

# Upper Lachlan Alluvial Groundwater Source

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Groundwater annual report 2023.

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## Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Upper Lachlan Alluvial Groundwater Source to 2023 including the start of year water account volumes for the 2023/2024 water year (1 July to 30 June).

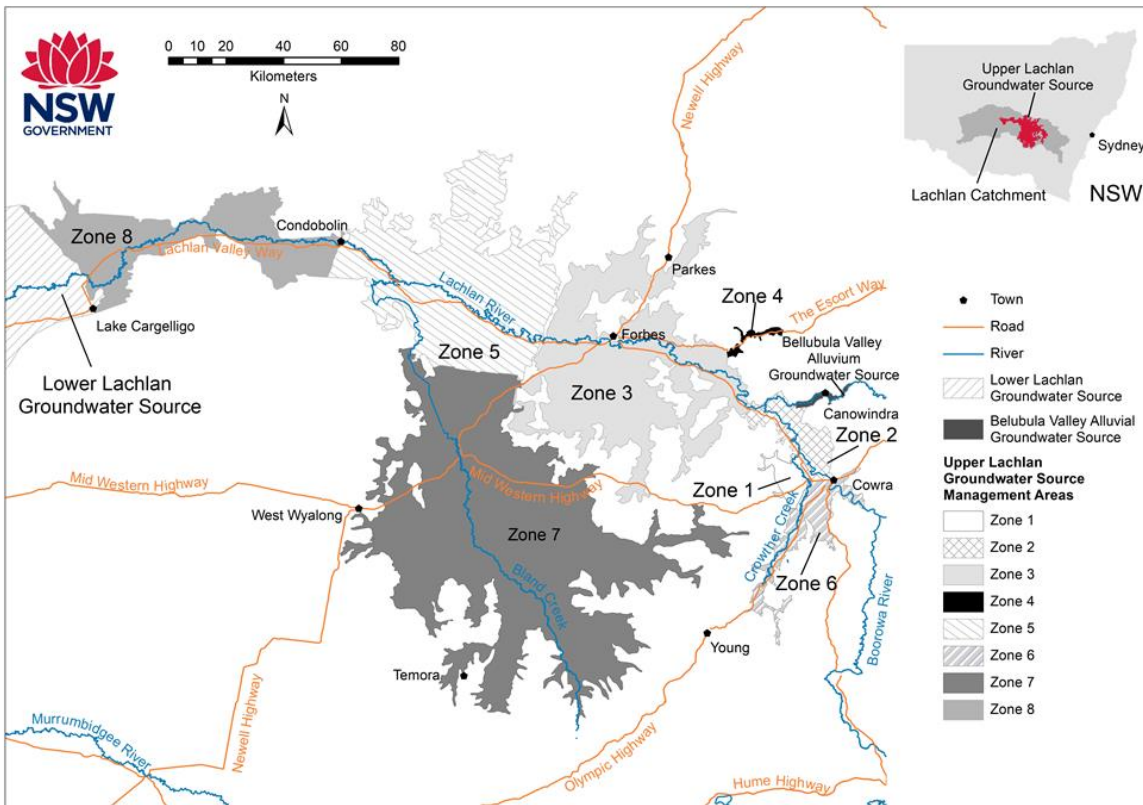
For detailed information of the hydrogeology, management and past long-term water level behaviour of this water source refer to the Groundwater Resource Description Report for the Lachlan Alluvium Water Sources:

[www.industry.nsw.gov.au/\\_\\_\\_data/assets/pdf\\_file/0010/175969/Lachlan-alluvium-appendice-a-water-resource-description.pdf](http://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).

Figure 1: Location map



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.

This water sharing plan is available for viewing on the Department of Planning and Environment Water website at: [water.dpie.nsw.gov.au/plans-and-programs/water-sharing-plans/status/lachlan-region](http://water.dpie.nsw.gov.au/plans-and-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.

## Groundwater access licences

Groundwater access licence share components to 30 June 2023 are presented in Table 1.

Table 1: Upper Lachlan Alluvial Groundwater Source share component 30 June 2023

| Access Licence Category                                  | Number of Licences | Total Volume |
|--|--------------------|--------------|
| Local Water Utility <sup>1</sup>                         | 9                  | 7,848        |
| Local Water Utility (Domestic & Commercial) <sup>1</sup> | 1                  | 2,073        |
| Aquifer <sup>2</sup>                                     | 385                | 166,517      |

<sup>1</sup>Megalitres/year (ML)

<sup>2</sup> 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 Upper Lachlan Alluvial Groundwater Source is 94,168 ML/year. Extraction in the 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: [water.dpie.nsw.gov.au/allocations-availability/extraction-limits/tracking-groundwater](http://water.dpie.nsw.gov.au/allocations-availability/extraction-limits/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     | 0%              | 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), and minus any allocation transferred out. This means that metered extraction plus transfers out can't exceed 120 percent of the of share component, unless water is transferred in.

