

Upper Namoi Zone 4 and Zone 12 Groundwater Sources

Groundwater annual report 2022

Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Upper Namoi Zone 4 Groundwater Source (Zone 4) and Upper Namoi Zone 12 Groundwater Source (Zone 12) 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 Namoi Alluvial Groundwater Sources at:

www.industry.nsw.gov.au/___data/assets/pdf_file/0017/230804/Namoi-Alluvium-WRP-resource-description.pdf

Description

The Upper Namoi Zone 4 and Upper Namoi Zone 12 Groundwater Sources are located within the Namoi River catchment. Zone 4 extends from Carroll north-west approximately 70 km. Zone 12 adjoins Zone 4 to the east (**Figure 1**).

The Upper Namoi Zone 4 and Upper Namoi Zone 12 Groundwater Sources are made up of sediments deposited by the Namoi River and its tributaries and are comprised of clay, silt, sand and gravel.

Water resource management

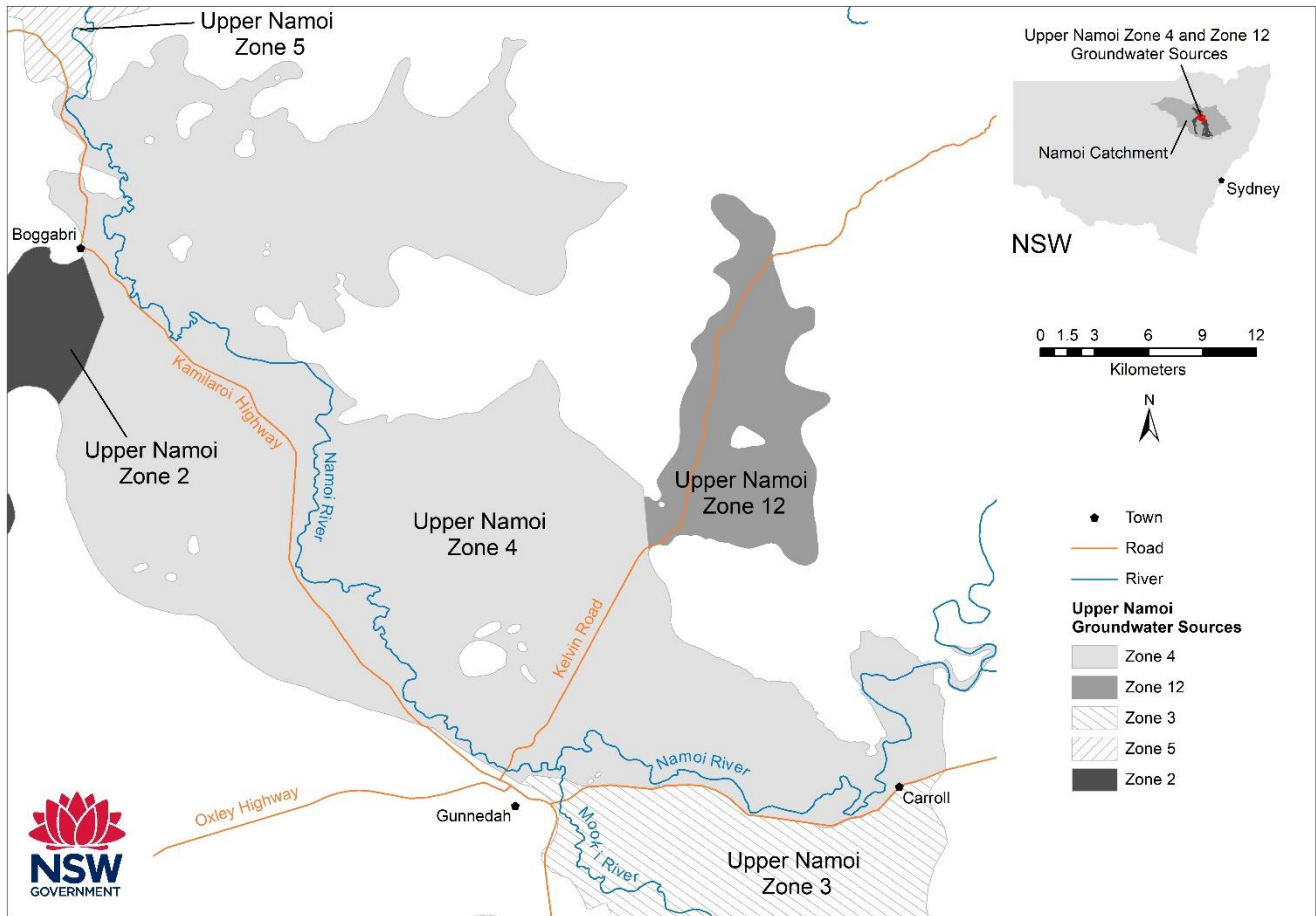
Water sharing plan

The Upper Namoi Zone 4 and Zone 12 Groundwater Sources are managed by the rules defined in the Water Sharing Plan for the Namoi Alluvial Groundwater Sources 2020. This water sharing plan is available for viewing at: legislation.nsw.gov.au/view/html/inforce/current/sl-2020-0346

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.

Figure 1: Location map



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

- Upper Namoi Zone 4 Groundwater Source = 421 megalitres/year (ML/year)
- Upper Namoi Zone 12 Groundwater Source = 42 ML/year

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: Upper Namoi Zone 4 and Zone 12 Groundwater Sources share component 30 June 2022

Access Licence Category	Upper Namoi Zone 4 Groundwater Source		Upper Namoi Zone 12 Groundwater Source	
