Upper Lachlan Alluvial Groundwater Source

Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Upper Lachlan Alluvial Groundwater Source. The report is 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 Lachlan Alluvial Groundwater Sources at: www.industry.nsw.gov.au/__data/assets/pdf_file/0010/175969/Lachlan-alluvium-appendice-a-water-resource-description.pdf

Description

The Upper Lachlan Alluvial Groundwater Source is located within the Lachlan River catchment. The water source extends from Cowra in the east, to the western boundary at Lake Cargelligo (**Figure 1**).

The Upper Lachlan Alluvial Groundwater Source (**Figure 1**) is made up of the alluvial sediments. These sediments form an extensive paleochannel deposited by the Lachlan River and its tributaries, comprised of clay, silt, sand and gravel.

Water resource management

Water sharing plan

The Upper Lachlan Alluvial Groundwater Source is managed by the rules defined in the Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2020. There are eight management zones.

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

Basic rights

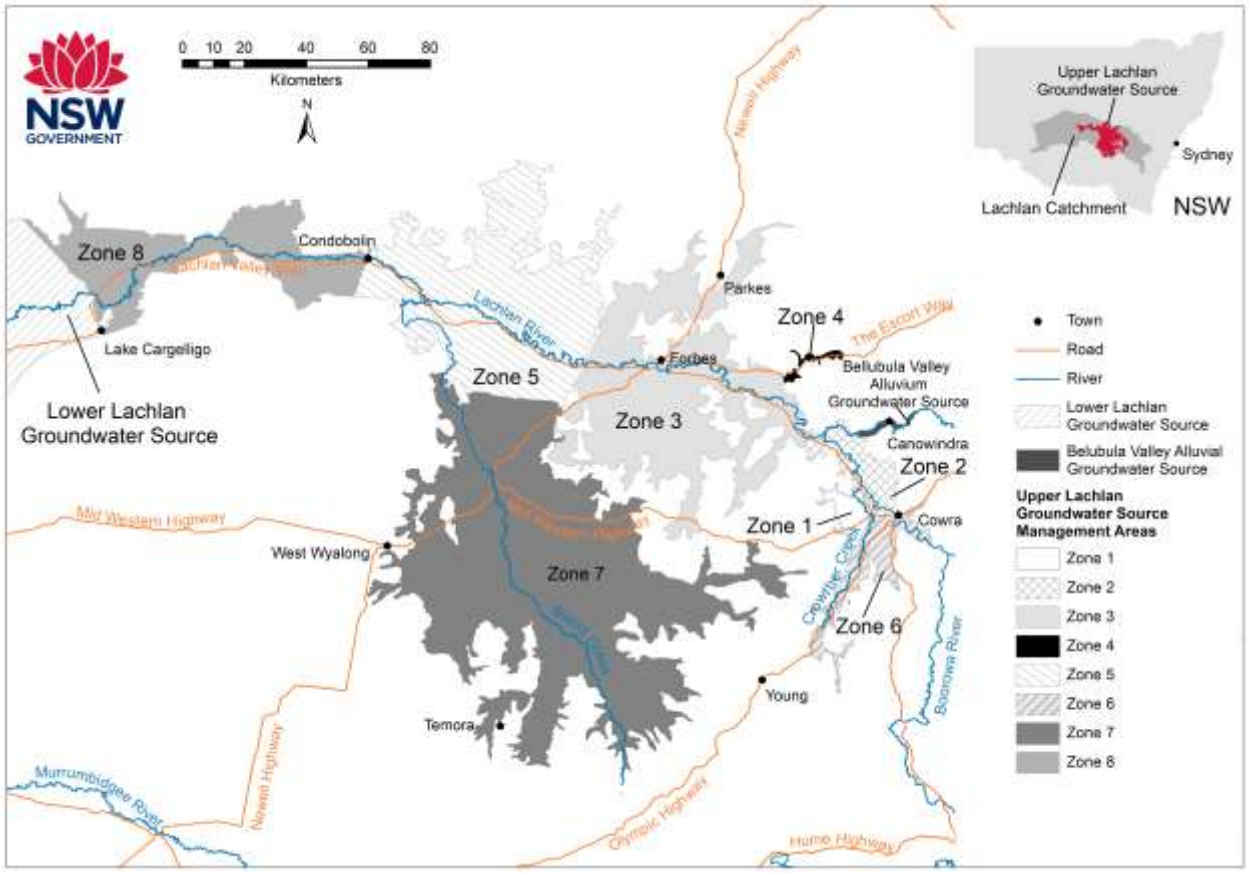
Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders don't need an access licence to take water for domestic and stock purposes from groundwater below their property, the bore must be authorised by WaterNSW.

The volume of water set aside in the water sharing plan for basic landholder rights is 6,280 megalitres (ML).

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.