Total account water for period 2014/2015 to 2023/2024 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.

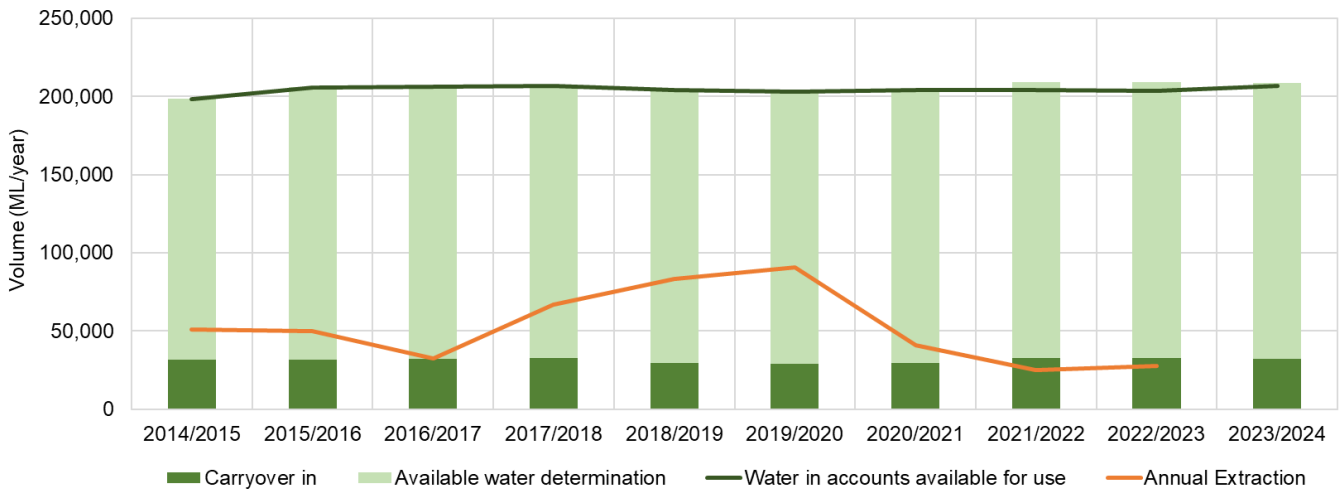
There has been no reduction in the available water determination (AWD) for aquifer access licences in the Upper Lachlan Groundwater Source since the water sharing plan first started in 2012.

The access licence account information for the Upper Lachlan Groundwater Source on 1 July 2023 is summarised below:

- Carryover In: 32,395 ML
- Available water determination: 176,438 ML
- Total water in account: 208,832 ML

- Total water available for use: 206,618 ML

Figure 2: Account water availability and usage summary for Upper Lachlan 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, and
- 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.

