

Lower Lachlan Groundwater Source

Groundwater annual report 2023.

Introduction

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

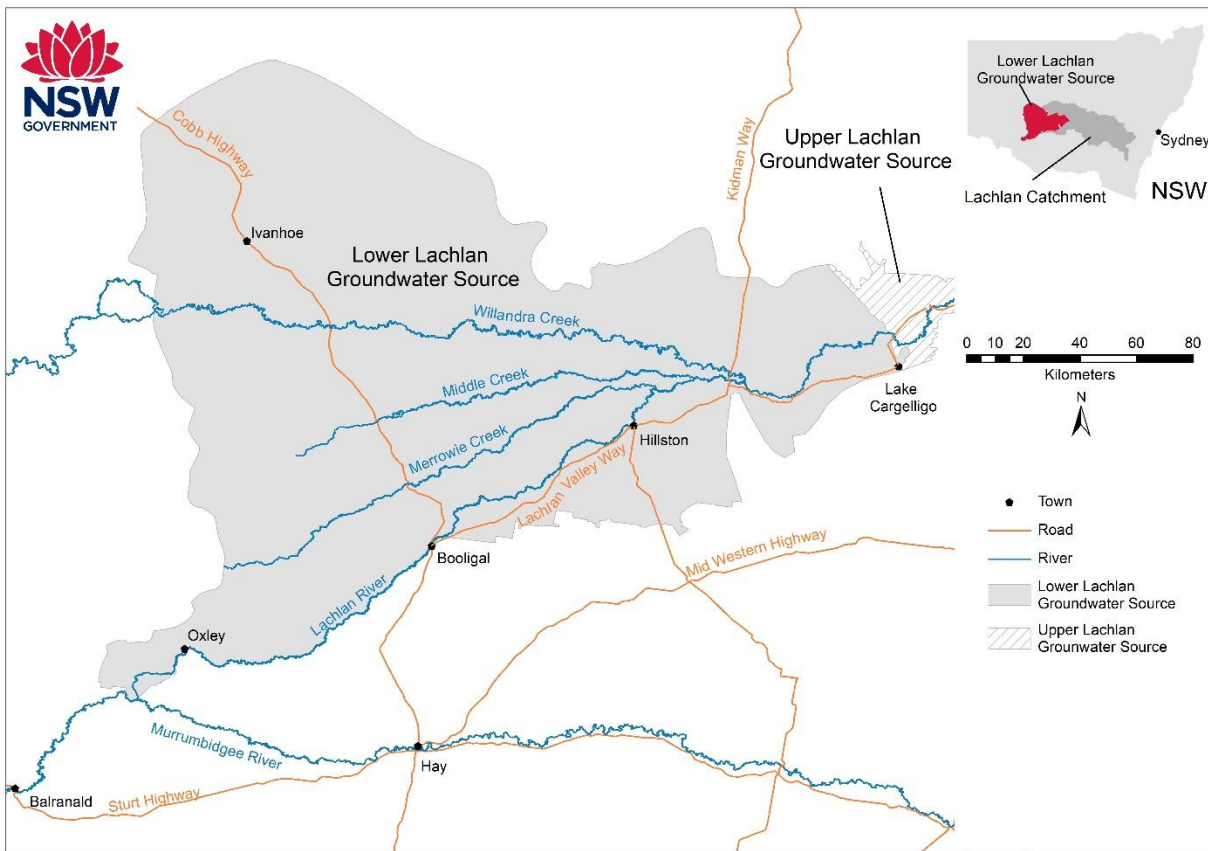
For detailed information of the hydrogeology, management and past long-term water level behaviour of this water source refer to the Groundwater Resource Description Report for the Lachlan Alluvium Water Sources:

www.industry.nsw.gov.au/___data/assets/pdf_file/0010/175969/Lachlan-alluvium-appendice-a-water-resource-description.pdf

Description

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

Figure 1: Location map



The Lower Lachlan Groundwater Source (Figure 1) is made up of the alluvial sediments. These sediments form an extensive alluvial fan deposited by the Lachlan River and its distributaries, comprised of clay, silt, sand and gravel.

Water resource management

Water sharing plan

The Lower Lachlan Groundwater Source is managed by the rules defined in 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

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 9,000 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: Lower Lachlan Groundwater Source share component 30 June 2023

Access Licence Category	Number of Licences	Total Volume
Local Water Utility ¹	5	2,922
Aquifer (Town Water Supply) ¹	1	2
Aquifer ²	92	105,678

¹Megalitres/year (ML)

² Megalitre 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 Lower Lachlan Groundwater Source is 117,000 ML/year. Extraction in the Lower Lachlan Groundwater Source is not compliant if the 5 years average annual extraction is more than 105% 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

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 Lower Lachlan Groundwater Source are provided in Table 2.

