

# Lower Gwydir Groundwater Source

## Groundwater annual report 2022

### Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Lower Gwydir Groundwater Source up to 2022, including the start of year water account volumes for the 2022/2023 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 Gwydir Alluvial Groundwater Sources at:

[www.industry.nsw.gov.au/\\_data/assets/pdf\\_file/0020/192323/Gwydir-alluvium-resource-description-report.pdf](http://www.industry.nsw.gov.au/_data/assets/pdf_file/0020/192323/Gwydir-alluvium-resource-description-report.pdf)

### Description

The Lower Gwydir Groundwater Source is located within the Gwydir River catchment. The water source extends from Biniguy in the east, with the western boundary approximately 50 km past Moree (**Figure 1**).

The Lower Gwydir Groundwater Source is made up of the alluvial sediments. These sediments form an extensive alluvial fan deposited by the Gwydir River and its tributaries, comprised of clay, silt, sand and gravel.

### Water resource management

#### Water sharing plan

The Lower Gwydir Groundwater Source is managed by the rules defined in the Water Sharing Plan for the Gwydir Alluvial Groundwater Sources 2020.

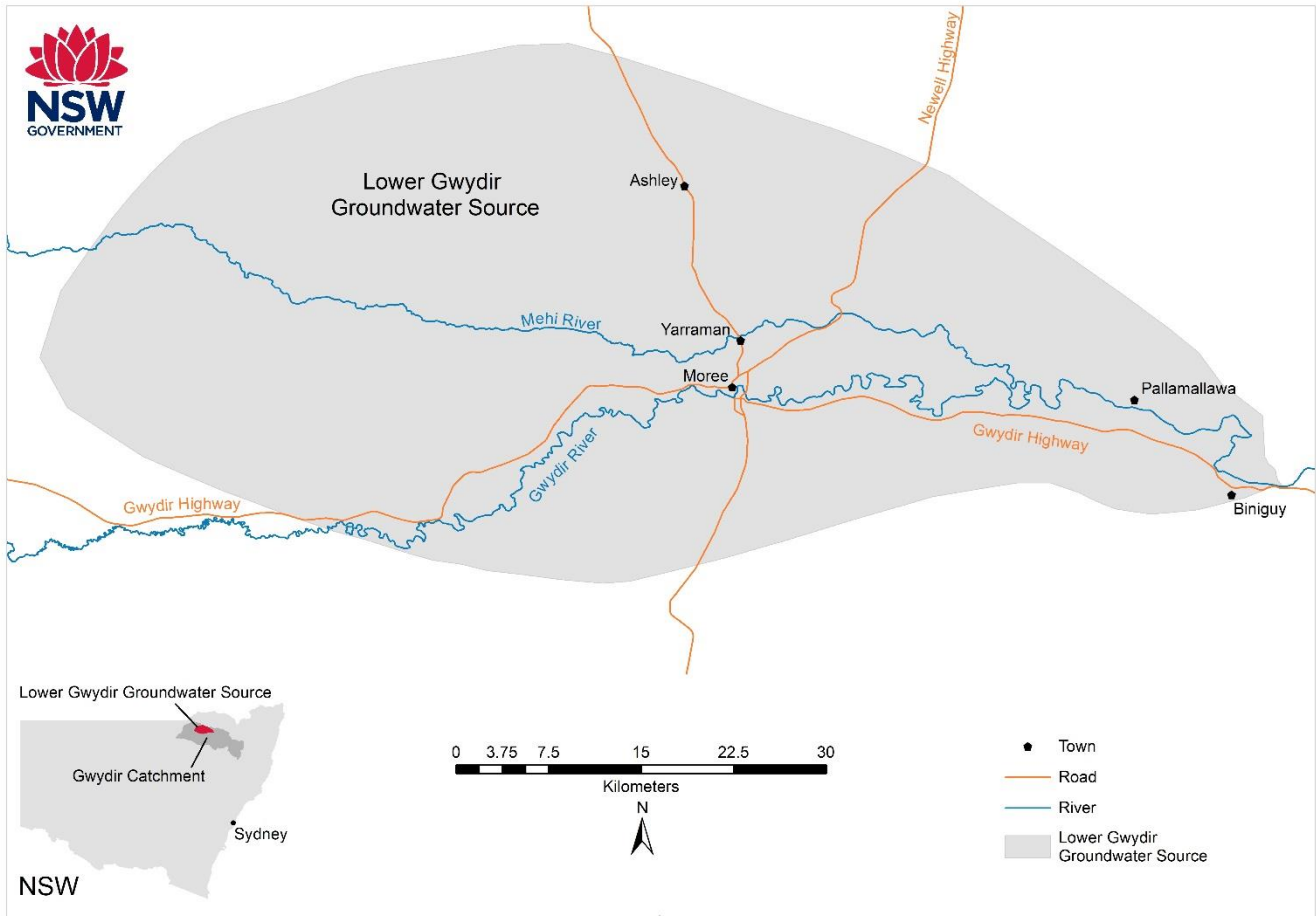
This water sharing plan is available for viewing at:  
[legislation.nsw.gov.au/view/html/inforce/current/sl-2020-0342](http://legislation.nsw.gov.au/view/html/inforce/current/sl-2020-0342)

#### Basic rights

Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders do not 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 700 megalitres (ML).