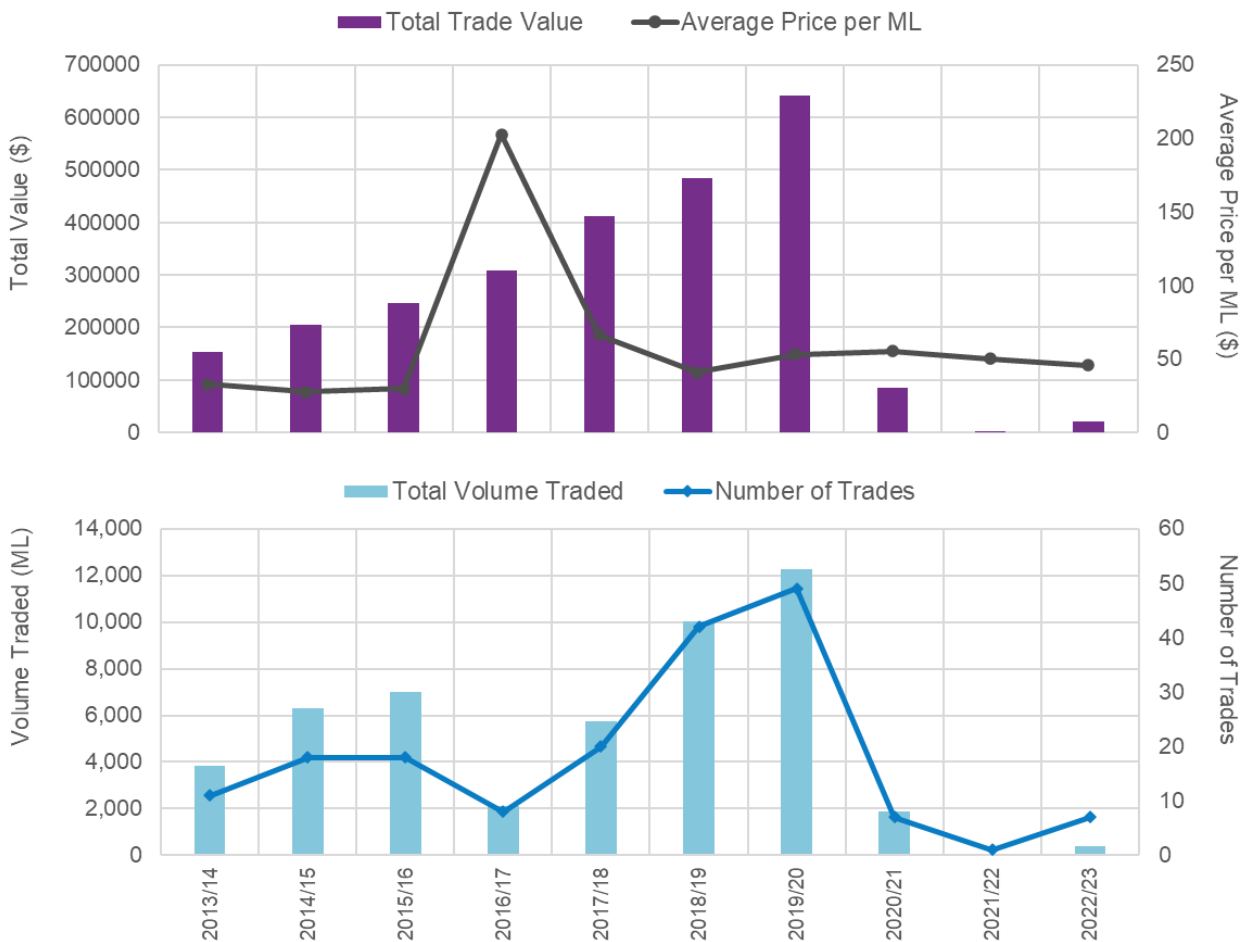
### Allocation assignments (temporary trade)

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 2022-23 was \$45.70, 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](http://waterregister.waternsw.com.au/water-register-frame)

Figure 3: Upper Lachlan Alluvial Groundwater Source temporary trade statistics



## Bores

There are approximately 3,063 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). This is based on average extraction from 2017/2018 to 2021/2022 and unlikely to have changed significantly.

Table 3: Approximate number of licensed bores in Upper Lachlan Alluvial Groundwater Source (2023)

| Groundwater Source     | Registered Bore Purpose |            |                     |
|------------------------|-------------------------|------------|---------------------|
|                        | Basic Landholder Rights | Production | Local Water Utility |
| Upper Lachlan Alluvial | 2,491                   | 547        | 25                  |

## Water level monitoring

WaterNSW monitors groundwater levels at 295 monitoring bores at 152 sites in the Upper Lachlan alluvial 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 13.

Data for the monitored bores as well as private bore information can be obtained from the WaterNSW real time data portal at: [realtimedata.waternsw.com.au/](https://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](mailto:Customer.Helpdesk@waternsw.com.au)



