NSW Border Rivers alluvial groundwater sources

Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the NSW Border Rivers alluvial groundwater sources for the period 1 July 2020 to 30 June 2021. It will be updated regularly.

For detailed information of the hydrogeology, management and past long-term water level behaviour of this water source refer to the Groundwater Resource Description Report for the NSW Border Rivers Alluvium Groundwater Sources: www.industry.nsw.gov.au/__data/assets/pdf_file/0020/236072/appendix-a-nsw-border-rivers-alluvium-gw-resource-description.pdf

Description

The NSW Border Rivers alluvial groundwater sources are located within the Border Rivers catchment and include two separate groundwater sources (**Figure 1**):

- NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source, that extends from Mingoola in the east, with the western boundary at Keetah Bridge approximately 50 km past Texas (QLD).
- NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source, that extends from Keetah Bridge in the east, with the western boundary approximately 20 km west of Boggabilla.

The NSW Border Rivers alluvial groundwater sources are made up of alluvial sediments deposited by the Dumaresq River and its tributaries, comprised of clay, silt, sand, gravel, cobbles and boulders. Upstream of Keetah bridge, these sediments form a narrow alluvium up to 4.5 km wide with a deep palaeochannel (up to 100m deep). Downstream of Keetah Bridge, the alluvium ranges from 0.5 to up to 7 km wide and up to 35 m thick.

The Border River alluvium extends across the New South Wales border into Queensland. The NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source falls within the operational area of the Border Rivers Commission.

