Annual Water Security Update 2025

Acknowledgement of Country

The Department for Environment and Water acknowledges Aboriginal people as the First Peoples and Nations of the lands and waters we live and work upon and we pay our respects to their Elders past, present and emerging. We acknowledge and respect the deep spiritual connection and the relationship that Aboriginal and Torres Strait Islander people have to Country.

The Department works in partnership with the First Peoples of South Australia and supports their Nations to take a leading role in caring for their Country.

Cover photo: Hookina Spring (Pungka Pudanha) near Yappala. Credit Graham Green DEW

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Introduction

Water security means having an acceptable quantity and quality of water for people, industry, agriculture, and the environment now and into the future. A comprehensive understanding of South Australia's current water security status and risks is needed to enable South Australians to continue to adapt and plan for water security challenges, including with respect to a changing climate. In this context, the *Water Industry Act 2012* requires that a water security update report be prepared by 31 March each year which relates to the state water demand and supply statement, the *Water Security Statement 2022 – Water for Sustainable Growth* (DEW 2022a). This report, the *Annual Water Security Update 2025*, is intended to meet this statutory reporting requirement and includes:

- information on urban Adelaide's current water security
- a snapshot of water security by region
- detail on how current and future water security risks are being addressed.

Future climate projections and observed longer term trends in temperature and rainfall indicate an increasing likelihood of hotter and drier conditions (DEW 2022b), as well as more frequent extreme weather events such as flood and drought, both of which South Australia has experienced in recent times. Population growth, increased demands for greening and cooling, environmental water requirements and increases in agricultural and industrial production are already placing greater demands on South Australia's water resources. The changing climate and increasing demand for water is requiring South Australia to continue adapting to ensure most of the state's population continues to have high levels of water security over the decades to come. This requires sustainable and adaptive water resource management, an innovative and competitive water industry, strong collaboration between the water industry and research organisations, fit-for-purpose investment in water infrastructure and technologies, and integrated urban water management that optimises the use of all available water sources.

The *Annual Water Security Update 2025* reports on a range of water sources used across South Australia, which include:

- River Murray water distributed via pipeline to various regions of the state (Figure 2)
- groundwater resources
- surface water resources
- recycled wastewater
- desalinated seawater and groundwater
- captured stormwater
- rainwater tanks.

The range of water demand categories considered include:

- public water supply
- primary production
- mining
- industrial water requirements
- cultural water
- environmental water requirements
- urban greening and cooling.

This report is produced as a point-in-time document, current at the time of publication. Current and historical data are referenced to give a comprehensive water security picture.

State overview

Water sources

South Australia has a wide range of water sources that are used to supply water, including surface water, groundwater, desalinated water, stormwater and recycled water. Where water resources are prescribed, a water licensing system allows an individual or business to own water entitlements, which provide a share of the available water resource in the form of a water allocation volume. In many cases water entitlement or allocation volumes may be traded, allowing water to move to where it can be used most productively.

Figure 1 shows the average annual percentage of water used from prescribed surface water and groundwater resources from 2020-21 to 2022-23, as well as the water use from recycled sources and desalination. The average annual volume for this period was 1398 gigalitres (GL). Relatively small additional volumes were also used from groundwater sources in non-prescribed areas and via direct rainfall capture using rainwater tanks.

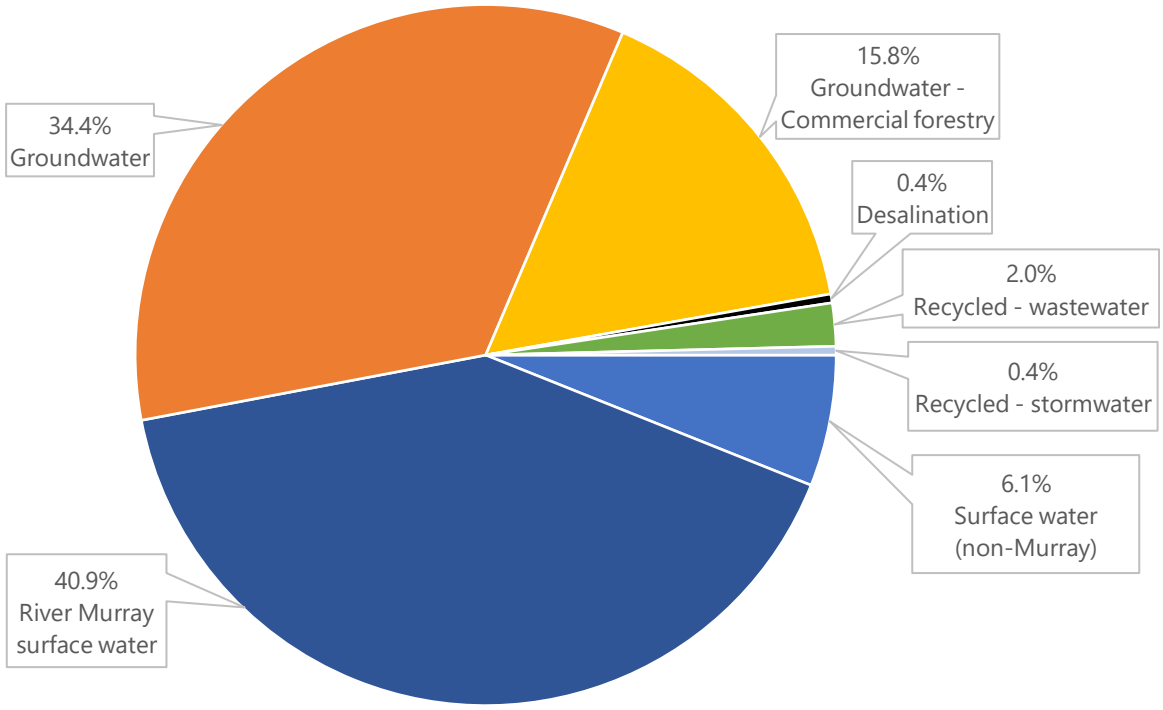


Figure 1. Average annual percentage of water used by resource type for South Australia 2020-21 to 2022-23

Groundwater

Groundwater is an important resource across large areas of South Australia. Between 2020-21 and 2022-23 an average of 471.8 GL per year was used for irrigated agriculture, domestic supply, stock, mining, industrial applications, town drinking water supplies and irrigation of recreation and sports grounds. For the same period an average of 217.1 GL per year was used by plantation forestry in the Lower Limestone Coast.

Surface water

Surface water is, by volume, the next most significant resource. Due to our dry climate, South Australia's surface water systems are mainly ephemeral, flowing in response to rainfall events. The exception is the River Murray, which is a regulated system with water delivered from 4 major storage dams upstream of the South Australian border. River Murray water is transported via pipeline to many locations within South Australia. Figure 2 shows the major pipelines that distribute River Murray water across the state. Between 2020-21 and 2022-23, there was an average of 544.2 GL per year used for consumptive purposes from the River Murray in South Australia. For the same period an average of 99.1 GL per year was used from all other prescribed surface water.

Recycled water

This includes capture and re-use of wastewater and re-use of stormwater. Between 2020-21 and 2022-23, an average of 27.7 GL of recycled wastewater per year has been re-used in South Australia. The average use of recycled stormwater over the same period was 5.6 GL per year.

Desalinated water

Between 2020-21 and 2022-23, an average of 5.8 GL of desalinated water was produced by plants operated by SA Water. Water for desalination is sourced from groundwater or the sea.

The Adelaide Desalination Plant, commissioned by the Government of South Australia during the Millennium Drought to safeguard Adelaide's water security, is the state's largest desalination plant and produced 5.4 GL over this period[1]. A further 0.4 GL was produced by plants servicing regional communities located at Penneshaw, Oodnadatta, Marla, Leigh Creek, Hawker, Indulkana, Kaltjiti (Fregon), Yunyarinyi (Kenmore Park), Murputja and Mimili and Yalata. Desalination plants owned and operated by local councils and private individuals also contribute additional volumes of desalinated water used in South Australia.

Due to the recent and prolonged dry conditions, production at the Adelaide Desalination Plant was increased in early 2025 to ensure Metropolitan Adelaide maintains a secure water supply. This highlights the importance of diversity in supply sources (including current and past investments in desalination and other alternate sources). Diversity of sources is a key principle of integrated water management and SA Water have embedded integrated water management as a core approach in water planning. The Adelaide Desalination Plant is able to produce up to 300 megalitres (ML) per day to ensure that SA Water's customers in Metropolitan Adelaide and connected areas continue to have a consistent water supply.

Water distribution

SA Water supply network

SA Water is the South Australian Government owned water utility providing essential water and wastewater services to more than 1.8 million people across the state (84% of households). As the state's major water retailer, SA Water is the main supplier of drinking quality water, with a water supply network incorporating infrastructure such as pipelines, treatment plants, storage facilities and pump stations across the state. SA Water also has recycled water networks which distribute treated wastewater for uses such as irrigation of public open space.

Figure 2 shows the extent of SA Water's supply services in South Australia, including the distribution of River Murray water and the location of desalination plants.

Self-supplied households and businesses

While SA Water services large portions of the state's population, there are still a number of regions which are not connected to a reticulated water supply network. In these instances, households and businesses are responsible for their own water supply.

The past 12 months have recorded the lowest rainfall levels in multiple areas of the State and these conditions present challenges for those who manage rainfall capture and storage to supply their household or stock and domestic water needs. Households that are not connected to the SA Water (or another) network are responsible for maintaining their own water supply. Self-supplied households are encouraged to regularly monitor their water supply (bores, dams and rainwater tanks) to ensure that enough water is available to meet their needs. Where a property owner identifies a risk of storages running dry, the onus is on households to book water deliveries proactively. A list of drinking water carters can be found on the SA Health website[2].

The prolonged dry conditions have put the domestic water supplies of some off-grid households at risk, most notably in the broader Adelaide Hills and Fleurieu region. In early 2025, demand for water carting services significantly exceeded supply, resulting in increased waiting times for some households and no guarantees that water would be available before people ran dry.

[1] The Adelaide Desalination Plant has produced greater than 200 GL since its introduction to the water supply system in 2012 and has a maximum production capacity of 100 GL per year. It provides a baseload capacity to the drinking water system, and the ability to scale up production quickly when dry conditions occur.

[2] https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/public+health/water+quality/providing+safe+drinking+water/registered+drinking+water+providers

In March 2025, in response to the unprecedented dry conditions and unmet water carting demands, the Government of South Australia established temporary, emergency bulk water collection points in the Adelaide Hills, McLaren Vale and Elizabeth Park. More information about these emergency bulk water collection points can be found on the Department for Environment and Water's website. To further support the water carting sector, the Government continues to work with the industry to increase delivery truck capacity and ultimately assist people to access water as soon as possible. As additional water carting companies are approved for carting of drinking-quality water, they are being added to the list on the SA Health website.

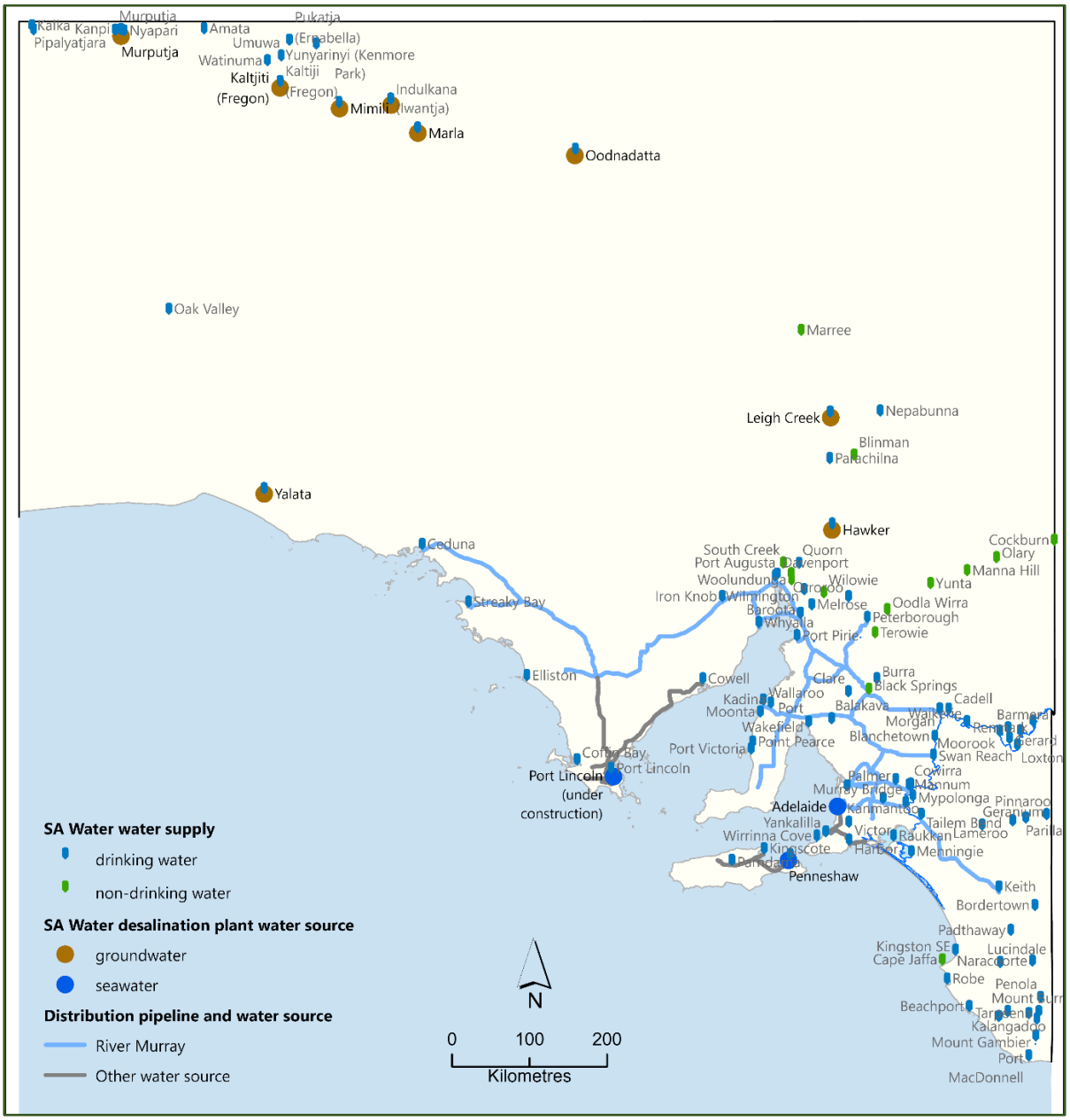


Figure 2. Communities serviced by SA Water

Climate in 2024

Each year the Bureau of Meteorology (BOM 2025) publishes a summary of South Australia's climate. In 2024 Adelaide experienced its driest year since 2006, with only 347 mm of rain recorded at West Terrace over the 12 months, nearly 200 mm below the annual average of 528 mm.

BOM summary statistics show that several weather stations received their lowest rainfall on record including the Western Agricultural District, Lower North, Yorke Peninsula, Kangaroo Island, Adelaide Plains, County of Light, Mount Lofty Ranges and Lower Murray Valley. The towns of Ceduna, Edithburgh, Maitland, Price, Roseworthy, Meningie and Murray Bridge received less than half their annual average rainfall in 2024.

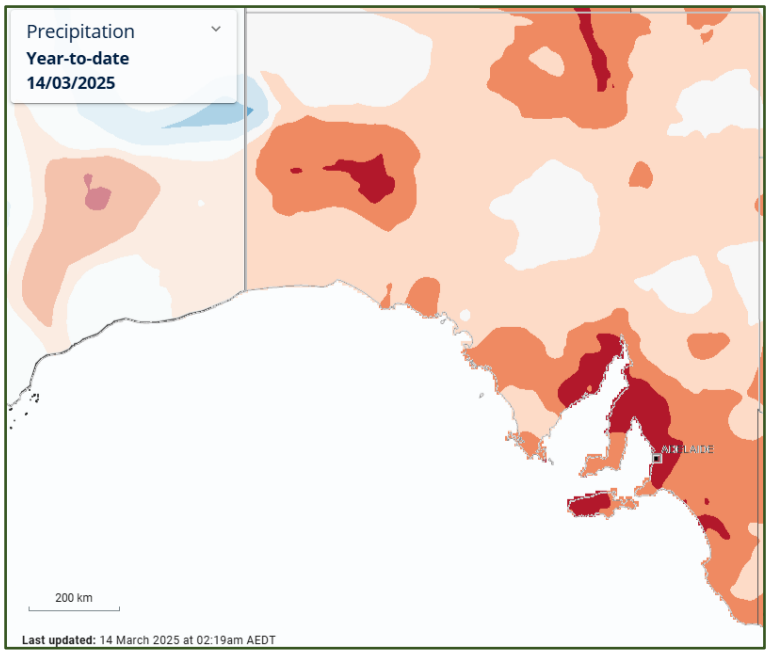
Information for 2024 obtained from BOM's Australian Water Outlook has been used to summarise and indicate water availability in South Australia in the following ways:

- **Precipitation** indicates the maximum potential water available for interception, recharge, runoff and storage.
- **Modelled actual evapotranspiration** indicates how much water may be lost from the landscape through transpiration from plants and evaporation from land surfaces and water bodies.
- **Runoff** indicates the potential level of runoff to feed watercourses and fill storages.

The following BOM decile ranking categories are used in Figure 3, Figure 4 and Figure 5. Decile rankings allow comparison with average conditions.

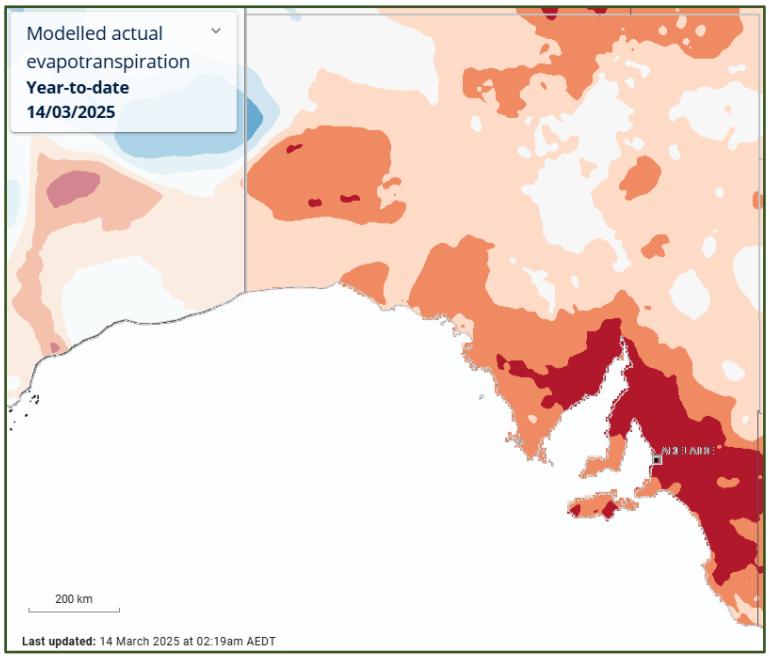
Category	Decile range
Lowest 1%	Less than 1%
Very much below average	More than 1 % and less than 10%
Below average	More than 10 % and less than 30%
Average	More than 30 % and less than 70%
Above average	More than 70 % and less than 90%
Very much above average	More than 90 % and less than 99%
Highest 1%	More than 99 %

All indicators show that water availability for the year to 14 March 2025 was the lowest 1% on record or very much below average for most of the agricultural regions of South Australia and generally below average in the northern parts of South Australia.



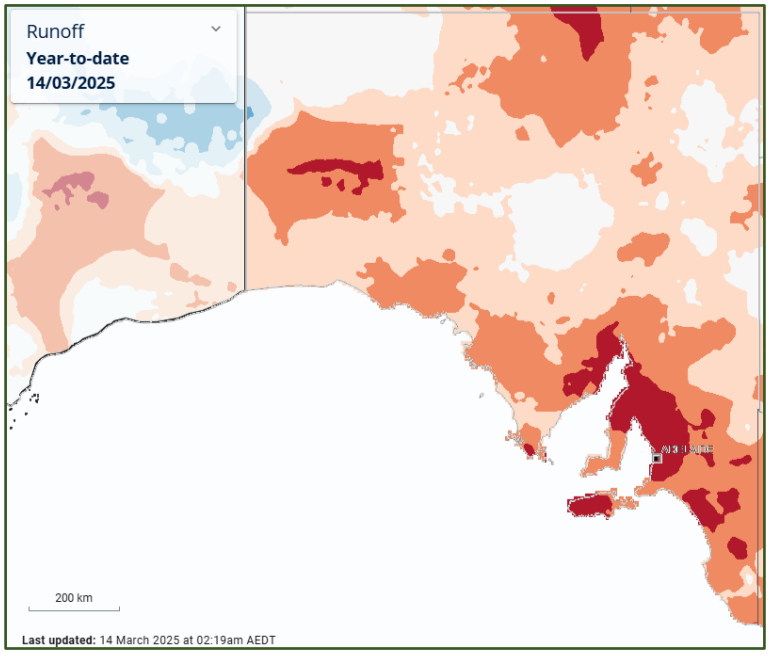
(source: BOM Australian Water Outlook)

Figure 3. Precipitation in South Australia in year to 14 March 2025



(source: BOM Australian Water Outlook)

Figure 4. Evapotranspiration in South Australia in year to 14 March 2025



(source: BOM Australian Water Outlook)

Figure 5. Runoff in South Australia in year to 14 March 2025

Climate change projections

The Department for Environment and Water (DEW) developed the latest climate change projections for South Australia in 2022. A new online tool was released in 2024 to give businesses, government agencies and the community access to climate projection maps and data. The interactive maps display projected changes to temperatures and rainfall across South Australia for a range of future time periods and climate emissions scenarios. The climate data can be displayed in 10 km and 50 km grids or for individual SA landscape regions or local health network areas (see the Climate projections viewer and Climate projections viewer FAQs).

The *Guide to climate projections for risk assessment and planning in South Australia 2022* provides reliable information on the likely future changes in South Australia's climate to help councils, regions, industry, and climate adaptation leaders to plan for the future.

