Kangaroo Island non-prescribed water resources

2018–19 surface water and groundwater status overview

Kangaroo Island	Surface water	◯

LEGEND

- Highest on record
- Very much above average
- Above average
- Average
- Below average
- Very much below average
- Lowest on record
- Long-term trend

Regional context

Kangaroo Island (KI) is Australia's third largest island with an area of 4370 km^2 and around 510 km of coastline. Higher elevated areas are found in the northern and central parts of the region as well as around Penneshaw and Cape du Couedic. Lower elevated areas are in the south.

Streams tend to begin in the central part of the island before flowing out to sea. Similar to other areas in South Australia, most watercourses on KI are ephemeral.

The occurrence of groundwater on the island is strongly controlled by its geology. Groundwater resources are found within a variety of aquifers ranging from fractured rock aquifers to Tertiary Limestone and river alluvium. There is very little development of these resources because occurrences of good quality groundwater are limited and localised.

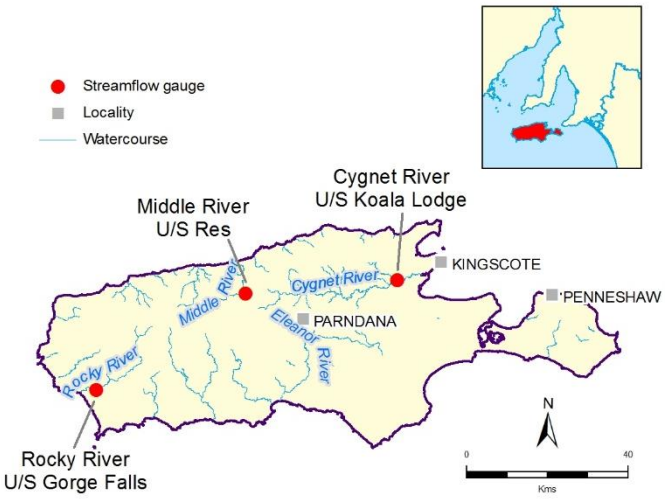
The Middle River catchment includes the largest surface water reservoir on KI, which is operated by SA Water and is vital for supplying potable water to towns including Kingscote and Parndana. Some parts of the KI still rely on rainwater tanks and farm dams for potable and non-potable supply and are not connected to the water supply network.

The KI Landscape Board is responsible under the Landscape South Australia Act 2019 for managing activities that may affect surface or groundwater resources. Whilst KI's water resources are not prescribed, the KI NRM Plan defines Water Take Limits as the volume of water that can be taken from the water resource for consumptive purposes, based on the total yield of surface water generated by rainfall over a given area of land.

Groundwater level

Groundwater level trends are typically controlled by land use and rainfall

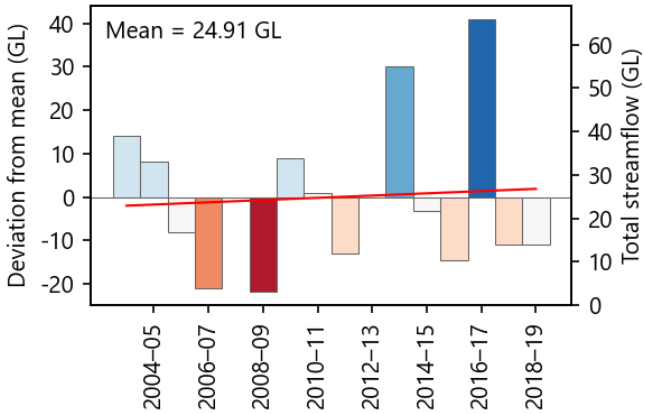
- Groundwater level observation networks have been established to monitor shallow water tables contributing to dryland salinity in various parts of the island
- Water level trends are largely controlled by land use and rainfall patterns, with a declining trend over the last 30 years
- Groundwater provides baseflow in the upper reaches of the Cygnet and Rocky Rivers and supports permanent pools.



Streamflow

Streamflow was ranked as 'average' in 2018–19

- The annual streamflow recorded at all three representative streamflow gauging stations in 2018–19 was ranked as 'average' based on the BoM classification used
- Long-term data trends show a decline in streamflow at Rocky River, whereas Cygnet River (data presented below) indicates a slight increasing trend.



