Natural Resources
Adelaide and Mt Lofty Ranges

Concept statement

PREPARATION OF A WATER ALLOCATION PLAN FOR THE ADELAIDE PLAINS

Including the:

- Central Adelaide Prescribed Wells Area
- Dry Creek Prescribed Wells Area
- Northern Adelaide Plains Prescribed Wells Area

14 January 2013

Government of South Australia
Adelaide and Mount Lofty Ranges
Natural Resources Management Board

Introduction

What is a water allocation plan?

The Natural Resources Management Act 2004 (the Act) requires the Adelaide and Mount Lofty Ranges Natural Resources Management Board (the Board) to prepare a water allocation plan for each of the prescribed water resources in its area. A water allocation plan is a legal document that sets out the rules for managing a prescribed water resource through a system of water licences, authorisations and permits.

The aim of a water allocation plan is to sustainably manage the taking and use of water in a manner that allows for continued productive use and at the same time ensure that ecosystems have continued access to water.

What is this concept statement for?

Before preparing a draft water allocation plan, the Board prepares a concept statement, which is the initial formal step in developing a plan.

The concept statement sets out[1]:

- in general terms, the proposed content of the draft water allocation plan
- matters to be investigated by the Board before preparation of the draft water allocation plan;
- the proposals (if any) for consultation on the draft water allocation plan that are in addition to the requirements of the Act

The intent of the concept statement is not to explore issues in detail or provide solutions, as this will be done as part of the process of preparing the draft plan.

The Board has previously developed a similar 'proposal statement' for the Northern Adelaide Plains (2004), and a concept statement for Central Adelaide (2008). This new concept statement replaces these previous ones. It is needed because there will now be one water allocation plan for the whole area, which now includes the Dry Creek prescribed wells area.

Feedback on the concept statement will help ensure the plan covers all the issues of importance to water users in the region.

It will also help in designing consultation opportunities to engage in the process of developing the water allocation plan.

Details of how to provide comment are listed at the end of this document.

Why have a water allocation plan for the Adelaide Plains?

The Board is developing the Adelaide Plains water allocation plan to cover a number of separately prescribed water resources (these are shown in Figure 1). The plan will set out the way in which the groundwater resources will be managed over the five year period after the water allocation plan is adopted.

In the **Central Adelaide** prescribed wells area, the use of groundwater has increased rapidly over the last 20 - 30 years, mainly for industrial purposes and turf irrigation. The wells in this area were prescribed in 2007 so that this increasing water extraction and use could be managed. The new water allocation plan will be the first one for this part of the Adelaide Plains. Licences will be issued to existing groundwater users for the first time. These existing users have applied for licences, based on their groundwater use (or recognised financial or legal commitment to take groundwater) during the period 1 July 2002 to 30 November 2005.

The **Northern Adelaide Plains** prescribed wells area has an existing water allocation plan, adopted in 2000. This area has had water licences in place for many decades because of the wide-scale use of groundwater which supports an important horticultural industry. The existing water allocation plan has been reviewed and needs to be updated. The new Adelaide Plains water allocation plan will meet that need.

The new water allocation plan will cover both these significant groundwater use areas. It will also include the small **Dry Creek** prescribed wells area, as this does not yet have a water allocation plan.

The water allocation plan will manage groundwater across the whole of the Adelaide Plains in an integrated way. This is important because the aquifers from which water is taken (and into which water is injected) are connected across the whole area. The water allocation plan will ensure the sustainable taking of water, so that people and the environment can continue to have their water needs met.