Strategic water security directions and initiatives

Supporting housing and population growth

Each Planning Region in South Australia has a regional plan to guide development and growth over a thirty-year timeframe. The draft Greater Adelaide Regional Plan (GARP) was consulted on in late 2024 and was finalised in March 2025. The draft GARP is planning for a high population growth scenario with the population predicted to grow by up to 670,000 people by 2051 (PlanSA 2024). Regional plans help ensure a coordinated approach to meeting future housing and employment needs by ensuring sufficient supply of land, coupled with well-timed infrastructure. Water infrastructure and water supply is a key element of supporting this population growth.

Recognising a lack of affordable housing, the South Australian government released the Housing Roadmap in 2024. The Housing Roadmap makes a commitment to accelerate initiatives and develop innovative solutions to get more South Australians into their own homes. This includes fast tracking land releases for urban development. To support these new growth areas, it is also necessary to bring forward significant investment in water infrastructure, and therefore the Housing Roadmap included a funding commitment for SA Water to invest $1.5 billion between 2024 and 2028 to expand the water and wastewater networks to new growth areas. This expansion is crucial to support new housing developments which are located on the outskirts of existing networks.

This significant investment represents the largest expansion of the metropolitan water and wastewater network in decades, establishing a foundation to unlock an ultimate servicing capacity for 50,000 new homes by the 2050s with future investment. Keeping pace with the increasing demands on pipes, pump stations, tanks, and treatment facilities will ensure that the network is upgraded to prepare for future needs while reliable services are maintained for existing customers.

Draft Regional Plans for the Far North, Eyre and Western and Yorke and Mid North are also undergoing consultation until May 2025. Consultation on the Kangaroo Island Regional Plan occurred in 2024 and a finalised plan should be released shortly. As of 24 March 2025, the Murray Mallee and the South East consultations are due to commence in the near future.

Transition to more climate-resilient water supplies

As communities continue to grow and develop, and the climate becomes hotter and drier, there will be increasing demands on existing water systems. Climate-independent water sources, such as desalinated seawater and recycled water, are important components of South Australia's water supply mix. The resilience of our state is enhanced by having a diverse range of water sources, including options which do not rely on rainfall. This supports growth and liveability and can slow storage depletion rates, thus reducing the risk of low storage levels during dry conditions or drought.

Kangaroo Island

A desalination plant has been built near Penneshaw, Kangaroo Island to supplement the existing Penneshaw facility and Middle River Reservoir. The new desalination plant was turned on in December 2024 and will deliver up to 2 ML per day. This will secure a sustainable water supply into the future, reducing the island's reliance on rainfall. For the first time, popular areas on Kangaroo Island, like American River and Island Beach, have access to the SA Water drinking water network (Figure 2). The new desalination plant also provides better bushfire protection for the eastern area of the Island with more water and access points for firefighters.

Eyre Peninsula

In November 2024, the Government of South Australia announced approvals for a desalination plant to be built at Billy Lights Point, near Port Lincoln (Figure 2). This is expected to come online in mid-2026 and will supplement existing groundwater sources of the Southern Basins Prescribed Wells Area, to ensure water security for the region, producing up to 16 ML per day.

Following advice of the Eyre Peninsula Landscape Board, SA Water has updated its Water Security Response Plan for Eyre Peninsula to describe how the region's water supply will be maintained until the desalination plant is operational. The response plan outlines a tiered approach to the potential implementation of water restrictions. Further, the response plan requires SA Water to take steps to ensure that water demand does not increase, and places limits on new large industrial or commercial water connections. The support of the wider community in being water-wise is also key and SA Water continues to promote efficient water use amongst all sectors.

The District Council of Elliston, Eyre Peninsula Landscape Board, DEW and SA Water have been engaging with the Elliston community, Traditional Owners, and water licensees regarding the implications of falling groundwater levels in the Bramfield groundwater lens, including the identification of potential solutions. This includes the 'Ensuring water security, economic prosperity and nature-positive outcomes for the small coastal township of Elliston' project. This project, funded by the Australian Government through the National Water Grid Fund and the South Australian Government, seeks to investigate the long-term viability of the Bramfield groundwater resource.

Northern Water Project

This State Prosperity Project (South Australian Government 2024) is a co-ordinated initiative by the Government of South Australia to unlock the full potential of renewable energy, critical minerals and green manufacturing to reindustrialise the Upper Spencer Gulf region and Far North of the State. A key component of this project is the Northern Water Preconstruction Project. This project, jointly funded by the Australian Government through the National Water Grid Fund, the South Australian Government and industry, is assessing the viability of constructing a seawater desalination plant on the Eyre Peninsula and a pipeline to distribute the desalinated water to the Far North of South Australia. Should the project proceed to construction, the climate independent water supply will support renewable industries and the development of critical mineral resources in South Australia. This is part of a larger investment in a Future Made in Australia, the Australian Government's economic plan which supports Australia's transition to a net zero economy.

Early analysis shows that Northern Water will generate 4,200 long-term new jobs, increase South Australia's Gross State Product by 2.1% and expand the State's economy by $8.2 billion by 2050, driven by growth in resources, renewables, and the net zero transformation.

Climate change and adaptive management

Water security strategies to ensure long-term water security

A key challenge for South Australia's water sector in the decades ahead will be to reduce reliance on climate-dependent water sources (such as surface water and groundwater) and provide for additional water demands, while ensuring water services remain affordable.

In line with the priorities identified in the 2022 Water Security Statement, the Government of South Australia is investing in projects to better understand the water security risk in a changing climate. This has already led to improved climate and water availability predictions for Barossa and McLaren Vale regions.

SA Water is using an integrated water management approach to develop water security strategies for its regulated customers for each of the state's Planning Regions. Strategies will consider all water demands and all supply options to inform robust and timely investment decisions.

Long-term water security will involve a multidisciplinary assessment of the challenges and potential solutions across the water cycle for water, wastewater, and stormwater services, contributing to enhanced water security, public health, environmental and urban amenity outcomes.

Water allocation plans (WAPs)

Twelve statutory water allocation plans are currently in development, under review or being amended (Appendix B). DEW is actively engaging with landscape boards to ensure that the next generation of water allocation plans include adaptive management approaches that facilitate effective and sustainable water resource management in a changing climate.

Rainfall, runoff and recharge project

The 'Investigate the impacts of climate change on rainfall, runoff and recharge' project, funded by the Australian Government through the National Water Grid Fund, will update and develop new state-wide rainfall-runoff-recharge relationships that incorporate the impacts of climate change (particularly since the onset of the Millennium drought). Rainfall-recharge and rainfall-runoff relationships show how much recharge or runoff can be expected

for a groundwater system or surface water catchment for a given amount of rainfall on an annual basis. Updating these relationships will provide data and information that underpins the development and/or amendment of existing water management policies across the water sector in South Australia.

Preparing for and responding to drought

Drought is a regular phenomenon in South Australia, although its occurrence and severity is hard to predict. The past 12 months have recorded the lowest rainfall levels on record in multiple areas of the State.

SA Water has undertaken a range of preparedness activities to ensure it can maintain service levels across the state during dry conditions. Activities to date have included:

- development of water security response plans
- assessment of water security risks across the state
- increased use of the Adelaide Desalination Plant
- increased asset maintenance to support additional transfer of water across the state
- identification of opportunities to substitute use of drinking water with recycled water
- 'water wise' public messaging and education campaigns.

In line with the National Drought Agreement, Australian, state and territory governments do not make formal drought declarations. It is agreed that drought support should be provided based on need – providing a simpler, fairer and more proactive approach. This means that drought no longer needs to be declared in a region for farmers to be eligible for assistance.

The Government of South Australia has been working with the primary production sector to support drought-affected farmers and communities through an $18 million drought support package, which was announced in November 2024. Grants are available for on-farm drought resilience infrastructure, donated fodder transport assistance and mental health and community support services are also available. The Department of Primary Industries and Regions, South Australia (PIRSA) website[3] provides further details about eligibility for these drought support programs.

The Australian Government also has their *Australian Government Drought Plan*. A part of this is a $5 billion Future Drought Fund that provides funding to help Australian farmers and communities become more prepared for, and resilient to, the impacts of drought.

PIRSA is coordinating the delivery of two Future Drought Fund programs in South Australia, as follows:

- Regional Drought Resilience Planning program
- Farm Business Resilience program

These two programs are jointly funded through the Australian Government's Future Drought Fund ($100 million a year) and the Government of South Australia.

Regional Drought Resilience Planning Program

The Regional Drought Resilience Planning Program supports regionally based partnerships to develop drought resilience plans. These plans will identify and guide innovative ways to withstand future droughts, with a focus on agriculture and allied industries. Since the Regional Drought Resilience Planning Program commenced in 2021, regional partnerships in the following regions have conducted planning processes to develop drought resilience plans:

- Murraylands and Riverland
- Northern and Yorke
- Far North and Outback
- Limestone Coast
- Eyre Peninsula
- Adelaide Hills, Fleurieu and Kangaroo Island.

[3] Any primary producer or small farming business owner who is experiencing financial difficulty or who has concerns about the impacts of the dry conditions can also seek assistance from PIRSA's Family and Business Mentors by calling the Recovery Hotline on 1800 931 314 or visiting the PIRSA website.

Farm Business Resilience Program

The Farm Business Resilience Program prepares Australian farmers, farm managers, and farm employees to better manage risks relating to drought and its impacts. This helps with improving their economic, environmental, and social resilience.

The program is run in partnership with industry bodies including Livestock SA, Grain Producers SA, the Wine Grape Council of South Australia, AUSVEG SA, and SA Dairyfarmers. It allows the livestock, wine grape, grains, dairy, and vegetable sectors to access industry-led training in:

- strategic business skills
- risk management
- natural resource management
- personal and social resilience (e.g. succession planning).

Programs are designed and delivered by industry and the following training is available:

- livestock and grain producers can apply for Livestock SA's AgRi-Silience Program
- wine grape producers in the Adelaide Hills, Barossa, Clare and McLaren Vale regions can apply for the Wine Grape Council of South Australia's GrowStrong Program.

Other Initiatives

Another initiative that has contributed to drought resilience in South Australia is the On-farm Emergency Water Infrastructure Rebate Scheme. Round four of the scheme in South Australia closed on 30 April 2024, with a total of $2.3 million in assistance provided. Since its launch in 2018, the scheme has helped South Australian farm businesses to build resilience and cope with the impacts of climate change. The scheme provided rebates for farm businesses to purchase and install critical on-farm water infrastructure to improve drought resilience like pipes, tanks, pumps, bores and dams with South Australian farmers receiving $8.8 million in assistance. Eligible primary producers or horticulture farmers could claim up to 25% of the cost of approved critical infrastructure, up to a maximum total rebate of $25,000.

First Nations' water interests

The Government of South Australia acknowledges that water management since colonisation has historically excluded First Nations and occurred without their proper recognition, consultation or authorisation. This history of exclusion continues to affect the wellbeing of First Nations peoples and their ability to care for Country. The volume of water held by First Nations groups remains extremely low across South Australia.

Commencing February 2025, the Government of South Australia is working with First Nations and peak bodies on improving water planning processes and outcomes within South Australia and co-designing a state approach for advancing First Nations' water interests.

A statewide framework will identify actions to:

- strengthen recognition of cultural authority in water planning and management
- secure access to water for economic, social, environmental, spiritual and cultural purposes
- increase First Nations' ownership of water entitlements
- ensure there is a consistent approach to First Nations' involvement in water management across the state, while allowing for flexibility to meet individual group needs.

The identified actions will enable First Nations' water interests to be advanced within, or alongside, existing water management frameworks. Subject to the outcome of the state-wide engagement and co-design process, it is envisaged that the South Australian framework to advance First Nations' water interests will be finalised by December 2025, with implementation to follow.

The framework will include actions to address the Inland Waters Target under the National Agreement on Closing the Gap. The Inland Waters Target aims to increase the ownership of water by First Nations people that can be used for cultural, spiritual and economic purposes. The Government of South Australia and regional landscape boards will continue to work with First Nations people to progress opportunities to access water entitlements for these purposes.

The South Australian Government recognises that cultural water for First Nations peoples must include economic and social models of allocation and ownership. This approach is consistent with commitments under the National

Agreement on Closing the Gap and South Australia's commitment to the Uluru Statement from the Heart: Voice, Treaty, Truth, as well as the Murray–Darling Basin Royal Commission findings and recommendations.

Remote communities

South Australia is committed to playing its part in national Closing the Gap efforts. Water security for remote communities is a critical element of Closing the Gap Target 87A:

> *Community infrastructure: The community infrastructure target will measure progress towards parity in infrastructure, essential services, and environmental health and conditions. This will include data development to measure essential service provision to Aboriginal and Torres Strait Islander communities, including water and sewerage, waste management, road reserves and electricity supply, as well as composite measures to capture all aspects of the target. (Commonwealth of Australia n.d.)*

SA Water manages and supplies drinking water and wastewater systems to 22 South Australian First Nations communities. Of these, 18 are in remote areas and 4 are in regional areas. SA Water supplies over one million litres of water each day to a mobile population base of over 2,500 people and works with local communities to identify wastewater reuse opportunities. Recent and current initiatives by SA Water in regional and remote communities include:

- Smart metering upgrades across groundwater supplied networks to keep pace with recent technological developments and to allow monitoring of changing water usage patterns.
- Wastewater system upgrades to Amata, Pukatja and Mimili in the APY Lands and Yalata on the West Coast.
- In Yalata, commencement of a water search and drill program to secure water supplies for the community's reverse osmosis systems.
- In Nepabunna, installation of new disinfection and treatment systems to improve water quality and disinfection.
- Upgrades of the non-drinking water supplies of Terowie, Yunta, and Manna Hill and Marree to drinking water quality. For the townships along the Barrier Highway (Terowie, Yunta and Manna Hill), this involves upgrading and replacing elevated storage tanks and installation of new disinfection treatment stations to improve and maintain water quality. In Marree, this involves a reverse osmosis desalination facility to treat groundwater from the Great Artesian Basin to drinking standards.
- Upgrades to backup power systems in remote communities to protect against weather events that cause instability in the local power grid and can affect treatment and distribution systems.
- Improved water security for the Indulkana (Iwantja) and Gerard communities. Projects, jointly funded by the Australian Government through the National Water Grid Fund and SA Water, have commenced in the remote communities of the Indulkana (Iwantja) and Gerard. National Water Grid Funding is provided from the $150 million allocation to support water infrastructure in First Nations communities in regional and remote Australia. At Indulkana, new bores are being established and equipped and at Gerard a new water treatment plant has been installed, with the first production of water scheduled for March 2025.

As part of the 2-way science curriculum in schools, a recent visit to the APY Lands included interviews with Elders and other Traditional Owners. These interviews, which were in English and Pitjantjatjara or Yankunytjatjara language, provided further understanding about the cultural importance of conserving water for future generations. This enhanced understanding will be core to the curriculum as it continues to develop.

In March 2024 DEW completed a Stocktake and Water Security Assessment for Self-Supplied Remote Communities. The stocktake is informing the investment needed to address water supply risks in self-supplied remote communities. More information about specific projects addressing water security challenges in these communities can be found in the Regional section of this report. The stocktake and supporting technical assessment are available online.

Murray-Darling Basin

Climate projections predict that there may be significant drying in the Southern Murray–Darling Basin by mid-century. There are likely to be reductions in stream flows with more frequent droughts, increased temperatures and evaporation and below-average rainfall. An increased vulnerability to flooding is also forecast in coming decades due to changes in the occurrence of extreme rainfall events in some parts of the Basin.

The drying climate outlook reinforces the importance of the Government of South Australia's commitment to securing the full range of water recovery and environmental objectives required under the Basin Plan 2012.

In 2012 Basin states signed up to the Basin Plan – a package deal to deliver environmental outcomes equivalent to a reduction in consumptive use of 3,200 GL of water through a combination of water recovery and environmental works and measures that offset the need for water recovery under the Sustainable Diversion Limit Adjustment Mechanism. This included the recovery of 450 GL of water to provide for enhanced environmental outcomes in the southern end of the system.

The primary purpose of the 450 GL is to achieve enhanced in-stream outcomes and increase connectivity between the main river channel and the floodplains in New South Wales, Victoria and South Australia, boosting the amount of time flow rates for the Basin's critical environmental assets can be delivered. The recovery of this 450 GL remains vital for mitigating the impacts seen during the Millennium Drought and improving local area resilience, particularly at the lower end of the system.

On 4 July 2024, the Australian Government released the 450 GL recovery framework which outlines 3 key principles that will guide the approach to water recovery:

- enhancing environmental outcomes
- minimising socio-economic impacts
- achieving value for money.

The Australian Government has established 3 new programs to deliver the 450 GL target under the framework: the Resilient Rivers Water Infrastructure Program, the Voluntary Water Purchase Program and the Sustainable Communities Program. On 6 March 2025, it was announced that 132.1 GL has been secured towards the 450 GL target, with another 154.5 GL planned to be recovered by the end of 2025.

SA Water Regulatory 2024-28 Business Plan

In line with the *Water Industry Act 2012*, every four years SA Water submits an investment proposal to the independent regulator, the Essential Services Commission of South Australia (ESCOSA). This proposal informs ESCOSA's regulatory determination which regulates the revenues that SA Water can earn, and the service standards that must be delivered for customers. The SA Water Regulatory Determination 2024 started on 1 July 2024 and applies to investments until 30 June 2028. Preparations are underway for the development of SA Water's regulatory business proposal for the next regulatory period which will be 2028 – 2032.

Updating of the State Water Demand and Supply Statement

Section 6 of the *Water Industry Act 2012* requires the responsible Minister to prepare and maintain a State Water Demand and Supply Statement and to comprehensively review the Statement every 5 years. In February 2022, DEW published the 'Water Security Statement 2022' to meet this requirement. Building on the range of water security initiatives underway, as well as additional targeted stakeholder engagement in 2025, DEW is planning to develop a revised Statement for statutory consultation in mid-2026 to coincide with consideration of SA Water's draft Regulatory Business Proposal for the 2028 to 2032 regulatory period.

Adelaide's water security

Adelaide's water use in 2023-24

The relative quantities of drinking and non-drinking water from all of the various sources contributing to Adelaide's water balance in 2023-24 are illustrated in Figure 6.

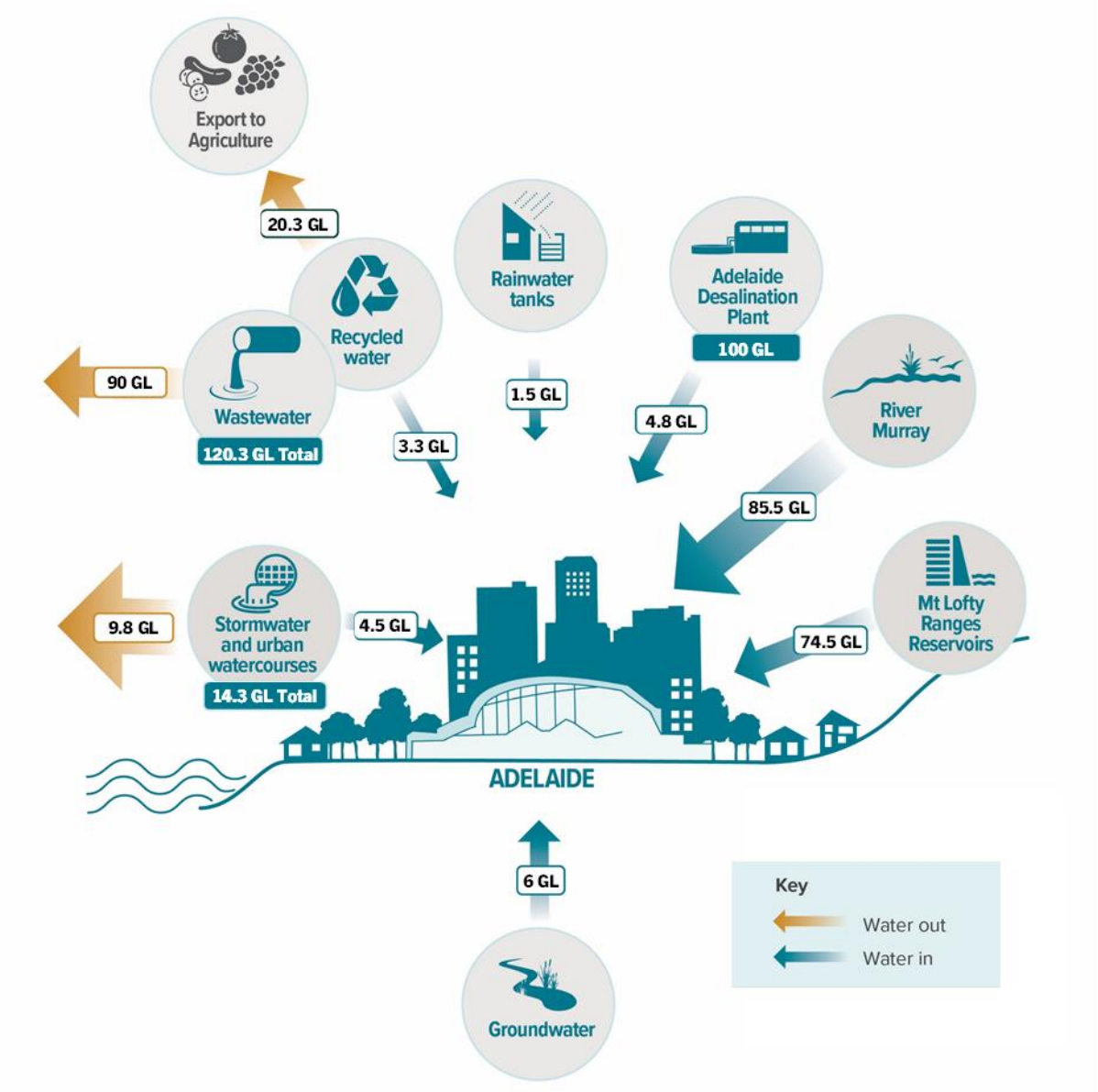
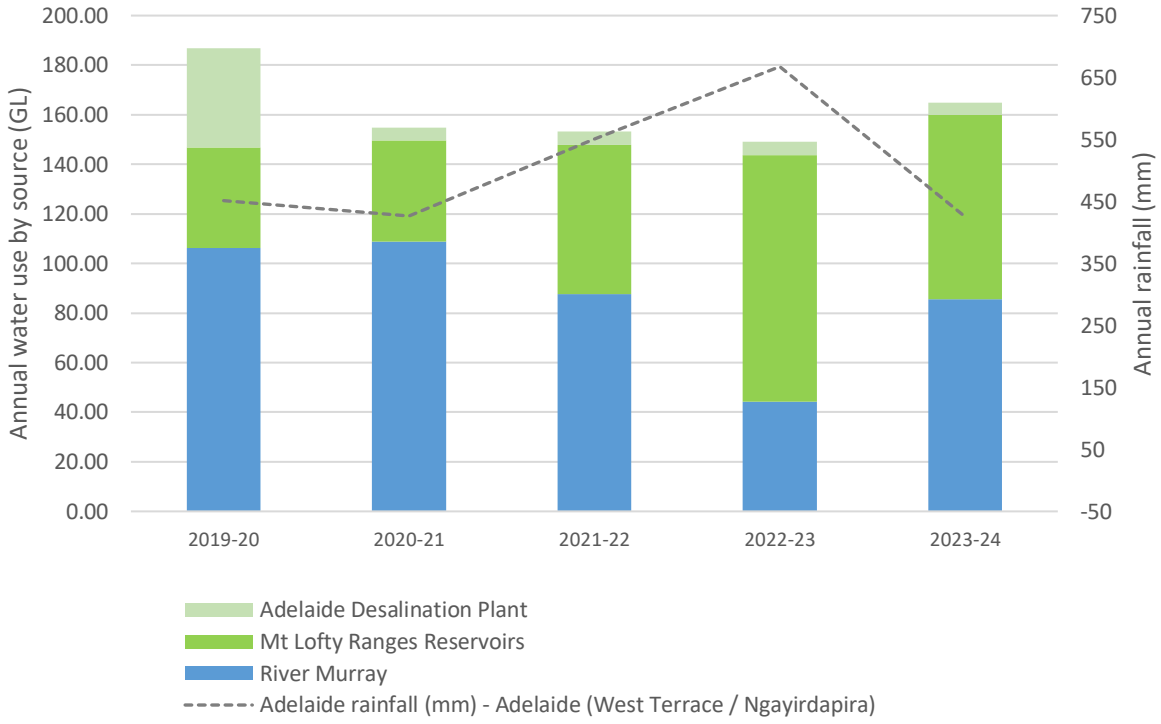


Figure 6. Urban Adelaide's water balance for 2023-24

In terms of drinking water, in 2023-24 Metropolitan Adelaide used 164.8 GL, which is within the historical range of 145 to 200 GL per year. Out of this drinking water total, 85.5 GL of water was sourced from the River Murray, 74.5 GL from Mount Lofty Ranges Reservoirs and 4.8 GL from the Adelaide Desalination Plant.