Table 2: Lower Lachlan Groundwater Source access licence account rules

Access Licence Category	Carryover Limit	Annual Use Limit	Maximum AWD
Local Water Utility	0%	100%	100%
Aquifer (Town Water Supply)	0%	100%	100%
Aquifer	1 ML/share	1.5 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 1.5 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 150 per cent of the of share component, unless water is transferred in.

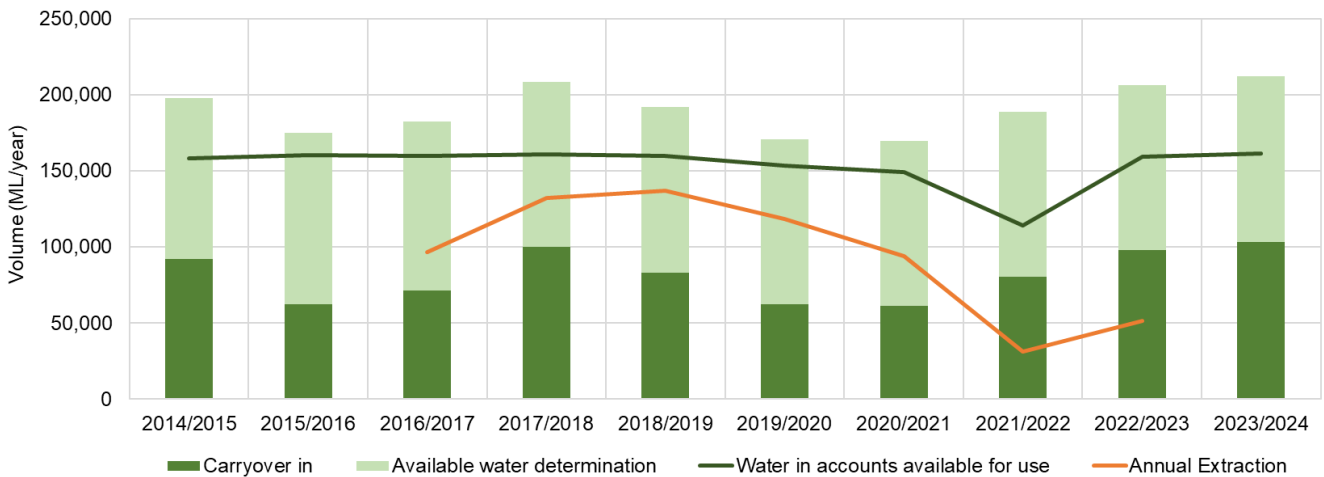
Total account water for period 2014/2015 to 2023/2024 is displayed in Figure 2 showing the proportion available for use and what is not available for use in a year. Total yearly extraction is also displayed. Note: all access licence categories have been combined in Figure 2.

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

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

- Carryover In: 103,399 ML
- Available water determination: 108,602 ML
- Total water in account: 212,001 ML
- Total water available for use: 161,192 ML

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



Groundwater trading

Trades are permitted within but not between Lower Lachlan and any other groundwater source.

