Australian Government
Parks Australia

Fact Sheet
Uluṟu-Kata Tjuṯa National Park

WATER

Kapi (water) is a scarce and precious resource in the semi-arid environment and plays an important role in Aṉangu life.

Where the water comes from

There are two types of water found within the park, surface water and groundwater. Although much of the water found in the area remains hidden below the ground, both groundwater and surface water play a vital role in supporting cultural and environmental values in the park. To understand water in the local region we need to first look at the climate.

Climate in a semi-arid environment

The park is situated in arid Central Australia where rainfall is low and unpredictable, and the majority of the rainfall falls between January and March. Evaporation rates of more than two metres per year mean water collected in temporary wetlands or creek lines soon dries up after the rain has stopped.

Remarkable climatic events

Rainfall in the arid zone is highly variable, with some years receiving very low rainfall and floods in other years. Floods around the park have occurred in the summer of 1974, December 1988 to March 1989, and February 2000.

Cultural water values

Tjukurpa is the foundation of *Aṉangu* culture and provides both rules and behaviour for the care and use of waterholes. *Aṉangu* recognise three main kinds of water sources. The most reliable water source is *tjukuḻa* (large waterhole) considered the home of *waṉampi* (water snake), and *kapi wala* (springs). *Tjunyini* (soaks) are a fairly reliable water source that represents a local water table in the sand of a dry creek bed or in the soil next to a rock dome. Soaks are usually fed from an underground water supply and are protected from evaporation by sand or soil. The least reliable source is the *tjintjiṟa* (claypan) which is particularly susceptible to evaporation. *Aṉangu* consider all of these water sources to have continuous associations with *Tjukurpa* and are therefore an important part of management of the landscape.

Surface water

There are temporary and reliable soaks and waterholes throughout the park, including Muṯitjulu Waterhole at the base of Uluṟu. Temporary areas of surface water exist for varying periods after rainfall in gorges, claypans and depressions. This surface water cannot be relied on as a source of drinking water due to the impermanence of the supply and the cultural significance to *Aṉangu* in association with *Tjukurpa*.

Management of surface water

Surface water flow is important to vegetation communities and habitats and the placement of roads and infrastructure can potentially obstruct natural surface hydrology. The extraction of groundwater from regional aquifers also needs to be managed to sustain groundwater dependent surface water ecosystems.




Groundwater

Groundwater in the southern aquifer varies in age and bores sampled at Uluṟu contain ancient groundwater aged 30,000 years old. These waters occur in deep, buried alluvial channels and in the fractures of deep rock systems. Other bores show some areas of groundwater were recharged within the last 50 years.

Water treatment and disposal

Water for drinking, cooking and other indoor uses is obtained by treating bore water through a process of reverse osmosis to lower salt levels. Some of the treated water is set aside as brine, which is discharged in dune areas between the township of Yulara and the airport.

Wastewater from the township is treated using an activated sludge process at the Sewage Treatment Plant. Around 25 per cent of this water is reused while the rest is allowed to evaporate or filter into the ground through trenches. Recycled water is used for irrigation, sanitation and fire fighting.

The southern plains and dune plains aquifers

The first recorded bore accessing the southern aquifer was drilled in 1957 near Uluṟu. Managing groundwater use involves balancing what flows naturally (recharge) with what flows out naturally (discharge) and how much water is taken out by pumping (extraction).

The southern aquifer is recharged directly by inflow of water through the soil, generally in response to large flooding events. The size of the southern aquifer is about 6000 megalitres with an average annual recharge of 300 megalitres. Recharge is greater than annual extraction, around 80 megalitres, therefore current use of the groundwater within the southern aquifer is considered sustainable.

The general size of the Dune Plains aquifer was investigated in 1978-1980 by drilling a series of investigation bores to determine whether there was a reliable drinking water supply to support Yulara. The exact size of the Dune Plains aquifer is unknown meaning sustainable yield cannot be calculated accurately. It is estimated that the aquifer stores between 38,500-90,000 megalitres of water. Yearly extraction is around 700 megalitres and this level is considered appropriate.

The mulga bush and shield shrimp

Mulga is a species of acacia and is an important food source for *Aṉangu*. The seed is collected and ground into flour then added to water to make dough, which is then cooked as damper.

Mulga habitat in the park corresponds with the Dune Plains aquifer area and studies have shown that the trees may be more strongly related to surface run-off from sedimentary rock outcrops rather than proximity to the water table.

The Shield Shrimp (*Triops.sp*) is a type of shrimp sometimes found in temporary pools on the top of Uluṟu after rainfall. The eggs of these crustaceans are able to withstand drying, lying dormant until rainfall causes them to hatch.