Figure 4: Upper Lachlan Alluvial Groundwater Source registered bores

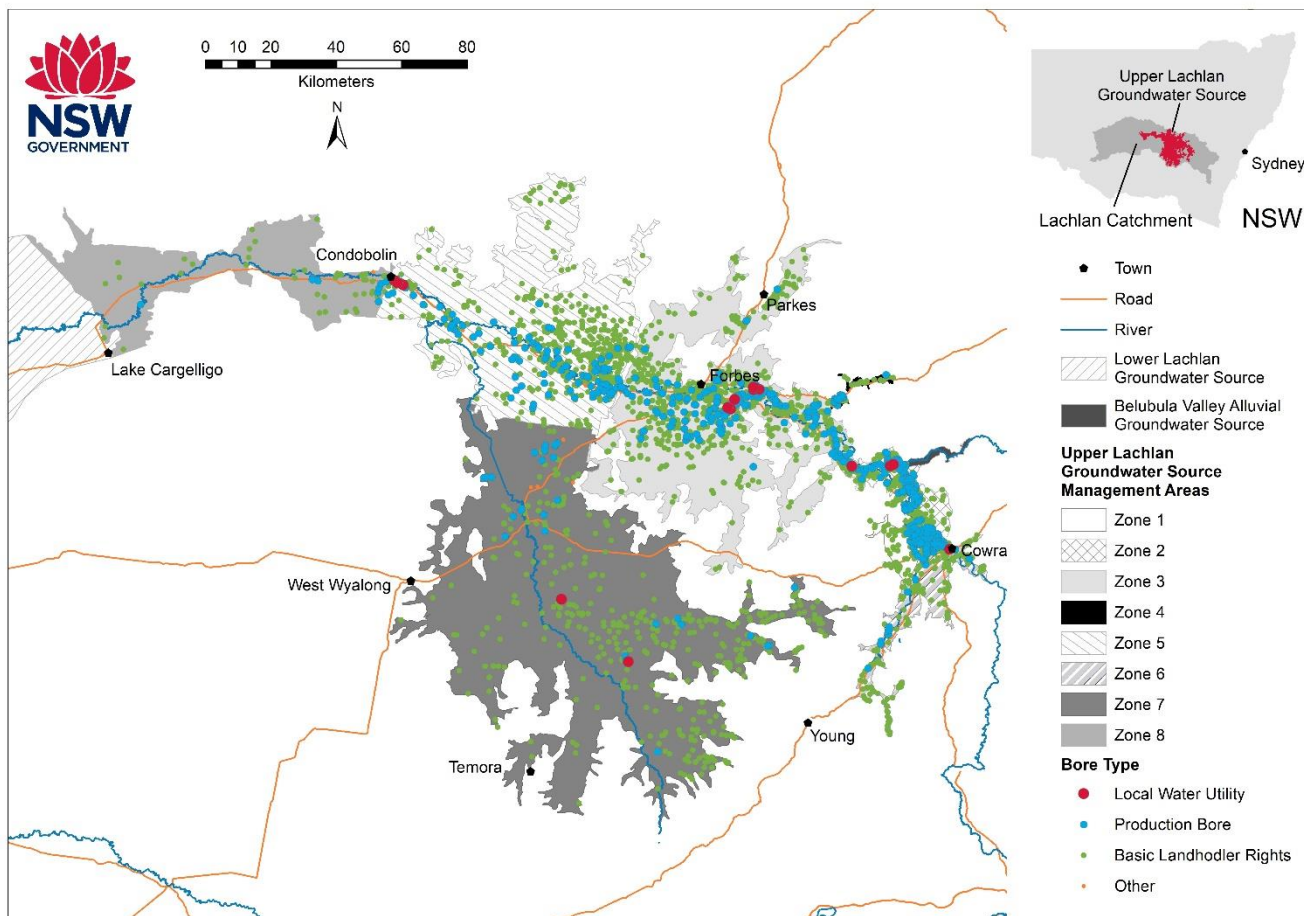




Figure 5: Upper Lachlan Alluvial Groundwater Source water supply bores and distribution of extraction (for period 2017/2018 to 2021/2022)