The volume of drinking water supplied to Adelaide by SA Water from its major water sources from 2019-20 to 2023-24 is also shown in Figure 7.



Source: SA Water 2024

Figure 7. Adelaide's historical use of drinking water sources

Adelaide's water resources

In Metropolitan Adelaide, SA Water uses 3 main water sources to supply drinking water: the Western Mount Lofty Ranges catchment, River Murray and Adelaide Desalination Plant. Water from the first two of these sources is stored in reservoirs, before being treated to drinking water standard at water treatment plants and supplied to the community via an extensive network of tanks, pipelines and pumps.

A balanced mix of all 3 water sources is required to service demand with the drinking water supply mix varying from year to year. The annual volume of water supplied to urban Adelaide depends on a range of factors including climatic conditions, population growth and patterns of use. Temperature and rainfall influence water use, particularly during summer periods when more water is used to water gardens, parks and sportsgrounds. The same factors also influence inflows to our storages.

The Adelaide Desalination Plant, commissioned by the Government of South Australia during the Millennium Drought to safeguard Adelaide's water security, began operation in 2012 and is the state's largest desalination plant. This climate-resilient water source is particularly crucial during periods of low inflows into the Western Mount Lofty Ranges catchment and restricted water availability in the River Murray. Today the Adelaide Desalination Plant is an essential component of the supply system with a capacity to produce 100 GL of water per year.

With the below average conditions in 2023-24, the percentage that each source contributed to Adelaide's water balance changed with a greater contribution from the River Murray and a lesser contribution from the Mount Lofty Ranges reservoirs (Figure 7).

Several other water suppliers provide non-drinking water across Adelaide for a range of irrigation and industrial uses. A small amount of recycled wastewater was used in urban Adelaide (3.3 GL in 2023-24) with a far greater amount being exported for use in agriculture (20.3 GL in 2023-24). The volume of stormwater that runs off to the sea is highly variable; since 2019-20 the annual volume has ranged from 33 GL to 107 GL.

Summary of Adelaide's water security

In the near term, Adelaide will continue to rely on the River Murray and Mount Lofty Ranges as key sources of water supply. These sources, along with the Adelaide Desalination Plant, ensure Adelaide's water security in the near term.

The dry conditions in 2024 have resulted in the lowest amount of water inflows to Adelaide's reservoirs for around 40 years, with combined reservoir levels at the lowest level for more than 20 years. To ensure Adelaide has a secure water supply amid the sustained dry conditions, water production at the Adelaide Desalination Plant in Lonsdale ramped up in January 2025.

The Adelaide Desalination Plant will produce up to 300 ML per day in early 2025 to ensure that SA Water's customers in Adelaide and connected areas continue to have a consistent water supply throughout this period without the need for restrictions.

In addition to producing more water at the Adelaide Desalination Plant, SA Water is also optimising its use of water from the River Murray, which is transported through major pipelines such as the Mannum to Adelaide Pipeline to top up its reservoirs. Despite the local dry conditions, the current volumes stored in the major Murray Darling Basin storages will help underpin Adelaide's water security into 2025-26.[4]

Moving forward, as a result of a changing climate, it is expected that there will be less water available from climate-dependent water sources such as the Mount Lofty Ranges catchments, the River Murray and some groundwater sources. An increased vulnerability to flooding is also forecast in coming decades as climate change increases storm severity and urban development increases impervious surfaces. Other key risks to consider in long-term planning include higher temperatures and increased frequency of droughts, bushfires and rising sea levels.

Climate risks and extreme events mean South Australians cannot rely on meeting our water needs by using only traditional water supplies. In this context, our water security and resilience will depend on smarter water use and securing supplies that are climate resilient and of a reliable quantity and quality.

These issues cannot be addressed in isolation and will require an integrated and coordinated approach that encompasses how water resources are planned and managed alongside land use, urban development and infrastructure planning. Successfully managing these issues over the coming decades will require additional investment in water networks and alternative water supplies as the population, economy and housing developments continue to grow.

[4] For further information, see: https://www.mdba.gov.au/publications-and-data/data-and-dashboards/current-basin-water-storage-report

Regional water security

Water resources are managed by the nine Landscape Boards established by the Minister under the *Landscape South Australia Act 2019*. Figure 8 shows the location of the nine landscape board regions. Water use and water resource status is presented by prescribed water resource in each landscape board region. Prescribed areas in South Australia are shown in Appendix A.

Areas where there is a high demand for local ground and/or surface water and a need to sustainably manage the resource include:

- Limestone Coast
- Murraylands and Riverland
- Mount Lofty Ranges
- McLaren Vale
- Barossa
- Clare Valley
- Adelaide Plains
- Eyre Peninsula
- Far North

Figure 8. Landscape Board regions

The remainder of this report focuses on the prescribed water resources in these regions with a final section covering non-prescribed areas in other parts of the state.[5]

Across the state, the average annual volume of water used from prescribed resources in each region between 2015-16 and 2022-23, including the minimum and maximum volumes used across those years, is provided in Figure 9. The largest amount of water used each year comes from the groundwater of the Limestone Coast (596 GL), followed by the surface water of the River Murray (563 GL) and the ground and surface waters of the Mount Lofty Ranges (95 GL).

In some regions, other water sources (water sources other than the local ground and surface waters) are used. In the sections below, other water is discussed where it represents a significant portion of the total water supply.

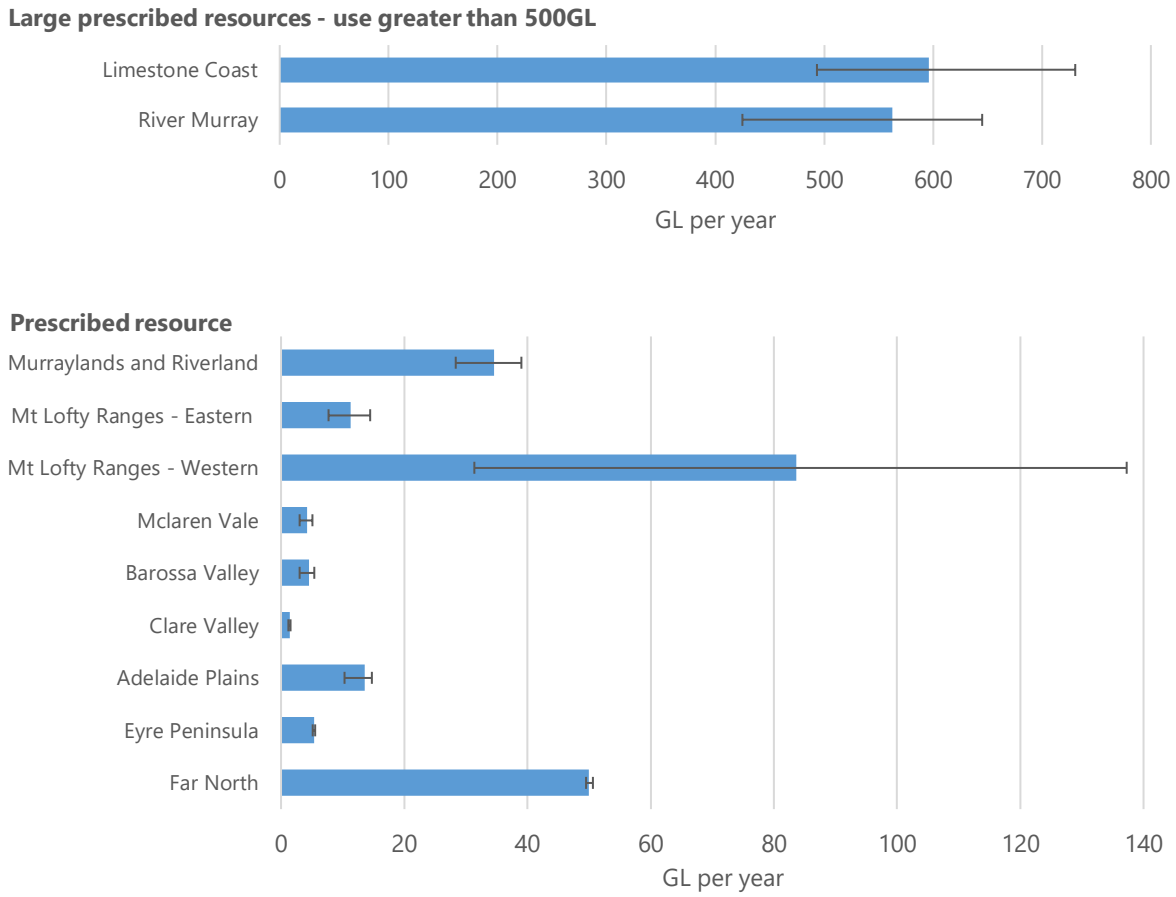


Figure 9. Average annual water use from a prescribed water resource, by region (2015-16 to 2022-23)

For each of the prescribed resources, the annual water use[6], water resource condition indicators, and long-term rainfall trends are presented for each region. However, it should be noted that, throughout this annual update, 2023-24 water use data is not included because complete data sets are not available at the time of publication.

The water resource condition indicators presented include:

- 2024 groundwater level compared to historical average levels
- long-term groundwater salinity trends
- long-term annual streamflow trends
- long-term trends in the number of flow days[7].

[5] Groundwater and surface water resources in the Baroota Region are prescribed and a WAP is currently under development in this region. As such, a licensing regime is not currently in place and water use in this region is not reported on in the subsequent section.

[6] Unless otherwise stated, the volume of water used is based on metering data reported to DEW.

[7] Trend date ranges are detailed below each water resource trend table.

In the tables below, stable trends are shown in blue, trends that indicate increased water availability or decreased salinity are shown in green, and trends that indicate declining water availability or increasing salinity are shown in red. The direction of the arrow on the coloured box displays the direction of the trend.

Further information on regional water resources is available in annual water resource assessment reports and supporting documents[8].

The groundwater level status ratings in the tables that follow are based on an analysis of the 2024 groundwater levels relative to the full history of groundwater level monitoring data. The full monitoring records for all wells in an area (or within a particular aquifer) with at least 10 years of data are included in the analysis. Each monitoring well had its highest 2024 water level ranked against its respective history of monitoring, based on the decile descriptions provided in Table 1 (e.g. 'Average' or 'Very much below average). The groundwater level decile of the median ranked well in an area is then used as an indicator of the groundwater level status rating for that area.

Table 1. Percentile/decile descriptions for resource condition

Decile	Percentile	Description*	Colour
N/A	100	Highest on record	
10	90 to 100	Very much above average	
8 and 9	70 to 90	Above average	
4, 5, 6, and 7	30 to 70	Average	
2 and 3	10 to 30	Below average	
1	0 to 10	Very much below average	
N/A	0	Lowest on record	

* Deciles descriptions as defined by the Bureau of Meteorology (BOM 2023)

[8] https://data.environment.sa.gov.au/Content/Publications/RC2023_TechReport_WA_SW_Streamflow_FlowRegime.pdf or technical information supporting the 2023 surface water (quantity and quality) Environmental Trend and Condition Report Card, DEW Technical note 2023/59. Department for Environment and Water, Adelaide (DEW 2023).

Limestone Coast

The Limestone Coast covers approximately 28,000 square kilometres supporting a population of nearly 67,000 people. Average annual rainfall ranges from 800 mm in the south to 400 mm in the north.

The Limestone Coast landscape is dominated by more than 17,000 wetlands covering about half the area, many of which are groundwater dependent. Most of the wetlands in the region are fresh, becoming saline or brackish near the coast and in the northern part of the region. Originally 50% of the region was covered by wetlands. Due to a combination of effects such as drainage, groundwater extraction and climate change, less than 3% of the region is now covered by wetlands and the health of those remaining has declined. There are 3 Ramsar wetlands of international importance at Bool Lagoon, Piccaninnie Ponds and the Coorong. There are 14 wetlands of national importance in the Limestone Coast.

The South Eastern Drainage Network, within the Limestone Coast area, removes water from the landscape to improve productivity and maintain transport through the region. Deeper drains in the north remove salt to reduce the area of dryland salinisation. The drainage network is managed by the South Eastern Water Conservation and Drainage Board, guided by the South East Drainage and Wetland Strategy (South Australian Government 2019). The strategy aims to manage water to reduce flooding, waterlogging and salinity and retain water in the landscape to improve productivity and environmental and cultural values.

Water in the Limestone Coast region is almost exclusively extracted from prescribed groundwater resources. Water resources in the Limestone Coast are managed under 5 WAPs:

- Lower Limestone Coast
- Tatiara
- Tintinara–Coonalpyn
- Padthaway
- Morambro Creek.

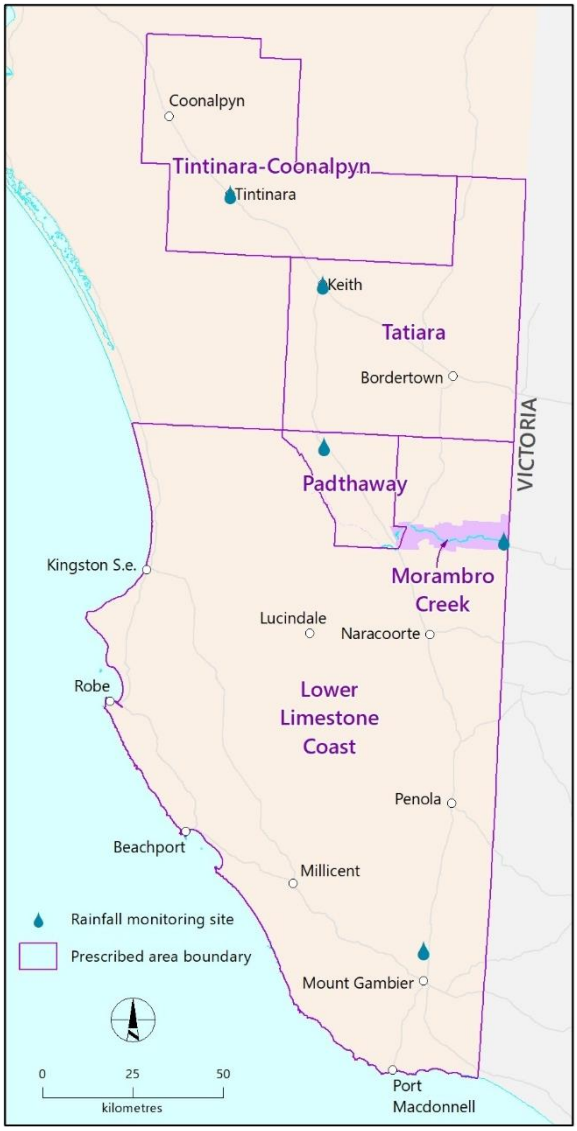


Figure 10. Prescribed areas in the Limestone Coast Landscape Board area

The location of the prescribed areas, which align with WAPs, can be seen in Figure 10.

Lower Limestone Coast, Tintinara–Coonalpyn, Tatiara and Padthaway

Water use

Combined licenced groundwater extraction since 2019-20 in the Lower Limestone Coast, Tintinara–Coonalpyn, Tatiara and Padthaway prescribed wells areas has ranged from 493 GL to 608 GL per annum (Figure 11). Mount Gambier rainfall data is displayed in Figure 11 to provide an indication of the relationship between rainfall and groundwater use. In general, groundwater use patterns reflect rainfall trends: less groundwater is used in higher rainfall years compared to lower rainfall years. Rainfall in 2023-24 was very much below average.

In comparison to groundwater, a negligible amount of surface water is sourced from Morambro Creek. The Morambro Creek Water Allocation Plan only allows for the taking of water when flows are over a specified threshold. Water was taken in 2 of the past 5 years; the highest amount was less than 5 ML.

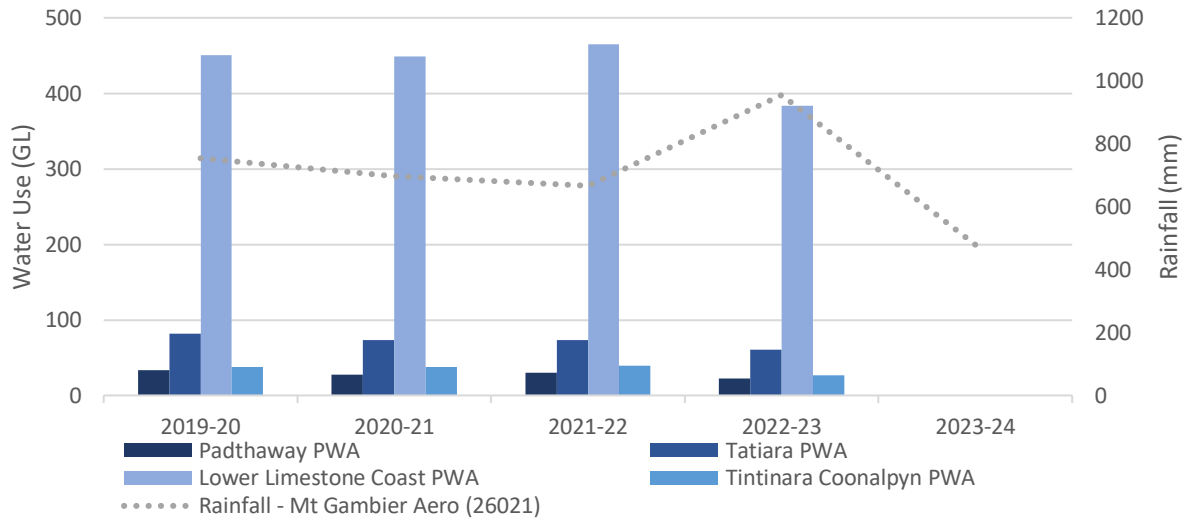


Figure 11. Annual rainfall and groundwater use in the Limestone Coast region

Water resource condition and trends

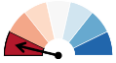
Groundwater level status and trends for Limestone Coast prescribed water resource areas are shown in Table 2. Water use in the past 5 years for which data is available has been relatively consistent across the Limestone Coast region. With above-average rainfall occurring in 3 of the past 5 years, rainfall trends in the Lower Limestone Coast prescribed area are stable. Rainfall trends remain downward in the other 3 prescribed areas.

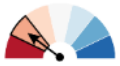
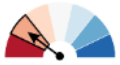
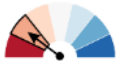
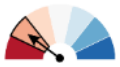
Groundwater levels have declined over the past year. The unconfined aquifer levels in the highlands of the Lower Limestone Coast are the worst on record, while other aquifer levels are below average. In Padthaway, the Flats have declined to below average, while the Range has remained average. In Tatiara, groundwater levels have declined to very much below average. In Tintinara–Coonalpyn, the highlands have declined to very much below average, the plains have declined to below average, and the confined aquifer has remained unchanged at below average.

Groundwater salinity trends are stable, apart from in the Padthaway Flats unconfined aquifer where they continue to increase.

The only prescribed surface water, Morambro Creek, has continued to decline for all measures (Table 3).

Table 2. Condition of Limestone Coast prescribed groundwater resources

Lower Limestone Coast	Groundwater level status	Salinity	Rainfall
Confined Aquifer			
Unconfined Aquifer Lowlands#			
Unconfined Aquifer Highlands#			
Padthaway	Groundwater level status	Salinity	Rainfall
Unconfined Aquifer Flats			
Unconfined Aquifer Range			

Tatiara	Groundwater level status	Salinity	Rainfall
Confined Aquifer		—	↘
Unconfined Aquifer Highlands		—	↘
Unconfined Aquifer Plains		—	↘
Tintinara–Coonalpyn	Groundwater level status	Salinity	Rainfall
Confined Aquifer		—	↘
Unconfined Aquifer Mallee Highlands		—	↘
Unconfined Aquifer Plains		—	↘

The 'Highlands Unconfined Aquifer' is representative of the Comaum, Joanna, Zone 5A, Hynam East, Frances, Beeamma, Bangham and Western Flat groundwater management areas. All other groundwater management areas are represented by 'Unconfined Aquifer Lowlands.'
Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2014 to 2024.
Rainfall = Trend in average annual rainfall over period 1971 to 2024 at Marcollat weather station (for Padthaway prescribed area), Keith weather station (for Tatiara), Tintinara weather station (for Tintinara–Coonalpyn) and Mount Gambier Airport weather station (for southern parts of Lower Limestone Coast). Trend in average annual rainfall over period 1986 to 2024 at Frances weather station (for northern parts of Lower Limestone Coast).