Figure 1: Location map



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 2022 are presented in **Table 1**.

Table 1: Lower Gwydir Groundwater Source share component 30 June 2022

Access Licence Category	Number of Licences	Total Volume
Local Water Utility <sup>1</sup>	2	3,572
Domestic And Stock [Domestic] <sup>1</sup>	1	200
Aquifer <sup>2</sup>	166	28,858

<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 Lower Gwydir Groundwater Source is 33,000 ML/year. Extraction in the Lower Gwydir 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: [www.industry.nsw.gov.au/water/allocations-availability/tracking-groundwater](http://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 determination (AWD) 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 Gwydir Groundwater Source are provided in **Table 2**.

Table 2: Lower Gwydir Groundwater Source access licence account rules

Access Licence Category	Carryover Limit	Annual Use Limit	Maximum AWD
Local Water Utility	0%	100%	100%
Domestic And Stock [Domestic]	0%	100%	100%
Aquifer	2 ML/share	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 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 cannot exceed 200% of the of share component, unless water is transferred in.

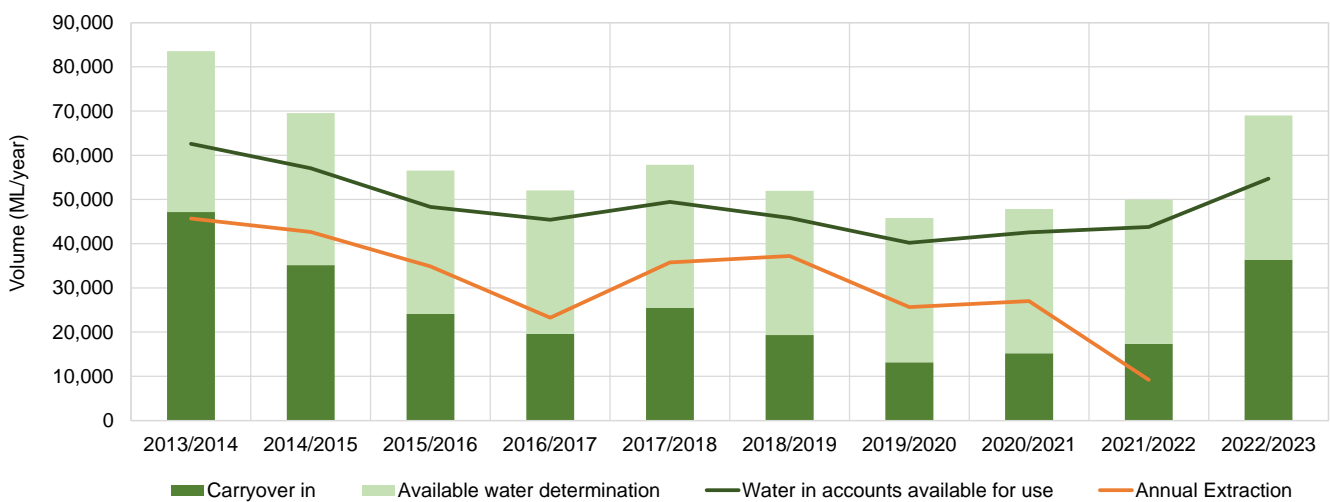
Total account water for period 2013/2014 to 2022/2023 is displayed in **Figure 2** showing the proportion available for use and what is not available for use in a year. Total yearly extraction is also displayed.

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

The access licence account information for the Lower Gwydir Groundwater Source on 1 July 2022 is summarised below:

- Carryover in: 36,376 ML
- Available water determination: 32,630 ML
- Total water in account: 69,006 ML
- Total water available for use: 54,694 ML

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



## Groundwater trading

Trades are permitted within the Lower Gwydir Groundwater Source, but not between it and any other groundwater source.

### Local management areas

In 2008 an area between Moree and Ashley was identified as an area of concern, due to cumulative impacts from groundwater extractions on the aquifer.

The identification of this area of concern led to two trade management areas (**Figure 3**) being established to assist in the management of permanent and temporary groundwater trades.