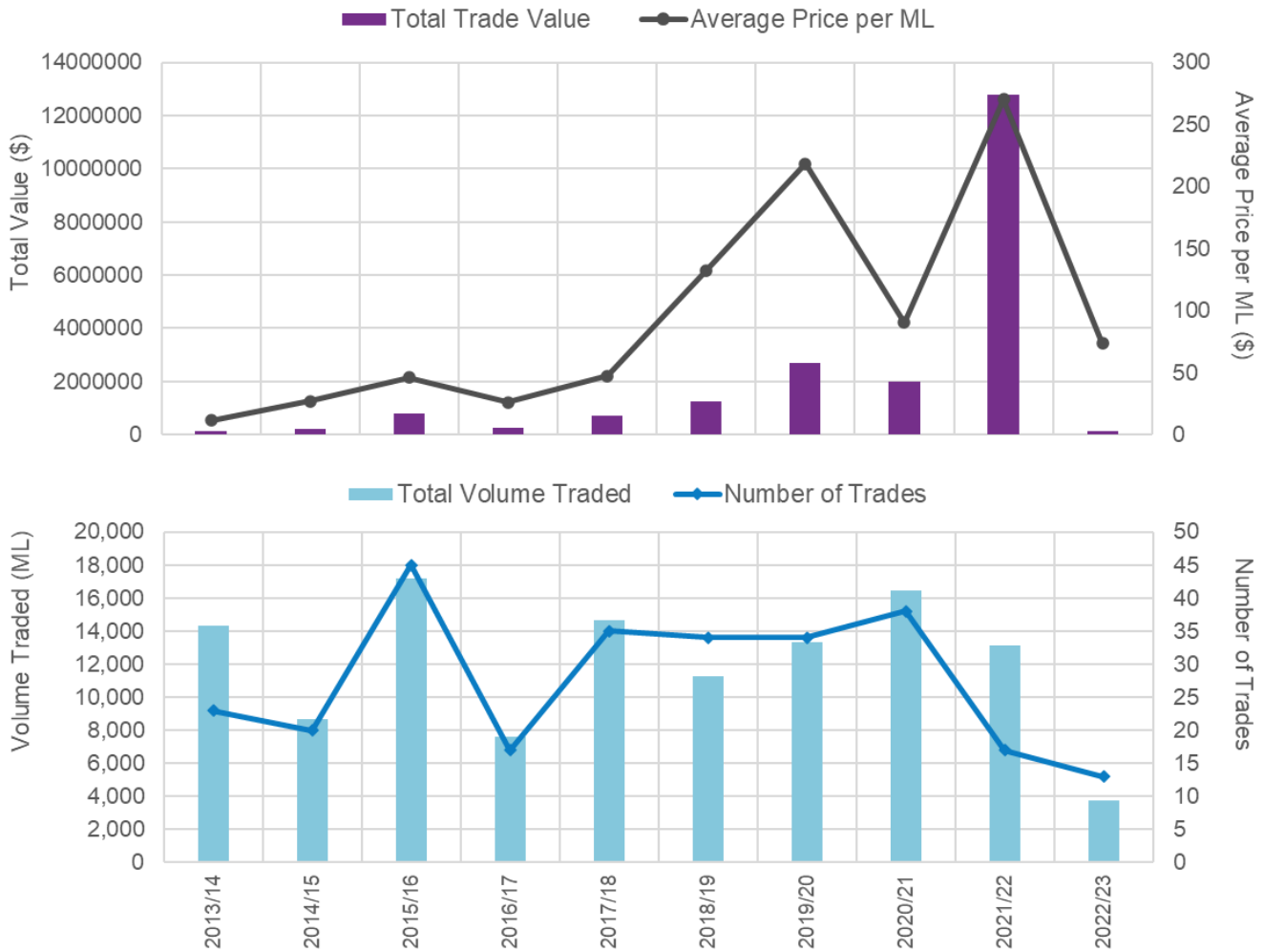
Allocation assignments (temporary trade)

Trading statistics for the Lower Lachlan Groundwater Source are illustrated in Figure 4, excludes trades for less than \$1 per megalitre. The average value paid per megalitre in 2022-23 was \$73.46 while the maximum value was \$300 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: Lower Lachlan Groundwater Source temporary trade statistics



Bores

There are approximately 1,410 registered bores across the Lower Lachlan 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 6,500 ML/year while most production bores produce supply in the range of 1,100 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 Lower Lachlan Groundwater Source (2023)

Groundwater Source	Registered Bore Purpose		
	Basic Landholder Rights	Production	Local Water Utility
Lower Lachlan	1,187	174	14

Water level monitoring

WaterNSW monitors groundwater levels at 189 monitoring bores at 90 sites in the Lower Lachlan 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 14.

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/

Data is also available for 18 of the groundwater monitoring sites in real-time via telemetry. You can also request information via: Customer.Helpdesk@waternsw.com.au.