	Number of Licences	Total Volume	Number of Licences	Total Volume
Local Water Utility ¹	2	4,660	0	0
Aquifer ²	170	21,032	20	1,999

¹Megalitres/year (ML)

²Megalitres 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 limits for these groundwater sources are:

- Upper Namoi Zone 4 Groundwater Source - 26,121 ML/year
- Upper Namoi Zone 12 Groundwater Source - 2,042 ML/year

Extraction in the Upper Namoi Zone 4 and Zone 12 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

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 (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 Upper Namoi Zone 4 and Zone 12 Groundwater Sources are provided in **Table 2**.

Table 2: Upper Namoi Zone 4 and Zone 12 Groundwater Sources access licence account rules

Access Licence Category	Carryover Limit	Annual Use Limit	Maximum AWD
Local Water Utility	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 cannot 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 can't 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** and **Figure 3** 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**.

The access licence account information for the Upper Namoi Zone 4 and Zone 12 Groundwater Sources on 1 July 2022 is summarised in **Table 3**.

Table 3: Access License Account Information Summary

Access Licence Category	Upper Namoi Zone 4 Groundwater Source	Upper Namoi Zone 12 Groundwater Source
Carryover (ML)	34,837	3,812
Available Water Determination (ML)	25,692	1,999
Total water in account (ML)	60,529	5,812
Total water available for use (ML)	45,814	3,998

Figure 2: Account water availability and usage summary for Upper Namoi Zone 4 Groundwater Source