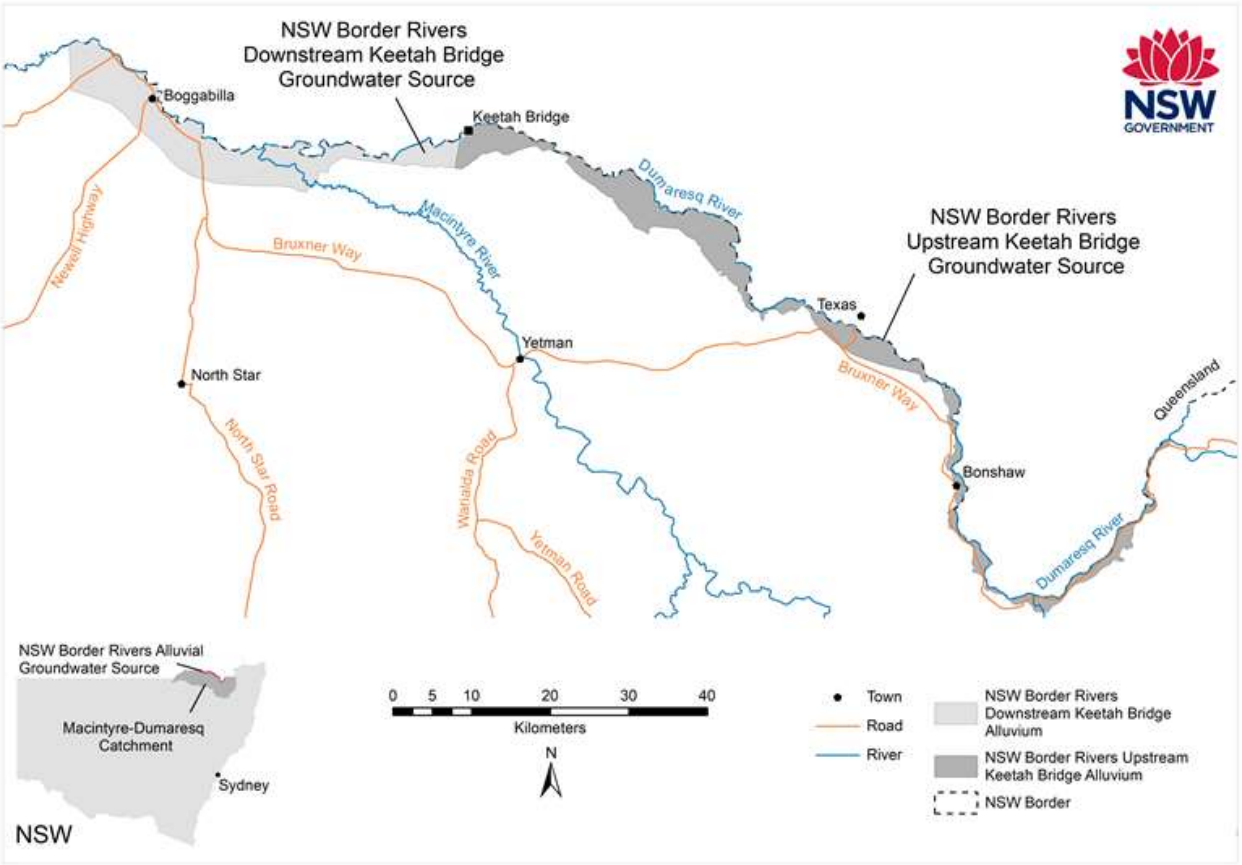
Water resource management

Water sharing plan

The NSW Border Rivers alluvial groundwater sources are managed by the rules defined in the Water Sharing Plan for the NSW Border Rivers Alluvial Groundwater Sources 2020.

This water sharing plan is available for viewing on the Department of Planning Industry and Environment Water website at: www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/status/border-rivers-region

Figure 1: Location map



Basic rights

Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders don't need an access licence to take water for domestic and stock purposes from groundwater below their property, the bore must be authorised by WaterNSW.

The volumes of water set aside in the water sharing plan for basic landholder rights are:

- 177 megalitres (ML) in NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source.
- 64 ML in NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater.

An approval holder is responsible for monitoring water quality from the bore to ensure it is suitable for its intended purpose for the duration of the approval. Inherent water quality and land use activities may make the water in some areas unsuitable for use.

Water from the groundwater sources should not be used without first being tested and, if necessary, appropriately treated to ensure it is fit for purpose. Such testing and treatment are the responsibility of the water user.

Groundwater access licences

Groundwater access licence share components for 2020 - 2021 are presented in **Table 1**.

Table 1: NSW Border Rivers alluvial groundwater sources share component at 30 June 2021

Access Licence Category	NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source		NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source	
	Number of Licenses	Total Volume	Number of Licenses	Total Volume
Aquifer[1]	27	15,392	2	485
Local Water Utility[2]	1	10	0	0

[1] Megalitres per unit share

[2] Megalitres/year (ML/year)

Extraction limit

All groundwater sharing plans have rules to manage extraction in a water source to the long-term average annual extraction limit.

The extraction limits for NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source and NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source are 8,085 ML/year and 316 ML/year, respectively.

Extraction in the NSW Border Rivers alluvial groundwater sources is not compliant if the **5 years** average annual extraction is more than **110%** of the extraction limit (known as the compliance trigger).

If average extraction exceeds the compliance trigger, then the available water determination made for aquifer access licences for the following water year, may be reduced by an amount that would return subsequent total water extraction to the extraction limit.

Information on tracking groundwater extraction against extraction limit for the groundwater source including the likelihood of compliance being triggered in the current water year can be found at: www.industry.nsw.gov.au/water/allocations-availability/tracking-groundwater

For each inland groundwater source, the dashboard shows for the current water year:

- Volume that if extracted will reach the compliance trigger (in ML, calculated annually).
- Volume remaining to be extracted before reaching the compliance trigger (in ML, calculated throughout the year).
- The likelihood that access to groundwater may be reduced in the next water year.

Note: the information on the dashboard is limited by the extraction data available at the time.

Available water

Carryover of unused account water from one water year to the next is not available in the NSW Border Rivers alluvial groundwater sources. Total water availability in a water year is controlled by the available water determinations credited to an access licence account.

The maximum amount of water that can be debited from an aquifer access licence account in a water year can't exceed the available water determinations, plus any allocation transferred in

(temporary trade), minus any allocation transferred out. This means that metered extraction, plus transfers out, can't exceed the available water determinations, unless water is transferred in.

Total account water for period 2012-13 to 2020-21 is displayed in **Figure 2** and **Figure 3** for NSW Border Rivers Upstream Keetah Bridge and NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Sources, respectively. Showing the proportion available for use and what is not available for use in a year. Total yearly extraction is also displayed.

Note: all access licence categories have been combined in **Figure 2** and **Figure 3**.

There has been no reduction in the available water determination (AWD) for aquifer access licences in the NSW Border Rivers alluvial groundwater sources since the water sharing plan first started in 2012.

The access licence account information for the NSW Border Rivers alluvial groundwater sources on 1 July 2021 is summarised in **Table 2**.