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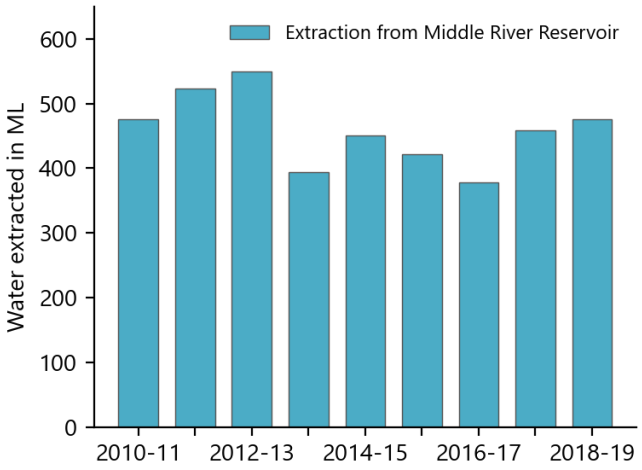
Water use

Middle River reservoir is the major water storage

- Surface water is the major water resource and demand is for consumptive use, other public benefits and environmental requirements
- Water is not prescribed and the use of water from farm dams, watercourse extractions and limited groundwater is therefore not licensed
- As a result, limited water use data is available
- Extraction from Middle River Reservoir was 476 ML in 2018–19, 17 ML above the mean annual extraction of 459 ML (data presented below)
- There are approximately 11 000 farm dams on KI with a total storage capacity of almost 20 000 ML.



Salinity

Surface water salinity in 2018–19 was high but values remained within historical ranges

- The highest salinity at the Koala Lodge streamflow gauging station in the Cygnet River catchment was 12 331 mg/L in 2018–19. The 2018–19 values remain within historical ranges experienced at the site
- Low-salinity groundwater is in short supply on the island because occurrences of good quality groundwater are localised
- Most groundwater is brackish to saline (> 2000 mg/L).

Climate-driven trends in water resources

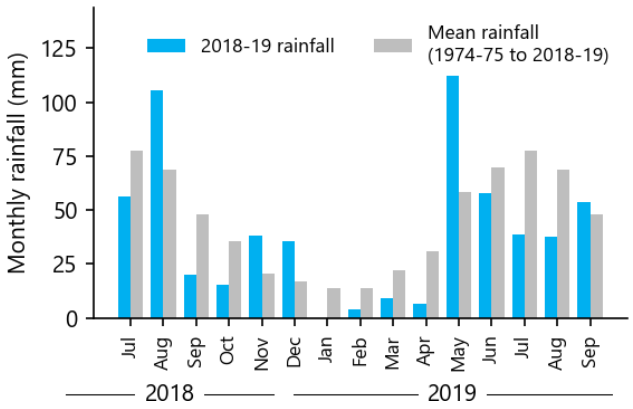
Climate is one of the primary drivers of trends in the local water resources. Surface water and groundwater on KI are highly dependent on rainfall.

Below-average winter rainfall results in a reduction in annual streamflow volumes. Below-average summer rainfall can increase the need for irrigation and therefore lead to higher water extraction. This can in turn lead to an increase in salinity. Conversely, increased rainfall results in increased surface water availability, decreased irrigation extractions, with potential decline or stabilisation of salinity.

Below-average rainfall also results in reduced recharge to shallow aquifers. Together with increased water extractions, this can cause groundwater levels to decline even in deeper confined aquifers. Conversely, higher-than-average rainfall can cause increased recharge and lower irrigation extraction, which can cause groundwater levels to increase.

Rainfall was lower than average at the eastern part of KI in 2018–19

- Rainfall at Flinders Chase and Parndana were higher than average in 2018–19 with 856 mm and 780 mm of rainfall measured respectively
- However, rainfall at Kingscote measured 461 mm, which was lower than the average of 476 mm (monthly data is presented below)
- Long-term data trends are varied across the island with Flinders Chase indicating a stable trend, Parndana a decreasing trend and Kingscote presenting an increasing trend in rainfall
- Rainfall in early winter and spring of 2018 was below average and very dry conditions occurred in summer 2018–19.



More Information

This fact sheet is a high level summary of information provided in the 2018-19 Water Resources Assessment for Kangaroo Island.

Full details of the assessment can be found at:
https://www.waterconnect.sa.gov.au

Government of South Australia
Department for Environment and Water