### Allocation assignments (temporary trade)

Trading statistics for the Lower Gwydir Groundwater Source are illustrated in **Figure 4**, this graph excludes trades for less than \$1 per megalitre. The average value paid per megalitre in 2021-22 was \$190, while the maximum value was \$250 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: Trade management areas

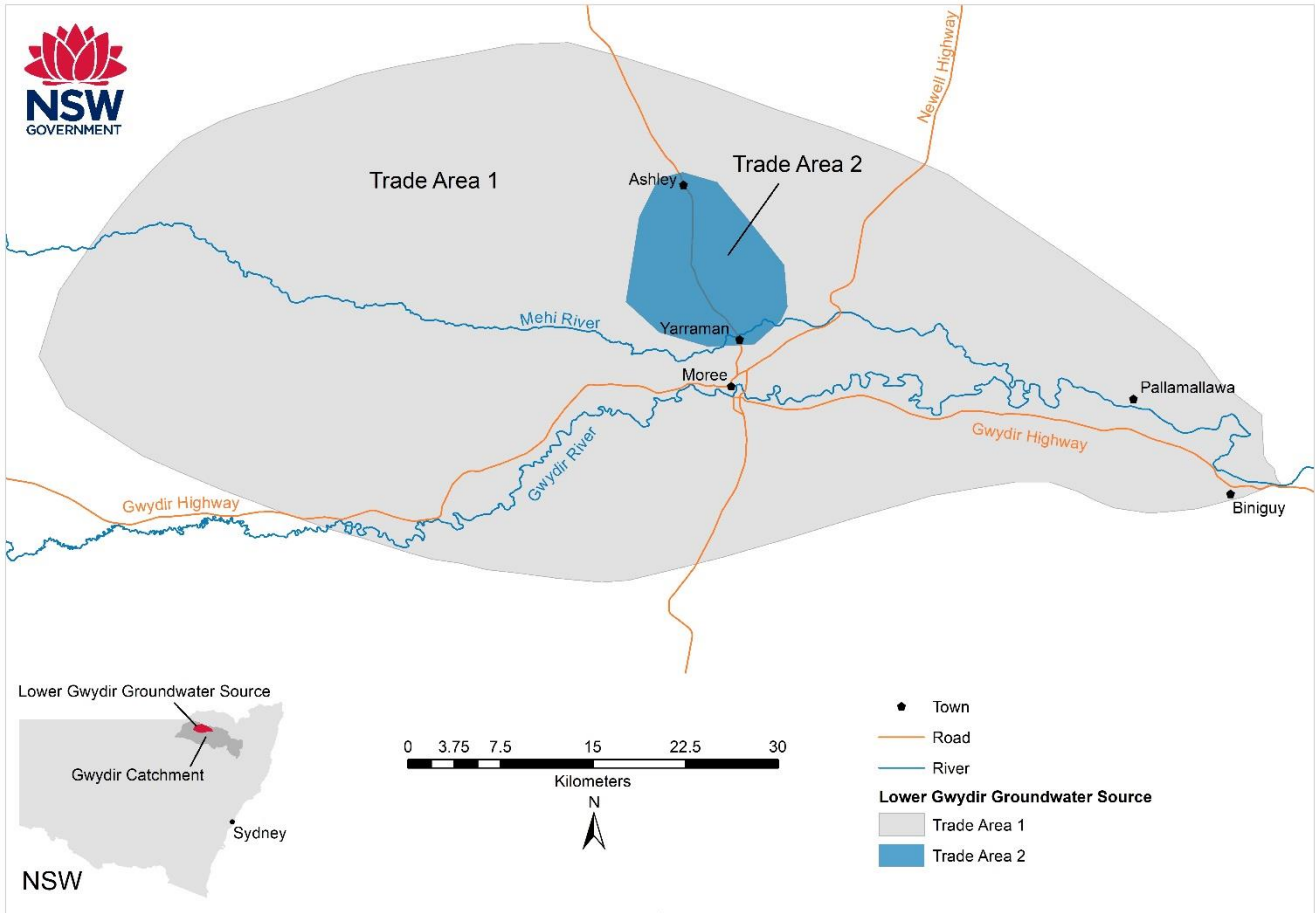
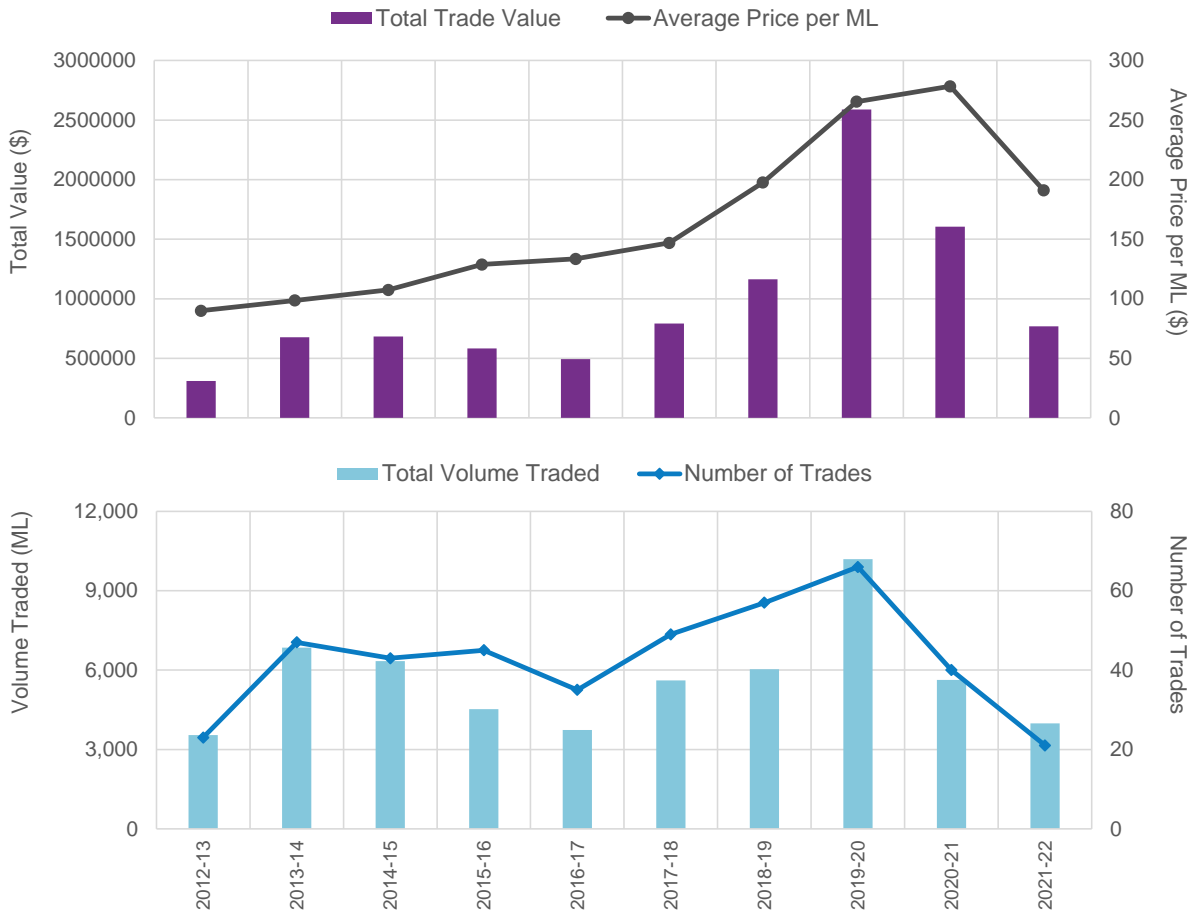