Table 2: Access licence account information

	NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source	NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source
Carryover In (ML)	0	0
Available Water Determination (ML)	485	15,402
Total water in account (ML)	485	15,402
Total water available for use (ML)	485	15,402

Figure 2: Account water availability and usage summary for NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source

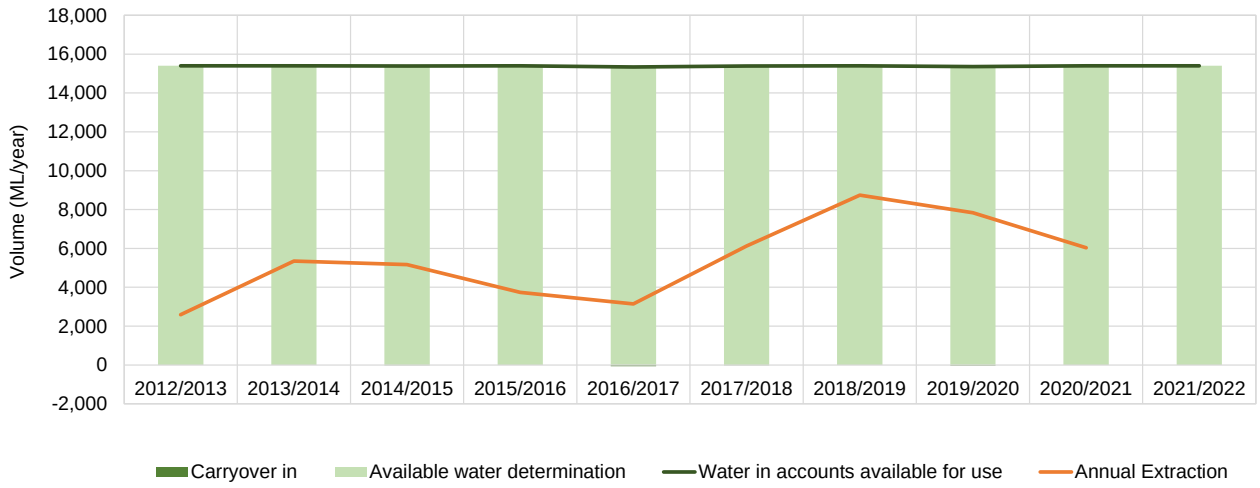
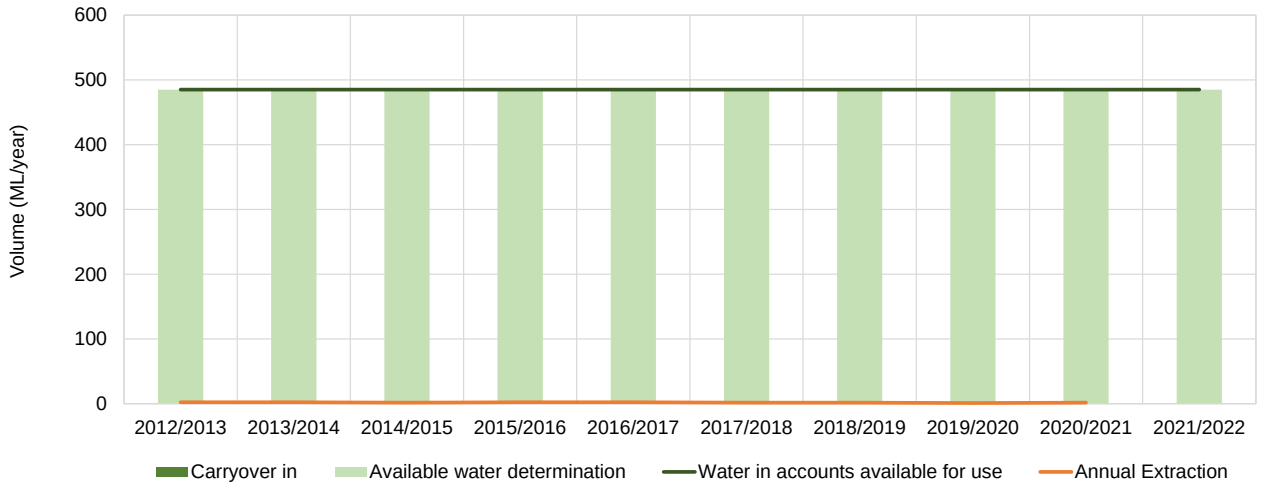


Figure 3: Account water availability and usage summary for NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source



Groundwater trading

For the NSW Border Rivers alluvial groundwater sources, trading is permitted within a groundwater source, but trades between the NSW Border Rivers alluvial groundwater sources and any other groundwater source are not permitted.