Table 3. Condition of Limestone Coast prescribed surface water resources

Morambro Creek	Streamflow	Flow days	Rainfall
Morambro Creek	↘	↘	↘

Streamflow = Trend in annual streamflow (July to June) over period 1986-87 to 2023-24 at Morambro Creek (A2390531) streamflow monitoring site.
Flow days = Trend in number of flowing days 1986-87 to 2023-24 at Morambro Creek (A2390531).
Rainfall = Trend in average annual rainfall over period 1986 to 2024 at Frances weather station.

Water security summary

Declining trends in both groundwater and surface water resources highlight the need for a resource management response. There is an opportunity to address these issues through the review and amendment of the region's water allocation plans.

A review of the Lower Limestone Coast Water Allocation Plan, completed in October 2023, found that the plan requires amendment. This amendment process is currently underway. Some of the key focus areas identified in the review are listed below:

- Revision of sustainable allocations
- Improving environmental provisions
- Supporting water trade and the water market
- Reducing plan complexity
- Aligning the plan with legislation.

DEW has recently completed groundwater models for parts of the Lower Limestone Coast to assist in amendment of the Lower Limestone Coast Water Allocation Plan.

The amendment of the Padthaway WAP commenced in 2019 to introduce some key changes to the way water is managed and administered in the Padthaway Prescribed Wells Area (PWA). Following statutory public consultation in 2023, the revised plan was adopted in December 2024. The plan includes adaptive management principles that will allow groundwater extraction to be managed in response to changes in resource conditions.

The Tatiara WAP is currently being amended. The draft plan includes principles for adaptive management of groundwater, similar to the Padthaway plan.

In the South-East of the state, SA Water is partnering with DEW to enhance the understanding of longer-term water security risks at Bordertown and Mount Gambier, to inform future investment proposals that seek to enable ongoing growth.

Freshwater in coastal aquifers is vulnerable to salinisation by seawater intrusion. As part of the Adaptation of the South-Eastern Drainage System Under a Changing Climate project, the extent and shape of the seawater interface in vulnerable coastal aquifers will be mapped to help develop a more detailed understanding of the freshwater–seawater interface. This project is jointly funded by the Australian Government through the National Water Grid Fund, the Limestone Cost Landscape Board and the South Australian Government. The broader project, which commenced in 2022, is focusing on adaptation of the South-Eastern drainage system to improve water efficiency and water security.

Piccaninnie Ponds was closed to water-based activities (snorkelling and diving) in 2022 due to the increased presence of algae associated with reduced groundwater inflow and discharge. In June 2024, Ewens Ponds was also closed to water-based activities to protect the nationally significant wetland and its biodiversity following declining water levels. Although Ewens Ponds was subsequently reopened to the public in a reduced capacity in late December 2024, it was again closed in February 2025. Further scientific investigations required to better understand the mechanisms behind the changes in the karst springs are currently underway.

In the Limestone Coast region, the monitoring network for the groundwater-dependent ecosystem has expanded. and investigations are underway to better understand water availability for groundwater-dependent ecosystems.

Murraylands and Riverland

The Murraylands and Riverland region covers approximately 54,000 square kilometres supporting a population of nearly 70,000 people. Average annual rainfall ranges from 400 mm in the south to 200 mm in the north.

The River Murray is the main source of surface water for water users and communities along the river itself. The River Murray is also a significant source of water for Adelaide and country towns across South Australia, including the regional townships of Ceduna, Port Lincoln, Whyalla, Port Augusta, Port Pirie, Woomera, Kadina, Murray Bridge and Keith (see Figure 2 for location of major pipelines that transport River Murray water).

Groundwater is also an important source of water in the Murraylands and Riverland region, particularly in the Mallee.

Most of the wetlands in the region are reliant on regular floods or environmental watering to maintain health. There are 3 Ramsar wetlands of international importance at Banrock, Riverland and the Coorong. There are 14 wetlands of national importance in the Murraylands and Riverland region. The river is a highly regulated system with many locks and weirs to manage movement through the system.

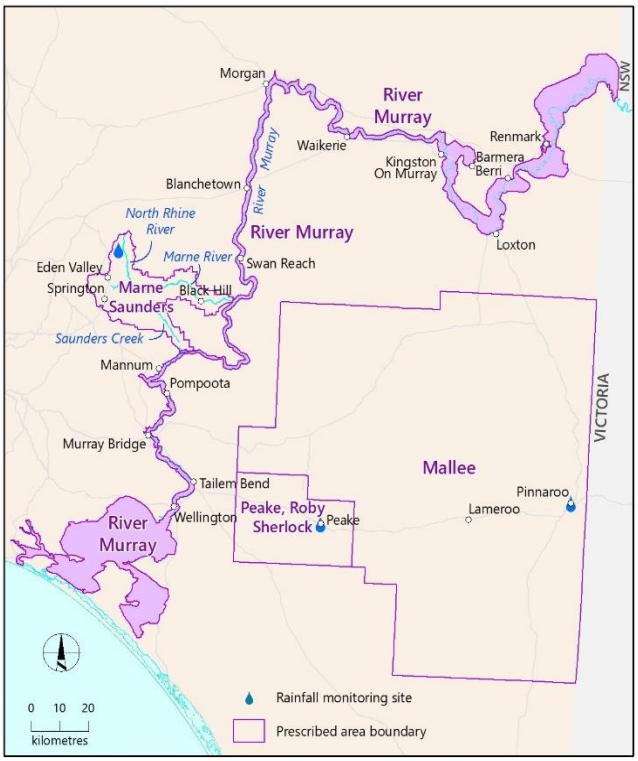


Figure 12. Prescribed areas in the Murraylands and Riverland Landscape Board area.

Prescribed water resources in the Murraylands and Riverland region are managed under 4 separate WAPs:

- River Murray
- Mallee
- Peake Roby and Sherlock
- Marne Saunders.

The location of the prescribed areas (which align with WAP boundaries) are shown in Figure 12.

River Murray

Metropolitan Adelaide, country towns and irrigation water use

The majority of consumptive water sourced from the River Murray is used for irrigation, which in 2022-23 was 367 GL. In addition to water used in the Murraylands and Riverland region, this figure includes water pumped for use in the Barossa, Clare, and Mount Lofty Ranges areas. River Murray water is also taken by SA Water under its two licences for Metropolitan Adelaide and country towns.

South Australia continues to comply with its sustainable diversion limit requirements under the Basin Plan. The total volume of River Murray water used for irrigation, country town use and Metropolitan Adelaide use has ranged from 425 GL to 645 GL over the past 9 years since 2014-15 (Figure 13). The current long-term average sustainable diversion limit in South Australia is 541.9 GL per year. Interstate trade and the ability to carry over unused water are also important features of the River Murray management framework that ensure water available for consumptive purposes supports high-value production and economic growth.

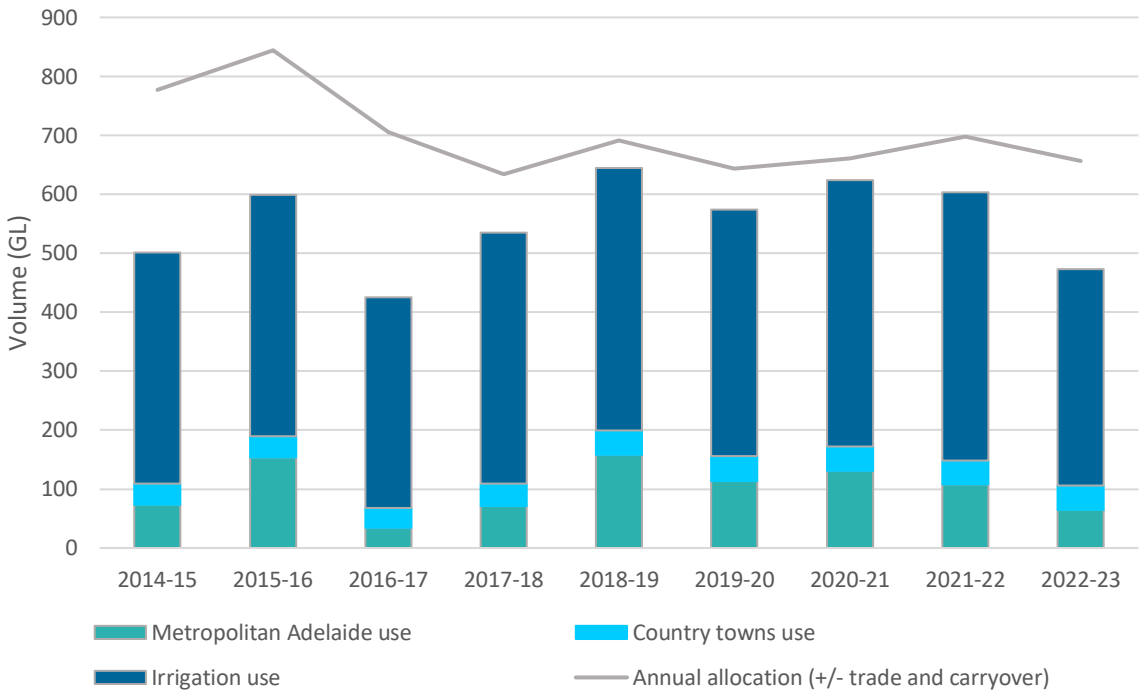


Figure 13. Volume of River Murray water used in South Australia for irrigation, country towns and Metropolitan Adelaide[9]

Delivery of environmental water

A significant portion of River Murray water that passes into South Australia must be used for the benefit of the environment in accordance with the Basin Plan. The delivery of water for the environment to South Australia in the 2023-24 water year was guided by the *Water for the Environment Annual Plan for the South Australian River Murray*, the *Long-Term Environmental Watering Plan for the South Australian River Murray water resource plan area* and the *Basin-Wide Environmental Watering Strategy*. These documents, together with site-based management plans, describe key ecological targets and objectives for annual delivery of water for the environment to South Australia. Water for the environment delivered to South Australia is provided by several environmental water holders including the Commonwealth Environmental Water Holder, The Living Murray program, the South Australian Minister for Climate, Environment and Water and the Victorian Environmental Water Holder.

The 2023-24 water year saw average climatic conditions across the Murray–Darling Basin, following wet conditions the previous year (BOM 21 September 2023). The unregulated flow event that commenced in July 2021 continued into the 2023-24 water year, finally coming to an end after 803 days on 26 September 2023. A total 1,639 GL of water for the environment was delivered to South Australia throughout the year, with a large proportion delivered in spring through return flows from upstream watering actions and collaborative efforts with water holders. Further rainfall and the inability to capture water in upstream storages led to two more unregulated events in October 2023 and January 2024, delivering a total of 3,921 GL of unregulated flows to South Australia in 2023-24, which supported environmental outcomes throughout the region and built on the benefits of the previous year's flood. Significant volumes of water for the environment, in addition to the unregulated flows, saw flow to SA remain above 20,000 ML/day for almost the entire late spring period.

From December 2023 to April 2024, targeted releases of water for the environment were made from Lake Victoria to supplement barrage flows and maintain connectivity and healthy estuarine conditions in the Coorong and Lower Lakes. Dredging of the Murray Mouth, which had ceased for over a year due to high flows, recommenced on 27 November 2023. Between July 2023 and June 2024, approximately 5,187 GL had flowed through the barrages.

While many sites within South Australia did not require active watering in 2023-24, a small number of managed environmental watering activities were still undertaken, building on the benefits from the preceding year's flood. Highlights include:

[9] Basic Rights are not included in irrigation, country town and Metropolitan Adelaide use totals. Approximately 6 GL per year is assigned to Basic Rights. 2023-24 data was not available at the time of publication.

- Prolonged elevated overbank and in-channel flows in spring supporting the successful recruitment of flow-cued native fish.
- Delivery of water for the environment to Lake Limbra via pumping in autumn to support floodplain vegetation and provide waterbird habitat.
- A trial lowering of Lock 6 weir pool (outside of normal operating range) and the lowering of weir pools 1 to 5 (within normal operating range) to target improved velocity outcomes within the channel and to support drying of lower areas of the floodplain.
- Successful implementation of a Lake Victoria directed release in September and November, delivering approximately 95 GL to maintain flow at the SA border above critical levels for estuarine conditions in the Coorong and promote connectivity for native fish outcomes in the river channel.
- Delivery of water for the environment to a small number of wetland sites via pumping by the Murraylands and Riverland Landscape Board and Renmark Irrigation Trust.
- The reintroduction and persistence of Yarra pygmy perch to the Lower Lakes.
- Management of over 60 permanent and ephemeral wetlands, providing important habitat for threatened species.

The management and delivery of environmental water in 2023-24 was in accordance with the basin annual watering priorities and Basin Plan requirements.

Specific information about the delivery of water for the environment and the associated outcomes from various site-based and system scale actions will be reported in the *South Australian River Murray Water for the Environment Report 2023-24* (DEW unpublished).

Water resource condition and trends

Irrigation, regulation and river management (operation of dams, locks and weirs) significantly influence streamflow patterns in the River Murray; for this reason, different indicators are shown in Table 4.

Allocation (the delivery and availability of South Australia's entitlement) and salinity (achievement of salinity targets at sites defined in the Basin Plan) have been adopted as measures of water quantity and quality. South Australia's full entitlement under the Murray–Darling Basin Agreement was delivered, and the salinity target was met in 2023-24.

Rainfall across the Murray-Darling Basin has declined over the period 1900 to 2021 and is expected to continue declining in coming years.

Table 4. Delivery of allocations and water condition of the River Murray

River Murray	Allocation	Salinity	Rainfall
River Murray	✓	✓	↘

Allocation = Availability and delivery of South Australia's entitlement in 2023-24.
Salinity = Salinity target detailed in Basin Salinity Management 2030 – South Australia's Status Report 2023-24 *River Murray salinity, South Australia's environmental trend and report card 2023*.
Rainfall = Trend reported in *Trends and historical conditions in the Murray–Darling Basin. A report prepared for the Murray–Darling Basin Authority by the Bureau of Meteorology*, 2020. Date range 1900 to 2021.

Water security summary

In relation to the Murray–Darling Basin, climate projections indicate that significant drying may occur in the Southern Murray–Darling Basin, potentially bringing more frequent droughts, increased temperatures and evaporation, below-average rainfall and reductions in stream flows.

To proactively prepare for dry times, South Australia uses Schedule G of the Murray-Darling Basin Agreement to defer a portion of its annual Entitlement for delivery in future dry years to provide critical human water needs and private carryover for irrigators. Wet conditions across the Basin in 2022-23 meant that the full volume previously stored by South Australia spilled. South Australia is continuing to defer portions of its Entitlement to rebuild the volume stored under Schedule G at the earliest opportunity.

The Government of South Australia is continuing to work with a number of local governments to link non-potable demands in council areas to alternative water sources, thereby reducing local governments' reliance on SA Water mains water and hence River Murray water. By way of example, a 14 km pipeline extension at Marion is expected to deliver at least 143 ML of harvested stormwater for local use on parks and reserves. The $5.67 million Marion

Council project was facilitated by the State Government and jointly funded by the Australian Government (through a $2.7 million grant under the Basin Plan Off-Farm Efficiency Program) and the City of Marion.

The newly approved South Australian Alternative Water Supply Efficiency Measures (AWSEM) Program will receive up to $20.9 million to build infrastructure that will allow the substitution of River Murray water with stormwater, treated wastewater or other alternative water sources. The program will generate an estimated water saving of 1,270 ML of water, providing 1,149 ML of South Australian River Murray High Security entitlements to enhance environmental outcomes for the Murray-Darling Basin.

In the Riverland, Loxton and Waikerie will benefit from water security improvements as part of the Australian Government's Water Infrastructure for Sustainable and Efficient Regions (WISER) initiative through the National Water Grid Fund. Funding has been secured to promote the use of recycled water through the upgrade of the Waikerie and Loxton Wastewater Treatment Plants.

Given that rainfall is expected to decline across the entire Murray–Darling Basin, implementation of the Basin Plan in full remains critical for the water security of all regions that rely on the supply of River Murray water. South Australia has made significant progress towards full implementation of the Basin Plan including:

- implementing new Sustainable Diversion Limits for surface water and groundwater that came into effect from 1 July 2019; all associated water recovery targets have been met
- all 3 water resource plans submitted on time and accredited by the Commonwealth Minister
- all Sustainable Diversion Limits adjustment projects for which South Australia has lead responsibility are either complete or on schedule for operational completion by the Basin Plan deadline of 31 December 2026.
- efficiency measures projects that contribute towards completion of the recovery of the final 450 GL of water for the environment
- continuing to work with a range of partners and water holders to coordinate the effective delivery of water to our priority assets to achieve our short- and long-term environmental outcomes in South Australia.

River Murray flood recovery

The 2022-23 River Murray flood was the largest flood on the River Murray in South Australia for more than 60 years. The River Murray flood event damaged or overtopped 20 of the 27 levee banks in the Lower Murray Reclaimed Irrigation Area (LMRIA) and inundated the primary production land behind the levees. The inundation also impacted other assets essential to the state, such as infrastructure for drinking water, telecommunications, electricity and transport routes. As part of the state government's River Murray flood recovery response, immediate stabilisation works were undertaken to repair the damaged levees so the inundated areas could be dewatered.

Further remediation work to the flood-damaged sections of the levees will be undertaken with the state and Australian governments collectively providing $17.1 million for the state government-owned levees and $14.2 million for the privately owned levees. The remediation works will return flood-damaged sections of the levees to their pre-flood height (equivalent to the 1974 flood level for government levees) and help to mitigate the effects of high-flow events on agricultural land until longer-term engineered solutions can be implemented. As at February 2025, remediation work has been completed on 4 government-owned levees, with works for a further 4 government-owned levees expected to be completed in mid-2025. Remediation works for 12 privately owned levees is planned for 2025 and early 2026.

Mallee, Peake Roby and Sherlock, and Marne Saunders

Water use

Since 2019-20, licensed extraction of groundwater in the Mallee, Peake Roby and Sherlock, and Marne Saunders prescribed areas has ranged from 28.9 GL to 38.7 GL per year (Figure 14). Rainfall varies across the 3 prescribed areas. Rainfall data for the Mallee is displayed in Figure 14 to demonstrate the relationship between rainfall and water use. In general, water use patterns reflect rainfall trends: less water is used in higher rainfall years compared to lower rainfall years. Rainfall in 2023-24 was a very much below average (Figure 3).

The annual volume of surface water used in the Marne Saunders prescribed area since 2019-20 has ranged from approximately 0.2 GL to 0.7 GL. As with all surface water resources, water can only be accessed when dams and watercourses hold sufficient water.

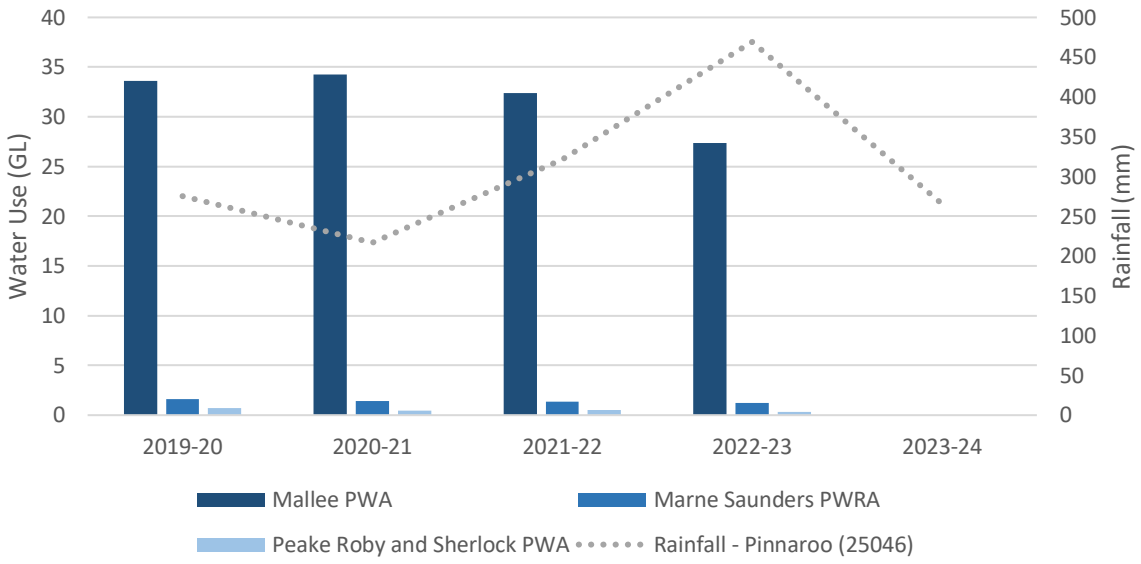


Figure 14. Annual rainfall and groundwater use in the Murraylands and Riverland region

Water resource condition and trends

Generally, groundwater level status is below average in the Murraylands and Riverland region. Marne Saunders fractured rock aquifers have declined from average to below average since last year. The confined aquifer in the Peake, Roby and Sherlock prescribed area is above average, which has declined from very much above average last year. The salinity of groundwater in the region is stable in all areas with increasing salinity in the fractured rock aquifer of Marne Saunders stabilising this year (Table 5). Streamflow and number of flow days in the Marne River and Saunders Creek are showing a declining trend (Table 6). Rainfall is stable in the Mallee area and declining elsewhere.

Table 5. Condition of Murraylands and Riverland prescribed groundwater resources

Mallee	Groundwater level status	Salinity	Rainfall
Murray Group Limestone		—	—
Peake, Roby and Sherlock	Groundwater level status	Salinity	Rainfall
Confined Aquifer		—	↘
Marne Saunders	Groundwater level status	Salinity	Rainfall
Fractured Rock Aquifers		—	↘
Murray Group Limestone		—	↘

Salinity = Trend in groundwater salinity over period 2014 to 2024.
Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Rainfall = Trend in average annual rainfall over period 1979 to 2024 at Pinnaroo weather station (for Mallee prescribed area), Peake weather station (for Peake, Roby and Sherlock. Trend in average annual rainfall over period 1973 to 2024 for Keyneton (for Marne Saunders).