Figure 1: Location map



Groundwater access licences

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

Table 1: Upper Lachlan Alluvial Groundwater Source share component at 30 June 2021

Access Licence Category	Number of Licences	Total Volume
Local Water Utility[1]	10	9,921
Aquifer[2]	386	166,519

[1]Megalitres/year (ML)

[2] Megalitres per unit share

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 limit for this groundwater source is 94,168 ML/year. Extraction in the Upper Lachlan Alluvial Groundwater Source 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

Total water availability in a water year is controlled by the available water determinations credited to an access licence account, and the carryover rules that dictate the allowable volume to be brought forward from one year to the next.

Total available water for use is controlled by the annual account usage limits, which define the maximum volume of allocated water that can be taken in that water year. The rules and limits that are applicable to the Upper Lachlan Alluvial Groundwater Source are provided in **Table 2**.

Table 2: Upper Lachlan Alluvial Groundwater Source access licence account rules

Access Licence Category	Carryover Limit	Annual Use Limit	Maximum AWD
Local Water Utility	None	100%	100%
Aquifer	0.2 ML/share	1.2 ML/share	1 ML/share

The maximum amount of water that can be debited from an aquifer access licence account in a water year can't exceed 1.2 ML per unit share component (annual use limit), plus any allocation transferred in (temporary trade), minus any allocation transferred out.

This means that metered extraction plus transfers out can't exceed 120% of the of share component, unless water is transferred in.

Total account water for period 2012-13 to 2020-21 is displayed in **Figure 2,** showing the proportion available for use and what is not available for use in a year. Total yearly extraction is also displayed.

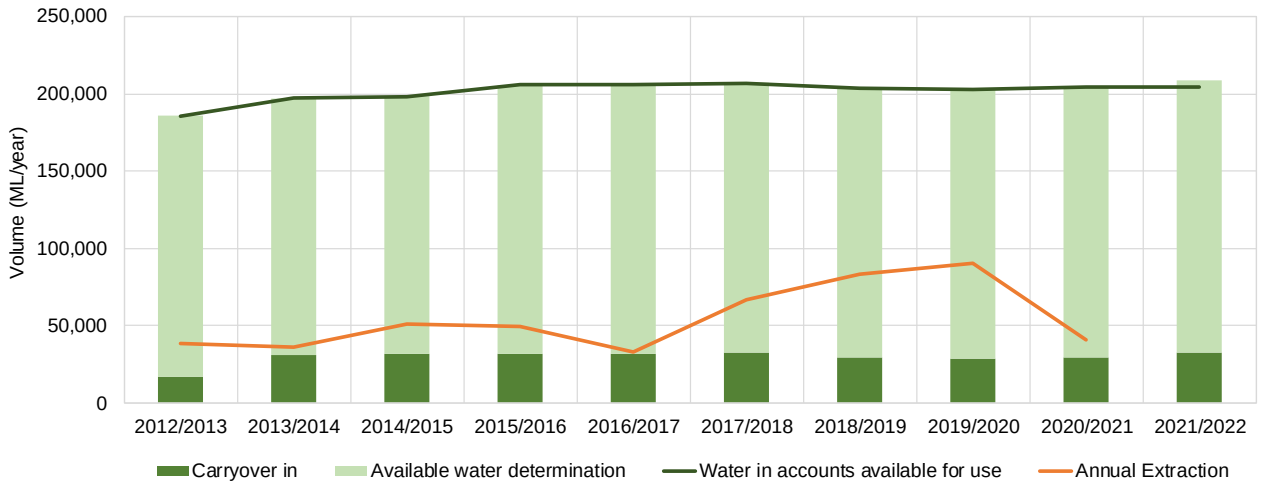
Note: all access licence categories have been combined in **Figure 2**.

There has been no reduction in the available water determination for aquifer access licences in the Upper Lachlan Alluvial Groundwater Source since the water sharing plan first started in 2012.

The access licence account information for the Upper Lachlan Alluvial Groundwater Source on 1 July 2021 is summarised below:

- Carryover In: 37,734 ML
- Available water determination: 176,440 ML
- Total water in account: 209,174 ML
- Total water available for use: 204,300 ML

Figure 2: Account water availability and usage summary for Upper Lachlan Alluvial Groundwater Source



Groundwater trading

Trades are permitted within, but not between Upper Lachlan Alluvial and any other groundwater source.

Water sharing plan management zones

The Upper Lachlan Alluvial Groundwater Source is divided into the following management zones (**Figure 1)**.

- Upper Lachlan Alluvial Zone 1 Management Zone
- Upper Lachlan Alluvial Zone 2 Management Zone
- Upper Lachlan Alluvial Zone 3 Management Zone
- Upper Lachlan Alluvial Zone 4 Management Zone
- Upper Lachlan Alluvial Zone 5 Management Zone
- Upper Lachlan Alluvial Zone 6 Management Zone
- Upper Lachlan Alluvial Zone 7 Management Zone
- Upper Lachlan Alluvial Zone 8 Management Zone

Trades are permitted within, but not between the management zones.