1 As per the requirements of section 78(2) of the Act.

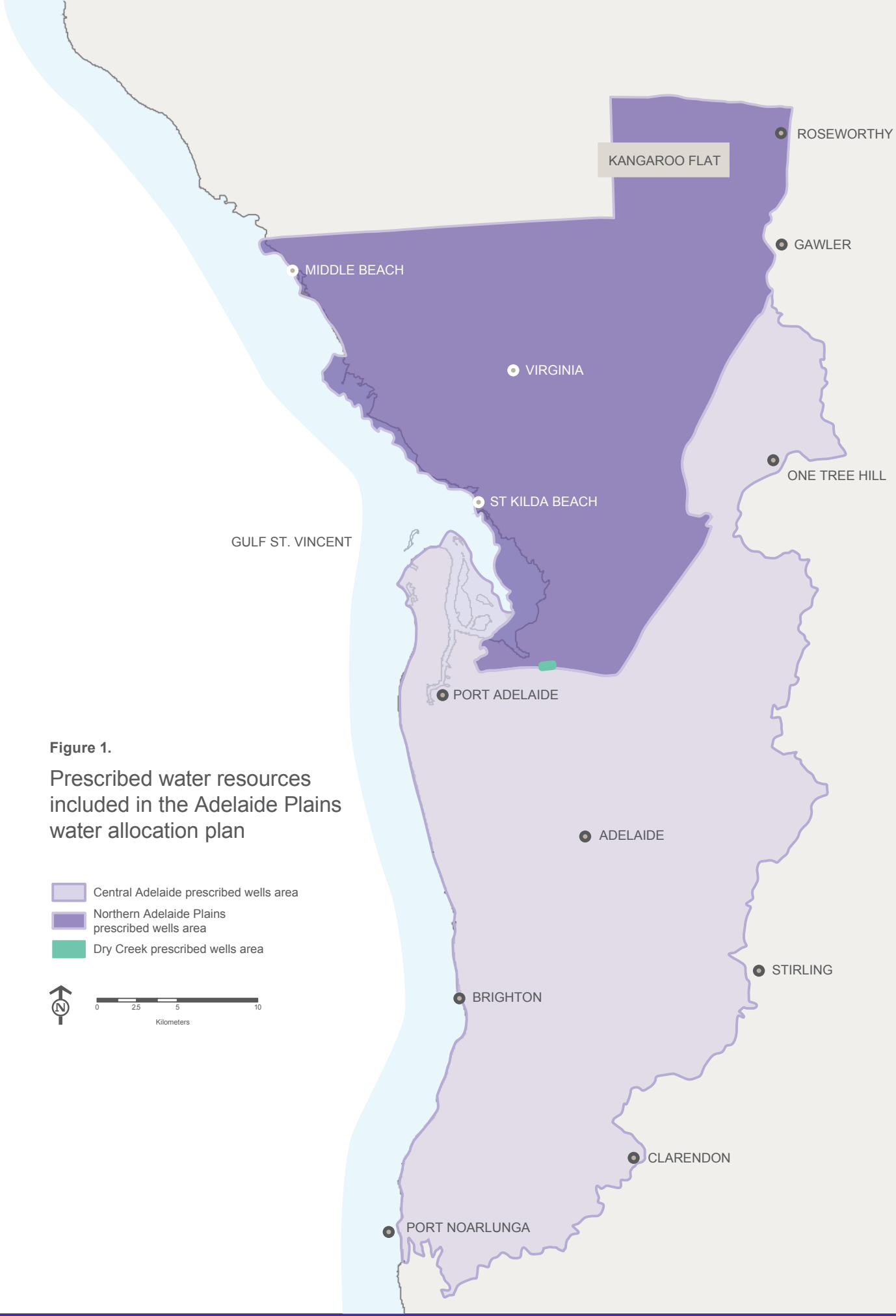


Figure 1.