Table 6. Condition of Marne Saunders prescribed surface water resources

Marne Saunders	Streamflow	Flow days	Rainfall
Marne River	↘	↘	↘
Saunders Creek	↘	↘	↘

Streamflow = Trend in annual streamflow (July to June) over period 1986-87 to 2022-23 at the Marne Gorge (A4260605) and the Saunders Creek (A4261174) streamflow monitoring sites.
Flow Days = Trend in number of flowing days 1986-87 to 2023-24 at Marne Gorge (A4260605) and the Saunders Creek (A4261174) streamflow monitoring sites.
Rainfall = Trend in average annual rainfall over period 1979 to 2024 at Cambrai weather station (for Marne Saunders). Trend in average annual rainfall over period 1973 to 2023 for Keyneton.

Water security summary

Mallee

The declining water level trend being observed in the Mallee prescribed area is within the limits permitted under the Mallee WAP. Due to the slow moving, robust nature of the aquifer and large amount of storage in the Murray Group limestone aquifer, extraction of the full volume permitted under the WAP will lead to a depletion of 15% of the total resource volume of water in storage after 300 years.

The Mallee WAP is currently being amended. The amended plan will consider availability of water for critical human water needs and will also provide details on protection of soaks that are culturally important to First Nations.

Peake, Roby, Sherlock

The Peake, Roby and Sherlock WAP is being amended at the same time and will also be considering critical human water needs. Since the first WAP was adopted over 10 years ago, the volumes of extracted water have remained well below extraction limits set by the WAP, allowing for a sustainable approach to water security within the region.

Marne Saunders

A 10-year review of the plan was undertaken in 2019 and it found there was no need for amendments at that time. It was recommended that a detailed review be undertaken once the securing of low flows has been substantially implemented and monitored for a period of time. First Nations engagement was also required before a comprehensive review would be undertaken at a later stage. The restoration of low flows is critical for the health of Marne Saunders waterways and associated habitats. The Marne Saunders prescribed area is included in the Flows for the Future Program (Department for Environment and Water 2024).

Since 2019, further decline in the condition of waterways and associated habitats has been observed (Gannon, Whiterod, and Green 2021 and Aboriginal waterway assessments). Given the declining trends, the Murraylands and Riverland Landscape Board has engaged with the community to identify potential mitigating actions. Proposed strategies have been examined through a risk analysis process, which resulted in the Landscape Board resolving to undertake a comprehensive review of the water allocation plan, which is currently underway.

Hills and Fleurieu

The Hills and Fleurieu region covers 6,700 square kilometres of land, ocean, and offshore islands, including approximately 170 km of coastline. The region is home to around 130,000 people.

Groundwater and surface water underpin the region's agricultural productivity, public water supply for Adelaide and local communities, and water dependent ecosystems. These ecosystems include significant wetlands such as Fleurieu Swamps and parts of the Ramsar-listed Coorong and Lower Lakes system.

The Mount Lofty Ranges separate the Adelaide Plains from the extensive plains that surround the Murray River. For the purpose of water resource management, the Eastern Mount Lofty Ranges (EMLR) incorporate the eastern slopes of the Mount Lofty Ranges and the Murray Plains as well as the Angas Bremer PWA. Ground and surface waters are managed under the EMLR WAP.

The Western Mount Lofty Ranges (WMLR) prescribed area incorporates the western slopes of the Mount Lofty Ranges and extends down to the Fleurieu Peninsula. The WMLR's water sources are managed under 2 WAPs:

- WMLR
- McLaren Vale.

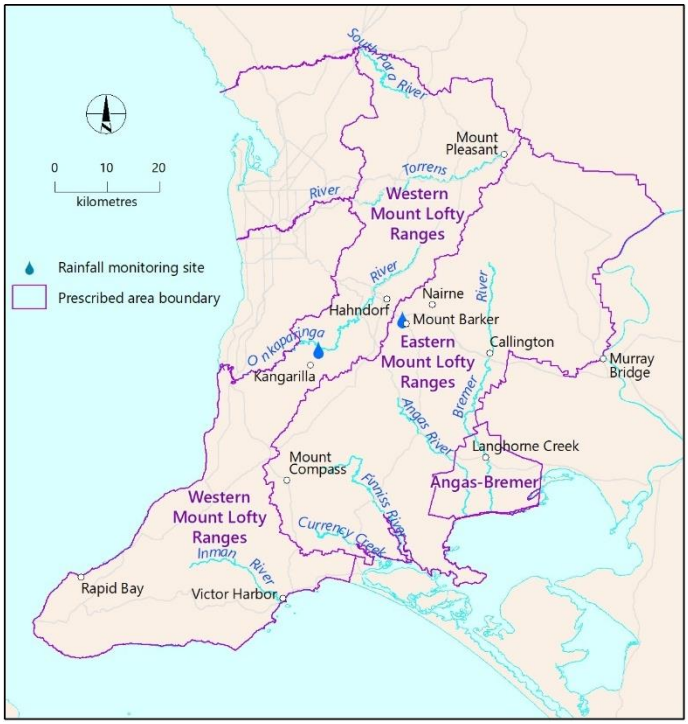


Figure 15. Prescribed areas in the Hills and Fleurieu Landscape Board area

The McLaren Vale WAP manages groundwater only. The WMLR WAP manages surface and groundwater. Rivers that extend across the Adelaide Plains (Gawler, Little Para, Torrens and Onkaparinga) are managed under the WMLR WAP.

The location of the EMLR, Angas Bremer and WMLR prescribed resources are shown in Figure 15 (the location of the McLaren Vale PWA is provided in Figure 18).

Mount Lofty Ranges

Eastern Mount Lofty Ranges water use

Since 2019-20, the total annual volume of licensed extraction in the EMLR has ranged from 9.1 GL to 13.5 GL (Figure 16). Groundwater is the predominant water source in the EMLR. Since 2019-20, 82% of water extracted has come from groundwater, the rest coming from surface water.

In general, annual water use patterns reflect annual rainfall trends: less water is used in higher rainfall years compared to lower rainfall years. Annual rainfall data for Mount Barker is displayed in Figure 16 to demonstrate the relationship between rainfall and water use. In 2023-24 rainfall was very much below average for several places; in the EMLR it was the lowest on record, including in Mount Barker (Figure 3).

The Angas Bremer PWA falls within the boundary of the EMLR. In this region the use of groundwater is low (on average 2 GL per year since 2019-20) compared to the volume of River Murray water used. River Murray water is delivered to the area via a number of pipelines connected to Lake Alexandrina and higher reaches of the River Murray. In the 2022-23 water use year, the Creeks Pipeline Company Limited supplied 12.2 GL of River Murray water to townships, communities and irrigators in Langhorne and Currency creeks.

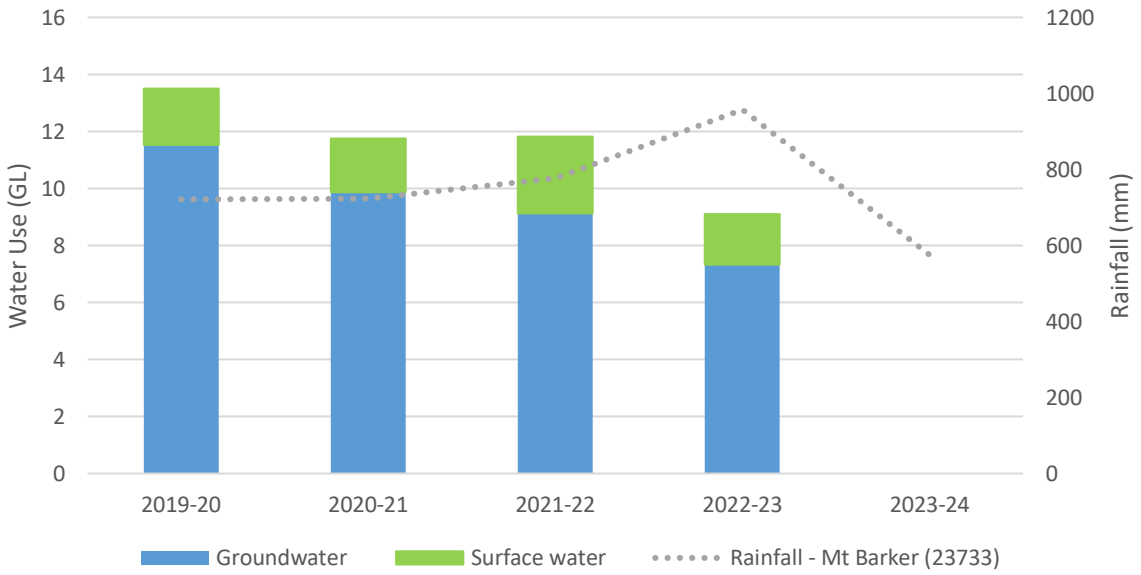


Figure 16. Eastern Mount Lofty Ranges annual rainfall and water use[10]

Western Mount Lofty Ranges water use

Since 2019-20, the total annual volume of licensed extraction in the WMLR has ranged from 31.4 GL to 137.3 GL (Figure 17). Surface water is the predominant water source in the WMLR. Since 2019-20, 82% of the average water used was from surface water. The volume of surface water used in the WMLR is influenced by its role in Adelaide's public water supply. When reservoirs in the WMLR are holding sufficient water, they are used as a source of public water supply in preference to water from the River Murray or the Adelaide desalination plant. Over the past 5 years, 40% of Adelaide's mains water was sourced from reservoirs in the WMLR prescribed area (Figure 7). However, this percentage varies with the annual rainfall in the WMLR, ranging from 22% to 67% since 2019-20.

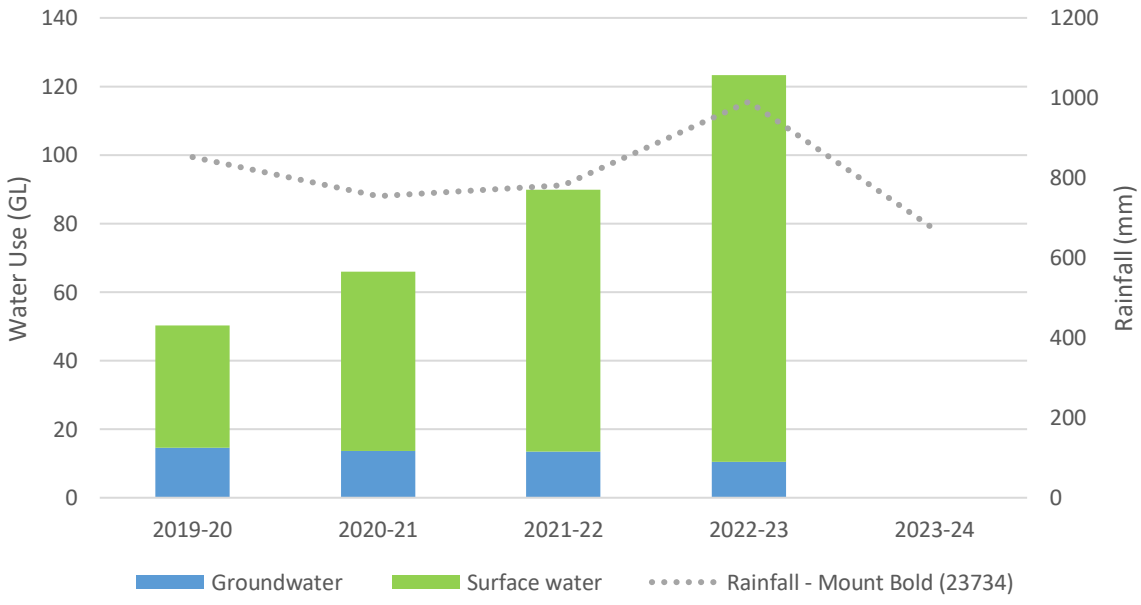


Figure 17. Western Mount Lofty Ranges annual rainfall and water use

[10] Groundwater totals include EMLR and Angas Bremer groundwater use. Surface water totals represent the volume of EMLR surface water used in the region (meaning that River Murray water use is not included).

Water resource condition and trends

Rainfall (Table 7 and Table 8) in the Mount Lofty Ranges over the period 1986 to 2024 is showing 2 distinct trends: stable in the EMLR and declining in the WMLR.

Groundwater levels (Table 7) in the EMLR are average or above. They have all declined since last year, except for the Finniss Sands which remains average. In the WMLR, groundwater levels are average or below average which is a decline from last year. There was no change in the average groundwater level status of the fractured rock aquifer. Salinity is stable in most groundwater resources but increasing in the EMLR Murray Group Limestone.

Table 7. Condition of Mount Lofty prescribed groundwater resources

Angas Bremer	Groundwater level status	Salinity	Rainfall
Murray Group Limestone		—	—
EMLR	Groundwater level status	Salinity	Rainfall
Fractured Rock		—	—
Murray Group Limestone		↗	—
Permian Sand Finniss		—	—
Permian Sand Tookayerta		—	—
WMLR	Groundwater level status	Salinity	Rainfall
Fractured Rock		—	↘
Permian Sand		NA	↘
Tertiary Limestone		NA	↘

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity (January to December) over period 2013 to 2024 for Angas Bremer Murray Group Limestone and WMLR Fractured Rock, 2014 to 2023 for EMLR fractured rock, 2017 to 2024 for EMLR Permian Sand Finniss and EMLR Permian Sand Tookayerta, and from 2009 to 2024 for EMLR Murray Group Limestone.
Rainfall = Trend in average annual rainfall over period 1976 to 2024 at Mount Barker weather station for EMLR and Mount Bold for WMLR.

Streamflow (Table 8) has a declining trend for rivers in the EMLR, with all flows likely to decline and flows in the Bremer River showing a lower rate of decline. The trend in the number of flowing days is stable for the Angas, Finniss and Currency rivers, while the Bremer River is showing a declining trend. In the WMLR, streamflow is showing a declining trend. The trend in the number of flowing days is decreasing, except for the Yankalilla, which continues to show an increasing trend.

Table 8. Condition of Mount Lofty prescribed surface water resources

EMLR	Streamflow	Flow days	Rainfall
Angas River	↘	—	—
Bremer River	↘	↘	—
Finniss River	↘	—	—

Currency Creek	↘	—	—
WMLR	Streamflow	Flow days	Rainfall
Torrens	↘	↘	↘
Onkaparinga	↘	↘	↘
Myponga	↘	↘	↘
Yankalilla	↘	↗	↘

Streamflow = Trend in annual streamflow (July to June) over period 1986–87 to 2023–24 at monitoring sites for Finniss River (A4260504), Currency Creek (A4260530), Bremer River (A4260533), Angas River (A4260503) streamflow monitoring sites – EMLR. Trend in streamflow over period 1986-87 to 2022-24 for Kersbrook (A5040525), and Mount Pleasant (A5040512) for Torrens Catchment; Scott Creek (A5030502) and Bakers Gully (A5030503) for Onkaparinga Catchment; Myponga (A5020502), and Yankalilla (A5011006) for Myponga, and Yankalilla catchments, respectively.
Flow days = Trend in number of flowing days 1986-87 to 2023-24 at sites described above.
Rainfall = Trend in average annual rainfall over period 1986 to 2024 at Mount Barker (23733) weather station (for Bremer River), Macclesfield (23728) weather station (for Angus River). Meadows (23730) weather station (for Finniss River and Currency Creek). Gumeracha (23719) and Birdwood (23705) weather stations (for Torrens). Uraidla (23750) Bridgewater (23707), Cherry Gardens (23709), Lobethal (23726) and Hahndorf (23720) and Echunga (23713) weather stations (for Onkaparinga). Yankalilla (23754) weather station (for Yankalilla and Inman Valley). Second Valley (23744) weather station (for Myponga) (Savadamuthu and McCullough).

Water security summary

The declining surface water trends presented above highlight that there are some water security risks in the Mount Lofty region. There is a need for a resource management response to address these declining trends and this may be achieved through the review and amendment of the Western and Eastern Mount Lofty Ranges WAPs. The review was completed in early 2024 and found that both plans require significant amendments with some of the key learnings listed below:

- Water-dependent ecosystems are declining in many parts of the region due to reductions in volume and changes in the timing of flows caused by water storages and water diversions.
- Water resources are overallocated in many areas.
- Groundwater resources are currently stable in most areas.
- First Nations' involvement in planning processes is crucial for progress.
- More information and new approaches need to be explored to manage forestry and stock and domestic water use in the future.
- Climate change is influencing the timing and quantity of rainfall. This requires updated data and analysis methods.

The WAP amendment process is expected to run until the end of 2027 and will involve scientific research and further engagement with stakeholders and partners.

To ensure ecologically sustainable water resource management, there will be a need to review progress associated with the securing of low flows from farm dams and at watercourse diversion points. The provision of low flows by landholders is one of the primary ways that environmental water provision targets in the Eastern and Western Mount Lofty Ranges WAPs can be achieved.

Low flows are small flow events in creeks and rivers that create or maintain water flow through the channel, keeping in-stream habitats wet and pools topped up throughout the year, especially over summer and autumn. Low flows are critical to ecosystems that depend on water. By keeping refuge pools wet and fresh during drier seasons, low flows allow plants and animals that rely on or live in or near water, to survive. These organisms can then reproduce and recolonise other areas once higher flows occur. Low flows also connect in-stream pools, enabling the movement of fish and invertebrates up and down the system. Low flows wet up different parts of the streambed, such as benches and riffles (shallow, fast-flowing sections), which is essential to allow aquatic plants and animals to use these different types of habitats for living, feeding and breeding. Low flows at the break of season also help trigger breeding responses in some native fish species. Programs have been underway to secure low flows since the adoption of the current WAPs (DEW 2024). To date, low flows are released at more than 400 sites in the Mount Lofty Ranges (including the Marne Saunders region) but there is significant work still to be done, particularly in the WMLR. Healthy river systems are a sign of sustainable water use.

McLaren Vale

In McLaren Vale, groundwater and recycled water are important water resources. The McLaren Vale PWA falls within the boundary of the WMLR; however, groundwater use is managed through the McLaren Vale WAP. The location of the McLaren Vale prescribed area is shown in Figure 18. Recycled water sourced from the Christies Beach wastewater treatment plant is also an important water source for the region.

Water use

Since 2019-20, licensed groundwater extraction has ranged from 3.4 GL to 4.5 GL. Over the same period, the use of recycled water has ranged from 4.5 GL to 5.9 GL (Figure 19). Recycled water on average makes up 58% of the water used in the McLaren Vale region. Rainfall data for Willunga is also displayed in Figure 19, which shows water use is influenced by rainfall each year. In 2023-24 rainfall was very much below average (Figure 3).

Figure 18. McLaren Vale Prescribed Wells Areas in the Hills and Fleurieu Landscape Board area

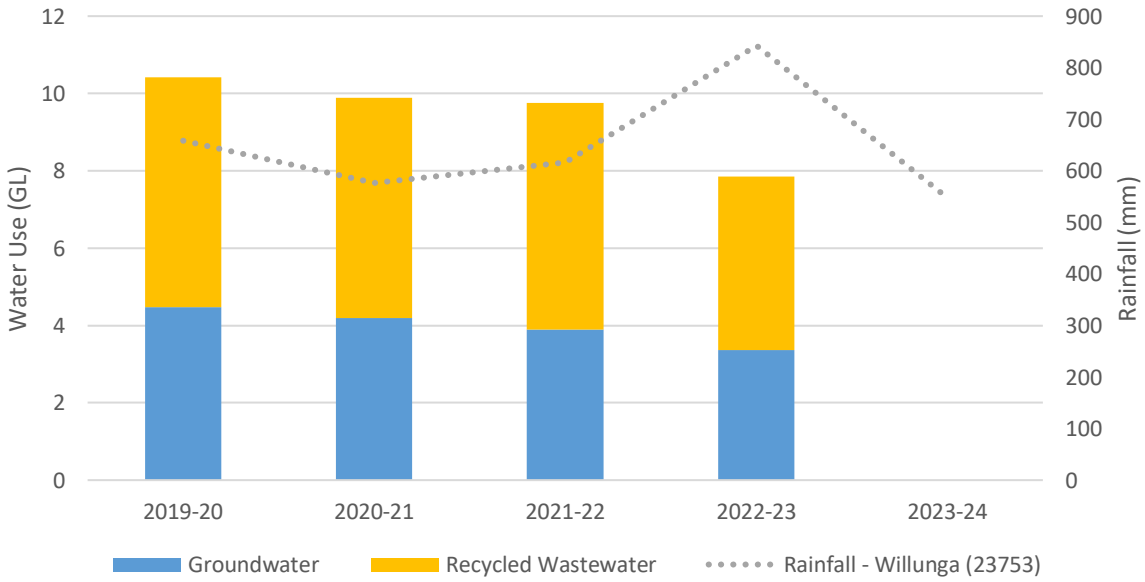
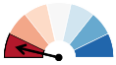


Figure 19. McLaren Vale annual rainfall and water use

Water resource condition and trends

Below-average groundwater levels (Table 9) are showing in most wells in the fractured rock and Maslin Sands aquifers. Groundwater levels in the Port Willunga Formation aquifer is the lowest on record. Salinity levels are stable in the Port Willunga Formation and Fractured Rock aquifers but has an upward trend in the Maslins Sands aquifer. The long-term rainfall trend is stable.

Table 9. Condition of McLaren Vale prescribed groundwater resources

McLaren Vale	Groundwater level status	Salinity	Rainfall
Fractured Rock		—	—
Maslin Sands		↗	—
Port Willunga Formation		—	—

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2009 to 2024.
Rainfall = Trend in average annual rainfall over period 1980 to 2024 at Willunga weather station.

Water security summary

McLaren Vale is a region where existing water supplies of a suitable quality are likely to be insufficient to meet demand in the future, especially with a changing climate. Rising groundwater salinity has been identified as posing a high risk in some localised areas. The Hills and Fleurieu Landscape Board is working with the affected licence holders to identify appropriate methods to stabilise and reduce the salinity in future. Discussions have been held with groundwater licence holders in these 'hot spot' zones to identify and implement solutions to localised rising salinity levels.

Working in partnership with key stakeholders and community members, DEW is leading the development of the *McLaren Vale Regional Water Security Strategy* in the McLaren Vale region. Workshops were held throughout 2023 and 2024, supported and informed by an economic and options analysis. The water security strategy will be finalised in the near future. The strategy will identify potential water supply options and sources of demand, as well as detail possible investment staging, to assist in long term planning for the region.

