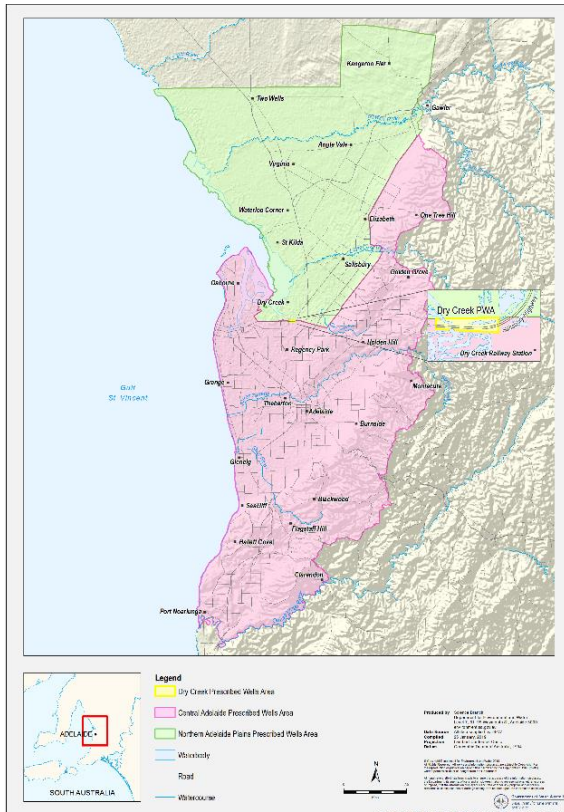




## 1. Introducing the Adelaide Plains Water Allocation Plan



### Introduction

The Adelaide Plains Water Allocation Plan (the Plan) sets out how water licences and permits for the groundwater resources within the Adelaide Plains area will be issued and managed.

The Plan is based on scientific investigations, input from community representatives and the outcomes of public consultation. It updates and replaces the Northern Adelaide Plains Plan and is the first Plan for the Central Adelaide area (as well as the small Dry Creek area). This extended area ensures a comprehensive management approach, as the main aquifers used for water extraction and storage run continuously across the broader Adelaide Plains area.

The Plan's overall aim is to ensure that groundwater is managed in a sustainable manner, so that it continues to be available and of good quality to provide for economic, cultural, social and environmental benefits.

### What is in the Adelaide Plains Water Allocation Plan?

The Plan is based on the best available science and knowledge about how groundwater works, the effects of water extraction and the needs of ecosystems which are reliant on groundwater. This is combined with information about current and potential future water use and demand, which is outlined in the Plan.

Based on this information, the Plan contains a set of principles or 'rules', setting out:

- how water extraction is managed at the scale of a number of smaller zones or 'consumptive pools'. These are mostly based on the main aquifer groups with smaller consumptive pools for some aquifers;
- the maximum annual acceptable extraction limits for each consumptive pool;
- the types of water management tools (licences, entitlements and allocations) used to manage groundwater extraction (see Section 5 'Water Licensing under the Adelaide Plains Water Allocation Plan');
- how these water management tools may be issued, varied or transferred to other people (see Section 2 'Transferring Water under the Adelaide Plains Water Allocation Plan');



- in two consumptive pools (T1 Northern Adelaide Plains and T2 Northern Adelaide Plains) how water extraction will be managed if the condition of groundwater declines below identified thresholds (see Section 4 'Managing High Risk Areas under the Adelaide Plains Water Allocation Plan');
- buffer zones to limit extraction in close proximity to groundwater-dependent ecosystems and other water users;
- how bores must be constructed and maintained;
- how Managed Aquifer Recharge activities will be licensed and managed (see Section 3 'Managed Aquifer Recharge in the Adelaide Plains Water Allocation Plan'); and
- how the groundwater resources should be monitored.

More detail on these issues is provided in the other sections.



## 2. Transferring Water under the Adelaide Plains Water Allocation Plan

The Plan sets out the rules for the transfer of water licences, entitlement shares and allocations in the Adelaide Plains.

The rules are designed to allow movement of licences, entitlement shares and allocations so that water users can meet their short and long term water needs without affecting other water users or groundwater dependent ecosystems. They also encourage the permanent transfer of unused water entitlements in high allocation areas to other areas where it is sustainable for more groundwater to be taken.