Figure 4: Lower Lachlan Groundwater Source registered bores

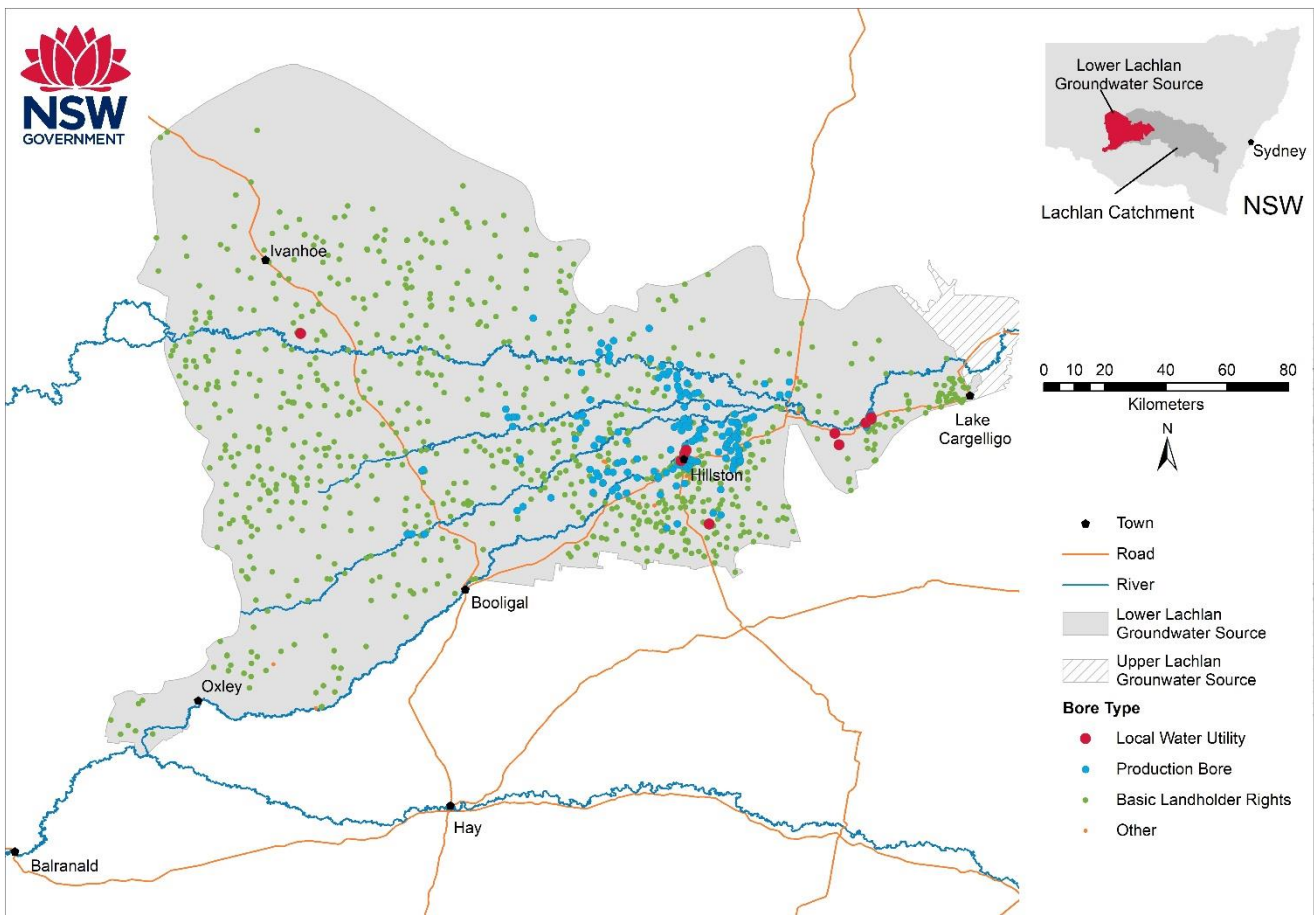


Figure 5: Lower Lachlan Groundwater Source water supply bores and distribution of extraction (for period 2017/2018 to 2021/2022)