Prescribed water resources included in the Adelaide Plains water allocation plan

The Adelaide Plains groundwater resources

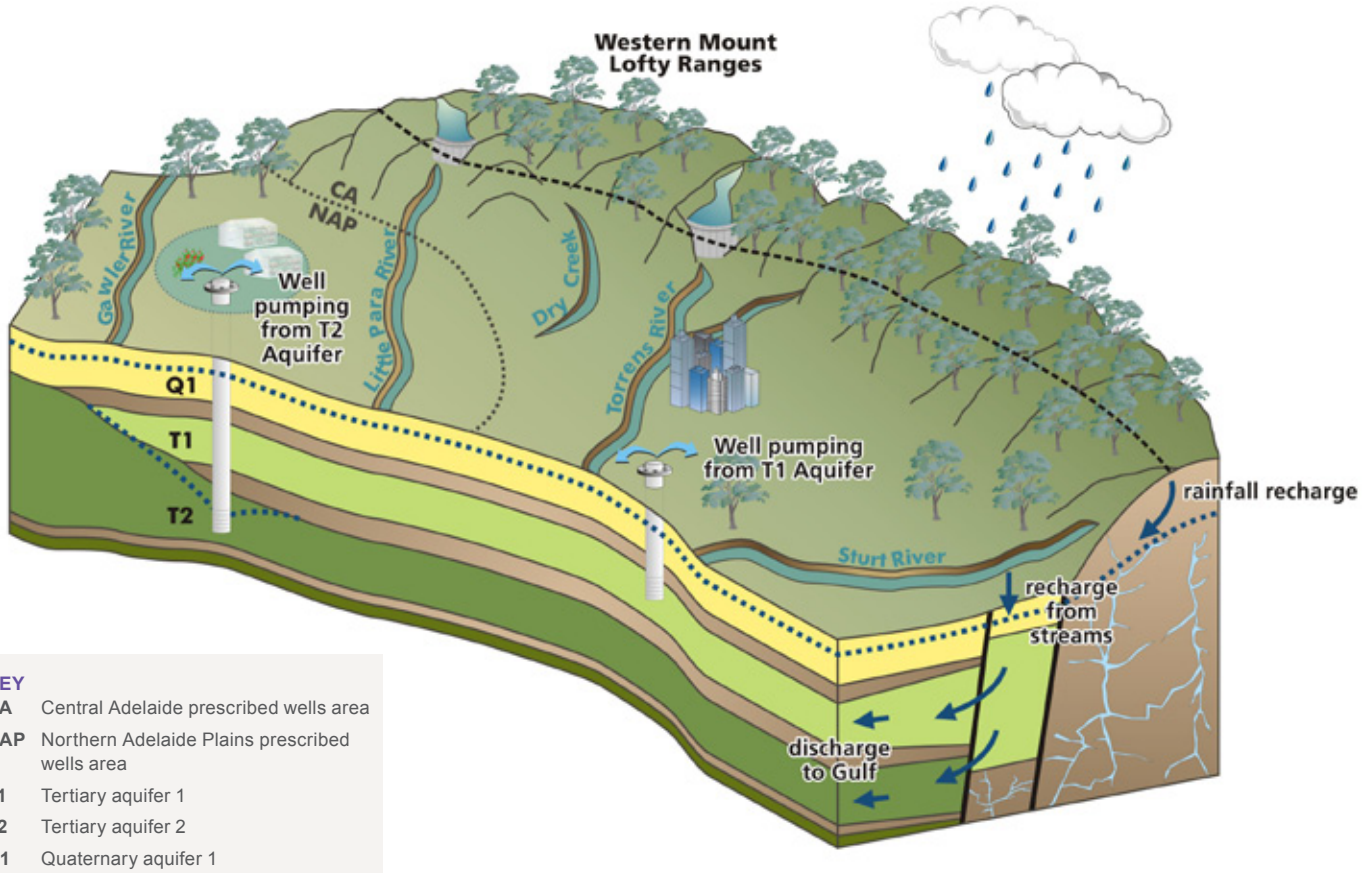
Across the Adelaide Plains, groundwater is extracted from several different aquifers, as represented in Figure 2. The shallow aquifer system occurs at or near the surface. It tends to be low-yielding and fairly saline, and is generally only used for stock or domestic purposes.

The Central Adelaide area includes several different hydrogeological regimes encompassing both sedimentary and fractured rock aquifers. They include the Adelaide Plains sub-basin, the Golden Grove Embayment, the Noarlunga Embayment and the fractured rock aquifers of the Adelaide Hills. The fractured rock aquifers are a significant source of recharge to the sedimentary aquifers beneath the Adelaide Plains[2].

Most of the groundwater extraction in the Central Adelaide area is from the T1 aquifer. It is used for industrial purposes and for irrigating sporting grounds, parks and gardens. In the Northern Adelaide Plains, two major sedimentary aquifers are used, mainly for horticulture and industry. The T1 aquifer consists of several stratigraphic units, varying in lithology and thickness. This groundwater is relatively fresh, with an average salinity of about 1200 mg/L, although it can reach up to nearly 8000 mg/L[3]. The T2 aquifer underlies the T1 aquifer, and is relatively fresh, ranging from 500 to 4500 mg/L[4]. However, in the Kangaroo Flat part of the area, salinity can range from 1400 to over 3000 mg/L, with higher values associated with areas of large seasonal drawdowns caused by pumping[5]. The main source of recharge to these systems is from the Mount Lofty Ranges, which lie to the east of the Northern Adelaide Plains.