This section should be read together with Section 5 ‘Water Licensing under the Adelaide Plains Water Allocation Plan’ which explains how the new licensing system works and outlines the consumptive pools in the Adelaide Plains.

### What can be transferred?

Under the Plan rules you can apply to do any of the following in relation to native groundwater licences<sup>1</sup>:

- transfer your whole water licence with all of its shares to another person;
- transfer a portion of your shares to another water user;
- transfer all of your shares to another licence holder but keep your ‘empty’ licence; or
- transfer all or part of your annual water allocation to another water user, which is to be used within the same water use year.

### What are the transfer rules?

Transfers of licences and entitlement shares can be either permanent or temporary. The Plan sets out that:

- permanent transfers of licences or entitlement shares to a different consumptive pool may be approved, as long as this does not cause any consumptive pool extraction limits to be exceeded;
- an exception to this rule is that no licences, shares or allocations may be transferred into the T1 Northern Adelaide Plains or T2 Northern Adelaide Plains Consumptive Pools from another consumptive pool. This is because the total volume of shares in these consumptive pools is already beyond the sustainable extraction limit; and
- if a transfer is temporary, it can only be within the same consumptive pool.

As new water allocations are issued at the commencement of each water use year, they only exist for 12 months. Therefore transfers of allocations are only temporary and expire at the end of the water use year (end of June each year). Allocation transfers can only be within the same consumptive pool.

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<sup>1</sup> Special rules apply to the transfer of Managed Aquifer Recharge (MAR) licences and these are dealt with in a separate section.



All applications for transfers will be assessed against the transfer rules set out in section 7.9 of the Plan.

Some key points to note are:

- transfers must not impact on existing water users;
- any transfers within the T1 Northern Adelaide Plains, the T2 Northern Adelaide Plains or the T2 Kangaroo Flat Consumptive Pools must be to an area of higher potentiometric surface (i.e. further away from the centre of the cone of depression);
- for the Quaternary, T1 Regional, T2 Regional, Lower Tertiary, Golden Grove Embayment, Noarlunga Embayment, Northern Fractured Rock and Southern Fractured Rock Consumptive Pools, there are buffer zones between wells to ensure that new or increased water extraction due to the transfer of water does not impact on other water users; and
- for the Golden Grove Embayment, Noarlunga Embayment, Northern Fractured Rock, Southern Fractured Rock and Quaternary Consumptive Pools, there are environmental buffer zones to ensure that new or increased extraction due to the transfer of water does not impact on important groundwater-dependent ecosystems.





### **3. Managed Aquifer Recharge in the Adelaide Plains Water Allocation Plan**

The term Managed Aquifer Recharge refers to the intentional draining and discharging of water to aquifers for subsequent recovery and use or for environmental benefit. The Plan contains principles or 'rules' that are specific to Managed Aquifer Recharge activities.

The licensing instruments utilised for Managed Aquifer Recharge activities are slightly different to those used for native groundwater and are explained in more detail below. Information on how other licences under the Plan will function is provided in more detail in Section 5 'Water Licensing under the Adelaide Plains Water Allocation Plan'.

#### **Managed Aquifer Recharge Consumptive Pool**

- The Plan establishes a single consumptive pool for all Managed Aquifer Recharge operations. This is known as the Managed Aquifer Recharge Consumptive Pool and, being an administrative pool established for a particular purpose, it extends across the entire Adelaide Plains.
- The Managed Aquifer Recharge Consumptive Pool is the water that is available for Managed Aquifer Recharge allocations, due to the recharge activities that have previously occurred.

#### **Managed Aquifer Recharge Water Licence**

- The Plan sets out that Managed Aquifer Recharge licences will be issued in relation to the Managed Aquifer Recharge Consumptive Pool to enable the recovery of water which has previously been recharged into an aquifer.

#### **Managed Aquifer Recharge Entitlement**

- The Plan sets out that a Managed Aquifer Recharge entitlement will reflect the 'available balance' of the relevant Managed Aquifer Recharge scheme.
- The available balance will be based on the volume of water drained or discharged under a relevant permit or authorisation, minus any volume that has subsequently been extracted over that same period.