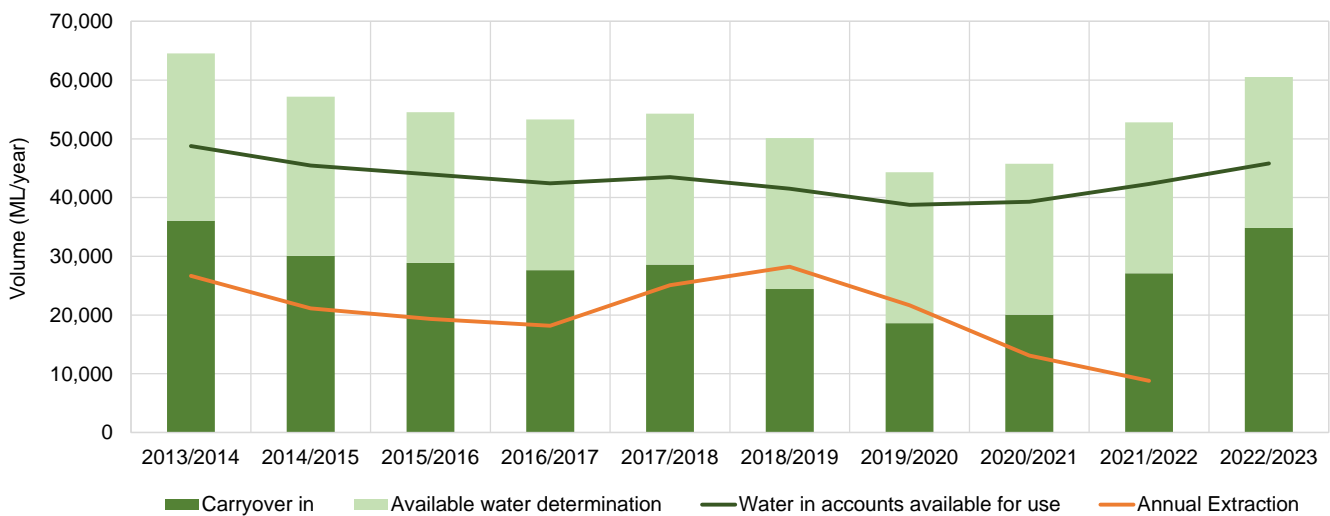
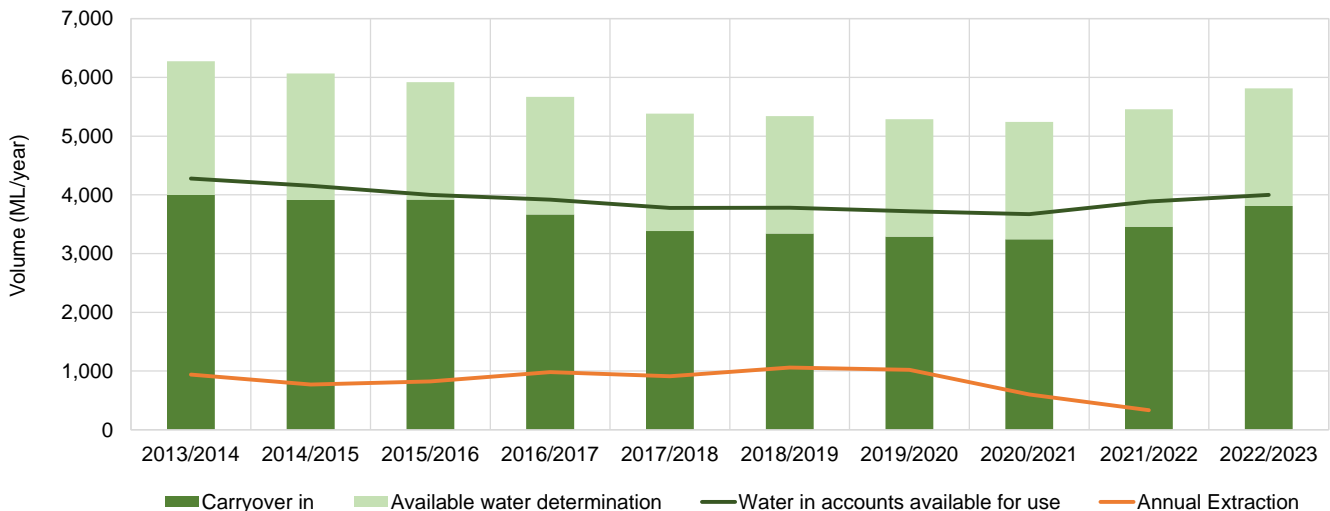


Figure 3: Account water availability and usage summary for Upper Namoi Zone 12 Groundwater Source



Groundwater trading

Trades are permitted within but not between Upper Namoi Zone 4 and Zone 12 groundwater sources or any other groundwater source. Trades to Upper Namoi Zone 10 groundwater source are permitted but subject to conditions and assessment.