Local management areas

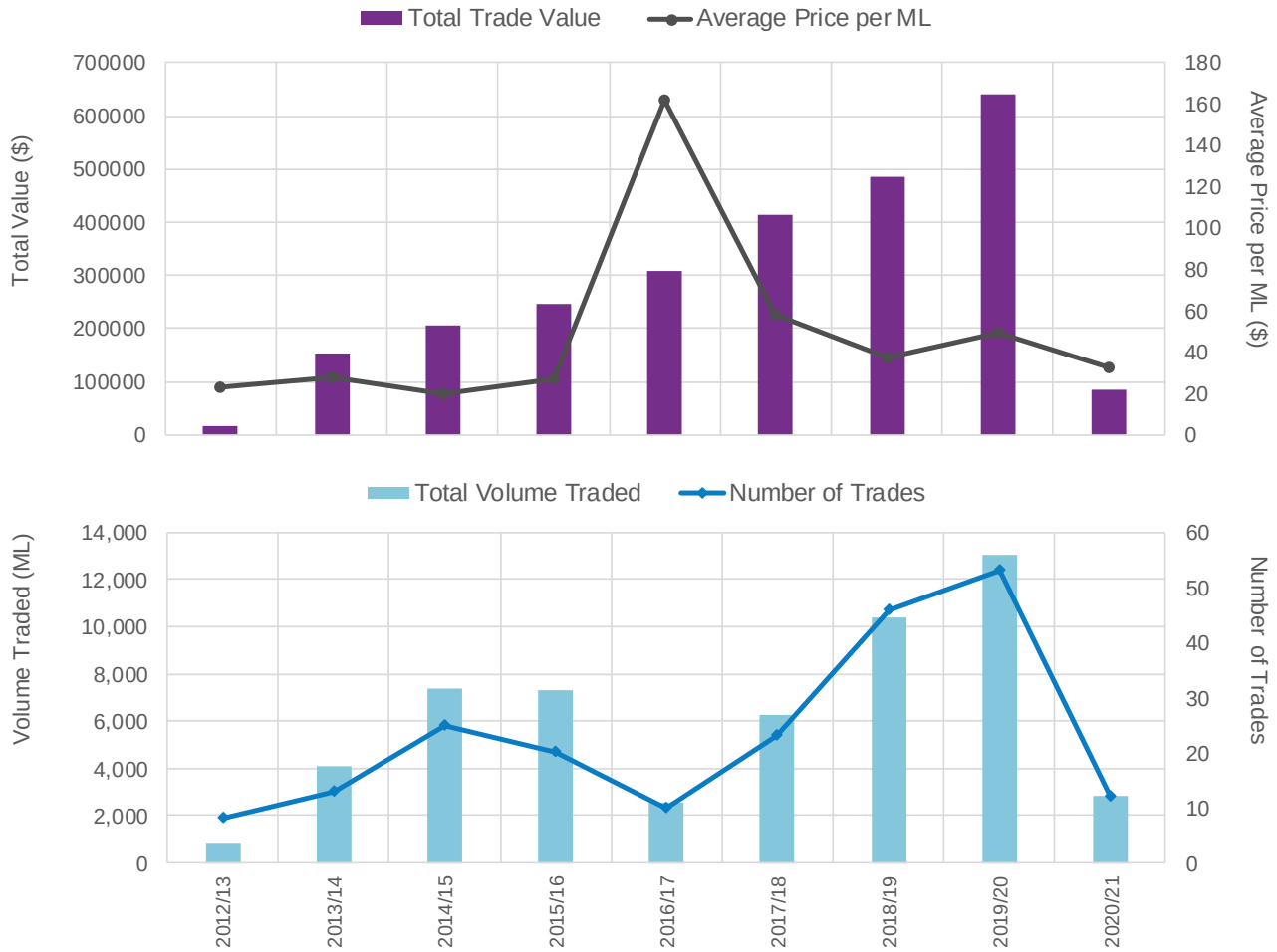
There are no formal local management areas in the Upper Lachlan Alluvial Groundwater Source. A temporary restriction was put in place on 1 July 2020 to limit extractions to 30% of the entitlement (or shares) within Upper Lachlan Alluvial Zone 1 Management Zone in response to concerns from local users regarding water level declines. It is effective until June 2024.

Allocation assignments (temporary trade)

Trading statistics for the Upper Lachlan Alluvial Groundwater Source are illustrated in **Figure 3**, excludes trades for less than $1 per megalitre. The average value paid per megalitre in 2020-21 was $32.60, while the maximum value was $100 per megalitre.

Further information on water licences, approvals, water trade and 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

Figure 3: Upper Lachlan Alluvial Groundwater Source temporary trade statistics



Bores

There are approximately 3,010 registered bores across the Upper Lachlan Alluvial Groundwater Source (**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**).