Figure 2.

Important aquifers within the Adelaide Plains region



KEY

CA	Central Adelaide prescribed wells area
NAP	Northern Adelaide Plains prescribed wells area
T1	Tertiary aquifer 1
T2	Tertiary aquifer 2
Q1	Quaternary aquifer 1

2 Department of Environment, Water and Natural Resources, 2012, Central Adelaide PWA Groundwater Level and Salinity Status Report 2011.

3 Department of Environment, Water and Natural Resources, 2012, T1 Aquifer Northern Adelaide Plains PWA Groundwater Level and Salinity Status Report 2011.

4 Department of Environment, Water and Natural Resources, 2012, T2 Aquifer Northern Adelaide Plains PWA Groundwater Level and Salinity Status Report 2011.

5 Department of Environment, Water and Natural Resources, 2012, Kangaroo Flat Region of The Northern Adelaide Plains PWA Groundwater Level and Salinity Status Report, 2011.

What will the water allocation plan address?

The water allocation plan will need to ensure a balance between social and economic needs for the water resources, and environmental needs. Through the initial use of a numerical groundwater model, it is predicted that the estimated level of groundwater use will result in stable to slightly declining water level trends and salinity concentrations rarely fluctuating by more than 500 mg/L over the next 30 years.[6] However there are specific areas where the intensity of water use has caused localised problems including salinity increases, and areas of decreased water level known as 'cones of depression'. The management policies in the water allocation plan will aim to address the identified problems, including:

- a significant reduction in pressure and increasing salinity in parts of the T2 aquifer, caused by an increase in industrial extraction in Central Adelaide. However, the rate of decline has now begun to stabilise and in some areas, the water levels are beginning to recover. There are also localised areas of drawdown in the T1 aquifer[7]
- extractions from the T2 aquifer in the Northern Adelaide Plains area have created a long-standing cone of depression which is centred on Virginia indicating the greatest decline in groundwater pressure levels has occurred at this location. In 2011 most observation wells recorded a rise in groundwater levels and a decrease in salinity. In the T1 aquifer there is a large long-standing cone of depression in the south west corner of the prescribed wells area, which has remained relatively stable over the last 20 years. In 2011 the groundwater monitoring network indicated an increase in water level and decrease in salinity in the majority of wells monitoring the T1 aquifer[8]
- in the Kangaroo Flat part of the Northern Adelaide Plains there is a significant problem of increasing groundwater salinity, which could compromise the irrigation of vegetables in the short term
- groundwater dependent ecosystems within the prescribed areas require continued access to groundwater. Most of these ecosystems occur in the hills face zone areas of the Central Adelaide and Northern Adelaide Plains prescribed wells areas.

More detailed modelling will be undertaken to examine these issues further.

The water allocation plan must also address the issue of the amount of groundwater that has been allocated in the Northern Adelaide Plains. The sustainable limit for groundwater extraction by licence holders in the Northern Adelaide Plains will be assessed as part of the water allocation planning process, as there is a risk that the condition of the groundwater (in terms of water level and salinity) may be negatively impacted if licence holders were to use significantly more of the water currently allocated.

National and State government policies require allocations to be within sustainable limits.

The water allocation plan will include policies to manage the rapidly increasing level of activity in managed aquifer recharge projects, primarily draining cleaned stormwater into aquifers. This will include policies to allocate water that has been recharged into aquifers. The water allocation plan policies will aim to support investment in these schemes where appropriate, but also to manage issues such as well interference and the potential to over-pressurise aquifers.

Links between licensing and developing the water allocation plan

The initial prescription of water resources leads to issuing of water licences with water access entitlements and allocations to existing water users. Where prescribed water resources are not covered by a water allocation plan, the administration of water-affecting activities, including groundwater extraction and managed aquifer recharge activities, is guided by the Act and associated Natural Resources Management Plan policy.

The licensing process is the responsibility of the Department of Environment, Water and Natural Resources (the Department), and is separate to the development of the Adelaide Plains water allocation plan. When all licences have been issued and finalised, the overall volume of water use will be more clearly understood. This will provide valuable information in determining the demand on the resource and the capacity of the resources to meet that demand. This information can then be taken into account in the water allocation plan's policies.