#### **Managed Aquifer Recharge Allocation**

- A Managed Aquifer Recharge allocation will be issued for a single water use year and will reflect the maximum volume that could be extracted in that year.
- The allocation will generally be the lesser of the available balance or the 'maximum annual recovery volume' specified on the water licence.
- The maximum annual recovery volume is the volume of water which can be recovered from the resource at the locations of extraction specified for the Managed Aquifer Recharge licence which does not cause adverse impacts to the resource or existing users.



- The maximum annual recovery volume is determined based on the risk management and monitoring plan for the Managed Aquifer Recharge scheme.
- If there is a need to take more water than the maximum annual recovery volume for a particular year, a Managed Aquifer Recharge allocation can potentially be increased up to the available balance. However, the Managed Aquifer Recharge operator will be required to demonstrate that taking water at a higher rate would not impact on existing users, result in undesirable impacts to the groundwater resource or, if applicable, impact on any ecosystems dependent on the groundwater resource.

### **Managed Aquifer Recharge Rules**

The following factors will be taken into account when issuing Managed Aquifer Recharge entitlements and allocations:

- Managed Aquifer Recharge water allocations must be taken from the same aquifer into which the water was drained or discharged, and from well/s located within the same spatial extent as the corresponding native groundwater consumptive pool that aligns with the location and aquifer within which the draining or discharge occurred;
- the Managed Aquifer Recharge licence holder must operate in accordance with a risk management and monitoring plan approved by the Minister, and must report the injection and recovery volumes in a manner approved by the Minister;
- if a Managed Aquifer Recharge operator also has a licence for a native groundwater entitlement, the Managed Aquifer Recharge allocation will be considered to be taken last - this enables any allocation which is not used to be banked for future use; and
- other general principles in the Plan, such as those relating to buffer zones or the management and maintenance of wells, apply equally to both native groundwater and Managed Aquifer Recharge licences.

### **Transfer of Managed Aquifer Recharge Allocations**

The Plan sets out that all or part of a Managed Aquifer Recharge allocation can be transferred to another water user, noting that:

- transfer applications will be subject to the same assessment criteria as those used for the transfer of native groundwater allocations (see related section 'Transferring Water under the Adelaide Plains Water Allocation Plan');



- in addition to these assessment criteria, the Plan sets out that a transferred Managed Aquifer Recharge allocation must be taken from well/s located within the same spatial extent as the corresponding native groundwater consumptive pool that aligns with the location and aquifer within which the drain or discharge activities occurred;
- other important factors that will be considered in the assessment of a transfer application are the effects of continued draining or discharging into an aquifer, without subsequent extraction from the same location. These include:
  - effects on the ability of other water users to access water
  - hydraulic impacts on aquifers
  - surface and near-surface waterlogging
  - increases in the height of water tables
  - water quality and stream baseflows
  - impacts on infrastructure; and
- after a transfer of Managed Aquifer Recharge allocation, the volume transferred will be assumed to have been used in its entirety, and will be subtracted from the Managed Aquifer Recharge water access entitlement's available balance.





## 4. Managing High Risk Areas under the Adelaide Plains Water Allocation Plan

### Current situation

The Plan sets out that no existing water entitlements will be permanently reduced over the life of the Plan. However it recognises that in two of the consumptive pools (T1 Northern Adelaide Plains and T2 Northern Adelaide Plains – see Figure 1), the total volume of existing water entitlements is already above the resource extraction limit, based on evidence from scientific investigations. Despite this, the impacts on the groundwater resource in these areas are considered to be at an acceptable level, as entitlements are currently not fully utilised.

Scientific modelling has shown that in these two ‘high risk’ consumptive pools, there would be a significant risk to the groundwater if current water entitlements were used at a higher rate over an extended period. Groundwater could become more saline and the groundwater levels could drop to levels which would compromise the integrity of the aquifer.