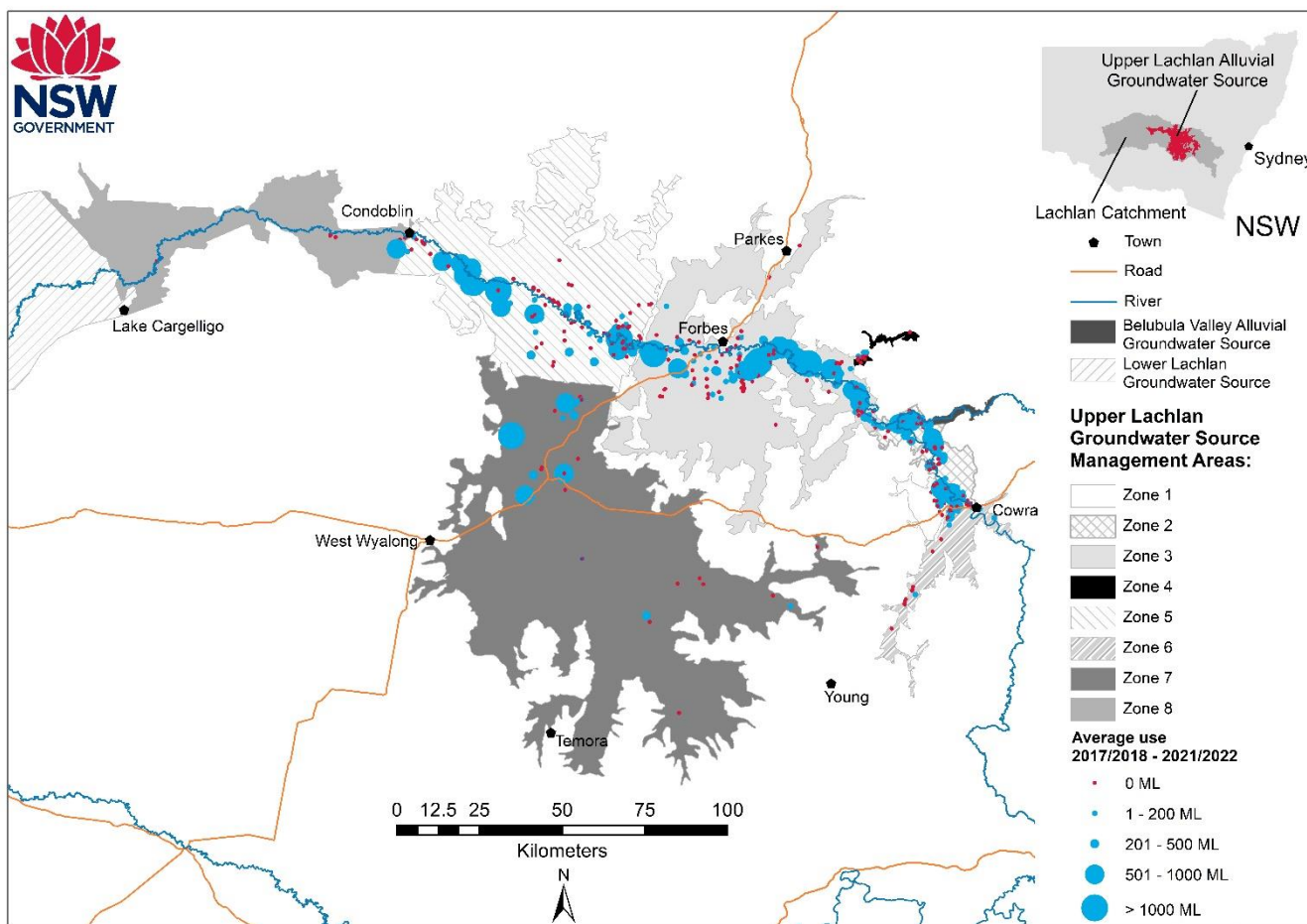


Figure 6: Upper Lachlan Alluvial Groundwater Source monitoring bore sites

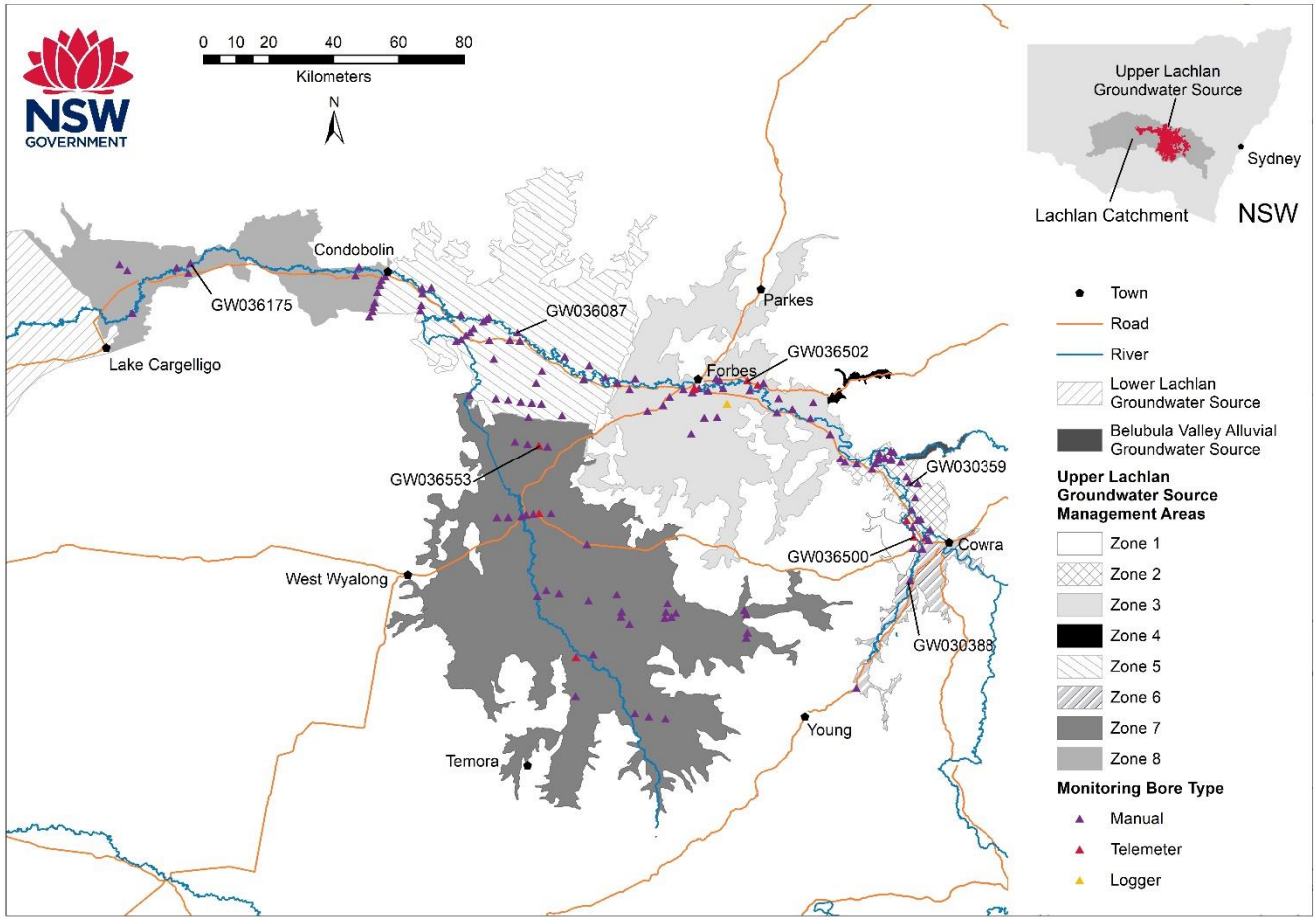


Figure 7: Hydrograph for monitoring bore GW030359