6 RPS Aquaterra, 2011, Adelaide Plains Groundwater Flow and Solute Transport Model (AP 2011) unpublished report.

7 Department of Environment, Water and Natural Resources, 2012, Central Adelaide PWA Groundwater Level and Salinity Status Report 2011.

8 Department of Environment, Water and Natural Resources, 2012, T1 Aquifer Northern Adelaide Plains Groundwater Level and Salinity Status Report 2011 and T2 Aquifer Northern Adelaide Plains Groundwater Level and Salinity Status Report 2011.

The Northern Adelaide Plains water allocation plan is currently used to manage the prescribed water resources of the Northern Adelaide Plains. Licences are already in place in this area (with the exception of Kangaroo Flat) and for extractions from the Dry Creek prescribed wells area.

Water licences will be issued for the first time to existing groundwater users who do not yet have licences in the Adelaide Plains.

The steps involved in these parallel processes (water allocation planning and water licensing) are illustrated in Figure 3.

Administration of licensing

The South Australian government has adopted a policy of 'unbundling' water rights that is consistent with a national approach to improve water resource management. This means that new water allocation plans will be based on 'consumptive pools' which define the water available to be taken. In an unbundled system, water access entitlements are based on a number of shares in the consumptive pool, and water allocations provide the right to take water from that consumptive pool for a period of up to 12 months (allocations would generally be announced annually by the Minister administering the Act). Water access entitlements and allocations can be separately transferred to other users. Other approvals will be required for the use of water on land and for the operation of infrastructure to take and hold water, separate to water access entitlements and allocations.

Consistent with this approach, existing licences within the area covered by the Adelaide Plains water allocation plan will be unbundled.

More information about the unbundling of water access entitlements and other State water management policies can be found on the State Government's WaterConnect website: www.waterconnect.sa.gov.au

Investigations to support the water allocation plan

A number of scientific investigations have already been completed to support the development of the Adelaide Plains water allocation plan. These include:

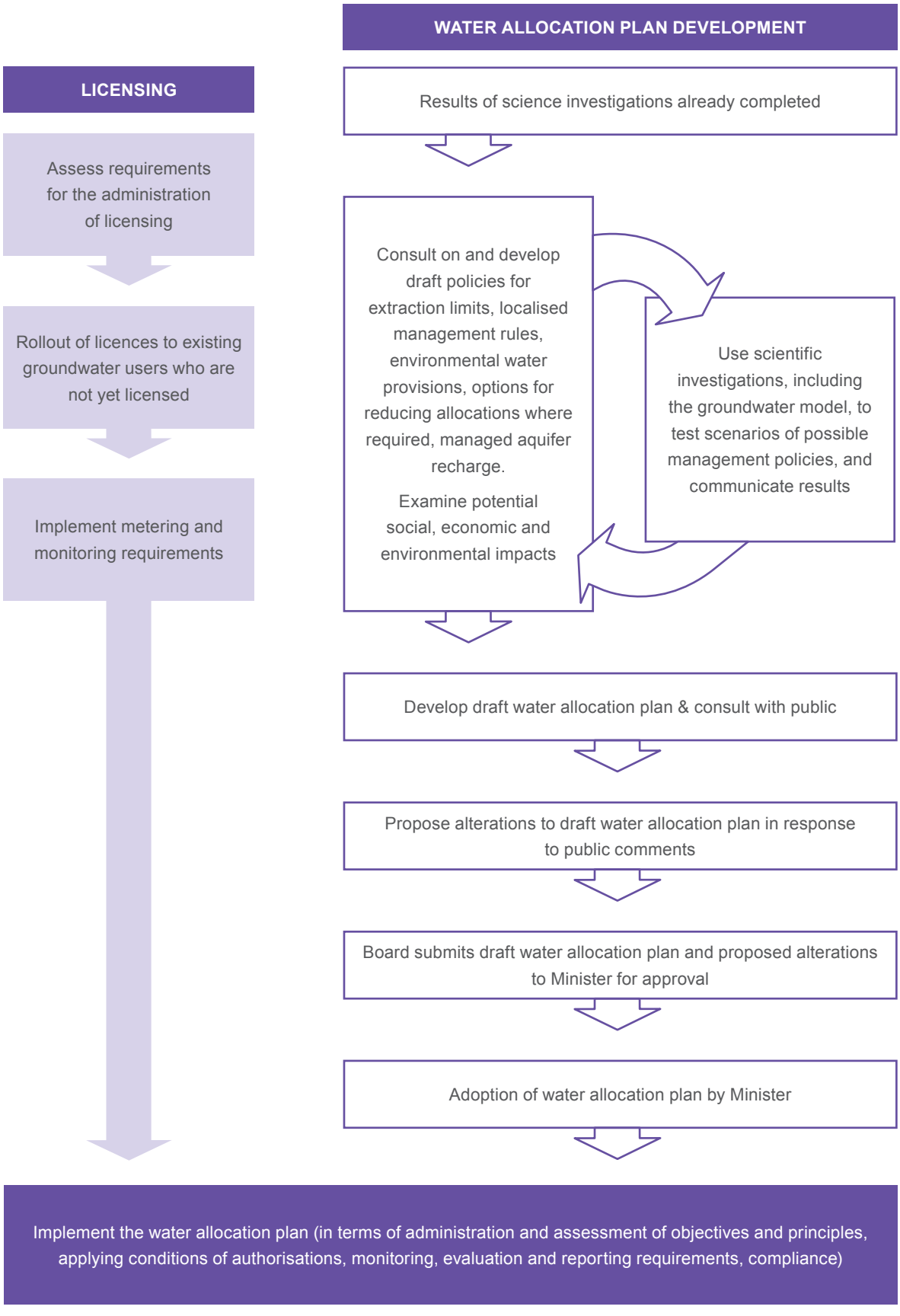
- environmental water requirements
- capacity of the water resources
- surface water/groundwater interactions
- current non-licensed water demand
- level of managed aquifer recharge activity