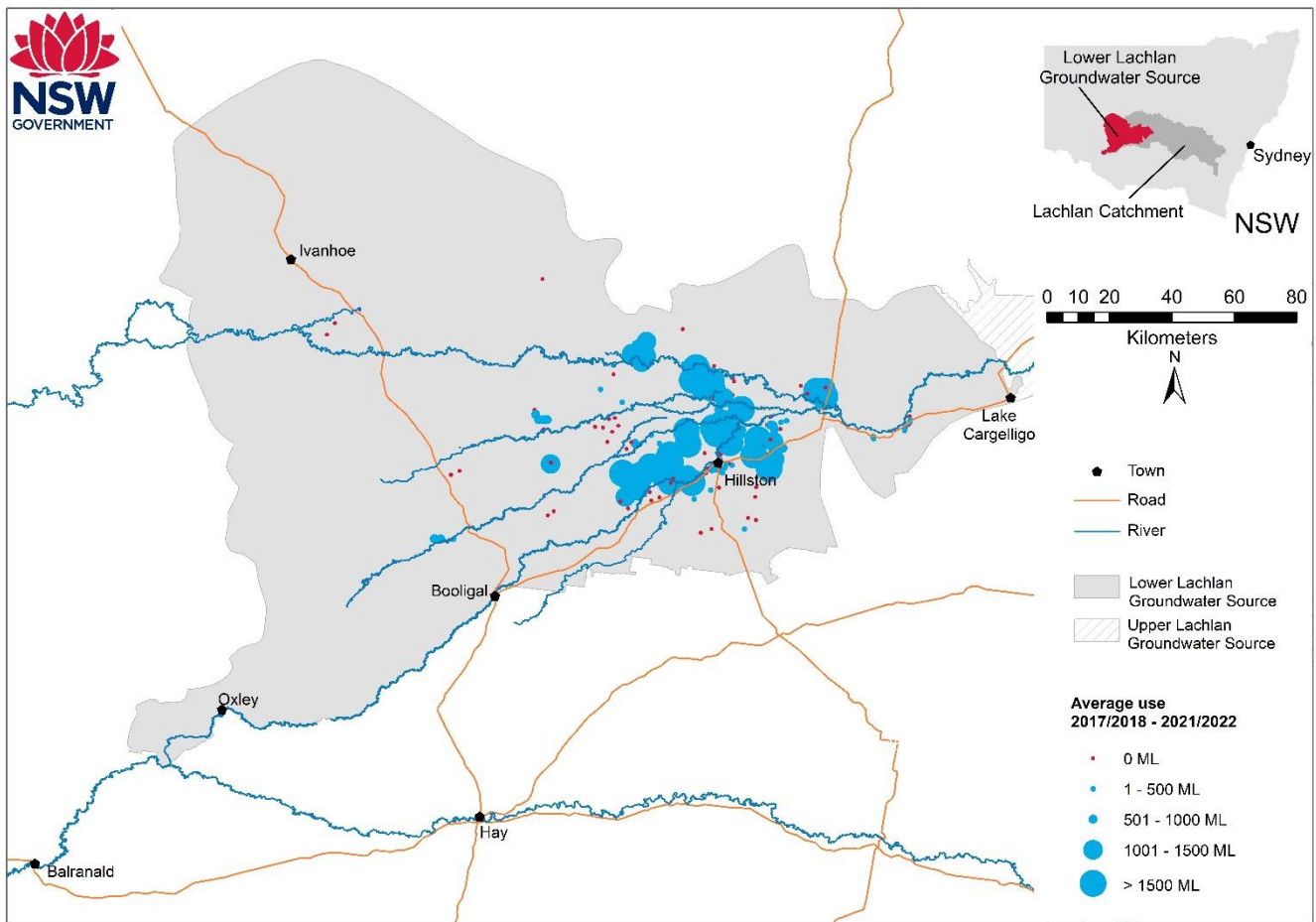


Figure 6: Lower Lachlan Groundwater Source monitoring bore sites

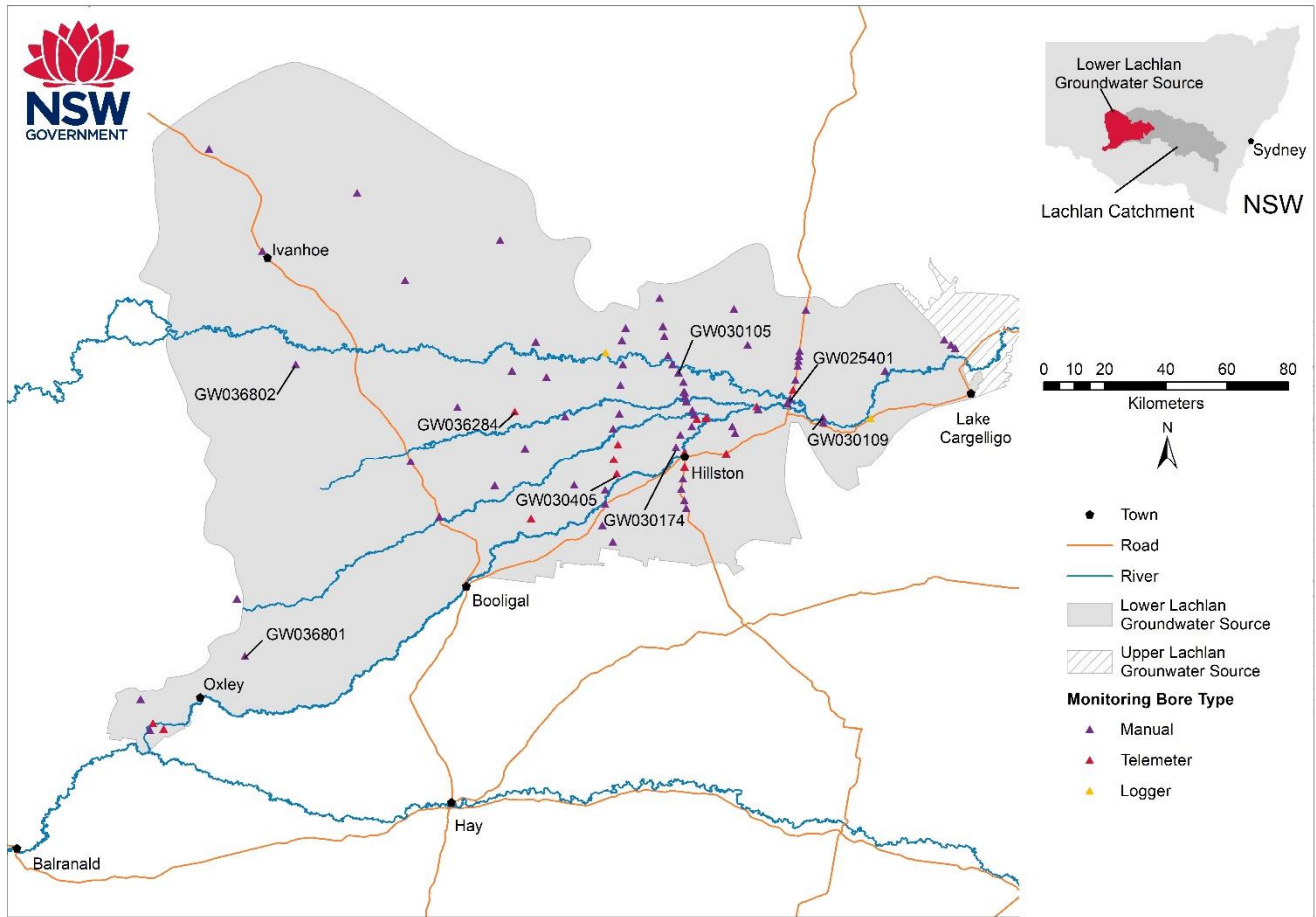


Figure 7: Hydrograph for monitoring bore GW025401