No trading is currently allowed between states.

Allocation assignments (temporary trade)

There has been limited temporary trading in the NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source. There were a total of 12 trades totalling up to 2,232 ML traded over the period 2014-15 to 2020-21. The average value paid per megalitre is approximately $8 while the maximum value was $15.

There has been no temporary trading in the NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source.

Further information on water licences, approvals, water trade, water dealings and other matters related to water entitlements in NSW can be found on the NSW Water Register at: waterregister.waternsw.com.au/water-register-frame

Bores

There are approximately 124 registered bores across the NSW Border Rivers alluvial groundwater sources (**Figure 4**). The majority of these bores are used for stock and domestic purposes (Basic Landholder Rights). There is also significant use of groundwater for irrigation (**Table 3**).

Majority of production bores in NSW Border Rivers alluvial groundwater sources can yield in the range of 200 ML/year, while the deeper more productive aquifer systems supply in the range of 1,000 ML/year. (**Figure 5**).

Table 3: Approximate number of licensed bores in NSW Border Rivers alluvial groundwater sources (at June 2021)

Groundwater Source	Registered Bore Purpose		
	Basic Landholder Rights	Production	Local Water Utility
NSW Border Rivers Upstream Keetah Bridge Alluvial Groundwater Source	40	57	1
NSW Border Rivers Downstream Keetah Bridge Alluvial Groundwater Source	24	2	0

Water level monitoring

WaterNSW monitors groundwater levels at 47 monitoring bores at 35 sites in the NSW Border Rivers Upstream Keetah Bridge Groundwater Source and four monitoring bores at four sites in the NSW Border Rivers Downstream Keetah Bridge Groundwater Source (**Figure 6**).

At most monitoring sites there are two or more pipes monitoring different depths. The depth monitored by each pipe reflects the depth where the casing is slotted to allow groundwater entry into the pipe.

A hydrograph is a plot of groundwater level or pressure from a monitoring bore over time. A representative sample of hydrographs from monitoring bores have been selected and are presented in **Figure 7** to **Figure 11**.

Data for the monitored bores, as well as private bore information, can be obtained from the WaterNSW real time data portal (realtimedata.waternsw.com.au/).