Reports of these investigations are available on the Board's website at: http://www.amlrnrm.sa.gov.au/Plans/Waterallocationplans/AdelaidePlainsWAP.aspx

In addition, the Department has developed a numerical model which covers the sedimentary aquifers, with a focus on the T1 and T2 aquifers. This model can simulate current and future groundwater level and salinity conditions of the Adelaide Plains. This model will be used to examine the potential effects of possible water management strategies. It will provide information that can be taken into account when assessing the potential social, economic and environmental impacts of draft water allocation plan policies.

The development of policies in the water allocation plan also draws on licensing data held by the Department. When draft policies for the plan have been developed, further investigations will be undertaken into the potential social and economic impacts of the proposed policies.

Figure 3. Stages of issuing licences and developing the plan



What will be in the Adelaide Plains water allocation plan?

The Act sets out what needs to be included in water allocation plans. The proposed scope and contents of the Adelaide Plains water allocation plan as set out below are designed to meet these requirements, as well as provide more background and explanatory material.

Introduction

The Adelaide Plains water allocation plan will:

- explain the context and purpose of the plan
- provide an overview of the water resources and their current status and condition
- set out broad objectives for what the plan will achieve

Water-dependent ecosystems

The Adelaide Plains water allocation plan will:

- describe the status and values of the groundwater-dependent ecosystems of the Adelaide Plains, and any threats or risks they face
- provide an assessment of the quantity and quality of groundwater needed by ecosystems and the time and period when water is needed by those ecosystems (environmental water requirements)
- describe environmental objectives and environmental water provisions that will be made and to what extent they will meet the environmental water requirements
- establish principles for managing the taking and use of groundwater in order to meet the environmental water requirements of water-dependent ecosystems at a specified level of risk

Assessment of effects on other water resources

The Adelaide Plains water allocation plan will include:

- an assessment of the effect of taking and using water from the prescribed water resources on the quantity and quality of other water resources
- policies for managing the taking and use of water from the prescribed water resources so as not to adversely affect the quantity and quality of other water resources

Assessment of capacity of the resource to meet demands

The Adelaide Plains water allocation plan will:

- identify current demands for licensed and non-licensed water use
- identify future demands for licensed and non-licensed water use, taking into account land use change
- assess the capacity of the resource to meet demands for water on a continuing basis, taking into account possible climate change impacts and future demand

Extraction limits

The Adelaide Plains water allocation plan will determine, or establish a mechanism for determining, the consumptive pool/s from which water may be extracted, and describe their purposes. It may also include provisions to change the basis on which water is allocated to improve the management of the groundwater resource.

