Key messages: Georgina Wiso water allocation plan documents

This document has been prepared to assist people to easily understand the main features of the declared Georgina Wiso Water Allocation Plan 2023–2031 (the plan) and answer likely questions. The plan has been declared with two accompanying documents, a Background Report describing the water resource information used to inform the plan, and Implementation Actions that describes the water resource management in the plan area.

Key messages:

- A water allocation plan provides a framework for sustainable water management and allocation strategies. The allocation of water is determined by what must be maintained in the environment and what people can use for drinking and regional economic priorities, which is defined as the estimated sustainable yield (ESY).
- The knowledge of the water resource is primarily informed by the Beetaloo Strategic Regional Environment and Baseline Assessment[1] (SREBA), which was publicly released in April 2023.
- The plan will not affect the Flora, Daly or Roper River or springs such as those at Mataranka. SREBA verified that groundwater discharged to the Flora and Roper Rivers almost entirely originates from within a radius of around 100 km from the point of discharge, which is managed through the Mataranka water allocation plan which is currently under development.
- The plan allows a maximum ESY of 210,000 ML/year to be taken over the next eight years from the very large groundwater storage volume. The plan:
  - is based on scientific understanding of the water resource, underpinned by water monitoring, assessments and modelling
  - manages the largest and most productive groundwater resource, the Cambrian Limestone Aquifer, which holds an estimated 740,000,000 ML and overlays the gas bearing geological layers within the Beetaloo Sub-basin
  - maintains the vast majority of the water in storage, if all the water in this plan was being used today in full for the next 100 years then less than 3% of the stored water would be lost. This is without accounting for any recharge that will occur.
- The department recognises the responsibilities Aboriginal people have to protect country and is committed to working with Aboriginal people to integrate this knowledge into decisions about water management. This will occur through Aboriginal reference groups and community engagement.
- Sacred sites are legally protected by the *Northern Territory Aboriginal Sacred Sites Act 1989*.
- Groundwater depths are predominately greater than 40 metres below ground level and are not accessed by terrestrial groundwater dependant ecosystems.
- Stock and domestic is currently the largest water user (although exempt from licencing), with a long history of the pastoral industry as the major land user in the plan area.
- Drinking water will always be protected, so towns and communities have enough safe water.

[1] https://depws.nt.gov.au/onshore-gas/sreba/sreba-for-the-beetaloo-sub-basin

- The plan allocates 10,000 ML/year to water use for petroleum activities in the plan area. This cannot be exceed through trading water from other beneficial uses.
- Allocation to the Aboriginal water reserve is 20,251 ML/year, which is available for Aboriginal economic development in the plan area.

How is the declared plan different from the draft?

In response to public feedback, revisions and enhancements have been incorporated into each of the water plan documents, which are summarised below.

- Water allocation plan –the ESY has been reduced from 262,560 ML to 210,000 ML/year, aligned to the projected water requirements for the region.
- Implementation actions –implementation actions have been strengthened and additional information provided on risks. Risk assessment and adaptive management chapters were added to specifically define risks related to the objectives of water sharing. Further information on the frequency and purpose of the water monitoring program in the region have also been added. The department recognises the need to work with Aboriginal people to define cultural protections and has prioritised this activity within the implementation actions.
- Background report – has been significantly expanded to present a comprehensive understanding of the resource informed by the extensive land, water and biodiversity investigations undertaken in the region through the SREBA and other studies. The extent of the groundwater resource is well understood and modelled groundwater trends align with groundwater monitoring to provide confidence in the accuracy of the DR2 groundwater model in predicting the impacts of extraction.

What is the scientific merit behind the plan?

In April 2023, reports and data from the Strategic Regional Environment and Baseline Assessment[2] were released, showing that the Beetaloo region is now one of the most comprehensively researched areas in the Territory in terms of land, water, and biodiversity. The SREBA was a set of studies to gather baseline data and fill information gaps for the region, including water research which is summarised in the Water Quality and Quantity Studies Summary Report[3]. In addition, the department has also published individual technical reports on the two water management zones in the plan area: the Georgina Basin[4] and Wiso Basin[5]. Altogether, the technical reports deliver the most recent scientific knowledge of the resource, enlarging upon and, in certain cases, revising past work undertaken in the region.