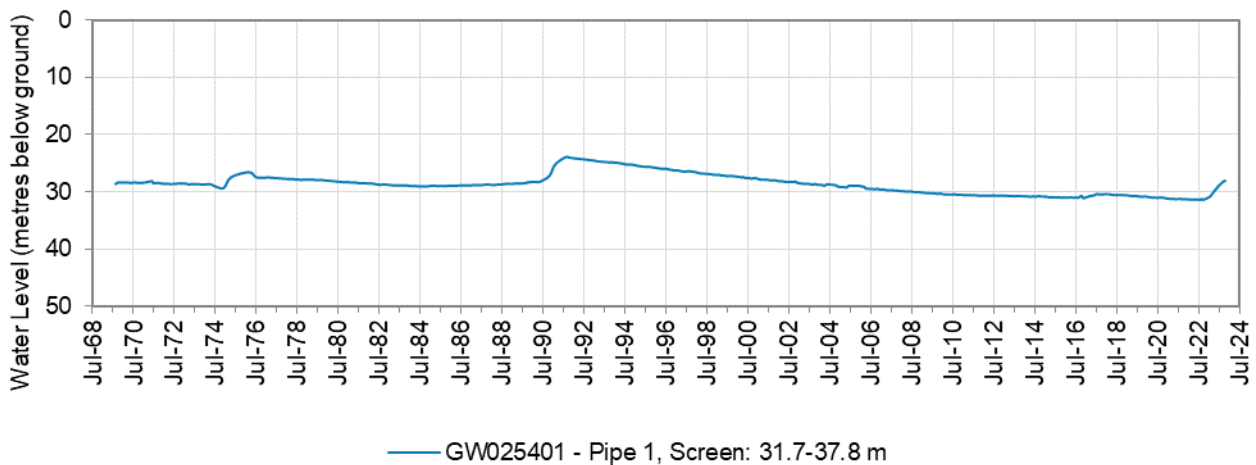


Figure 8: Hydrograph of monitoring bore GW030105

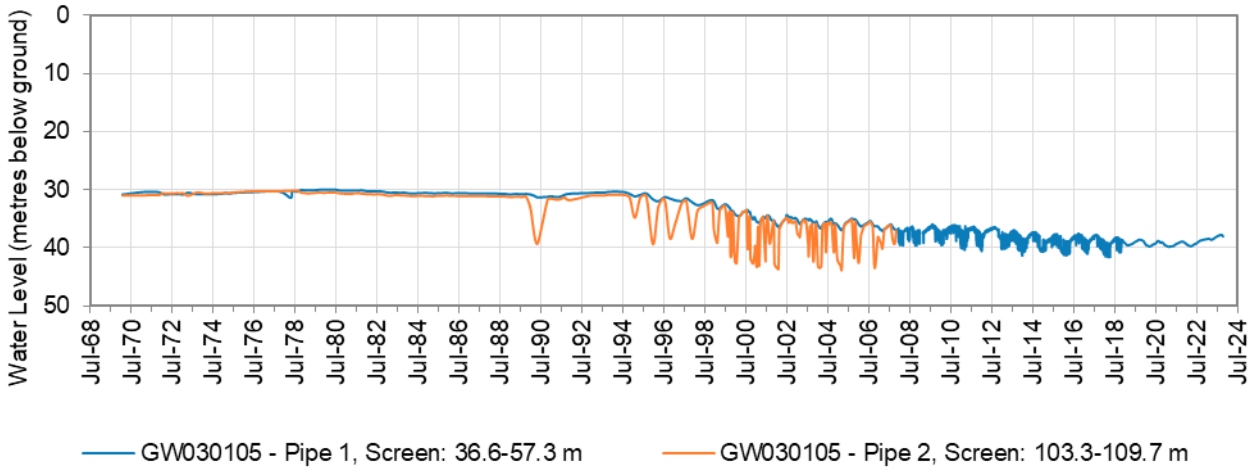


Figure 9: Hydrograph of monitoring bore GW030109

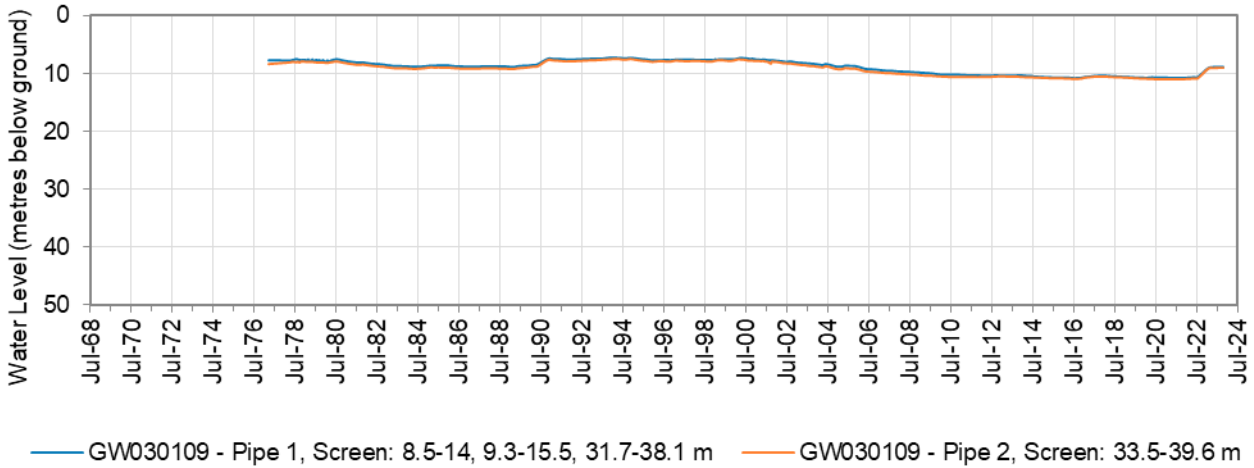