Water entitlements, allocations and management policies

After the water allocation plan is adopted, licensing and permitting decisions will be consistent with its objectives and policies. The water allocation plan will include policies for:

- determining water access entitlements from the consumptive pool/s, so that an equitable balance is achieved between environmental, social and economic needs for the water, and the rate of taking and use of the water is sustainable
- management and assessment of temporary and permanent transfers of water entitlement authorisations and/or allocations
- granting of any new water
- allocation of managed aquifer recharge water
- management of the taking and use of water from other water resources that may affect the management of the prescribed resources (if required)

Works approvals, site use approvals and permits

The Adelaide Plains water allocation plan will include objectives and policies to be followed in issuing or varying approvals and/or permits for:

- drilling, plugging, backfilling or sealing of a well or aquifer
- repairing, replacing or altering the casing, lining or screen of a well
- draining or discharging water directly or indirectly into a well
- use of imported water or effluent
- extraction of managed aquifer recharge water
- maintaining water management infrastructure
- taking and use of water

Monitoring, evaluation and reporting

The Adelaide Plains water allocation plan will include objectives and policies that will establish monitoring and evaluation requirements and responsibilities, including:

- mechanisms for regular monitoring, evaluation of the water allocation plan objectives, including performance indicators, and reporting requirements at a regional and property scale
- publication of status reports on the condition of the water resource including the status of water-dependent ecosystems
- identification of knowledge gaps and further research needs

Links with other legislation and policies

The Adelaide Plains water allocation plan may recommend changes to related legislation and policies to strengthen their linkage and alignment with the plan.

Community input and opportunities for involvement

Under the Act the Board has obligations to consult with the public on both the concept statement and the draft water allocation plan.

In addition to these minimum requirements for community comment, the Board will take advice from community advisory committees on the best way to reach local water users and on the ways that proposed policies may affect communities.

Water allocation planning advisory committees have been established from community members in both the Northern Adelaide Plains and the Central Adelaide areas through a call for expressions of interest. Members were selected by the Board's water resources committee and endorsed by the Board.

The committees provide the Board with insight into their respective communities and advise on the best ways to consult with their communities.

Generally the wider community is engaged in the development of a water allocation plan via online discussion papers, workshops, meetings and newsletters.

Discussion Papers

The Board will develop a range of discussion or issue papers for community information as a basis for consultation on the drafting of the water allocation plan. These papers will usually be released online and promoted to water users through emails, newsletters and via the advisory committees. Additionally, issues-based workshops may be run to discuss key elements of the water allocation plan.

Workshops, science information sessions and stakeholder meetings

The Board anticipates holding stakeholder workshops during the development of the water allocation plan. On advice from the community committees there will be other meetings to cover off especially difficult information, or new science or modelling. There will also be individual meetings with stakeholder groups or public information sessions on different policy options.

Newsletters

Newsletters about the progress of developing the water allocation plan are distributed to keep stakeholders up-to-date on the plan and how stakeholders can be involved. These will be sent to all licensees and licence applicants, other stakeholders as well as anyone who requests a copy and are also available online.

Online

Any information related to the development of the water allocation plan (including technical reports, newsletters and information about policy options) can be found at: http://www.amlrnrm.sa.gov.au/Plans/Waterallocationplans/AdelaidePlainsWAP.aspx

Release of the draft water allocation plan

A draft Adelaide Plains water allocation plan will be released for public comment for a minimum of eight weeks. During this time, there will be also be public information sessions. Feedback received during this period is used by the Board to amend the draft plan to address the issues raised by stakeholders, before it is provided to the Minister for approval.

How to provide comment on this concept statement

PLEASE PROVIDE COMMENT BEFORE THE CLOSING DATE OF 1 MARCH 2013

MAIL

Post us your comments:
Adelaide Plains Water Allocation Plan Concept Statement
Adelaide and Mount Lofty Ranges Natural Resources Management Board
205 Greenhill Road, Eastwood SA 5063

PHONE

Call us with your thoughts. Please ring 08 8273 9100 during office hours. If we are not able to take your call we will ring you back.

EMAIL

Throughout the consultation on the concept statement and the development of the water allocation plan ideas and comments are welcome by email to: apwap@sa.gov.au

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