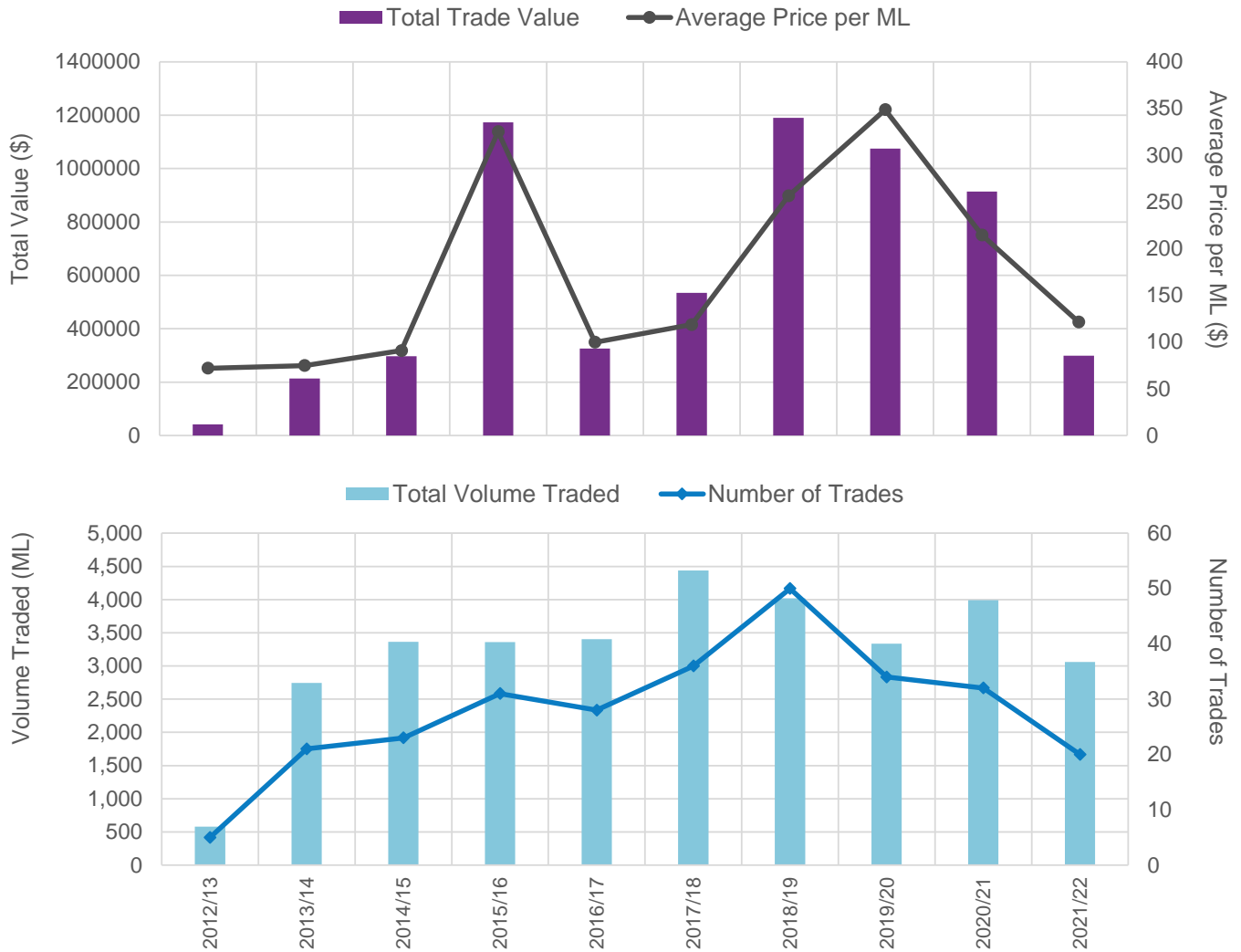
Allocation assignments (temporary trade)

Trading statistics for the Upper Namoi Zone 4 Groundwater Source is illustrated in **Figure 4**, excludes trades for less than \$1 per megalitre. The average value paid per megalitre in 2021-22 was \$121 while the maximum value was \$215 per megalitre.