You can also request information via: Customer.Helpdesk@waternsw.com.au

Figure 4: NSW Border Rivers alluvial groundwater sources registered bores

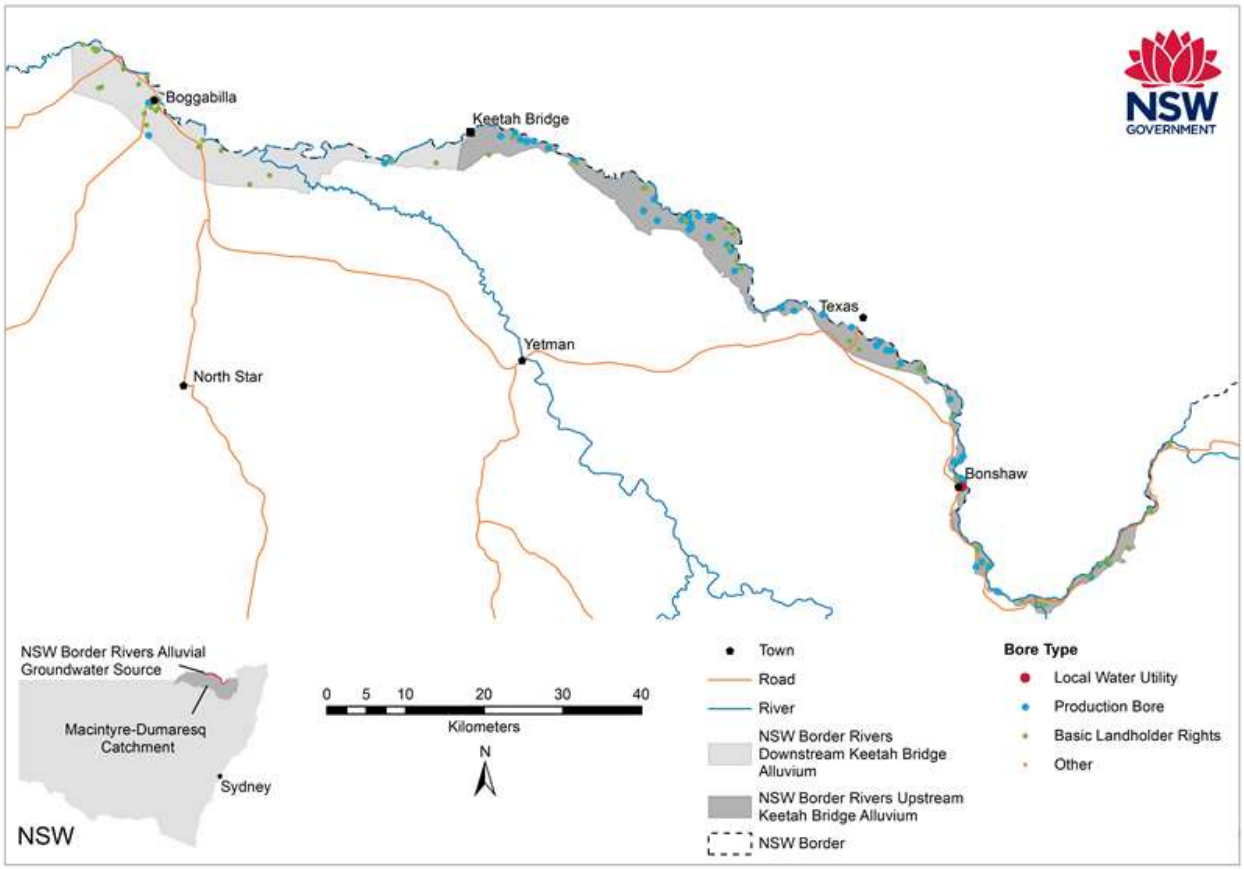


Figure 5: NSW Border Rivers alluvial groundwater sources water supply bores and distribution of extraction