Alongside the development of a water security strategy, investigations are underway to determine the viability of constructing a new reservoir that could increase the storage and distribution capacity of the existing recycled water distribution network so that additional recycled water can be made available during the peak irrigation season. An initial business case, funded by the Australian Government through the National Water Grid Fund, has been completed. Further work is required to inform an investment decision.

There will also be an opportunity to ensure water management frameworks provide water for critical human water needs, the environment and other uses in a changing climate when the McLaren Vale WAP is amended. A comprehensive review of the McLaren Vale Water Allocation Plan was completed in 2022. The review found groundwater extraction to be well within the limits set. However, the plan requires amendment to address the following:

- First Nations' (Kaurna) interests are not recognised
- Rising groundwater salinity has been identified as posing a high risk in some localised areas
- Small long-term downward trends in the levels of some aquifers need to be better understood
- More information is needed to understand groundwater dependent ecosystems
- Rules are not able to be set at an aquifer or management zone level
- The plan lacks a set of overarching objectives
- The current plan does not consider impacts of climate change.

Currently the groundwater in the McLaren Vale and Willunga Basin area is managed in the *McLaren Vale Water Allocation Plan* while the surface waters of this region are managed in the *Western Mount Lofty Ranges Water Allocation Plan*. The review process considered the importance of integrating the management of groundwater and surface water resources and the decision was made to amalgamate the McLaren Vale WAP with the Western Mount Lofty Ranges WAP. This amalgamation will not take effect until a new *Western Mount Lofty Ranges Water Allocation Plan* is adopted.

Northern and Yorke

The Northern and Yorke region extends for 38,500 square kilometres. It is a varied and productive portion of South Australia and includes 1,300 km of coastline and adjacent marine areas. The region supports a population of approximately 150,000 people who reside in agricultural, coastal and urban communities. The region includes traditional Aboriginal lands of the Narungga, Nukunu, Ngadjuri, Kaurna and Peramangk people.

There are 3 prescribed areas for water management that sit wholly in the region, the Clare Valley Prescribed Water Resources Area, the Barossa Prescribed Water Resources Area and the Baroota Prescribed Water Resources Area.

Water on the Yorke Peninsula is not prescribed. More information relating to this region can be found in the Non-prescribed Resources sections of this report.

Barossa Prescribed Water Resource

In the Barossa region, prescribed ground and surface water resources as well as water imported from the River Murray (Barossa Infrastructure Limited water) are used to meet water needs across the region. Water imported from the River Murray is the main source of water. Prescribed resources are managed through the Barossa WAP. The location of the Barossa prescribed area is shown in Figure 20.

Water Use

Since 2019-20, annual demand for prescribed groundwater use has ranged from 1.9 GL to 4 GL and surface water use from 0.9 GL to 1.4 GL (Figure 21). Over the same period, the use of imported River Murray water has ranged from 8 GL to 13.7 GL. Imported water from the River Murray, on average, makes up 73% of the water used in the Barossa region. Rainfall data for Tanunda in (Figure 21) is used to demonstrate that annual rainfall can be an indicator of demand for water. In 2023-24 Tanunda's annual rainfall was the lowest on record (Figure 3).

Figure 20. Barossa Prescribed Resources Area in the Northern and Yorke Landscape Board area

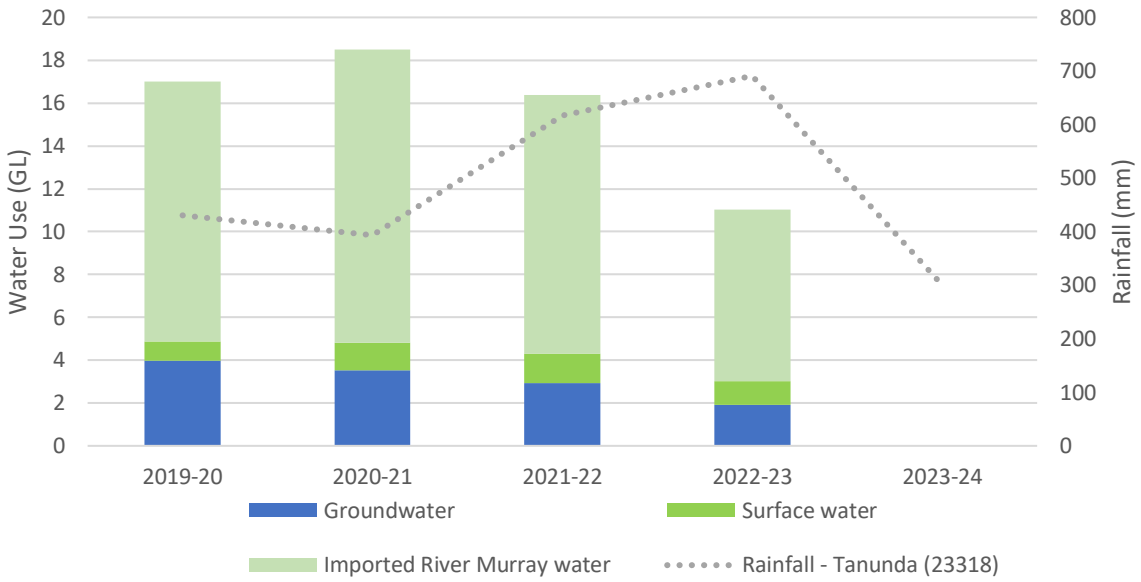
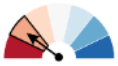
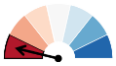
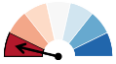


Figure 21. Barossa annual rainfall and water use

Water resource condition and trends

Below average resource conditions for groundwater level status and declining rainfall trends are observed in the Barossa region (Table 10). The Lower aquifer has declined further to be the lowest on record. The salinity of the lower aquifer is stable. The salinity of the fractured rock aquifer, the primary aquifer used for licensed purposes, and the upper aquifer are continuing to show increasing salinity trends.

Table 10. Condition of Barossa prescribed groundwater resources

Barossa	Groundwater level status	Salinity	Rainfall
Fractured Rock Aquifer		↗	↘
Upper Aquifer		↗	↘
Lower Aquifer		—	↘

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2008 to 2024.
Rainfall = Trend in average annual rainfall over period 1986 to 2024 at Tanunda weather station.

Surface water in the North Para River shows increasing declining trends for streamflow and the number of flow days for the river. The rainfall trend at Tanunda is decreasing (Table 11).

Table 11 Condition of Barossa prescribed surface water resources

Barossa	Streamflow	Flow days	Rainfall
North Para River	↘	↘	↘

Streamflow = Trend in annual streamflow (July to June) over period 1986-87 to 2023-24 at Yaldara (A5050502) streamflow monitoring site.
Flow days = Trend in number of flowing days 1986–87 to 2023–24 at Yaldara (A5050502) streamflow monitoring site.
Rainfall = Trend in average annual rainfall over period 1986 to 2024 at Tanunda weather station.

Water security summary

The Barossa is a region where it is likely that water supplies of a suitable quality will be insufficient to meet established future demand for water. To address this water security risk, DEW has worked in partnership with key stakeholders to develop a water security strategy for the region. This strategy showed that, under a mid-range climate scenario for the 2050s, it is estimated an additional 8 GL per year (5.7 GL for Barossa Valley and 2.4 GL for Eden Valley) will be needed to ensure on average there is no irrigation shortfall for the existing planted area in the driest years (DEW 2022c). This increases to more than 14 GL per annum (10.2 GL for Barossa Valley and 3.8 GL for Eden Valley) for a high-end climate change projection for the 2050s (DEW 2022c).

The development of the water security strategy prior to the finalisation of the Barossa WAP amendment has facilitated the alignment of water security objectives with WAP principles. For example, principles relating to surface water dams have been reviewed to consider the storage of alternative water supplies and to facilitate environmental outcomes and cultural water objectives identified in the water security strategy. A draft of a revised Barossa Water Allocation Plan is scheduled to be released for public consultation in the near future.

The Government of South Australia has been working with Barossa Infrastructure Limited and Barossa Australia to investigate potential pathways for a viable recycled water project for Barossa. Recent investigations focused on the viability of substituting current River Murray water use in Barossa with treated wastewater from the Bolivar Wastewater Treatment Plant. This work found that it is not currently commercially viable to supply recycled water from the Bolivar Wastewater Treatment Plant to Barossa.

DEW is working with Barossa Infrastructure Limited and SA Water to further investigate a River Murray water supply option for Eden Valley to address short-term water security risks in that area. These investigations are continuing.

Several other projects have addressed water security issues in the Barossa and Eden Valley regions:

- Barossa Wine Grape Water Source Diversification – this project, jointly funded by the Australian Government through National Water Grid Fund's Connections Pathway, the South Australian Government, the Light Regional Council and land developers will capture and reuse stormwater from new housing developments. Treated recycled water will be returned to parks and reserves, with surplus water being pumped to the Barossa Valley. When fully operational, the scheme is expected to deliver up to an extra 800 megalitres a year of recycled water to the Barossa Valley.
- Optimising the agricultural uses of varying water qualities in the Barossa region project – this project, jointly funded by the Australian Government through National Water Grid Fund and the South Australian Government (PIRSA-SARDI), is now complete. The project investigated options for using available water resources, including blending multiple water qualities, to achieve agricultural production goals.

Clare Valley Prescribed Water Resource

In the Clare Valley, prescribed ground and surface water resources, as well as water imported from the River Murray, are used to meet water needs across the region. Water imported from the River Murray is the main source of water. Prescribed resources are managed through the Clare Valley WAP. The location of the Clare Valley prescribed area is shown in Figure 22.

Water Use

Since 2019-20, annual demand for prescribed surface water has ranged from 0.15 GL to 0.75 GL, and prescribed groundwater from 0.64 GL to 1.14 GL (Figure 23). Over the same period, the use of imported River Murray water has ranged from 1.8 GL to 3.2 GL. Imported water on average makes up 66% of the water used in the Clare region. Rainfall data for Clare (Calcannia) weather station is displayed in Figure 23 to illustrate the relationship between rainfall and water use. In 2023-24 rainfall was very much below average.

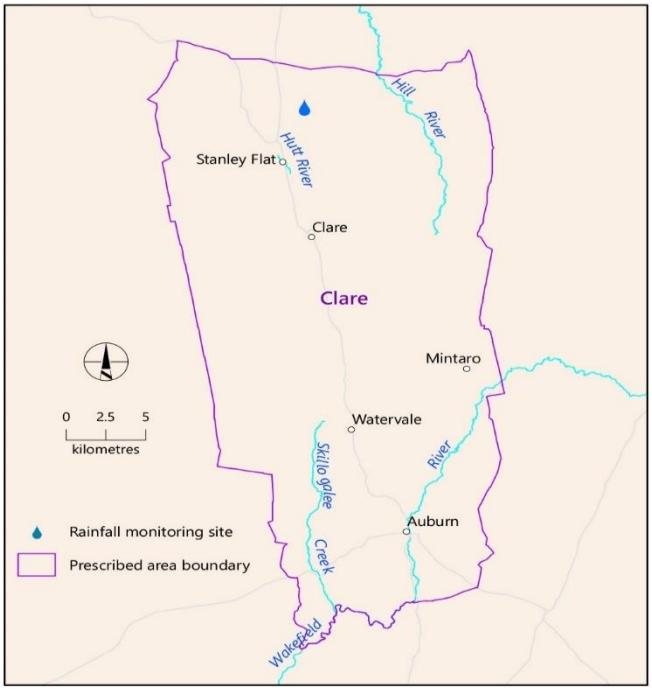


Figure 22. Clare Valley Prescribed Resource Area in the Northern and Yorke landscape Board region

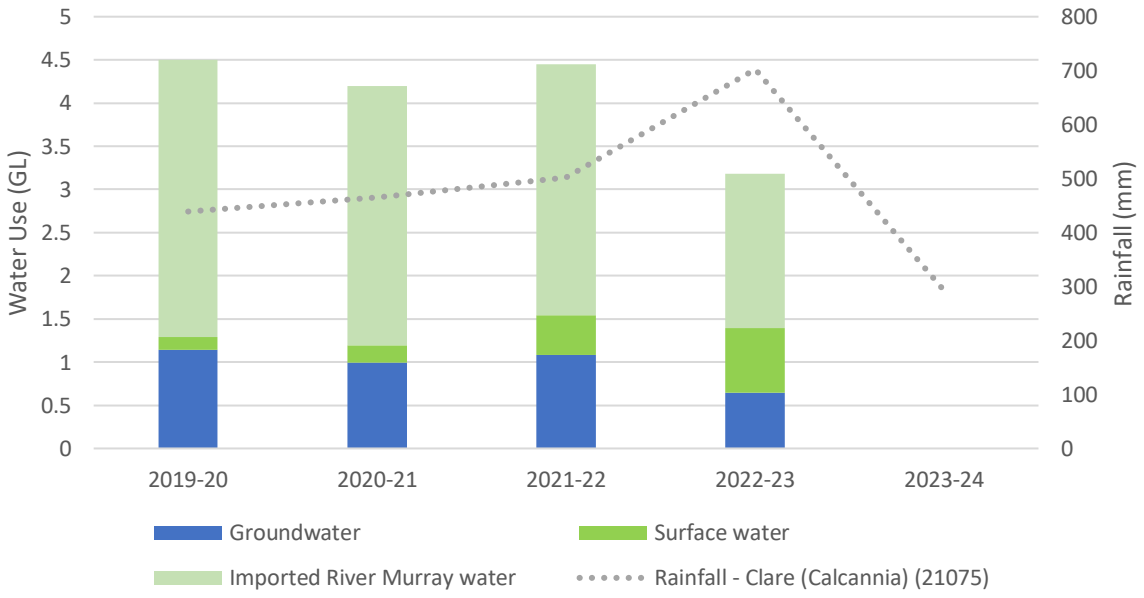


Figure 23. Clare Valley annual rainfall and water use

Water resource condition and trends

The groundwater water level status has declined to be below average this year and salinity remains stable. The long-term rainfall trend (1986-2024) continues to decline across the Clare Valley (Table 12).

Table 12. Condition of Clare Valley prescribed groundwater resources

Clare Valley	Groundwater level status	Salinity	Rainfall
Fractured Rock Aquifer		—	↘

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2014 to 2024.
Rainfall = Trend in average annual rainfall over period 1971 to 2024 at Clare (Calcannia) weather station.

For surface water, Table 13 shows declining trends for streamflow and the number of flow days in the Hill River and Hutt River, while the corresponding trends remain stable in the Wakefield River.

Table 13. Condition of Clare Valley prescribed surface water resources

Clare Valley	Streamflow	Flow days	Rainfall
Wakefield River	—	—	↘
Hill River	↘	↘	↘
Hutt River	↘	↘	↘

Streamflow = Trend in annual streamflow (July to June) over period 1986-87 to 2023-24 at Wakefield (A5060500), Hill River (A5070500) and Hutt River (A5070501) streamflow monitoring sites.
Flow days = Trend in number of flowing days 1986-87 to 2023-24 at monitoring sites listed above.
Rainfall = Trend in average annual rainfall over period 1986 to 2024 at Clare (Calcannia) weather station.

Water security summary

There are ongoing water security challenges in the Clare Valley related to both water availability and affordability. Further engagement is required with the Clare Valley community regarding water security. An assessment of water demand and the identification of options for bringing additional water to the Clare Valley has been completed via the Australian Government funded Clare Valley Preliminary Business Case. Australian Government funding was provided through the National Water Grid Fund. A potential solution for the Clare Valley is being investigated by DEW via a joint government-industry working group. The Clare Valley Grape and Wine Association, SA Water and Regional Development Australia, Yorke and Mid North are represented on the working group.

In an effort to further improve catchment health, the Northern and Yorke Landscape Board is also working with landholders, farming groups and stakeholders to deliver on-ground works to improve water quality in the Wakefield River catchment in the Clare region.

The Water Allocation Plan for the Clare Valley Prescribed Water Resources Area is currently due for review due by 2029. However, investigations are underway to determine whether the review process should be brought forward.

Baroota Water prescribed water resource

The Landscape Board is finalising a draft of an inaugural Baroota Water Allocation Plan, which is scheduled to be released for public consultation in the near future. The Northern and Yorke Landscape Board has received funding from the Government of South Australia's Landscape Priorities Fund for an Environmental and Cultural Flows project in 2023-2025 that includes Baroota. One of the project's key objectives is to continue to collaborate with SA Water to deliver environmental water releases from the Baroota Reservoir.

Port Pirie Greening Program

The Port Pirie Greening Program is funded by the Government of South Australia as part of a four-year, $5.7 million partnership that aims to minimise lead exposure pathways, beautify the community and increase biodiversity. Tree planting, landscaping and the installation of Water Sensitive Urban Design infrastructure will be added to key central Port Pirie locations in the next stage of the Port Pirie Greening Program. Further benefits are improved visual appeal of the identified locations, increased environmental benefits and the improved health and wellbeing of the community.

Green Adelaide

The Green Adelaide region covers approximately 3,400 square kilometres supporting a population of nearly 1.23 million people. It covers most of Adelaide from Sellicks Beach in the south to Virginia in the north to the hills face zone in the east.

Average annual rainfall ranges from 400 mm in the north to 800 mm in the east in the western Mount Lofty Ranges. The groundwater is used from aquifers under the Adelaide Plains, which also have several managed aquifer recharge schemes operating. Several rivers flow out of the western Mount Lofty Ranges across the Adelaide Plains to the Gulf of St Vincent. The most important are the Little Para River, River Torrens / Karrawirra Pari and Onkaparinga River.

An important feature of the Green Adelaide region is the retention of natural wetlands in an urban environment and the creation of artificial wetlands to manage stormwater and recharge aquifers. All these wetlands play an important role in cooling and greening Adelaide. Most of the wetlands in the region are reliant on regular surface water flows to maintain health. There are 6 wetlands of national importance in the region: Barker Inlet and St Kilda, Cleland Perched Swamps, Clinton, Onkaparinga Estuary, Port Gawler and Buckland Park Lake, and Washpool Lagoon.

Adelaide Plains

The Adelaide Plains takes in most of Adelaide. It stretches from Kangaroo Flat in the north, to the Onkaparinga River in the south, to the coast in the west, and to the top of the 'hills face zone' in the east.

Three separate PWAs make up the Adelaide Plains region (Northern Adelaide Plains, Dry Creek and Central Adelaide). Groundwater resources are managed under a single water allocation plan, the Adelaide Plains Water Allocation Plan. Historically groundwater extractions in the Kangaroo Flat region have been reported on separately; hence, water use and resource trends are presented separately for Kangaroo Flat and the Northern Adelaide Plains. The location of the prescribed areas is shown in Figure 24. The location of Kangaroo Flat can also be seen on the map.

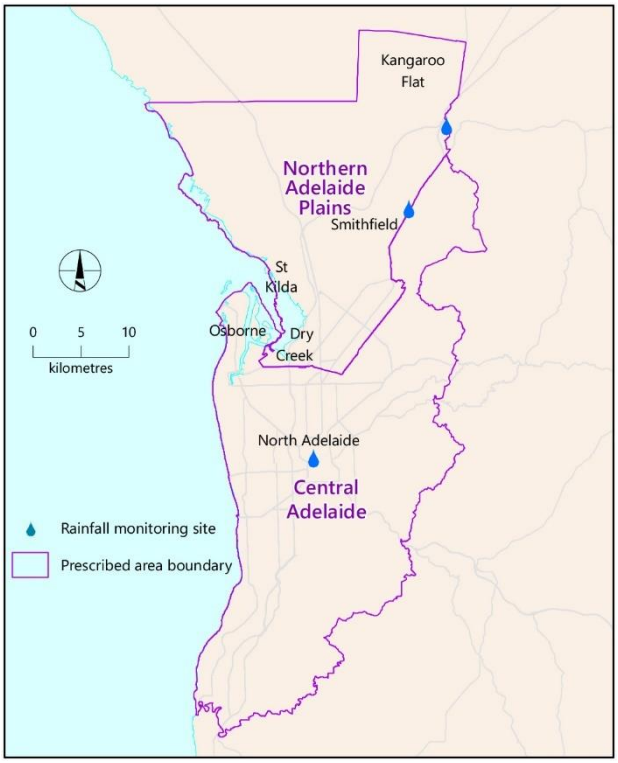


Figure 24. Map of Adelaide Plains region

Water Use

Since 2019-20, annual licensed extraction of groundwater in Dry Creek, Central Adelaide and the Northern Adelaide Plains (including the Kangaroo Flat region) has ranged from 12 GL to 14.4 GL (Figure 25). In general, water use patterns reflect rainfall trends: less water is used in higher rainfall years compared to lower rainfall years. The greatest volume of groundwater is used from the aquifers of the Northern Adelaide Plains. Rainfall data for Smithfield (Figure 25) is used to demonstrate the relationship between rainfall and water use. In 2023-24 rainfall was very much below average.

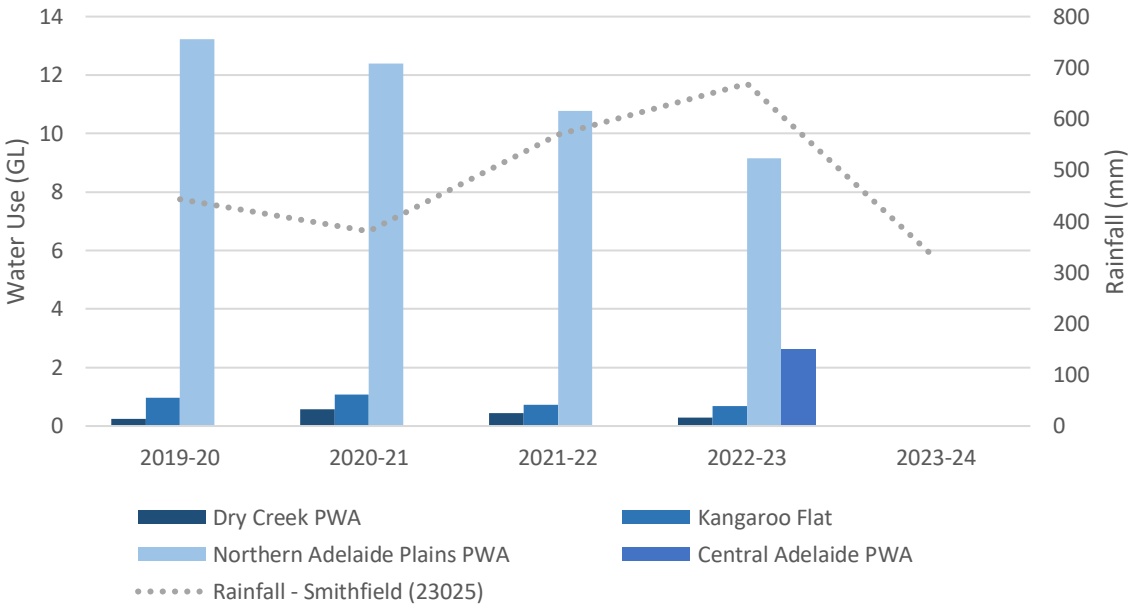


Figure 25. Adelaide Plains annual rainfall and water use.[11]

Water resource condition and trends

The groundwater level status across the Northern Adelaide Plains has declined since last year. Levels vary from below average in Kangaroo Flat T2[12], to above average in Central Adelaide T1 and Northern Adelaide T1. Salinity trends are stable across the region. Rainfall in the Northern Adelaide Plains and Kangaroo Flat are stable, whereas a declining rainfall trend is being observed in the Central Adelaide PWA.