Bores constructed in the deeper more productive aquifer systems can yield up to 3,400 ML/year, while most production bores produce supply in the range of 200-1,200 ML/year (**Figure 5**).

Table 3: Approximate number of licensed bores in Upper Lachlan Alluvial Groundwater Source (at June 2021)

Groundwater Source	Registered Bore Purpose		
	Basic Landholder Rights	Production	Local Water Utility/Town Water Supply
Upper Lachlan Alluvial Groundwater Source	2,449	537	24

Water level monitoring

WaterNSW monitors groundwater levels at 295 monitoring bores at 152 sites in the Upper Lachlan Alluvial Groundwater Source (**Figure 6)**. At the majority of 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 **Figures 7** to **13**.

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/). Data is also available for 10 of the groundwater monitoring sites in real-time via telemetry.

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

Figure 4: Upper Lachlan Alluvial Groundwater Source registered bores

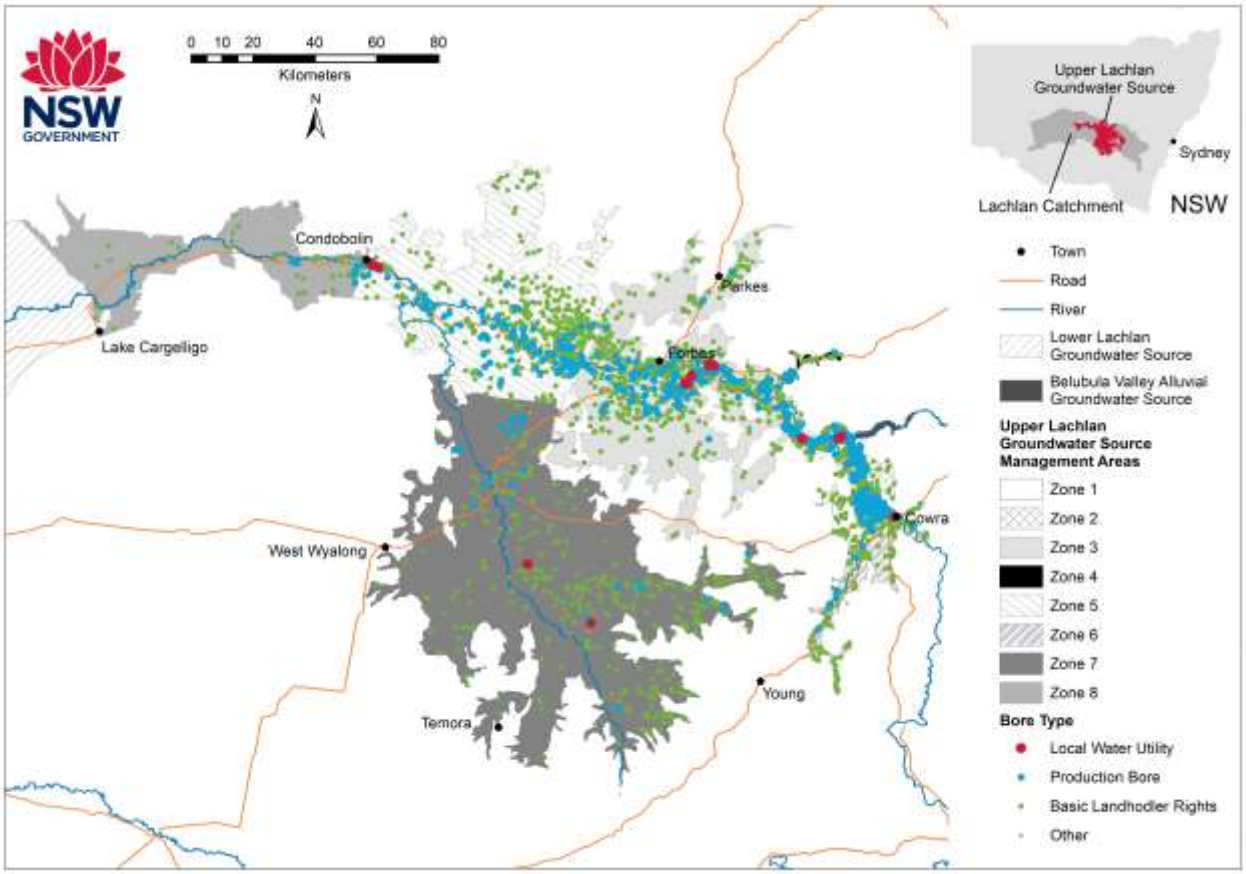


Figure 5: Upper Lachlan Alluvial Groundwater Source water supply bores and distribution of extraction