There have been two temporary trades in Upper Namoi Zone 12 Groundwater Source over the last 10 years.

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 4: Upper Namoi Zone 4 Groundwater Source temporary trade statistics



Bores

There are approximately 975 and 93 registered bores across the Upper Namoi Zone 4 and Zone 12 Groundwater Sources, respectively (**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 4**).

Local Water Utility bores in the Upper Namoi Zone 4 Groundwater Source are located adjacent to Gunnedah and Boggabri while other production bores are mainly concentrated in proximity to Namoi River. The majority of production bores in Upper Namoi Zone 4 and Zone 12 Groundwater sources produce supply in the range of 100 to 500 ML/year and up to 200 ML/year, respectively (**Figure 6**).

Table 4: Approximate number of licensed bores in Upper Namoi Zone 4 and Zone 12 Groundwater Sources (2022)

Groundwater Source	Registered Bore Purpose		
	Basic Landholder Rights	Production	Local Water Utility
Upper Namoi Zone 4	658	317	23
Upper Namoi Zone 12	66	27	0

Figure 5: Upper Namoi Zone 4 and Zone 12 Groundwater Sources registered bores

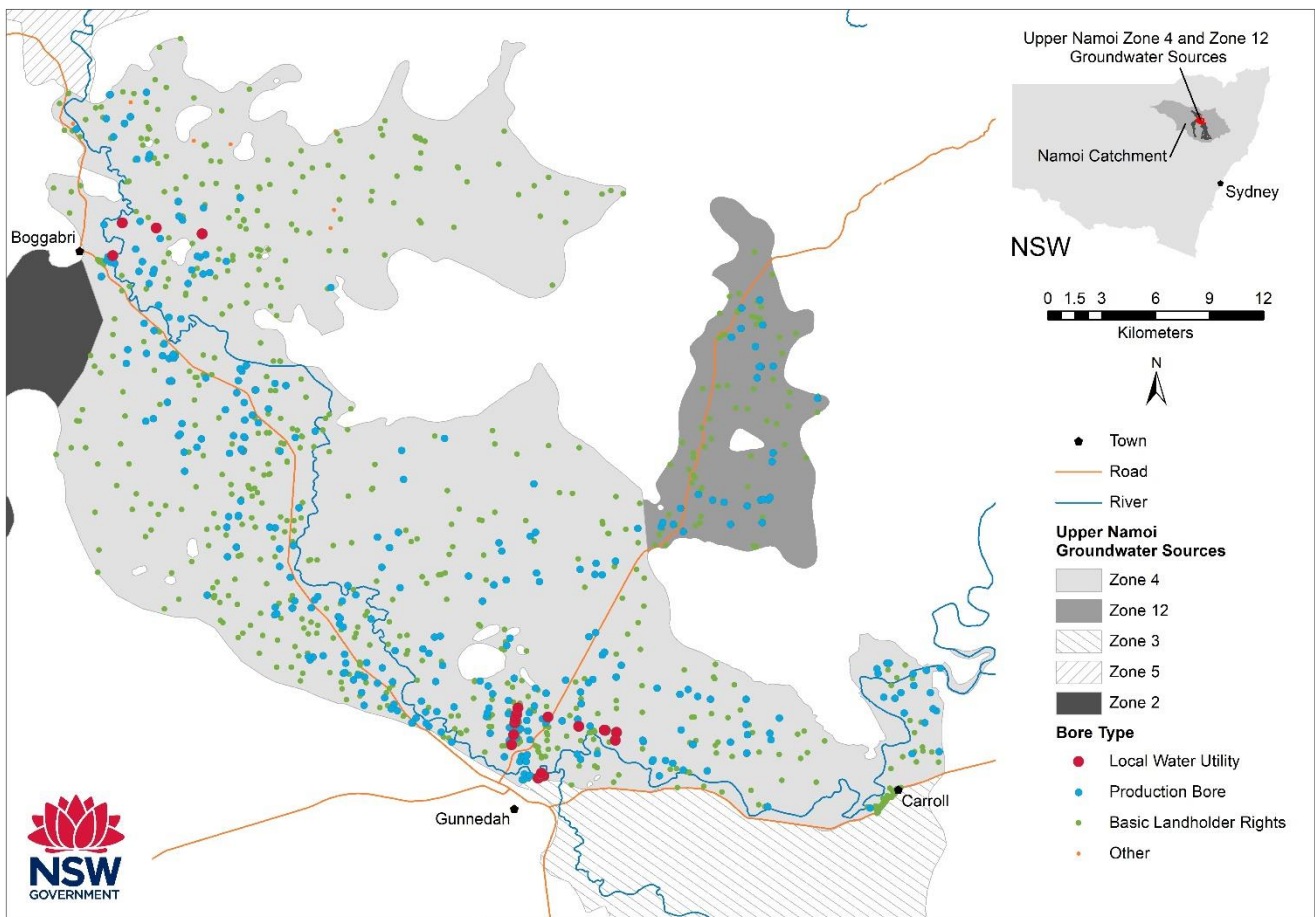
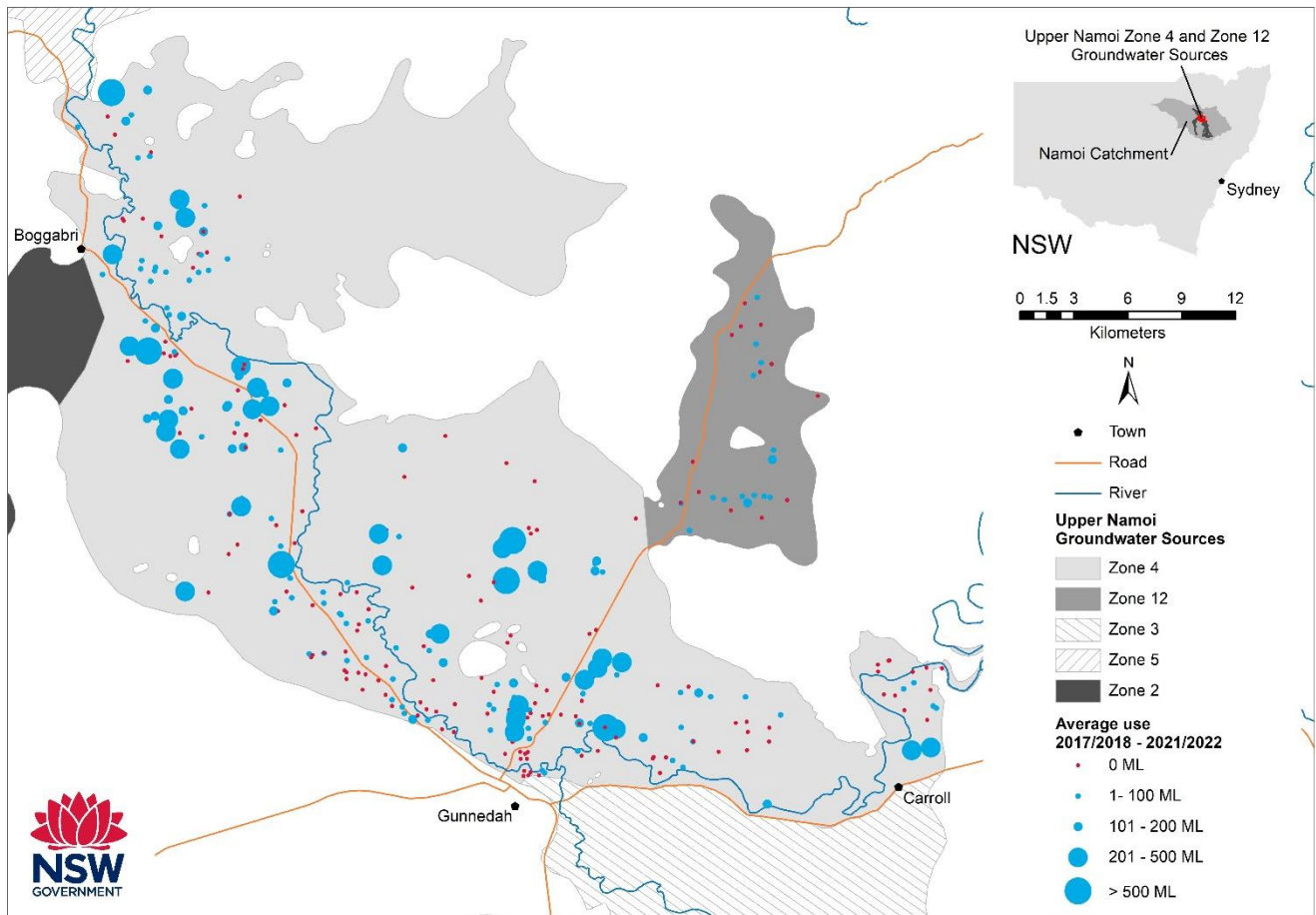