Table 14. Condition of Adelaide Plains prescribed groundwater resources

Central Adelaide	Groundwater level status	Salinity	Rainfall
T1			
Kangaroo Flat	Groundwater level status	Salinity	Rainfall
T2			
Northern Adelaide	Groundwater level status	Salinity	Rainfall
T1			
T2			

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2013 to 2024 for Central Adelaide T1. Trend in groundwater salinity over period 2014 to 2024 for remainder of water resources.
Rainfall = Trend in average annual rainfall over period 1980 to 2024 at North Adelaide weather station for Central Adelaide, at Gawler weather station for Kangaroo Flat, and Smithfield weather station for Northern Adelaide Plains.

[11] Central Adelaide metered water use data is available from 2022-23, with data representing 30% of bores in the prescribed area. 2023-24 water use data not available at the time of publication.
[12] T1 and T2 are the two Tertiary limestone aquifers that are main sources of groundwater in the Adelaide Plains region.

Water security summary

The Adelaide Plains WAP became operational on 1 July 2022, replacing the former Northern Adelaide Plains WAP. It is the first WAP for the Dry Creek and Central Adelaide PWAs.

The WAP includes an adaptive trigger-level management approach. The adaptive management approach works by limiting the volume of groundwater that can be extracted from the T1 and T2 aquifers of the Northern Adelaide Plains where the resource is at higher risk. This is achieved through the use of resource condition triggers. The resource condition triggers act as an early warning system that the resource condition limit is at risk of being breached and initiates a management response that greatly reduces the risk of this occurring.

The Adelaide Plains WAP also includes rules for managing water that is drained or discharged into aquifers, also known as managed aquifer recharge. The principles in the WAP enable further storage of water in the aquifers for future use, where it is sustainable, and therefore enhance the water security of the region.

Six of the 11 consumptive pools currently have unallocated entitlement shares available for potential consumptive use. DEW has developed a water release strategy for the Adelaide Plains, which includes setting a price for water. Water will be released in 2 stages with the first stage releasing up to 50% of unallocated entitlement shares by expression of interest (EOI) in the following consumptive pools:

- T1 Regional
- T2 Regional
- Lower Tertiary (T3/T4)
- Golden Grove Embayment
- Noarlunga Embayment
- Northern Fractured Rock

Through this process water will be sold at a concessional rate for entities using water for greening and cooling activities. The remaining water will be held back while First Nations' water interests are addressed.

The water security of the region has also been strengthened by the Northern Adelaide Irrigation Scheme (NAIS), unlocking up to 6 GL of recycled wastewater sourced from the Bolivar Wastewater Treatment Plant (SA Water 2023). Recycled water from the Bolivar Wastewater Treatment Plant is a climate-resilient water source that has the potential to build resilience to drought. As part of the Australian Government's Water Infrastructure for Sustainable and Efficient Regions (WISER) initiative, $4.4 million Australian Government funding has been secured to extend the NAIS recycled water pipeline to Mallala. This funding, and the WISER initiative, is provided through the Australian Government's National Water Grid Fund. Extension of the pipeline will enable up to 1.3 GL per year of recycled water to be used for agricultural production including high-tech greenhouse vegetable production.

The Urban Greening Strategy for Metropolitan Adelaide is due to be finalised in early 2025. Public consultation on the draft strategy was completed in mid-2024. When implemented, the strategy is expected to achieve water security outcomes associated with water sensitive urban design, water availability under a changing climate, water recycling, water quality, stormwater and aquifer recharge, and ensuring there is adequate water to support healthy and thriving green spaces.

Eyre Peninsula

The Eyre Peninsula region covers approximately 51,000 square kilometres of land supporting a population of nearly 58,000 people. The major towns are Whyalla, Port Lincoln and Ceduna. Average annual rainfall ranges from 250 mm in the north to 560 mm in the south.

There are several wetlands of national importance on Eyre Peninsula. Most are coastal, with some receiving groundwater discharge. Most of the inland wetlands are saline. There are only a couple of permanent fresh or brackish wetlands in southern Eyre Peninsula, most notably Little Swamp and Big Swamp. There are also groundwater dependent ecosystems associated with red gums and wetlands in southern Eyre Peninsula and the central west near Elliston.

Most of the region's fresh groundwater is prescribed under the *Landscape South Australia Act 2019* and take is regulated through the WAP for the Southern Basins and Musgrave Prescribed Wells Areas and associated water licences.

Southern Basins and Musgrave

Eyre Peninsula's mains water supply needs are currently met by a mix of local groundwater and imported River Murray water. Further to these sources, there is a recognised need for a new climate-resilient water source in the region, to reduce the pressure on existing resources, while enabling future economic development in the region.

There are 2 prescribed wells areas on the Eyre Peninsula – Musgrave and Southern Basins. The fresh groundwater resources in both areas are used mainly for public water supply, stock and domestic use, irrigation of open spaces and industrial purposes. The location of the prescribed areas can be seen in Figure 26

Water Use

The groundwater resources of the Southern Basins PWA provide 85% of the peninsula's reticulated water supply, the majority of which is sourced from Uley South. Since 2019-20, annual groundwater use has been constant at about 0.06 GL from the Musgrave PWA and 5.4 GL from the Southern Basins PWA. Unlike other regions, water use patterns do not closely correlate to annual rainfall volumes due to most water extracted being used to meet potable water demand, as shown in Figure 27.

Figure 26. Prescribed areas in the Eyre Peninsula Landscape Board area

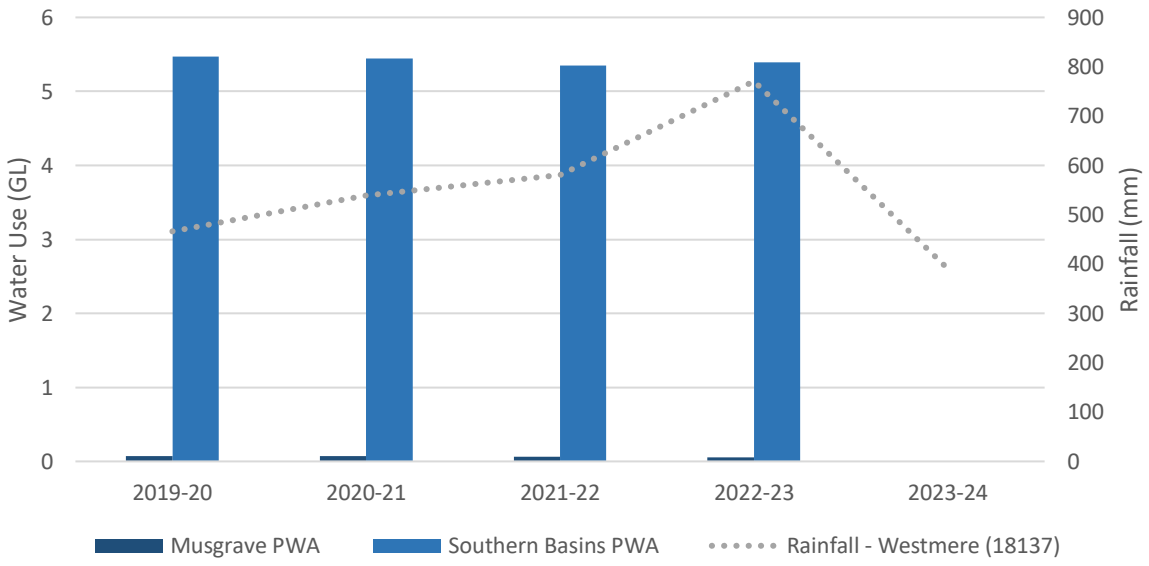


Figure 27. Eyre Peninsula annual rainfall and groundwater use

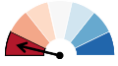
Water resource condition and trends

Rainfall trends across the Eyre Peninsula region are declining and salinity trends are increasing (Table 15).

Groundwater levels have mostly declined compared with last year. In the Southern Basins, Lincoln South and Uley Wanilla are at the lowest level on record. Coffin Bay has gone from above average to average and Bramfield remains unchanged on below average. Polda has declined to very much below average. Uley South has declined from average to below average.

These declines are an indication of the highly responsive nature of the resources to rainfall following improvements in 2022 when rainfall was very much above average. The groundwater level status for 2024 is likely to be a response to very much below average rainfall in 2023-24 (Figure 3).

Table 15. Condition of Eyre Peninsula prescribed groundwater resources

Musgrave	Groundwater level status	Salinity	Rainfall
Bramfield		↗	↘
Polda		↗	—
Southern Basins	Groundwater level status	Salinity	Rainfall
Coffin Bay		↗	↘
Lincoln South		↗	↘
Uley South		↗	↘
Uley Wanilla		↗	↘

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2014 to 2024.
Rainfall = Trend in average annual rainfall over period 1971 to 2024 at Elliston weather station (for Bramfield), at Polda weather station (for Polda), and at Westmere weather station for Southern Basins (for Coffin Bay, Lincoln South, Uley South and Wanilla).

Water security summary

The groundwater resources of the Southern Basins and Musgrave Prescribed Wells Areas are vital in the provision of groundwater for licenced purposes such as public water supply and irrigation, as well as unlicensed stock and domestic use.

Declining groundwater levels and rainfall trends represent water security risks to enterprises that rely on dams and/or groundwater to provide water for stock or to meet critical human water needs. In view of the observed trends, the Eyre Peninsula is a region where groundwater supplies of a suitable quality are insufficient to meet future demand.

In response to scientific advice that current levels of groundwater extraction are no longer sustainable, the Eyre Peninsula Landscape Board (the Board) commenced a combined review and amendment of the Water Allocation Plan (the Plan) for the Southern Basins and Musgrave Prescribed Wells Areas in April 2024, with a target adoption date of mid-2026.

Analysis undertaken by DEW indicates that the long-term sustainable extraction limit from the Uley South resource, under current climate conditions, is approximately 3.5 GL per year. The resource currently provides around 6 GL of water to the Eyre Peninsula. While the resource can withstand this level of extraction in the short-term, there is a pressing need for a significant additional volume of climate-resilient water to augment supply to ensure water security and long-term groundwater resource sustainability in the region.

In November 2024, the Government of South Australia announced approval for a desalination plant to be built at Billy Lights Point, near Port Lincoln. This is expected to come online in around mid-2026 and will supplement existing groundwater sources to ensure water security for the region. Once operational, this desalination plant will be able to produce 16 megalitres (ML) per day of drinking water.

Following advice of the Eyre Peninsula Landscape Board, SA Water has updated its *Water Security Response Plan for Eyre Peninsula* to describe how the region's water supply will be maintained until the desalination plant is operational. The plan outlines a tiered approach to the potential implementation of water restrictions and requires SA Water to take steps to ensure that water demand does not increase, and places limits on new large industrial or commercial water connections. At the end of 2024, a level 2 response was in place.

Elliston is a small town of approximately 350 people on the west coast of the Eyre Peninsula, north-west of Port Lincoln. SA Water draws from the nearby Bramfield groundwater resource to supply potable water to the town. Approximately 60 ML of groundwater is extracted by SA Water each year and it is estimated that up to 180 ML is extracted by landholders through private bores to support livestock enterprises and for domestic use. This groundwater resource is also important for ecosystems such as the Bramfield Red Gums.

While allocations have been reduced, there is sufficient supply available to meet the needs for local SA Water customers in Elliston for the remainder of 2024-25. SA Water currently has 80 ML available to provide for critical human water needs which meets the expected demand for potable water in Elliston in 2024-25. However, DEW has advised that if groundwater levels continue to decline as predicted, then allocations may need to be reduced in the future.

The District Council of Elliston, Eyre Peninsula Landscape Board, SA Water and DEW are working with the Elliston community on investigations to understand the longevity of the resource and to identify and prioritise long-term water security options for Elliston. DEW has recently received Australian Government funding through the National Water Grid Fund to carry out research on the long-term viability of the Bramfield groundwater resource. Project results will inform the WAP amendment process and guide responses to future water security challenges for local industry and the community.

SA Arid Lands

The SA Arid Lands region covers more than half of South Australia, taking up the state's north-east corner to its borders with New South Wales, Queensland and the Northern Territory. The region covers 525,000 square kilometres and has a population of around 26,000 people. Aside from the City of Port Augusta with a population of around 14,000 people, and the towns of Roxby Downs and Coober Pedy, the human population in this semi-arid region is small and geographically dispersed. Coober Pedy and Roxby Downs are both associated with mining and are home to fewer than 5,000 people, while the remaining scattered towns all have 1,500 occupants or less.

The region has irregular rainfall and other episodic weather events that rarely follow predictable annual cycles. The region includes some of the driest parts of South Australia and has the largest percentage of intact ecosystems and natural biodiversity in the state. These iconic terrestrial ecosystems – including sandy deserts, stony plains and the Gawler, Flinders and Olary ranges – are home to a range of unique plants and animals, many of which are only found within the region.

Far North

In the Far North the primary source of water is the confined groundwater from the Great Artesian Basin (GAB). Groundwater is the principal source of water for commercial, irrigation and industrial use, town water supply, stock and domestic use, bore-fed wetlands, and petroleum and mining production. The surface expression of groundwater, for example springs, supports traditional Aboriginal cultural value and rare native species that are, in some cases, endemic to a single mound spring.

The location of the Far North PWA is shown in Figure 28

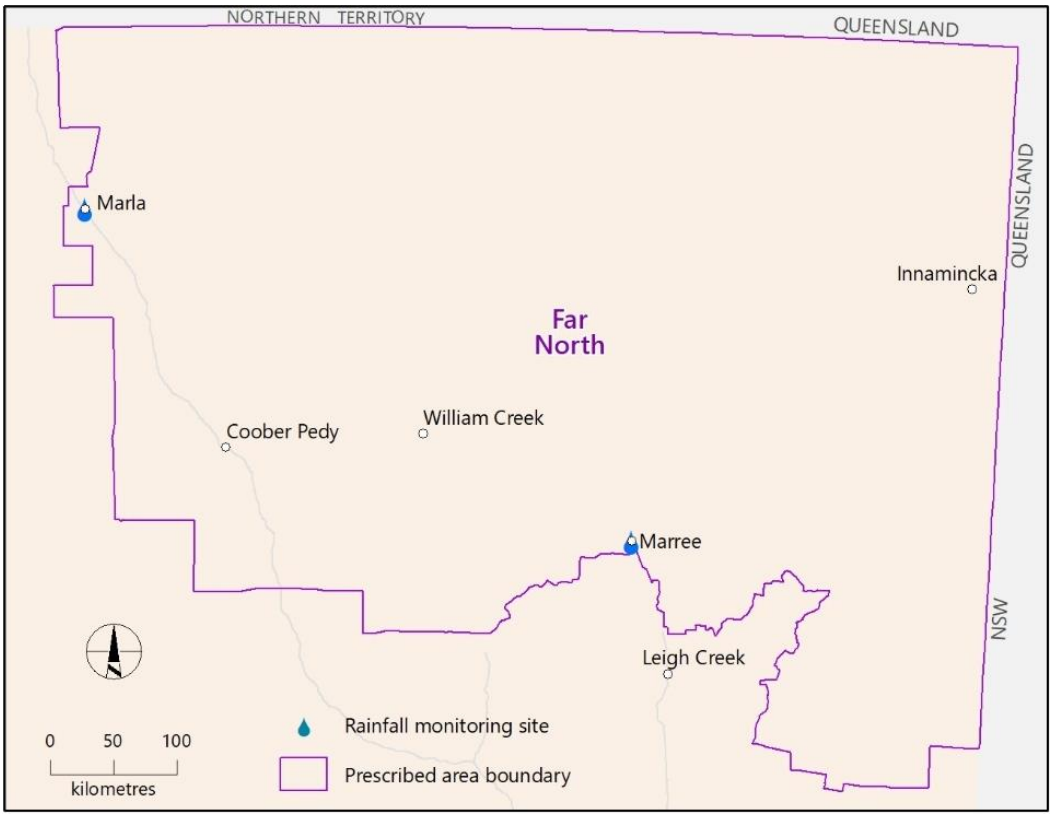


Figure 28. Prescribed areas in the SA Arid Lands Landscape Board area

Water Use

Comprehensive metered groundwater use data for the Far North is not yet available. The annual volume of groundwater authorised for use in mining is approximately 26.2 GL. The petroleum industry is authorised to use

approximately 24.8 GL (2.9 GL petroleum and 21.9 GL co-produced water). Stock use is estimated to equate to approximately 9.8 GL per year.

Groundwater used for mining and petroleum is metered, but groundwater used by pastoralists has not been measured until recently. Due to the difficulties experienced by the pastoral industry in relation to metering water use, the South Australian Arid Lands Landscape Board and DEW are working with pastoralists to identify fit-for-purpose 'water accounting' methods.

The Accounting for Groundwater Take Project aims to identify groundwater accounting solutions that meet the requirements associated with managing a PWA in a way that does not significantly impact a pastoral business.

The project is a collaboration between SA Arid Lands Landscape Board, DEW and members of the pastoral industry established to investigate and trial metering, measuring and accounting options that may be suitable for the Far North and can be used to support development of a water accounting implementation plan for the Far North PWA. Field trials are in-progress and will run for a minimum of 12 months.

Water resource condition and trends

The groundwater level status in the GAB (J-K) aquifer is average; salinity level trends are stable; and rainfall trends in the north-west part of the prescribed resource are stable, while in the southern parts rainfall trends are declining.

Table 16. Condition of Far North prescribed groundwater resources

Far North	Groundwater level status	Salinity	Rainfall
GAB (J-K) aquifer			

Water level status = Groundwater level compared to the historical range of water levels in wells in the regional monitoring network.
Salinity = Trend in groundwater salinity over period 2014 to 2024.
Rainfall = Trend in average annual rainfall over period 1971 to 2024 at Marree (representative of the southern part of the prescribed area) and Marla (representative of north-west part of the prescribed area).
***The rainfall trend at Marla (representative of the north-west part of the region) is stable, while at Marree (representative of the southern part of the region) the rainfall trend is declining.

Water security summary

An updated water allocation plan was adopted in February 2021. The provisions of the Far North WAP aim to ensure that groundwater use does not have unacceptable impacts on the groundwater pressure or levels that would affect other users' ability to access the groundwater or reduce natural discharges to sites of cultural or ecological significance.

Over the past 2 decades, the Australian Government, the Government of South Australia, and landholders have invested approximately $29 million to repair and restore uncontrolled wells and to close open drains across the GAB to improve artesian pressure. In South Australia, the Far North WAP further supports this investment by requiring groundwater taken for pastoral use to be through closed delivery systems.

In late 2024 it was announced that up to $5 million in Australian Government funding will be provided under the Great Artesian Basin Water Security Program (GABWSP) to enable South Australian bore owners to apply for grants to complete capping and piping projects.

Although resource trends do not raise concern regarding the security of the GAB aquifer, the Northern Water project has demonstrated the need for a desalination plant and pipelines to meet the increasing demand for water by mining and emerging green energy industries in the Upper Spencer Gulf and far north region of the State (Government of South Australia 2023). The Northern Water project could see the construction of a new seawater desalination plant in the Upper Spencer Gulf and a pipeline to the Far North of South Australia. Funding for the initial investigation and planning phase of the project has been obtained and will be used for detailed environmental studies, technical assessments, and early procurement activities in the lead-up to a final investment decision.

Another project, the Water and Infrastructure Corridors initiative, is attempting to address water access and productivity constraints to growth by improving knowledge of groundwater resources in targeted regions of South Australia and identifying requirements for developing multi-use infrastructure corridors in priority areas. This initiative is a $5.6 million project delivered by DEW, the Department for Infrastructure and Transport, and the Department for Energy and Mining. The findings of this project may be beneficial to the water security of the Far North.

Infrastructure works at Iga Warta, as part of the Iga Warta Water Security Project, were completed in November 2024. This project, jointly funded by the Australian Government through the National Water Grid Fund and the Government of South Australia (Department for Infrastructure and Transport), saw the drilling of new groundwater wells and the installation of new pipework, pumps and storage tanks. These infrastructure improvements are expected to significantly improve the community's water security.

Building on DEW's Stocktake and Water Security Assessment for Self-Supplied Remote Communities, further investigations are being undertaken through the Self-Supplied Remote Communities Groundwater Quality Assessment project. This project, funded by the Australian Government through the National Water Grid Fund, is scheduled to be completed in 2025.

In addition to drilling activities around Quorn, SA Water is seeking the latest technology to detect deep groundwater resources. This technology, if available on the market, may have broader application in several fractured rock groundwater basins across the state which would support water security outcomes in groundwater-dependent communities.

Non-prescribed resources

There are extensive areas of South Australia where comprehensive management through a WAP and a water licensing system is not required because there is not sufficient demand for water or there is a low risk to the water resources. For these non-prescribed areas, water affecting activities are managed through permits to protect the integrity of the water resources and to minimise the impact of the activities.

The Kangaroo Island, the Alinytjara Wilurara region (north-west third of South Australia) and Yorke Peninsula are examples of locations where a permit system is used to protect the integrity of the water resources and to minimise the impact of water affecting activities.

Kangaroo Island

Kangaroo Island is Australia's third largest island, covering approximately 4,440 square kilometres and supporting a population of nearly 5,000 people. The main industries are agriculture, tourism and retail, health and community services.