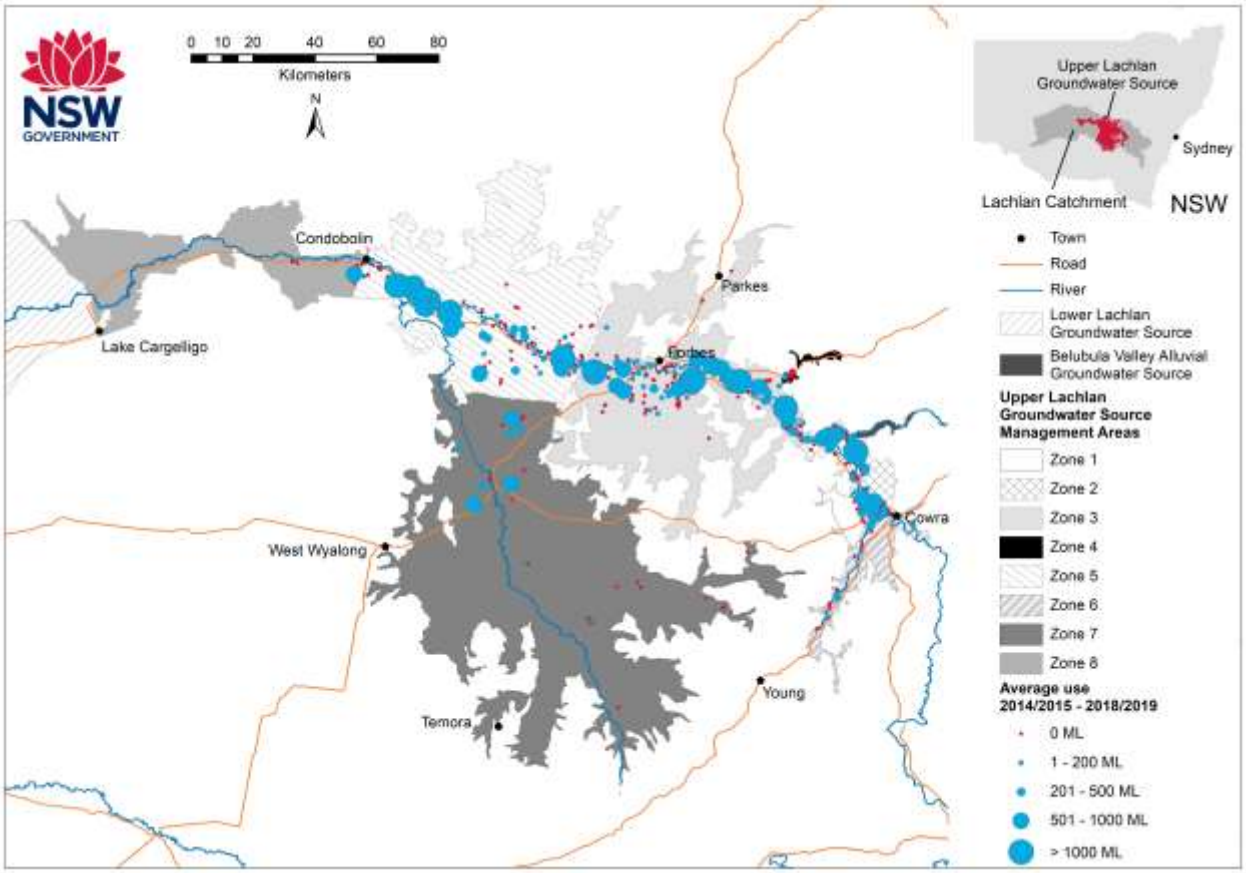


Figure 6: Upper Lachlan Alluvial Groundwater Source monitoring bore sites

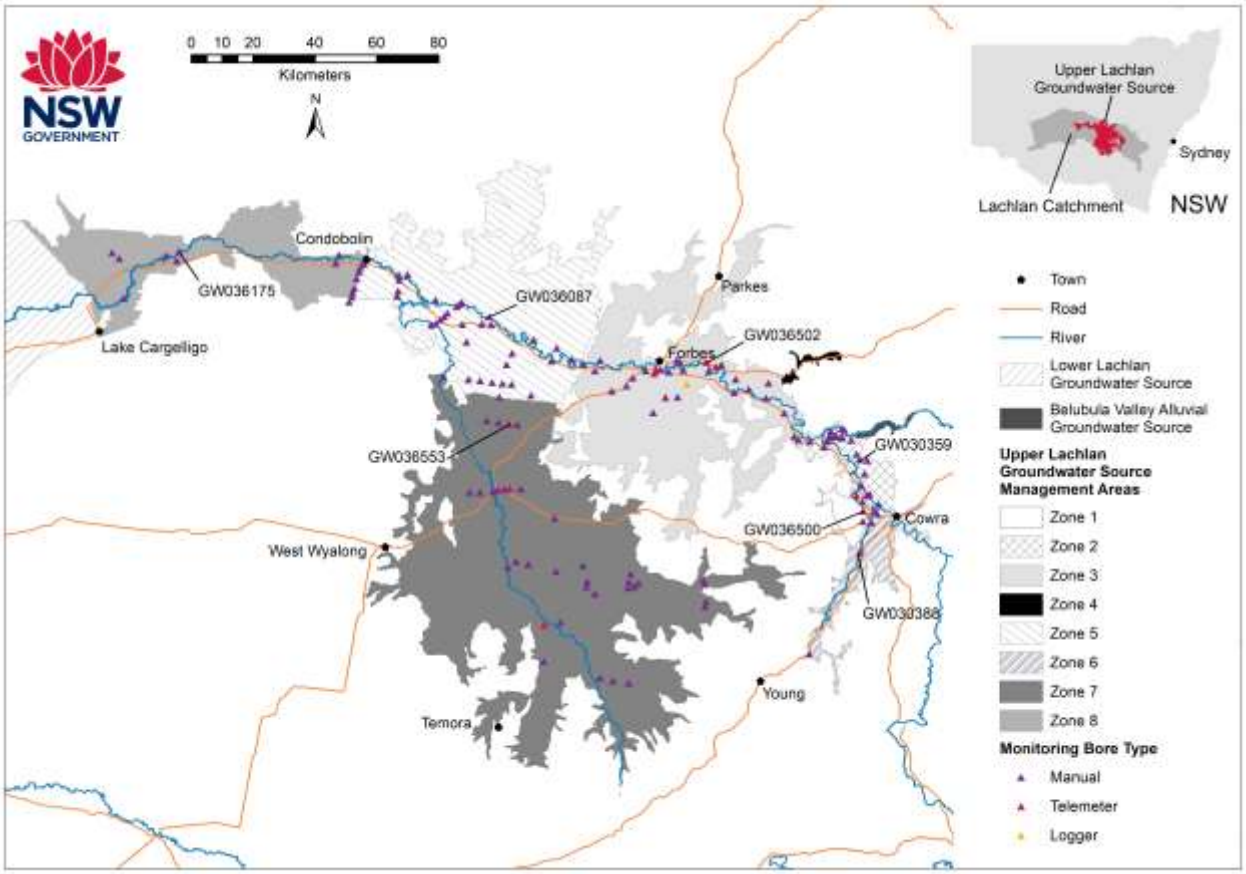


Figure 7: Hydrograph for monitoring bore GW036359