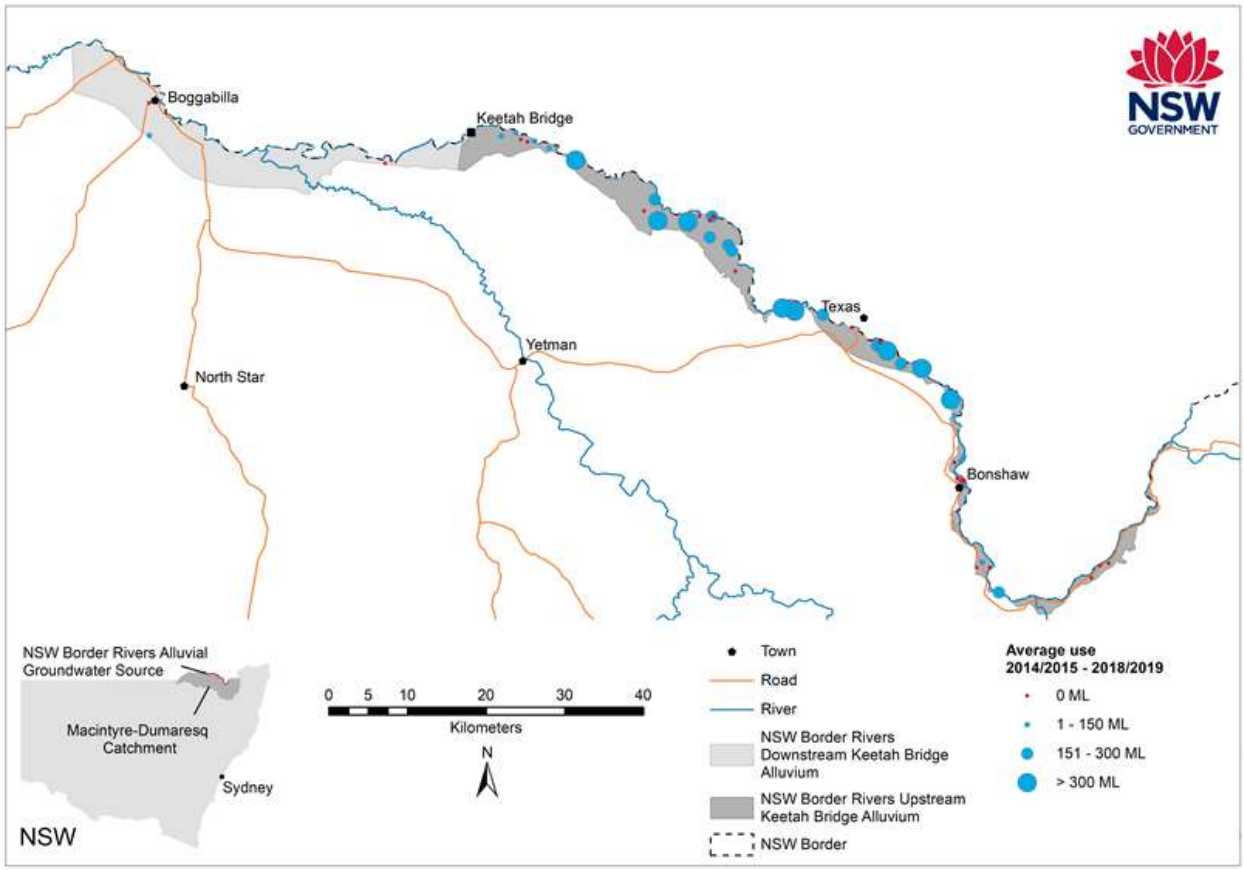


Figure 6: NSW Border Rivers alluvial groundwater sources monitoring bore sites

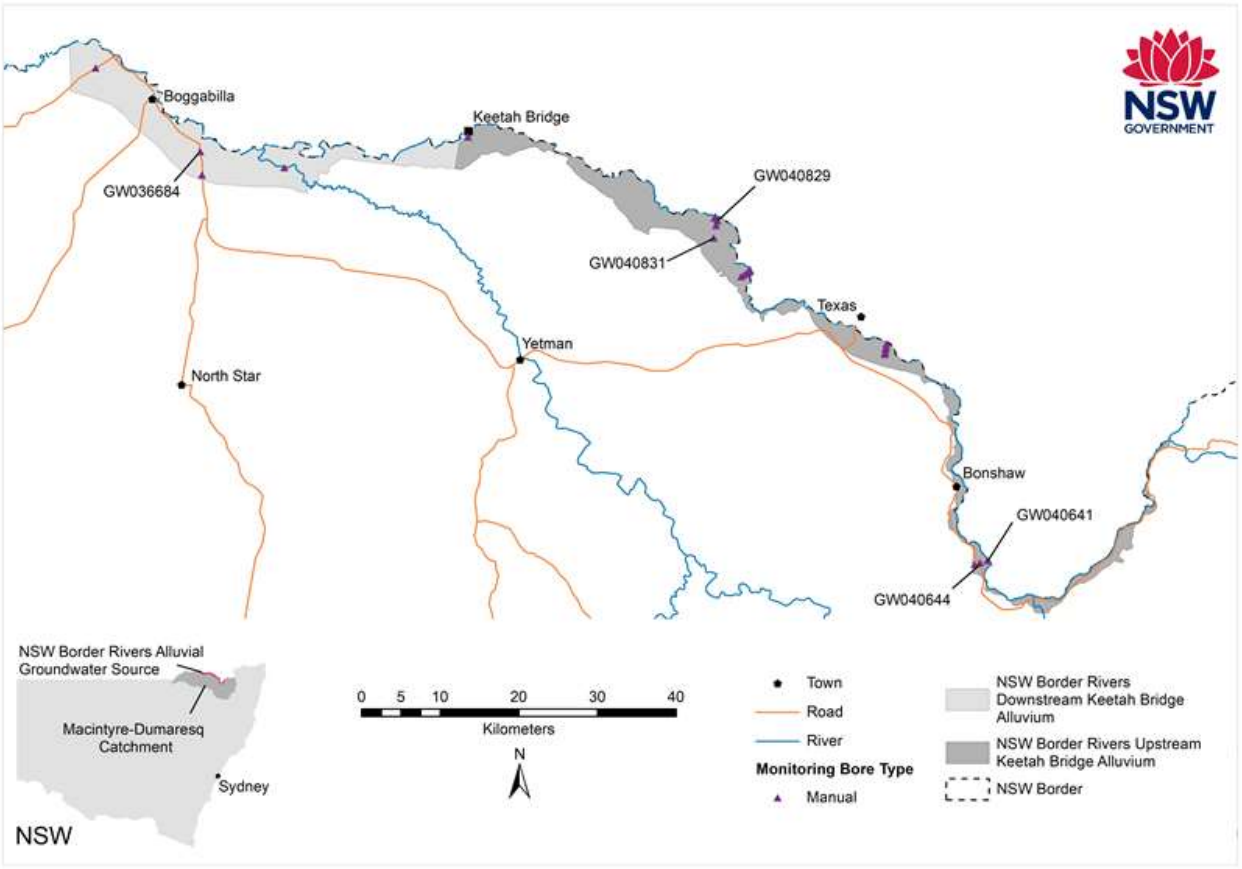


Figure 7: Hydrograph for monitoring bore GW040641