Average annual rainfall on Kangaroo Island ranges from 900 mm in the west to 400 mm in the east. The island relies heavily on surface water captured in farm dams to supply water for stock and domestic needs. Most surface water flows are intermittent over winter. There is limited good quality groundwater available on the island.

There are 15 wetlands of national importance on Kangaroo Island: the American River Wetland System, Birchmore Lagoon, Busby and Beatrice Islets, Cygnet Estuary, Cygnet River and Duck Lagoon, D Estrees Bay, Flinders Chase River Systems, Grassdale Lagoons, Lake Ada, Lashmar Lagoon and Chapman River, Murray Lagoon, Rush Lagoon, Six Mile Lagoon, Waidrowski Lagoon and White Lagoon Wetland System.

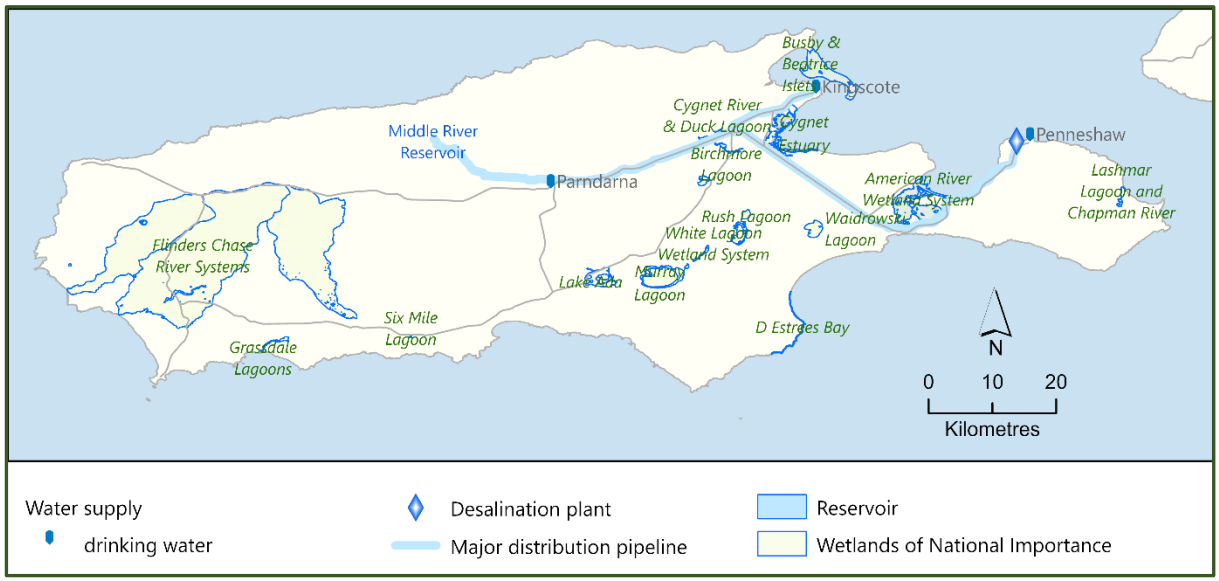


Figure 29. Kangaroo Island water supply and wetlands of national importance

Together, the Middle River Water Supply System and the Penneshaw Desalination Plant supply drinking water to approximately half of Kangaroo Island's population. In areas outside of the reticulated water networks, rainwater is the main source for household drinking supplies. The desalination plant on Kangaroo Island has been built near Penneshaw to supplement the existing Penneshaw facility and Middle River Reservoir. The new desalination plant was turned on in December 2024 and will deliver a secure and sustainable water supply into the future, reducing the island's reliance on rainfall. For the first time, popular areas on Kangaroo Island, such as American River and Island Beach, will have access to the SA Water drinking water network. The new desalination plant also provides better bushfire protection for the eastern area of the Island with more water and access points for firefighters.

There are no prescribed areas for water management on Kangaroo Island and therefore no water allocation plans. The Kangaroo Island Landscape Board manages water affecting activities for works that affect sustainable water use and water quality under the *Kangaroo Island Water Affecting Activity Control Policy (2020)*.

Alinytjara Wilurara

The Alinytjara Wilurara region covers over a quarter-of-a-million square kilometres, stretching from the Northern Territory and West Australian borders and south to the Great Australian Bight Marine Park. The primary land tenure is formally recognised Aboriginal Lands and Government Reserves.

There are no permanent rivers or creeks in the region and the recharge of groundwater, rock holes, springs and soaks is dependent on infrequent heavy rainfalls. Rock holes and soaks have significance to First Nations as ceremonial, social and trading locations and are central to the health of remote Aboriginal communities. In the past, the presence of water in rock holes and soaks has governed where family groups cluster and travel.

Groundwater remains the predominant water source for Aboriginal settlements. Water at 13 major settlements is provided by SA Water. Projects are underway to improve the quality and reliability of supply to communities in the region. Recent and current SA Water Remote Communities initiatives include equipping and connecting new bores established at Indulkana (Iwantja) community in the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands, smart metering upgrades across groundwater supplied networks and wastewater system upgrades to Amata, Pukatja and Mimili in the APY Lands.

The potential for aquifers in the APY Lands to support future community and agricultural initiatives is being assessed through the Australian Government funded APY Lands Groundwater Quantity and Quality Investigation project. Australian Government funding is provided through the National Water Grid Fund. The project will consider water priorities of the Anangu and the potential for aquifers within the region to achieve community aspirations. Community members will establish priorities for sustainable uses of potential new groundwater resources. Information gathered during the research project is expected to assist in future water infrastructure investment decisions.

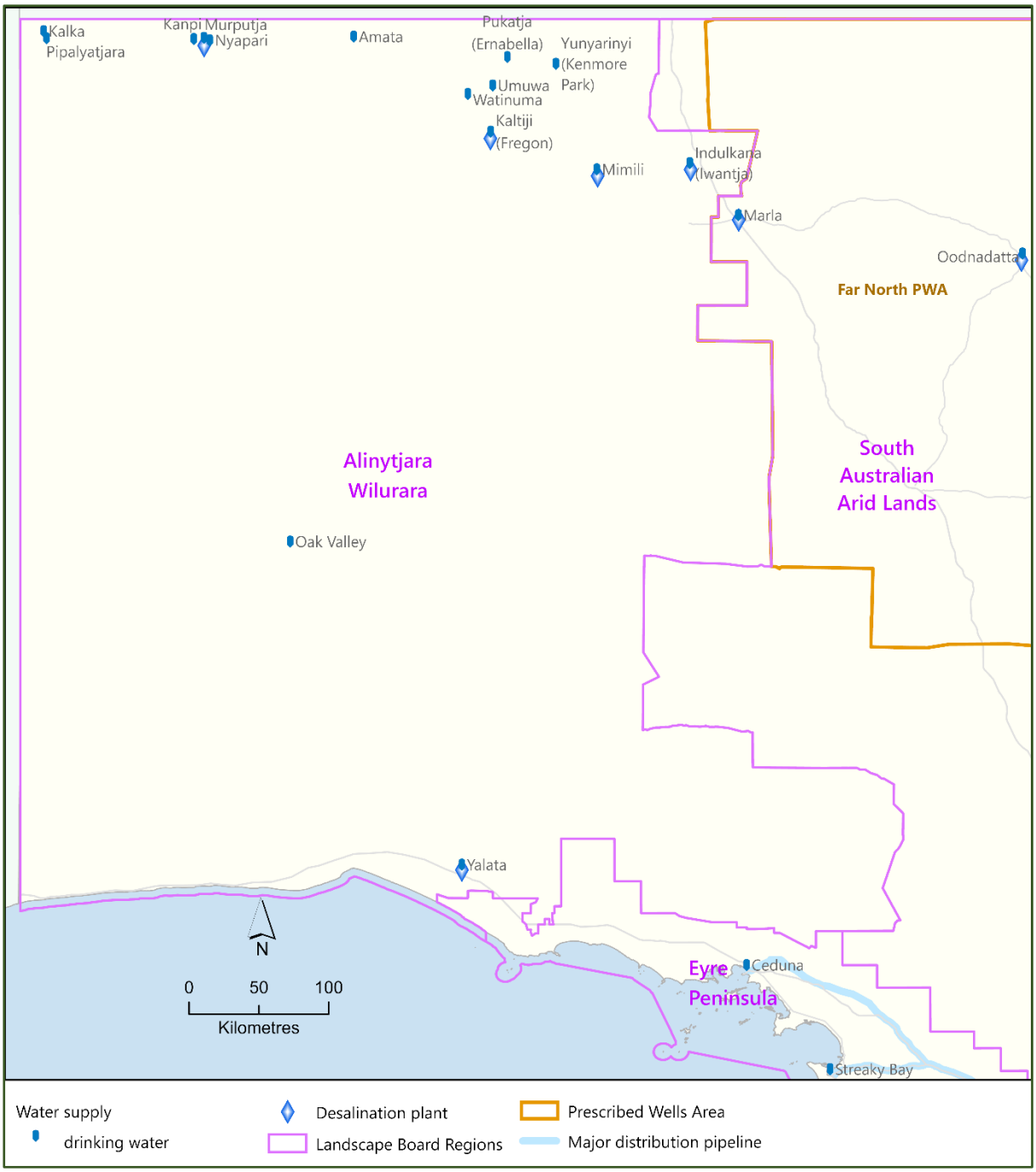


Figure 30. Water services in the Alinytjara Wilurara Landscape Board area

Yorke Peninsula

On the Yorke Peninsula, rural land is largely used for dryland cereal cropping and sheep and cattle grazing. Salt production, mining, fishing and tourism are also important industries for the region.

Surface water supplies are limited and almost all groundwater shows high salinity and is not suitable as a supply of drinking water. While drinking water is supplied to many townships in the region from the River Murray via the Morgan-Whyalla and Swan Reach-Paskeville pipelines (see Figure 2), a number of coastal landowners rely on rainwater for drinking water supplies. A desalination plant at Marion Bay also supplies water to Marion Bay residents, businesses and visitors to the area.

Water affecting activities are managed via the Northern and Yorke Landscape Board's Water-Affecting Activities Control Policy (Northern and Yorke Landscape Board 2020).

References

Alinytjara Wilurara Landscape Board (2020) *Alinytjara Wilurara Water Affecting Activity Control Policy*, Alinytjara Wilurara Landscape Board website.

Bureau of Meteorology (2020) *Trends and historical conditions in the Murray–Darling Basin: A report prepared for the Murray–Darling Basin Authority*, Murray Darling Basin Authority website

Bureau of Meteorology (2023) Rainfall Map Information, BOM website.

Bureau of Meteorology (2024) Australian Water Outlook, accessed 5 December 2024 BOM website.

Bureau of Meteorology (21 September 2023) 'Special Climate Statement 77 – Persistent heavy rain and flooding in eastern Australia during spring 2022', BOM website.

Commonwealth of Australia, Department of the Prime Minister and Cabinet (n.d.) *Closing the Gap: 7b New or Varied Targets*, Closing the Gap website.

Department for Environment and Water (2022a) *Water Security Statement 2022 – Water for Sustainable Growth*, DEW website.

Department for Environment and Water (2022b) *Guide to climate projections for risk assessment and planning in South Australia 2022*, DEW website.

Department for Environment and Water (2022c) *Barossa Water Security Strategy*, DEW website.

Department for Environment and Water (2023) *Technical information supporting the 2023 surface water (quantity and quality) Environmental Trend and Condition Report Cards. DEW Technical note 2023/59*, WaterConnect website.

Department for Environment and Water (2024) Flows for the Future, DEW website.

Department for Environment and Water (2024b*) Basin Salinity Management 2030 – South Australia's Status Report 2023-24* Unpublished Ref: DEW-D0028418

Department for Environment and Water (unpublished) *South Australian River Murray Water for the Environment Report 2023–24*.

Eyre Peninsula Landscape Board (2021) *Eyre Peninsula Water Affecting Activity Control Policy*, Eyre Peninsula Landscape Board website.

Gannon R, Whiterod N and Green D (2021) *Review of the status of water resources and fish communities within the Marne Saunders Prescribed Water Resource Area*, report to the Murraylands and Riverland Landscape Board, Aquasave-Nature Glenelg Trust.

Government of South Australia (2023) Northern Water Supply Project: northernwatersupply.sa.gov.au, Government of South Australia website.

Government of South Australia (2024) State Prosperity Project, Government of South Australia website.

Green Adelaide Landscape Board (2022) *Green Adelaide Water Affecting Activity Control Policy*, Green Adelaide Landscape Board website.

Hills and Fleurieu Landscape Board (2021) *Hills and Fleurieu Water Affecting Activity Control Policy*, Hills and Fleurieu Landscape Board website.

Kangaroo Island Landscape Board (2020) *Kangaroo Island Water Affecting Activity Control Policy*, Kangaroo Island Landscape Board website.

Limestone Coast Landscape Board (2022) *Limestone Coast Water Affecting Activity Control Policy*, DEW website.

Murraylands and Riverland Landscape Board (2021) *Murraylands and Riverland Water Affecting Activity Control Policy*, Murraylands and Riverland Landscape Board website.

Northern and Yorke Landscape Board (2020) *Northern and Yorke Landscape Board: Water-Affecting Activities Control Policy*, Northern and Yorke Landscape Board website.

PlanSA (2023) *Population Projections for South Australia and Regions 2021 to 2051*, PlanSA website.

PlanSA (2024) *Draft Greater Adelaide Regional Plan*, PlanSA website.

SA Water (2023) Northern Adelaide Irrigation Scheme: sawater.com.au/nais, SA Water website.

SA Water (2024) 2023-24 South Australian Water Corporation Annual Report SA Water website.

Savadamuthu K and McCullough D P) (2024) *Impacts of changing rainfall patterns on the hydrology of the Mt Lofty Ranges*, Department for Environment and Water Technical report DEW-TR-2024-8.

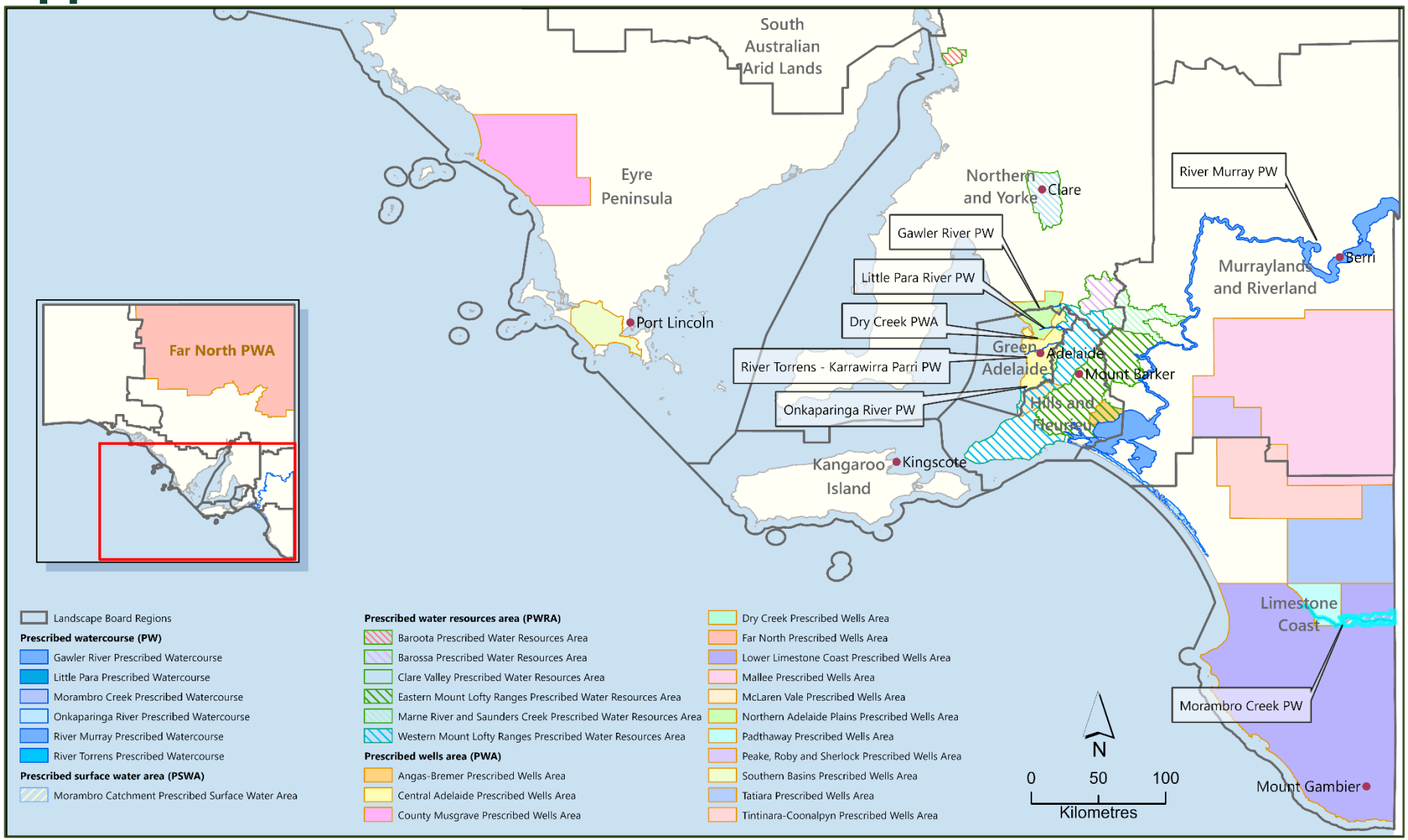
South Australian Arid Lands Landscape Board (2021) *South Australian Arid Lands Water Affecting Activity Control Policy*, South Australian Arid Lands Landscape Board website.

South Australian Government (2019) *South East Drainage and Wetland Strategy*, *South East Natural Resource Management Board and South Eastern Water Conservation and Drainage Board, Limestone Cast landscape Board website.*

Acronyms and terms

Acronyms and terms	Definition
APY	Aṉangu Pitjantjatjara Yankunytjatjara
BOM	Bureau of Meteorology
DEW	Department for Environment and Water
ESCOSA	Essential Services Commission of South Australia
GL	Gigalitre (1,000,000,000 litres)
ML	Megalitre (1,000,000 litres)
PWA	Prescribed wells area
SA	South Australia
WAP	Water allocation plan

Appendix A: Prescribed areas



Appendix B: Water allocation plan status

Water allocation plan	Prescribed Area	Landscape region (Lead region in bold)	Adoption date of current WAP	Status at 31/12/2024
Adelaide Plains Water Allocation Plan	Central Adelaide Prescribed Wells Area and Dry Creek Prescribed Wells Area Northern Adelaide Plains Prescribed Wells Area	**Green Adelaide** Hills and Fleurieu Northern and Yorke	16/02/2022	Review due by 2032
Morambro Creek and Nyroca Channel Water Allocation Plan	Morambro Creek and Nyroca Channel Prescribed Watercourse Morambro Creek Prescribed Surface water Area	**Limestone Coast**	13/01/2006	Review due 2026
Tatiara Water Allocation Plan	Tatiara Prescribed Wells Area	**Limestone Coast**	7/06/2010	Amendment underway
Water Allocation Plan Barossa Prescribed Water Resources Area	Barossa Prescribed Water Resources Area	**Northern and Yorke**	18/06/2009	Amendment underway
Water Allocation Plan Eastern Mount Lofty Ranges	Eastern Mount Lofty Ranges Prescribed Water Resources Area. Angas Bremer Prescribed Wells Area.	**Hills and Fleurieu** Murraylands and Riverland Northern and Yorke	17/12/2013	Amendment underway
Water Allocation Plan for the Baroota Prescribed Water Resources Area	Baroota Prescribed Water Resources Area	**Northern and Yorke**		New WAP under development
Water Allocation Plan for the Clare Valley Prescribed Water Resources Area	Clare Valley Prescribed Water Resources Area	**Northern and Yorke**	4/05/2009	Review due by 2029
Water Allocation Plan for the Far North Prescribed Wells Area	Far North Prescribed Wells Area	**South Australian Arid Lands**	28/02/2021	Review due by 2031
Water Allocation Plan for the Lower Limestone Coast Prescribed Wells Area	Lower Limestone Coast Prescribed Wells Area	**Limestone Coast**	26/11/2013	Amendment underway
Water Allocation Plan for the Mallee Prescribed Wells Area	Mallee Prescribed Wells Area	**Murraylands and Riverland** Limestone Coast	2/05/2012	Amendment underway
Water Allocation Plan for the Marne Saunders Prescribed Water Resources Area	Marne Saunders Prescribed Water Resources Area	**Murraylands and Riverland** Northern and Yorke	13/2/2019	Review to occur in 2024
Water Allocation Plan for the Padthaway Prescribed Wells Area	Padthaway Prescribed Wells Area	**Limestone Coast**	6/12/2024	Amendment adopted

Water allocation plan	Prescribed Area	Landscape region (Lead region in bold)	Adoption date of current WAP	Status at 31/12/2024
Water Allocation Plan for the Peake Roby and Sherlock Prescribed Wells Area	Peake Roby and Sherlock Prescribed Wells Area	**Murraylands and Riverland**	2/03/2011	Amendment underway
Water Allocation Plan for the River Murray Prescribed Watercourse	River Murray Prescribed Watercourse	**Murraylands and Riverland**	27/04/2023	Review due by 2033
Water Allocation Plan for the Southern Basins and Musgrave Prescribed Wells Areas	Musgrave Prescribed Wells Area Southern Basins Prescribed Wells Area	**Eyre Peninsula**	28/06/2016	Revision in progress with adoption before mid-2026
Water Allocation Plan for the Tintinara–Coonalpyn Prescribed Wells Area	Tintinara–Coonalpyn Prescribed Wells Area	**Limestone Coast** Murraylands and Riverland	23/04/2012	Review due by 2026
Water Allocation Plan McLaren Vale Prescribed Wells Area	McLaren Vale Prescribed Wells Area	**Hills and Fleurieu** Green Adelaide	6/11/2007	Amendment underway
Water Allocation Plan Western Mount Lofty Ranges	Gawler River Prescribed Watercourse Little Para Prescribed Watercourse Onkaparinga Prescribed Watercourse River Torrens/Karrawirra Parri Prescribed Watercourse Western Mount Lofty Ranges Prescribed Water Resources Area	**Hills and Fleurieu** Green Adelaide Northern and Yorke	17/09/2013	Amendment underway

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