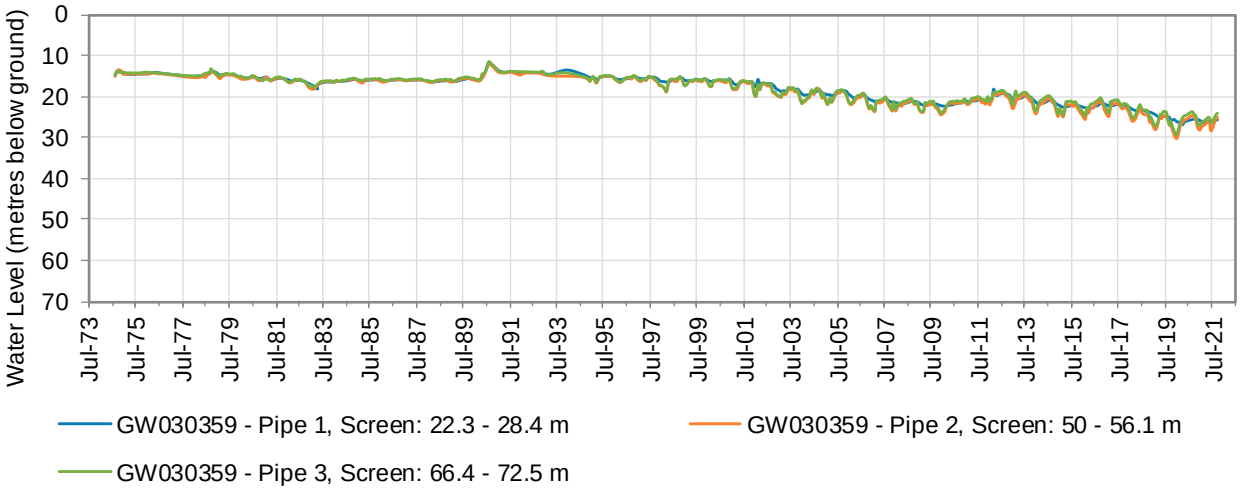


Figure 8: Hydrograph for monitoring bore GW030388

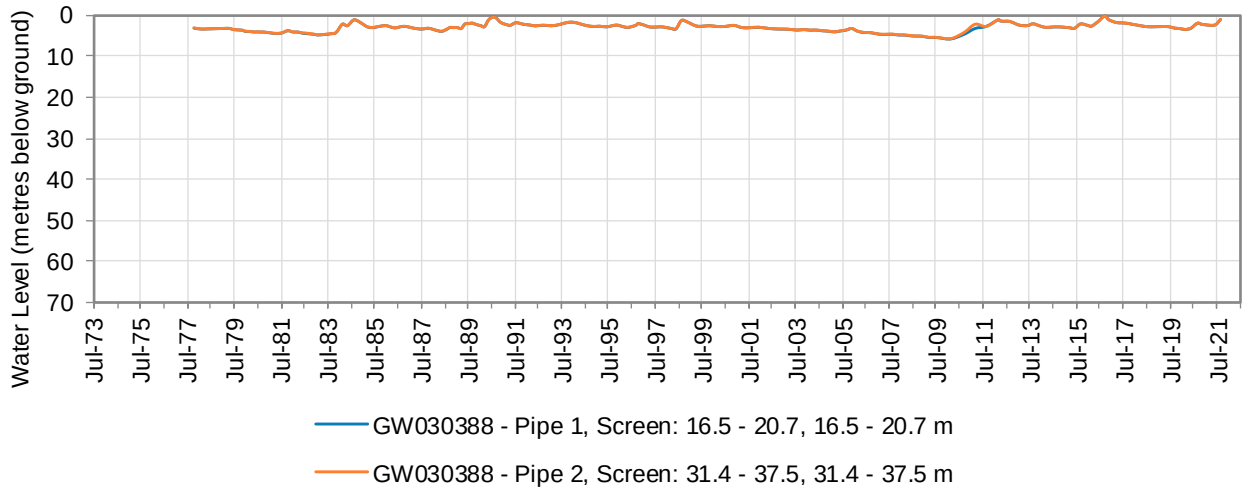


Figure 9: Hydrograph for monitoring bore GW036087