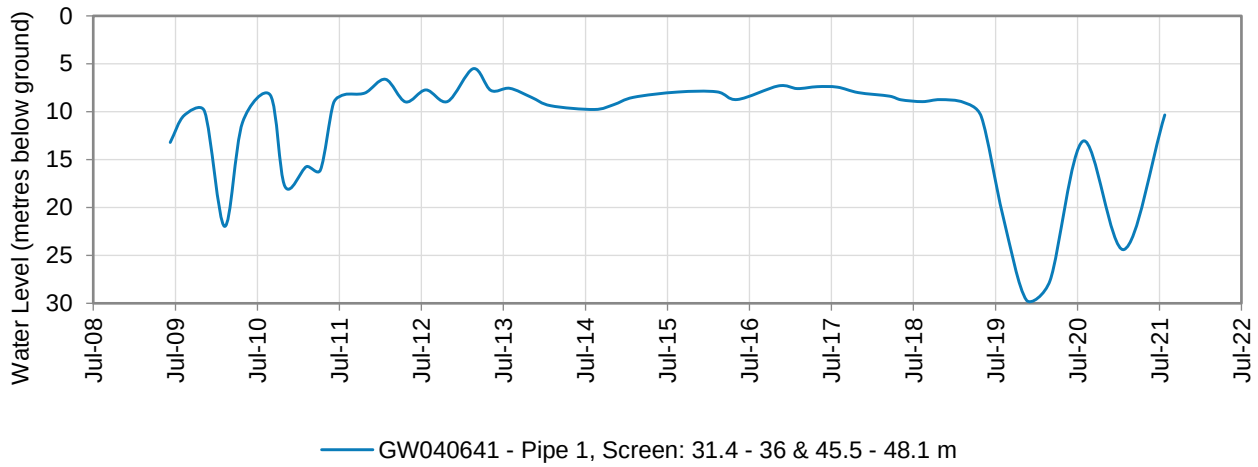


Figure 8: Hydrograph for monitoring bore GW040644

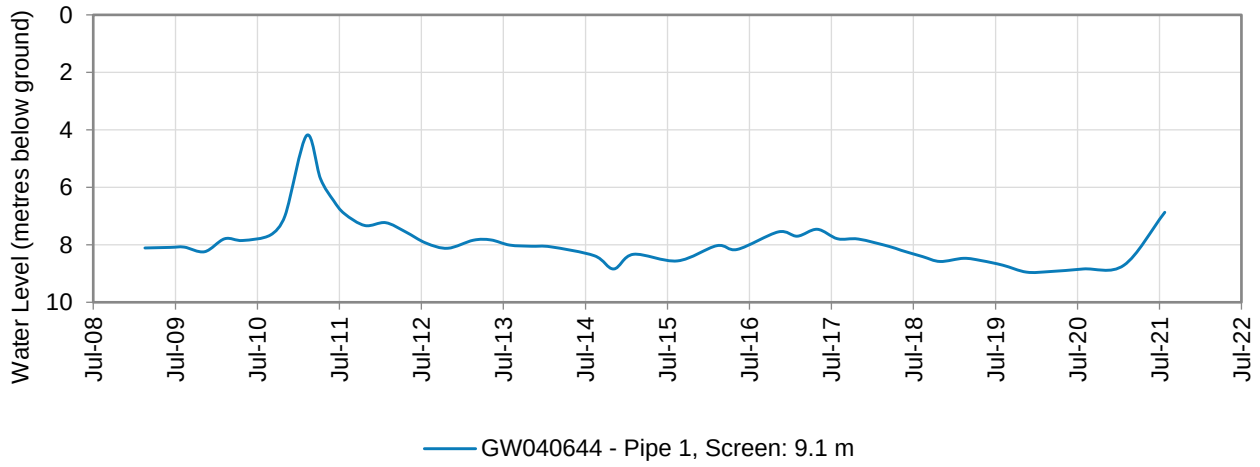


Figure 9: Hydrograph for monitoring bore GW040829