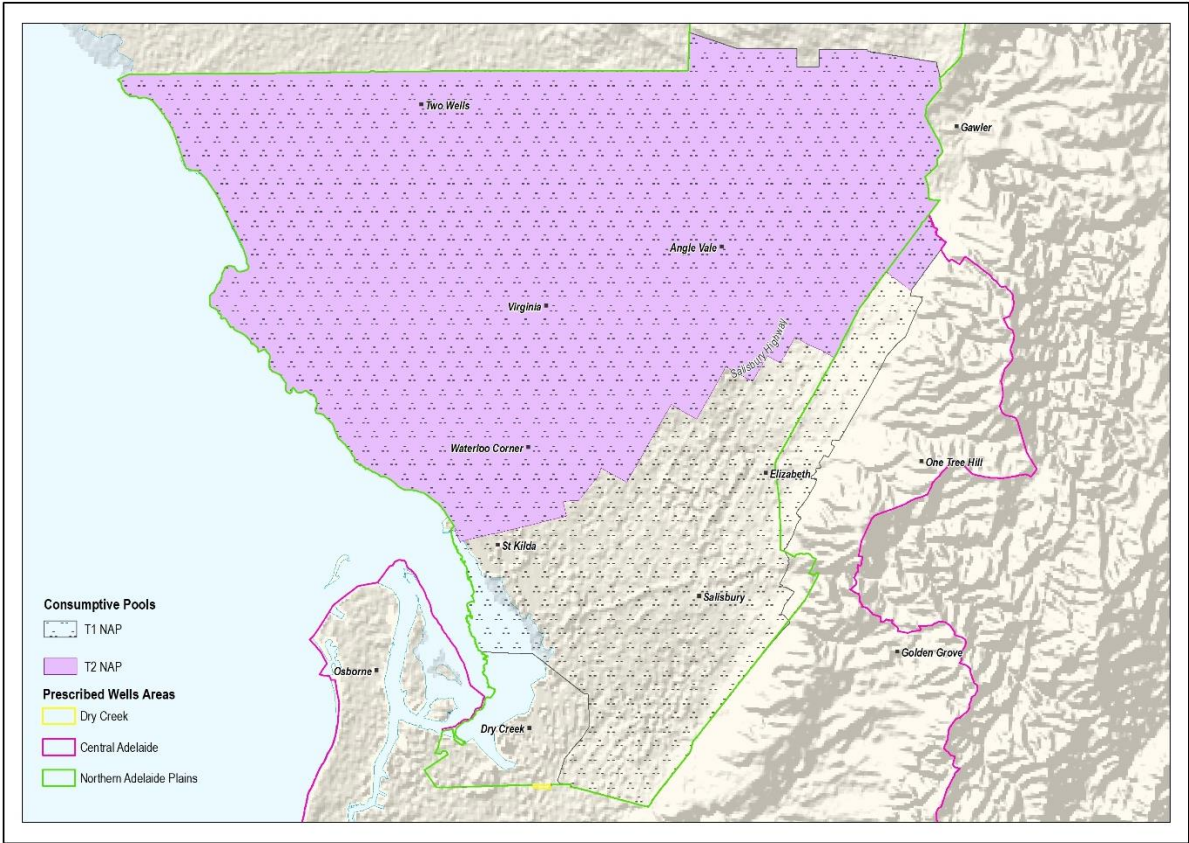


Figure 1. T1 Northern Adelaide Plains and T2 Northern Adelaide Plains Consumptive Pools





### **Managing high risk areas through a ‘safety net’ scheme**

To manage this risk, the Plan includes a ‘safety net’ scheme in these two consumptive pools. Groundwater levels will be closely monitored in both pools. If water pressure levels fall below specified thresholds (or ‘triggers’), action will be taken to reduce allocations temporarily until the condition of the groundwater recovered (Figure 2). These triggers are discussed in more detail in the Plan and the supporting science reports. The principles in the Plan set out the specific monitoring wells which will be used and the groundwater levels for each well which will trigger a response.

The Plan sets out that if the triggers are exceeded, the management response will be in two stages:

1. In the first year, licensees will be notified about the situation and advised that allocations may be reduced in future.
2. If the triggers are exceeded again in the following water use year, allocations will be issued at a reduced entitlement share rate for that consumptive pool, commencing on 1 July of the next (third) water use year. The percentage reduction will be the same for every water licensee in the consumptive pool – resulting in a reduction of the volume allocated to each licensee of a maximum of approximately: 10% in the T1 Northern Adelaide Plains Consumptive Pool; and 15% in the T2 Northern Adelaide Plains Consumptive Pool. Water used for stock and domestic purposes will not be included in the reductions. When the groundwater pressure level recovers to above the trigger level, the entitlement shares will return to their value of 1 share = 1 kilolitre (kL) for the following water use year.