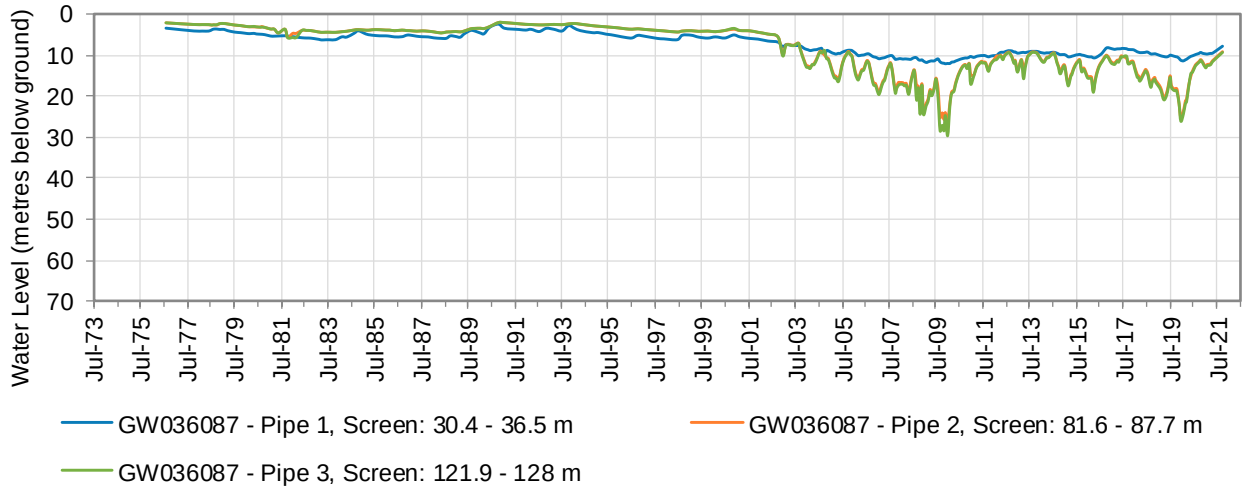


Figure 10: Hydrograph for monitoring bore GW036175

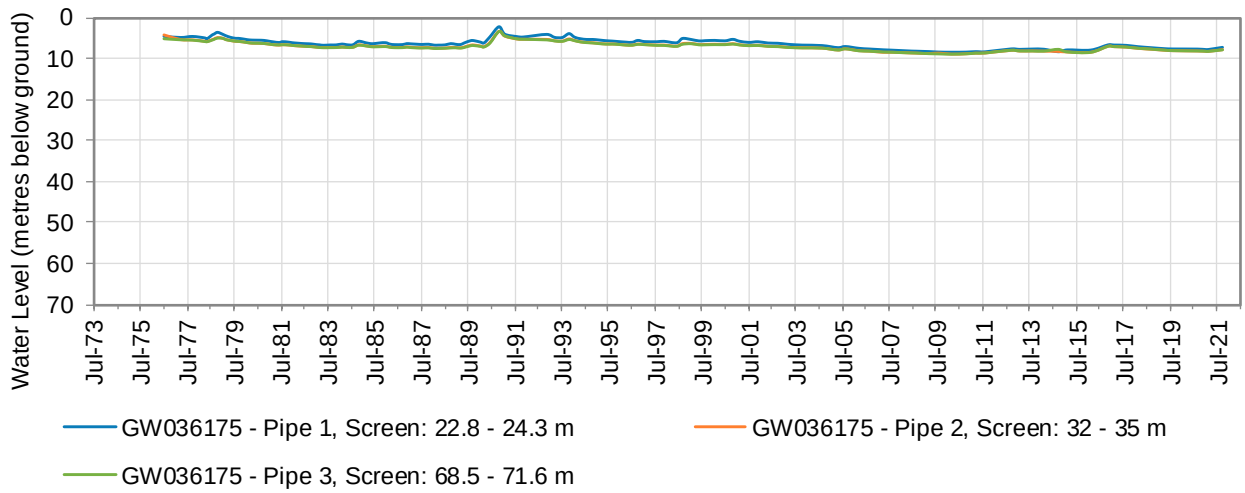


Figure 11: Hydrograph for monitoring bore GW036500