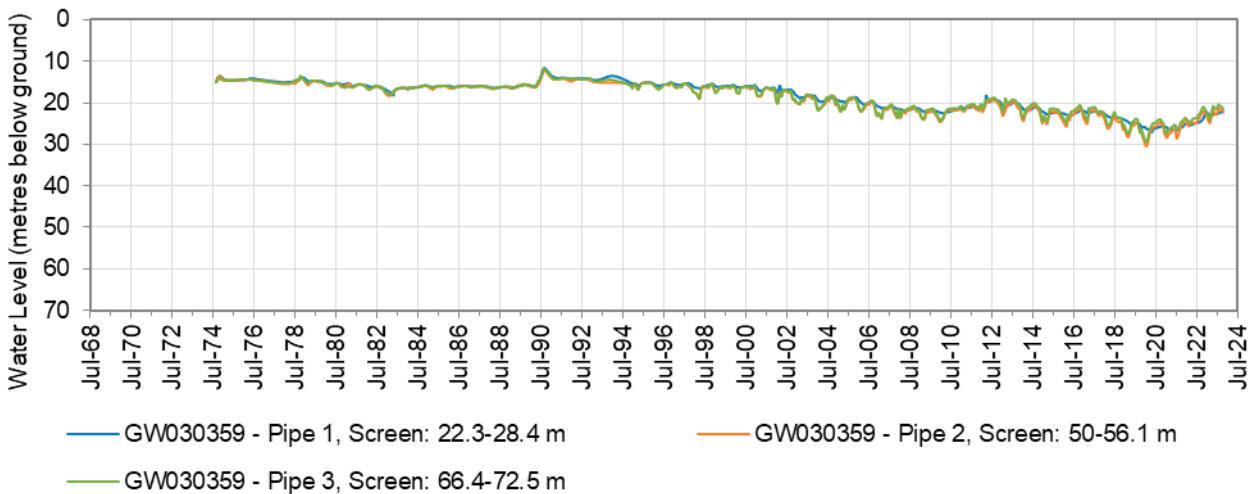


Figure 8: Hydrograph of monitoring bore GW030388

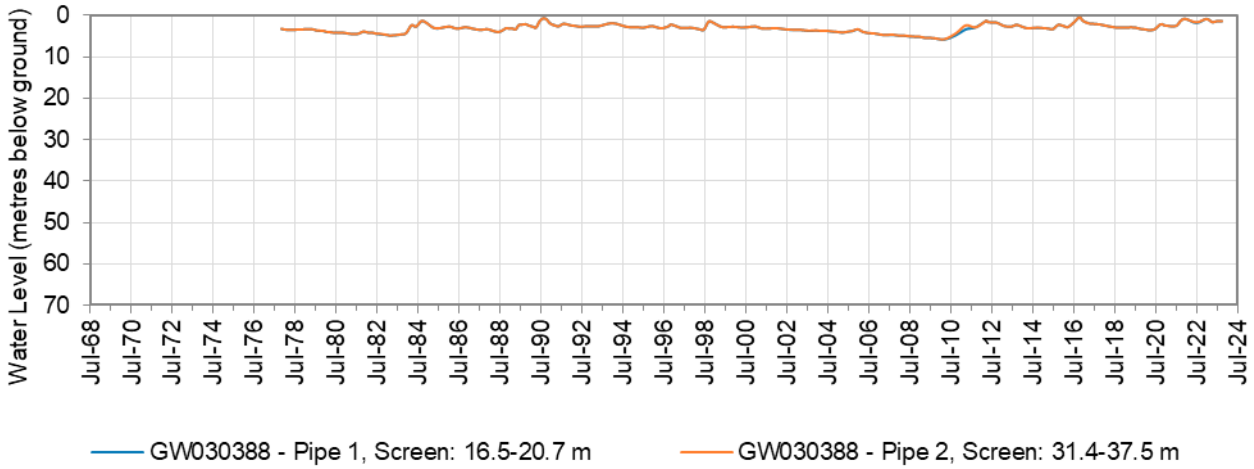


Figure 9: Hydrograph of monitoring bore GW036087