For example, if a licensee in the T1 Northern Adelaide Plains Consumptive Pool has 100,000 entitlement shares and the groundwater resource is considered to be in an acceptable condition, the value of the entitlement share would be 1 kL and the licensee will be issued an allocation of 100,000 kL (100 megalitres (ML)). However, if the resource condition declines to a level that requires a management response (as described above), the value of the entitlement share would reduce to 0.9 kL and the licensee would be issued an allocation for the next water use year of 90,000 kL (90 ML).

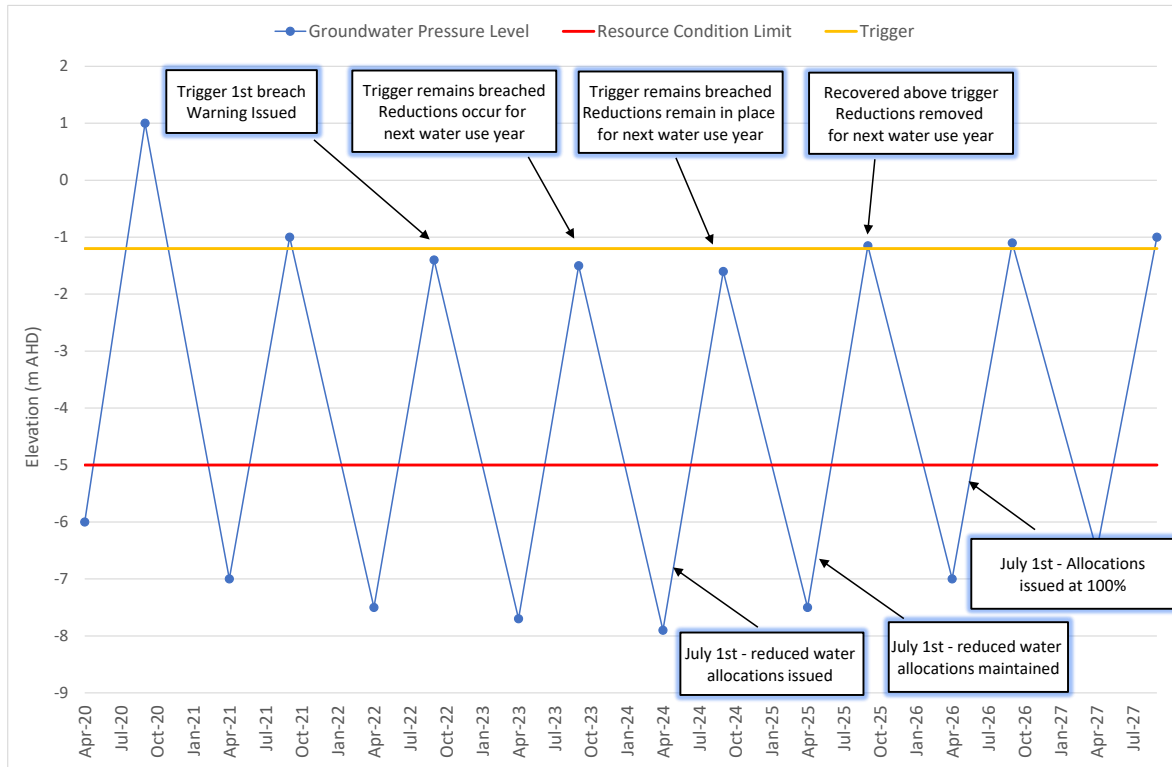


Figure 2. Example of the safety net scheme

### Benefits of the safety net scheme

Allowing existing water entitlements to stay at the current volume for each existing licensee has the significant advantage of providing flexibility to respond to seasonal weather conditions, which is particularly important for irrigators in the Northern Adelaide Plains. Water extraction can increase above current levels for short periods when conditions are drier than usual, provided the long term average use stays stable. The safety net scheme aims to protect the groundwater resource, while allowing this flexible approach to be taken and without having to permanently reduce water entitlements.