Figure 4: Lower Gwydir Groundwater Source temporary trade statistics



## Bores

There are approximately 1,611 registered bores across the Lower Gwydir Groundwater Source (Figure 5). 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 system can yield up to 1,000 ML/year, while most production bores produce supply up to 500 ML/year (Figure 6).

Table 3: Approximate number of licensed bores in Lower Gwydir Groundwater Source (2022)

Groundwater Source	Registered Bore Purpose		
	Basic Landholder Rights	Production	Local Water Utility
Lower Gwydir	1,173	399	39

Figure 5: Lower Gwydir Groundwater Source registered bores

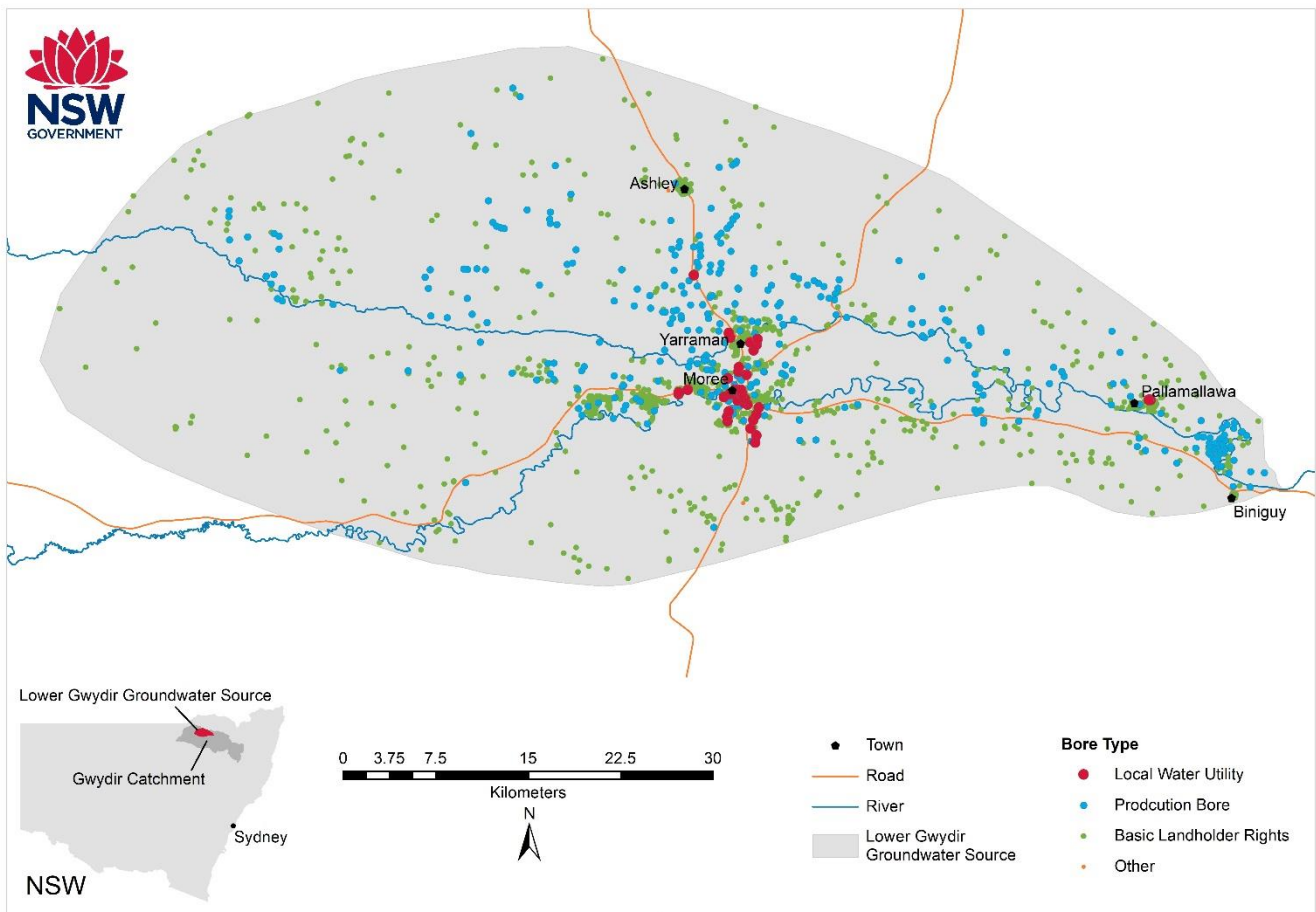
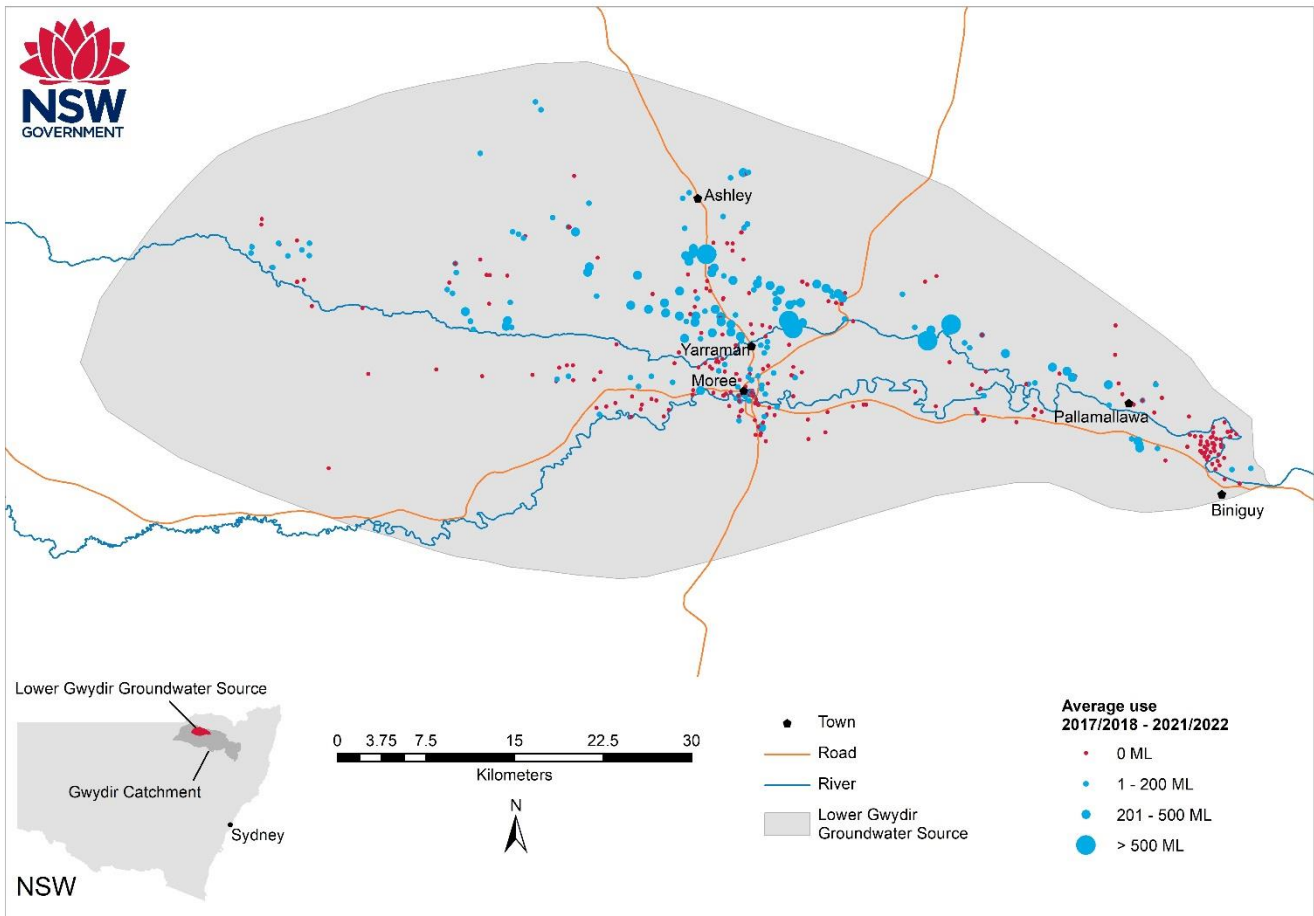