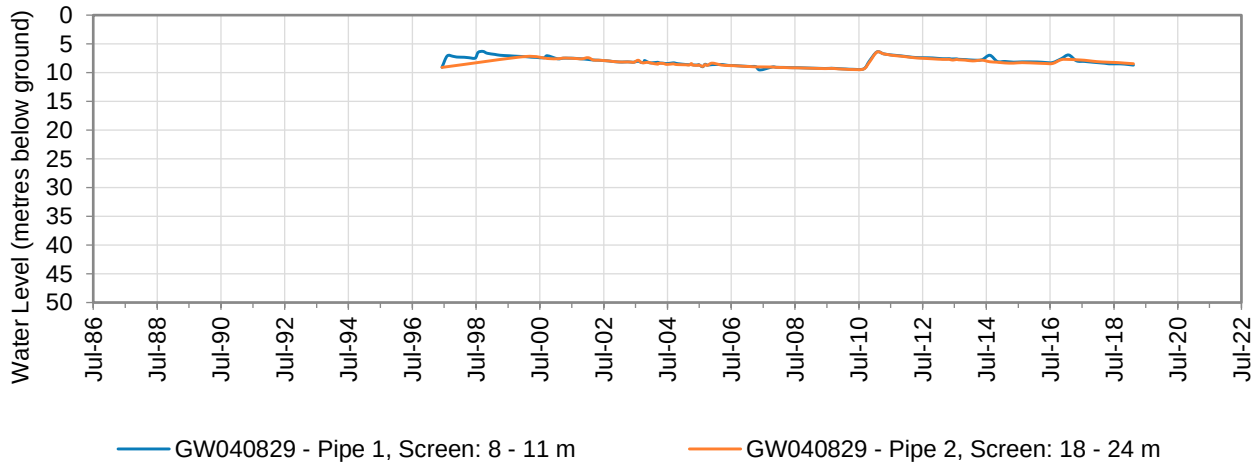


Figure 10: Hydrograph for monitoring bore GW040831

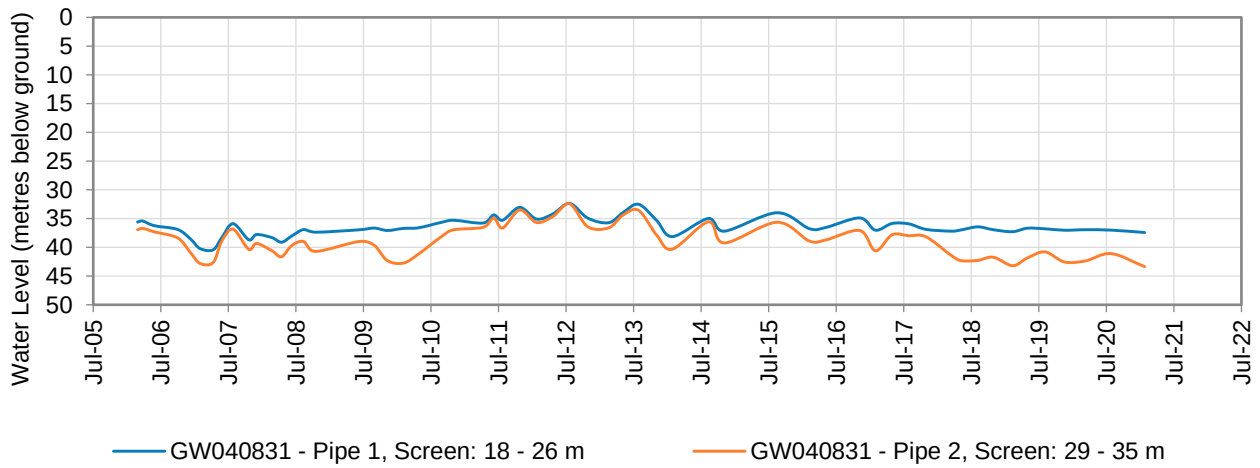


Figure 11: Hydrograph for monitoring bore GW036684