Over the last five years, a very substantial body of relevant research has been carried out by the department, CSIRO, GeoScience Australia, the Bureau of Meteorology and more recently as part of the SREBA program, which has been used to inform the technical reports and the plan. These studies included the installation of new monitoring bores and the expansion of the groundwater monitoring program, pump tests, gamma logging programs, seismic investigations, water quality sampling, dye tracer studies, strata analyses and regional evapotranspiration studies. The results of these studies have allowed for:

- three-dimensional mapping of the regional aquifer
- the identification of recharge zones and processes
- a clearer understanding of the properties of the aquifer, including interconnectivity and flow pathways, and the development of the natural water balance.

[2] https://territorystories.nt.gov.au/10070/900467
[3] https://territorystories.nt.gov.au/10070/898924
[4] https://territorystories.nt.gov.au/10070/900056/0/32
[5] https://territorystories.nt.gov.au/10070/900058/0/54

The plan area is covered by the Daly-Roper coupled groundwater/surface water model (version 2) which is known as DR2[6]. The development of this model commenced in 2004 as a regional 3D groundwater model of the Cambrian Limestone Aquifer and it has since undergone several extensions and upgrades. The most recent update occurred in 2020 where revisions were made to aquifer geometry and calibration undertaken to include an additional 10 year's field data. The plan uses DR2, calibrated with the most recent field data from 1970–2022 to provide the most up to date and accurate understanding of the resource.

Is this the largest allocation in the Territory?

In volume it is, but not in proportion to the land area the water is available from, or the size of the stored groundwater volume.

The plan covers a large land area of 155,000 km^2 area or 12% of the Northern Territory. This is double the land area of all other current plans in the Territory combined and approximately five times more water than the next largest plan area in Western Davenport.

The amount allocated through the plan is 210,000 ML/year, which is only 0.03% of the stored volume of the Cambrian Limestone Aquifer in the plan area.

Will using water in the plan affect the rivers or springs?

The plan will not affect the Flora, Daly or Roper River or springs such as those at Mataranka. Our understanding of the regional aquifer managed through the plan has been informed by numerous scientific studies. The SREBA verified that groundwater discharged to the Flora and Roper Rivers almost entirely originates from the Cambrian Limestone Aquifer within a radius of around 100 km from the point of discharge, which is north of the plan boundary.

Modelling shows that an average of 3,500 ML/year of groundwater travels from the Georgina Basin to the Roper River catchment, and 300 ML/year from the Wiso Basin to the Flora River and Daly River catchment. This represents less than 5% of total groundwater discharge to the Roper River and less than 2% of discharge to the Flora River.

This level of conductivity between the plan area to Roper and Daly catchments is insignificant compared to the volumes of water in the plan area and the river catchments, and modelling shows the amounts of groundwater extraction permitted by the plan will not affect flows into rivers or springs.

How is the quantity and quality of drinking water for communities protected?

In the plan, allocations for public water supply are prioritised over water for other beneficial uses, protecting the quantity of water for drinking. Existing allocations to public water supply allow for projected growth over the next 30 years. The quality of water within the resource will continue to be monitored through the work identified in the implementation actions.

What role does the Controller have?

On 1 May 2023, Andrew Johnson PSM[7] was appointed the Controller of Water Resources by the Minister of Environment, Climate Change and Water Security. This position is independent of the department.

Under the *Water Act 1992*, the Controller of Water Resources is responsible for decisions about water extraction licences, and is required to consider the plan when making licence decisions. This means licences may only be granted if the total volume of water that may be taken is within the allocations defined in the plan for the relevant water management zone and beneficial use.

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[6] https://territorystories.nt.gov.au/10070/827500
[7] https://nt.gov.au/environment/water/management-security/water-controller/andrew-johnson-psm