Figure 6: Lower Gwydir Groundwater Source water supply bores and distribution of extraction



## Water level monitoring

WaterNSW monitors groundwater levels at 123 monitoring bores at 58 sites in the Lower Gwydir Groundwater Source (**Figure 7**). At some 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 8** to **Figure 12**.

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

Data is also available for 19 of the groundwater monitoring sites in real-time via telemetry.

You can also request information via: [Customer.Helpdesk@watnsw.com.au](mailto:Customer.Helpdesk@watnsw.com.au)



Figure 7: Lower Gwydir Groundwater Source monitoring bore sites

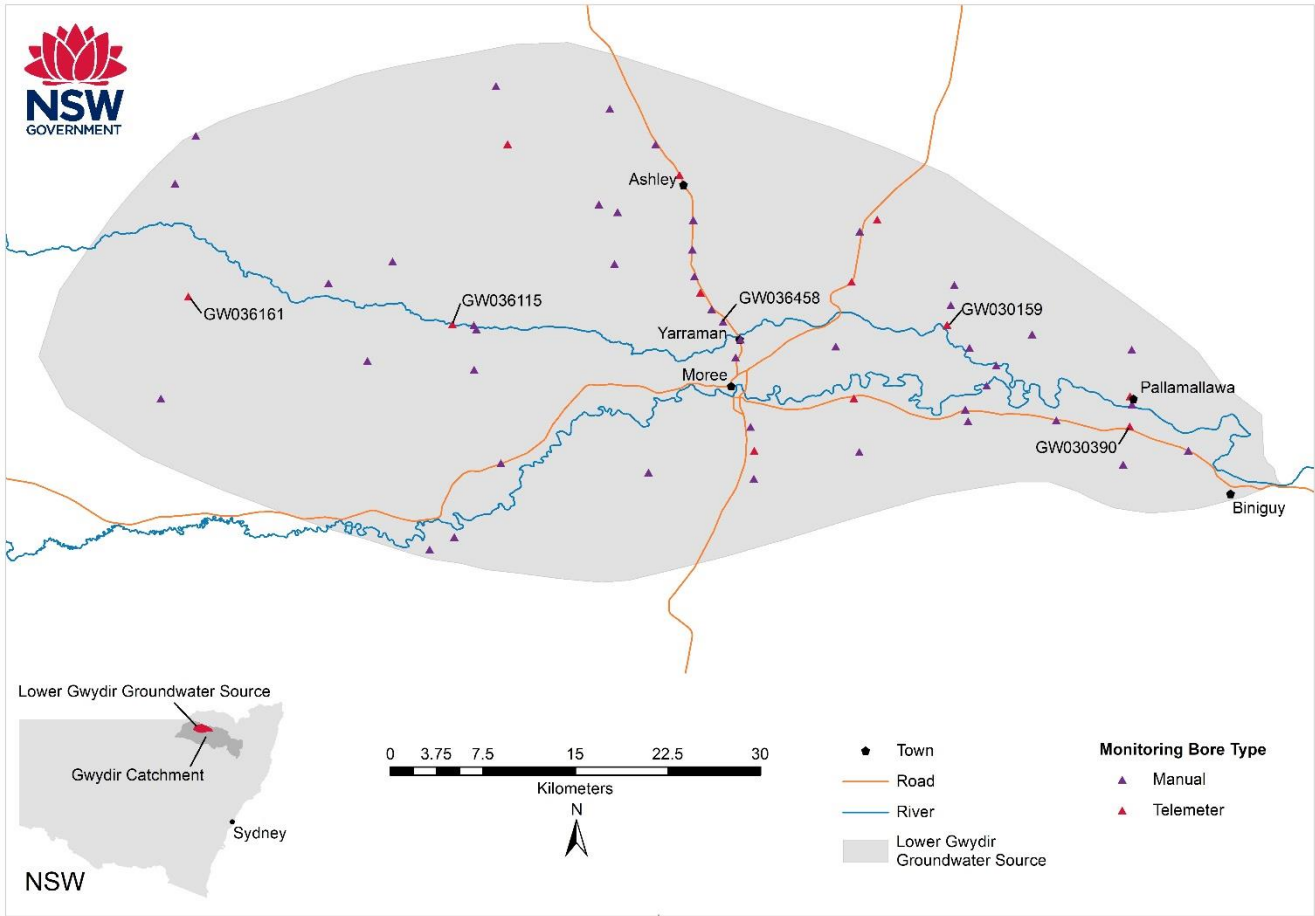


Figure 8: Hydrograph for monitoring bore GW030390