Figure 10: Hydrograph of monitoring bore GW030174

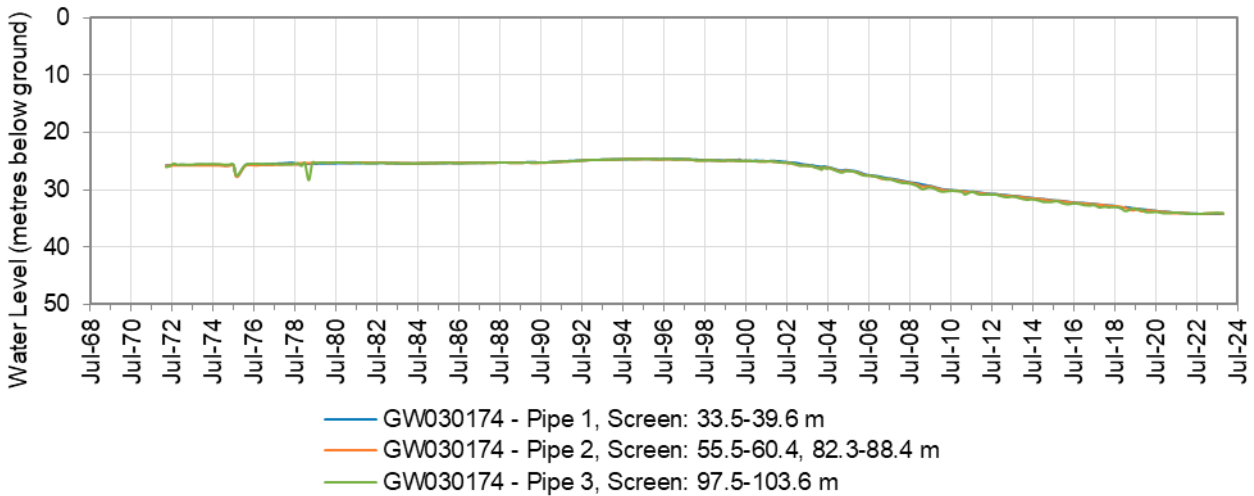


Figure 11: Hydrograph of monitoring bore GW030405

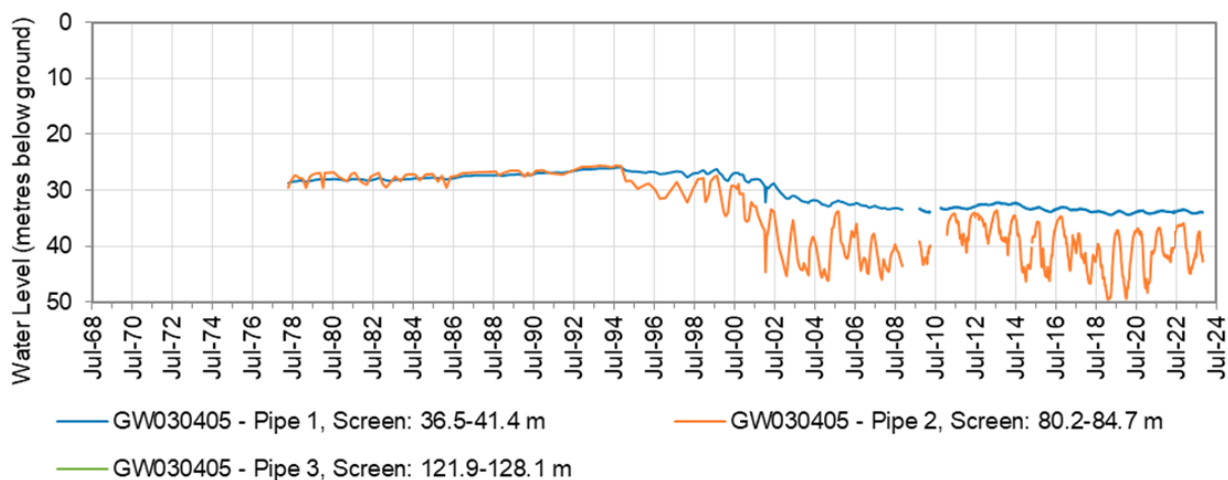