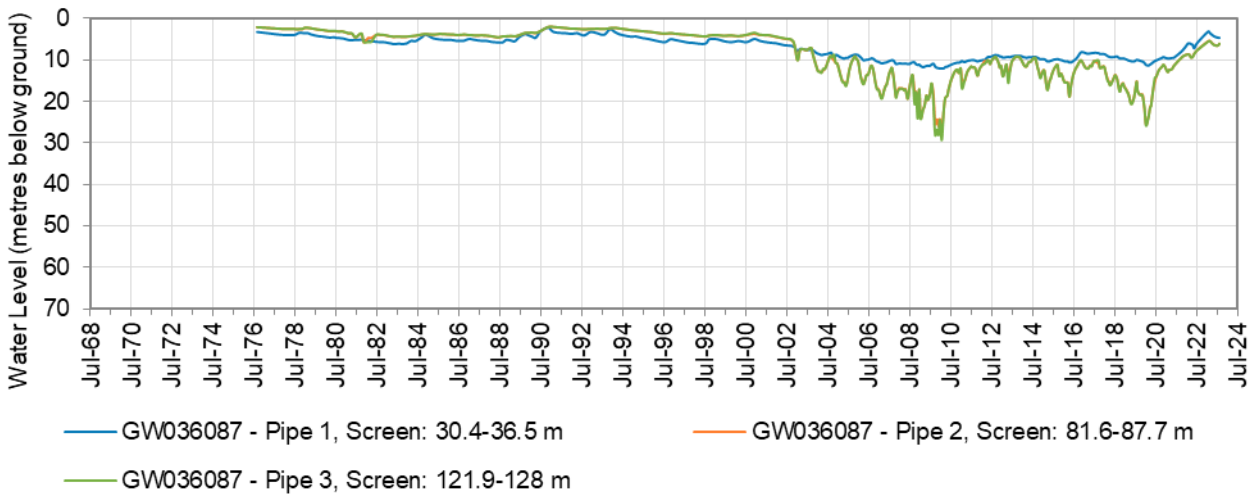


Figure 10: Hydrograph of monitoring bore GW036175

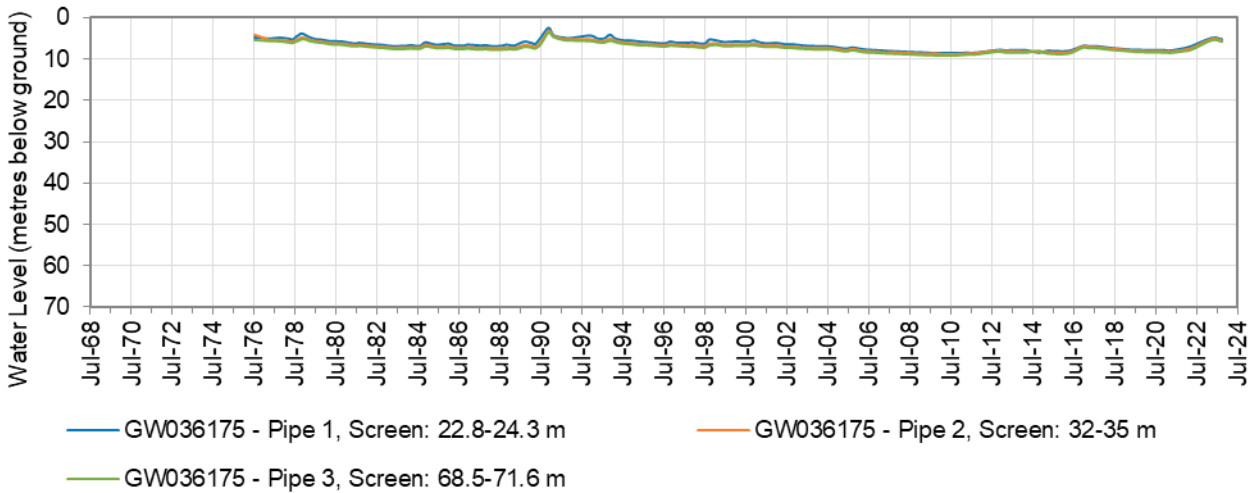


Figure 11: Hydrograph of monitoring bore GW036500