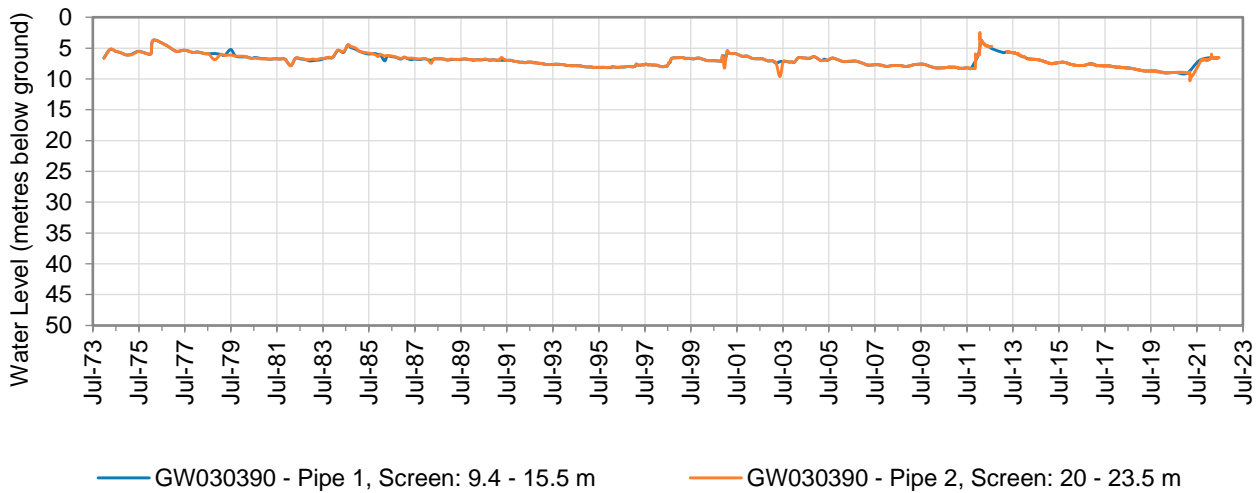


Figure 9: Hydrograph of monitoring bore GW030159

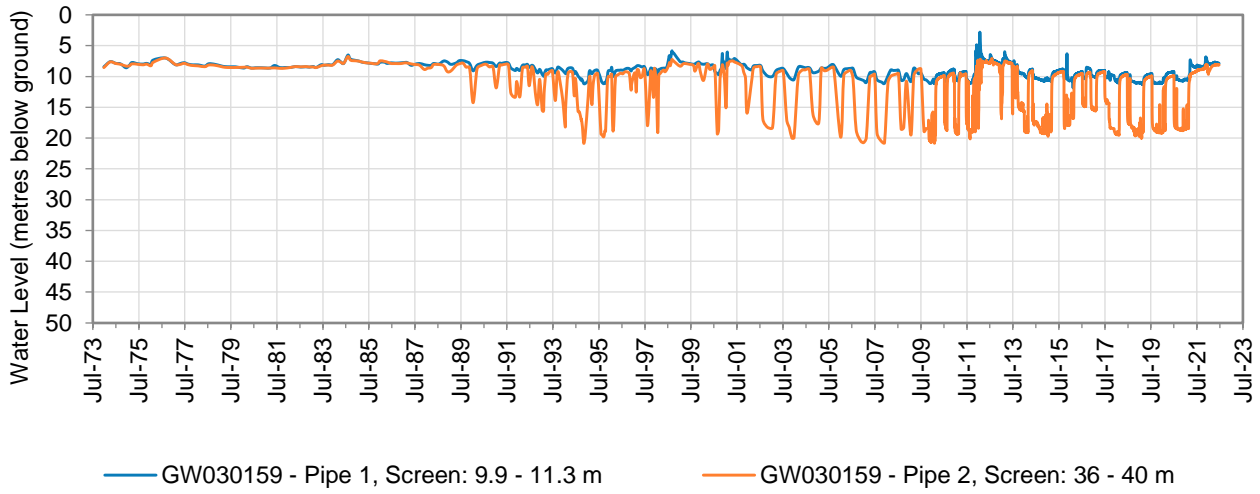


Figure 10: Hydrograph of monitoring bore GW030458

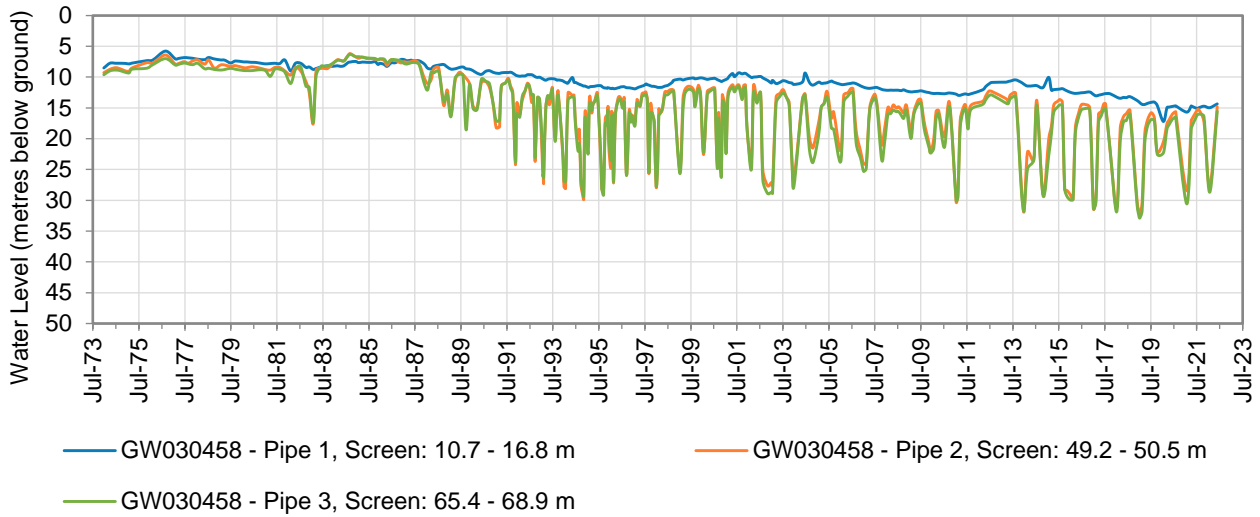


Figure 11: Hydrograph of monitoring bore GW036115

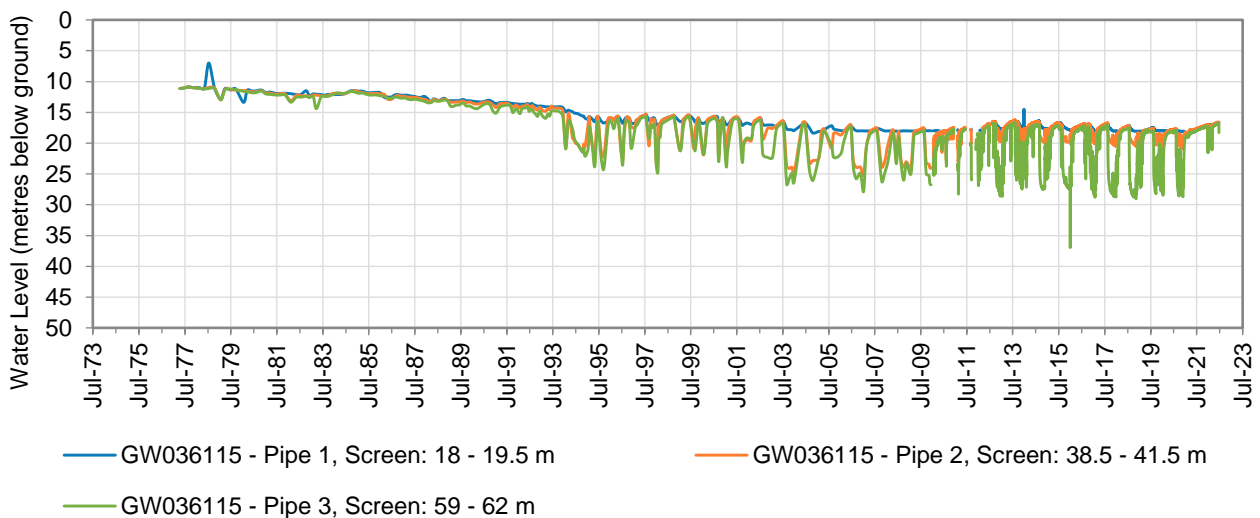


Figure 12: Hydrograph of monitoring bore GW036161