Figure 12: Hydrograph of monitoring bore GW036284

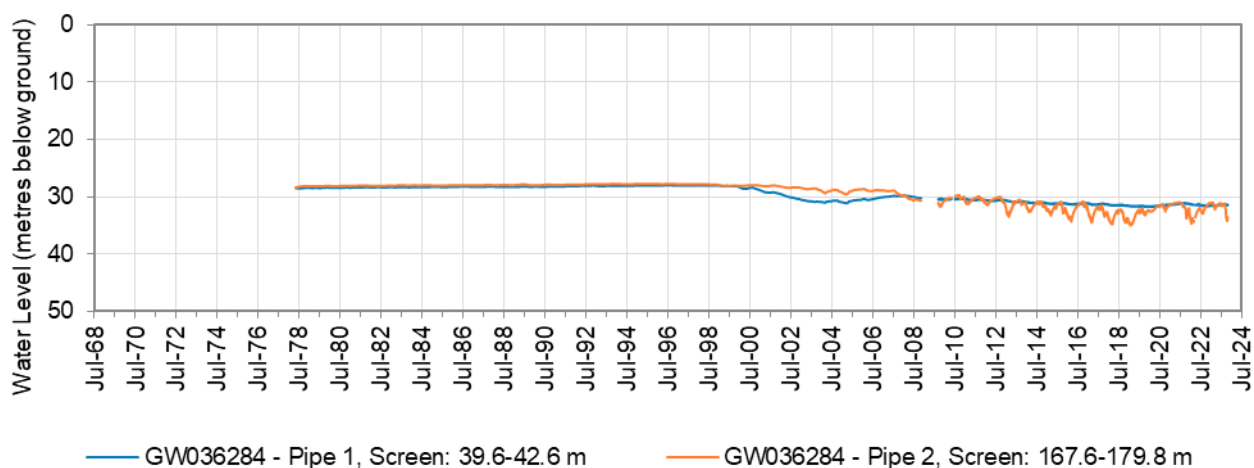


Figure 13: Hydrograph of monitoring bore GW036801

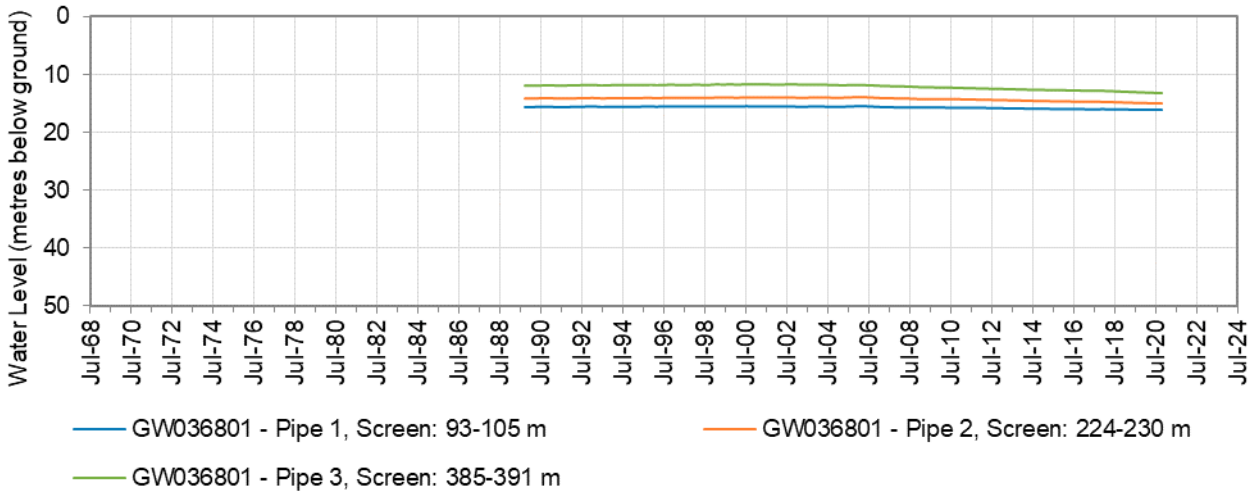


Figure 14: Hydrograph of monitoring bore GW036802