The Plan also has an overarching objective of encouraging the permanent transfer of some water entitlements from the high risk consumptive pools to other areas where groundwater is still available to be taken. This allows the asset value of unused water entitlements to be realised through transfers while reducing the likelihood of the management actions under the safety net scheme being required, due to reduction of the total volume of entitlements in the higher risk areas.



## 5. Water Licensing under the Adelaide Plains Water Allocation Plan

Until the new Plan becomes operational on 1 July 2022, the existing Northern Adelaide Plains Water Allocation Plan still applies in the Northern Adelaide Plains Prescribed Wells Area, which you can view [here](#). When the Plan becomes operational, it will be the first water allocation plan for the Dry Creek and Central Adelaide Prescribed Wells Areas.

Later in 2022, all water licences will be re-issued in a different format. At that time water licence holders will receive further information explaining the new licence format. The changes will not affect existing water licence entitlements.

### Consumptive Pools

The new water licences will identify the consumptive pool to which they relate.

A consumptive pool is the pool of water that is available to meet the consumptive demands for water, which include:

- licensed water used for irrigation, industrial and recreational purposes (and in the Northern Adelaide Plains, stock and domestic use)
- non-licensed water use, such as water for stock or domestic use in Central Adelaide and Dry Creek
- water authorised by the Minister under section 105 of the *Landscape South Australia Act 2019*.

The Plan sets out 13 consumptive pools, 11 of which are determined based on a geographic boundary and aquifer (Figure 1), while the Managed Aquifer Recharge and Cultural Water Consumptive Pools are purpose-based and extend across the entire area managed by the Plan.