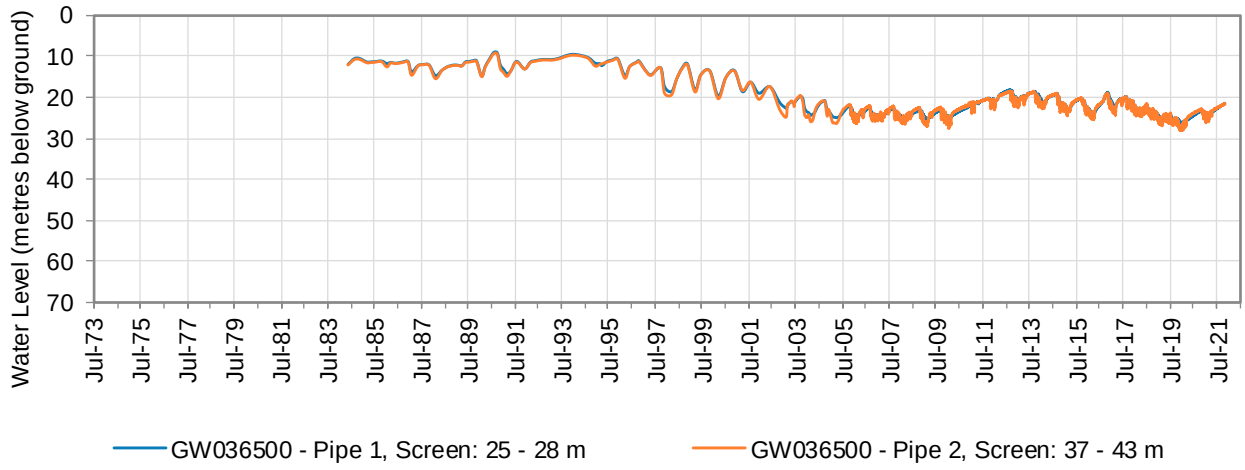


Figure 12: Hydrograph for monitoring bore GW036502

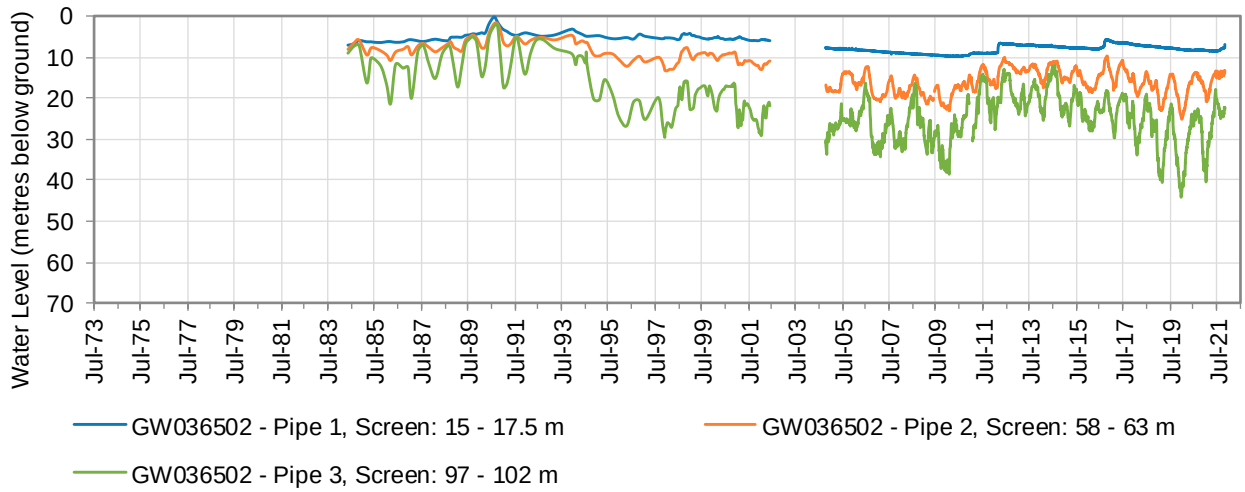


Figure 13: Hydrograph for monitoring bore GW036553