

Project fact sheet

Opportunities and challenges sourcing and treating brackish groundwater

The opportunity

This project seeks to improve understanding of the potential use of brackish water within the Murray–Darling Basin.

There is ~80,000GL of brackish water in aquifers in the basin and ~2000 GL that can be sustainably extracted per annum. Arguably, brackish groundwater has a significant role to play due to plausible factors such as future reduction in surface water flows, continued shifts towards high-value crops and ongoing technological developments.

However, there has been relatively little investment in understanding potential opportunities and challenges associated with this water source from economic, social and environmental viewpoints.

Key points

The project has four objectives:

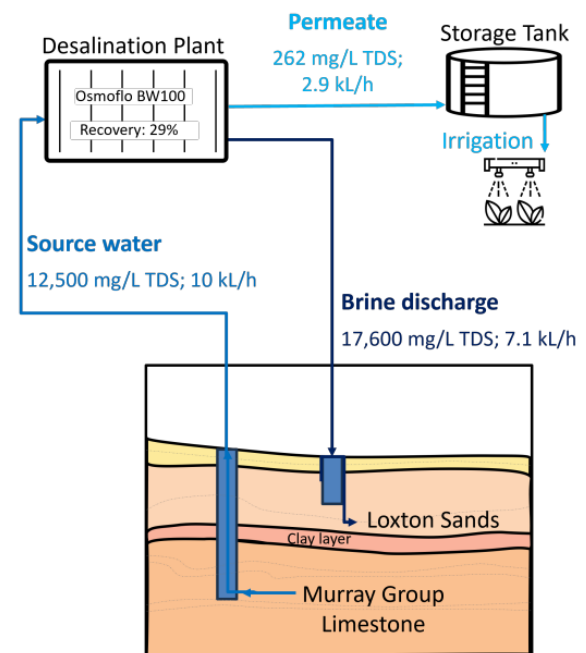
Objective 1. To develop a working prototype of an online resource and cost calculator for a range of water-user profiles to assess the viability of using marginal quality groundwater for irrigation and other consumptive purposes.

Objective 2. To identify and scope a pilot case study that investigates the technical feasibility, economic viability, and the environmental sustainability of using brackish groundwater. A demonstration site has been established at an almond orchard close to Loxton.

Objective 3. To synthesise information on brine disposal options associated with enhanced use of brackish groundwater. This will be targeted at desalination end users.

Objective 4. To identify future research, training, and commercialisation priorities to support the sustainable use of marginal groundwater in the Murray–Darling Basin. This includes the utilisation of brackish groundwater, and other alternative water sources such as municipal and industrial wastewater.

Aquifer disposal of desalination brine



This schematic shows the expected flowrates and water quality at the Loxton demonstration site.



For more information contact michael.leonard@adelaide.edu.au or use the QR code to visit the project webpage.



The outcome

The demonstration site at Century Orchards, utilising the Osmoflo desalinating unit, watering an almond orchard over the 2023–2024 irrigation season will provide valuable insights into this technology.

Looking to the future

Alternative water sources, such as brackish groundwater could play an important role in ensuring the ongoing resilience and productivity in the Murray–Darling Basin’s irrigation regions.

“ The One Basin CRC is excited to see this innovative research applied to current commercial farming practices for research, validation, and testing

- Avril Hogan, Director – Partnerships & Engagement

One Basin CRC

Since our inception in mid-2022, the **One Basin Cooperative Research Centre** has brought together 85 partners across the Murray–Darling Basin.

Our purpose is to work together to grow value from water in a changing world.

From Queensland to South Australia, we are finding practical solutions to complex challenges, training the next generation of scientists, and nurturing regional communities.

Our collective goal is a productive, resilient and sustainable Murray–Darling Basin.



Key personnel

- Michael Leonard - Research Lead
- Julien Anese – Industry Lead
- Peter Reeve – Postdoctoral fellow