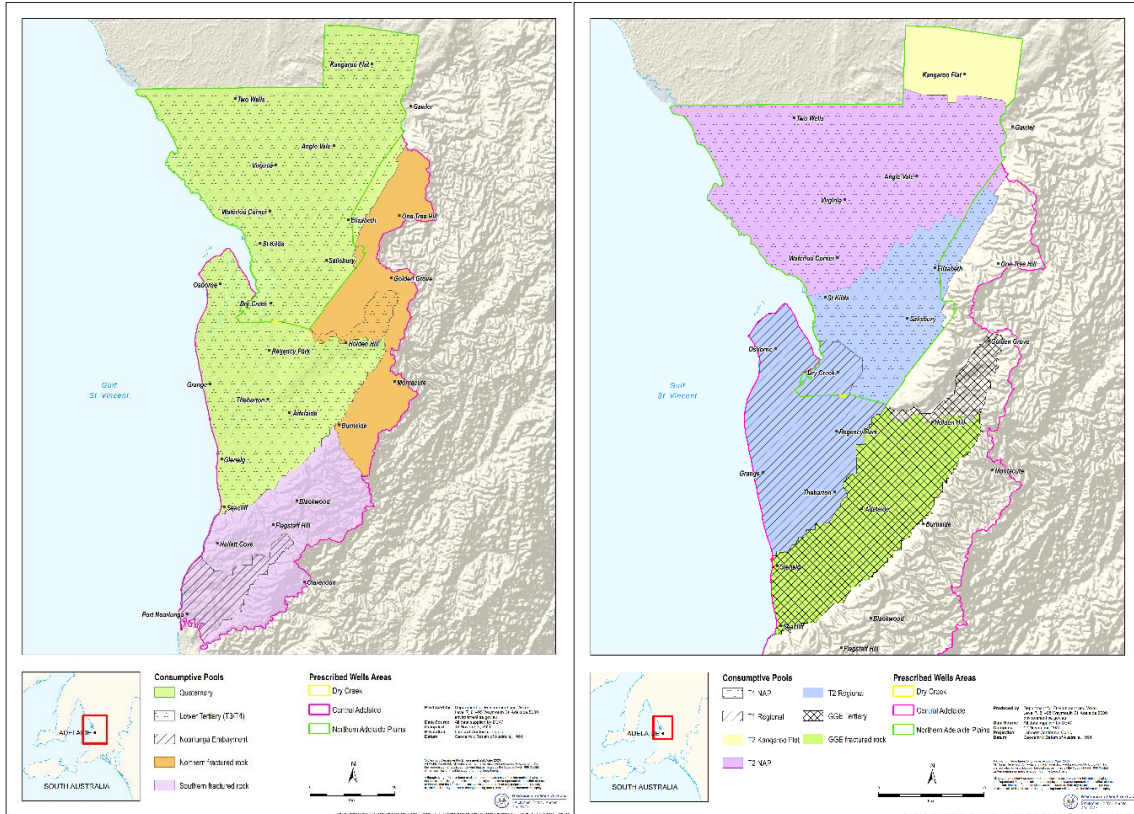


Figure 1: Consumptive pools defined by geographic area and aquifer

## Water Management Authorisations

Currently, licensed water users across most of South Australia have a right to access water as set out on their individual water licence. The water licence may also list the conditions for the taking and use of water, including which wells the water can be taken from. All of these conditions can make a water licence very complex and make it harder to sell or lease the water, or specific components of the water, on the licence.

The new water licensing system separates these components of the licence and specifies them on separate authorisations (Figure 2). The benefits of the new licensing system include: greater flexibility for transfers and options for managing water sustainability and greater opportunity for water users to secure a mortgage against their water access entitlement. The new authorisations incorporate:

**Water Licence:** provides a 'water access entitlement' to the licensee.

**Water Access Entitlement:** is the right to access water from a particular consumptive pool. It is an asset (private property) that can be mortgaged, sold or temporarily transferred in part or in full. A water access entitlement is comprised of a specified number of 'entitlement shares' within the consumptive pool. With the exception of Managed Aquifer Recharge schemes (see Section 3 'Managed Aquifer Recharge in the Adelaide Plains Water Allocation Plan' for more information), each





existing licensee will be issued with the same number of entitlement shares as they currently have as allocation on their existing licence.

**Water Allocation:** is the volume of water issued annually to a licensee which can be taken in the particular water-use year. This is an asset that can be transferred. For most consumptive pools the water allocation will be the same volume that is currently allocated to the licensee. However in the T1 Northern Adelaide Plains and T2 Northern Adelaide Plains Consumptive Pools, if the groundwater condition has declined below identified thresholds, then the volume of water allocated annually may be less than the entitlement shares (see Section 4 'Managing High Risk Areas under the Adelaide Plains Water Allocation Plan' for more detail).



### Water Licence

- ❖ Is personal property
- ❖ Relates to a particular consumptive pool
- ❖ Lists the wells through which water can be taken
- ❖ May contain other conditions
- ❖ Provides a Water Access Entitlement (WAE) to the holder and specifies the basis on which the WAE is determined

### Water Access Entitlement

- ❖ Ongoing Authorisation issued under the Water Licence
- ❖ Mortgageable component
- ❖ Subject to the conditions on the Water Licence (such as the consumptive pool and the wells)
- ❖ For the Managed Aquifer Recharge Consumptive pool it relates to the "Available Balance"
- ❖ For the other consumptive pools is comprised of a number of Entitlement Shares and reflects existing licenced volume

### Water Allocation

- ❖ Issued under a Water Access Entitlement
- ❖ Lasts for 12 months (except for carryover approved via the Plan)
- ❖ Subject to the conditions on the Water Licence (such as the consumptive pool and the wells)
- ❖ For the Managed Aquifer Recharge Consumptive Pool is the lesser of the "Available Balance" or the "Maximum Annual Recovery Volume"
- ❖ For most consumptive pools will be the same volume each year
- ❖ For the T1 Northern Adelaide Plains and T2 Northern Adelaide Plains consumptive pools, could be reduced in some years if the groundwater condition declines below identified thresholds

**Figure 2: Water management authorisations for the new water licensing system**

Existing licensees across the Adelaide Plains will be provided with a water licence, water access entitlement (specifying the number of entitlement shares) and a water allocation under the new Plan.

The Minister may grant new water licences with respect to the wells in the prescribed areas in accordance with the Plan and the taking and use of such water will be subject to the principles in the Plan. These principles are designed to ensure the taking of water will not cause undesired impacts to existing users of the resource, groundwater-dependent ecosystems or the aquifers themselves.