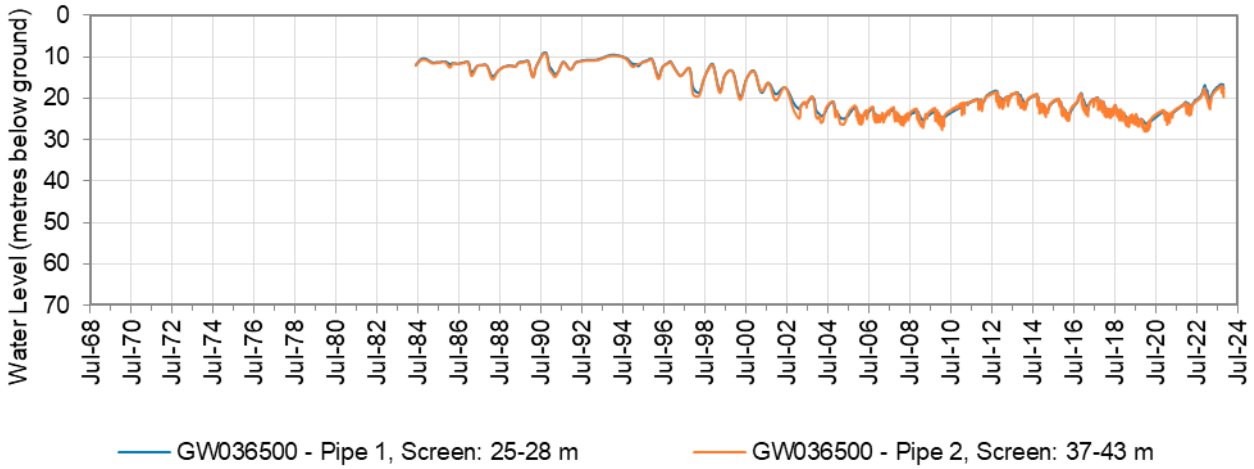


Figure 12: Hydrograph of monitoring bore GW036502

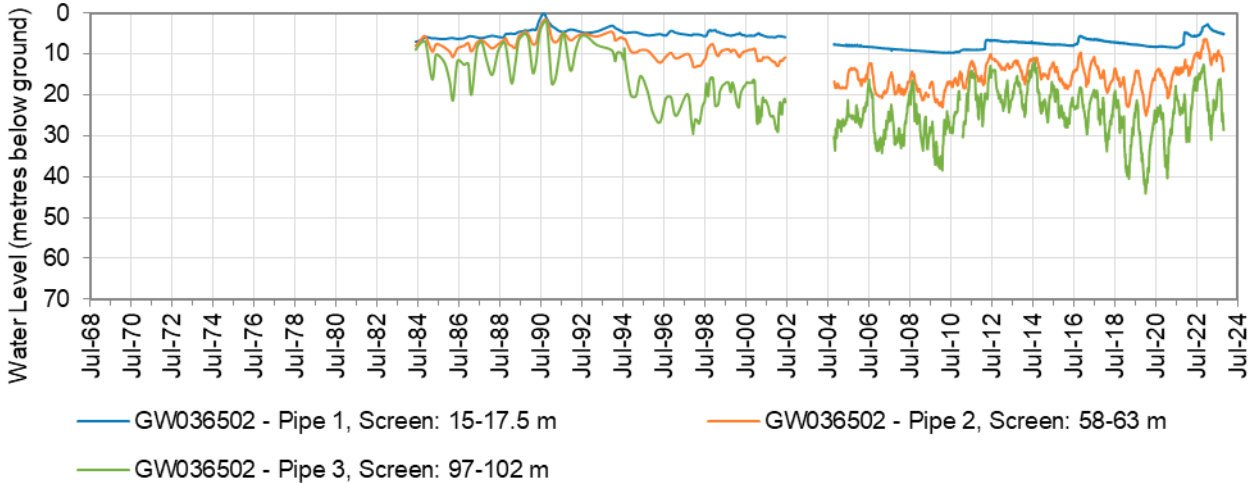


Figure 13: Hydrograph of monitoring bore GW036553

