camaldulensis)* Woodland. The understory is dominated by native and introduced grasses.

Coulta is a Control Site, as it is outside of the zone of influence of any current or known historic licensed extraction.

There is extraction of water for stock and domestic and other purposes for which a water licence is not necessary. This extraction is assumed to be low compared to extraction for licensed consumptive purposes.

Condition **Good**

Trend **Data deficient**

Adult Red gums assessed as in 'moderate' condition, during the 2018 GDE monitoring at Coulta.

Red gum conditions

Tree condition monitoring was undertaken in 2016 and repeated in 2018. In 2016 the average Red gum Condition Index (RCI) score was 0.48. In 2018 the average RCI score was 0.53, showing a 5% increase in Red gum condition over this period.

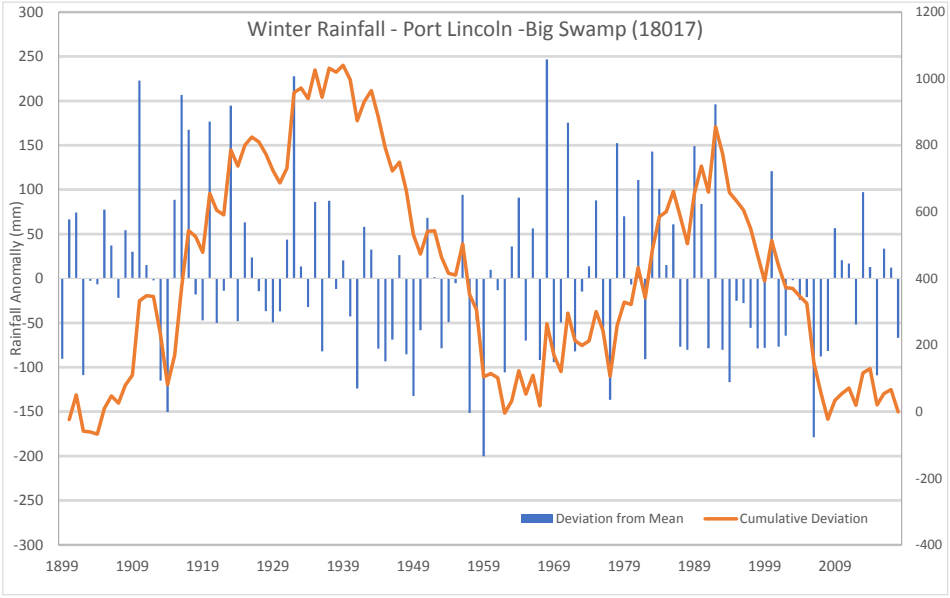
Coulta site map. *Note: yellow dots represent 50 surveyed trees.*

Climate assessment

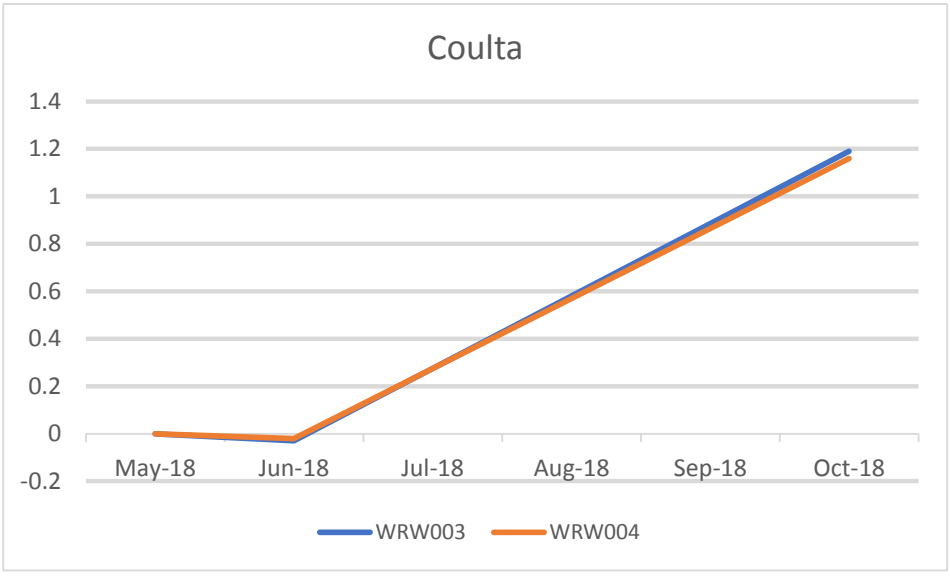
Statistical analysis of air temperature, rainfall and groundwater depth indicates that this change in condition is likely due to the effects of climate variability. Average annual maximum air temperature at Port Lincoln has increased by 1.2 degrees Celsius between 1962 and 2018.

Graphs on the right show:

- The rainfall trend amounts are in decline since 1993 including from 2016 to 2018. It should be pointed out that we would rather have rainfall data from closer to the site but Big Swamp (34km away) was the closest rainfall station with an appropriate dataset so this may not be an accurate reflection of the actual rainfall at the site. It must also be noted that it is thought that intense rainfall events maybe more important to Red gum health than changes in annual rainfall. This concept will need further data analysis into the future.
- Limited Groundwater level monitoring was undertaken at this site between 2016 and 2018 so no real trend can be identified.



Graph 1 Winter rainfall from 1882 – 2017.



Graph 2 Change in groundwater levels at two wells, from 2016 to 2018.
(*Note: all measurements are in metres*)

Monitoring into the future

Tree condition monitoring will continue on a yearly basis. As time goes on more data will identify a trend if there is one.

In addition to more data, new monitoring infrastructure was installed at Coulta in 2019 to improve the site specific accuracy of data collection. Additions include:

- two monitoring wells
- a water level data-logger at one well
- a rain gauge to measure rainfall intensity and amount.

For more information

Access the full report here: Muller K.L., N.J. Souter and Australian Water Technology (2019). *Eyre Peninsula Groundwater Dependent Ecosystem Data Analysis: Red Gum tree condition data (five sites).* A report for Natural Resources Eyre Peninsula, Department for Environment and Water, Port Lincoln, South Australia.

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