Figure 6: Upper Namoi Zone 4 and Zone 12 Groundwater Source water supply bores and distribution of extraction



Water level monitoring

WaterNSW monitors groundwater levels at 126 monitoring bores at 66 sites in the Zone 4, and 17 monitoring bores at 8 sites in the Zone 12 Groundwater Sources (**Figure 7**). 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 8** 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.watnsw.com.au/

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

Figure 7: Upper Namoi Zone 4 and Zone 12 Groundwater Sources monitoring bore sites

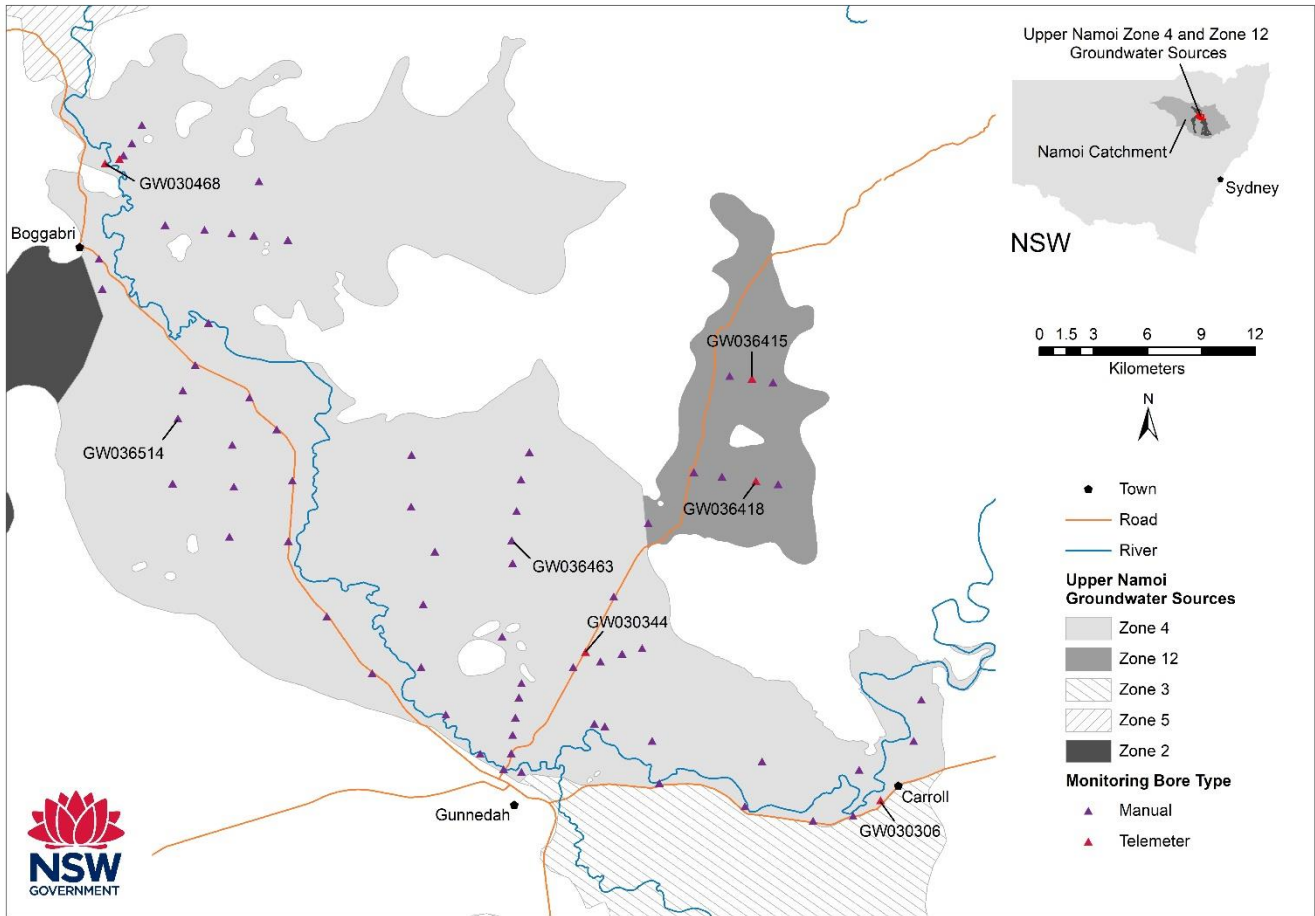


Figure 8: Hydrograph for monitoring bore GW030306 – Upper Namoi Zone 4

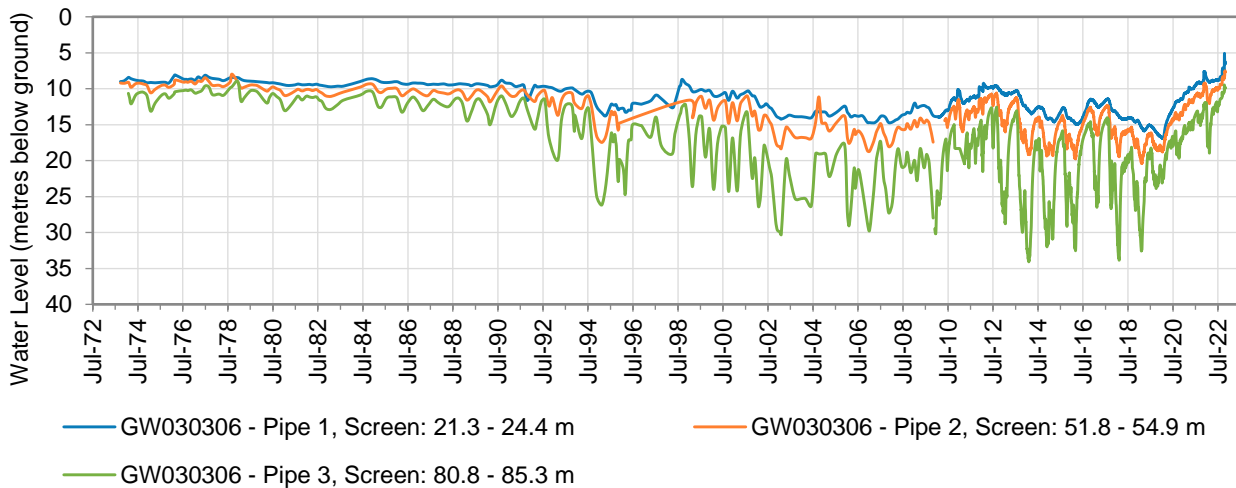


Figure 9: Hydrograph of monitoring bore GW030344 – Upper Namoi Zone 4

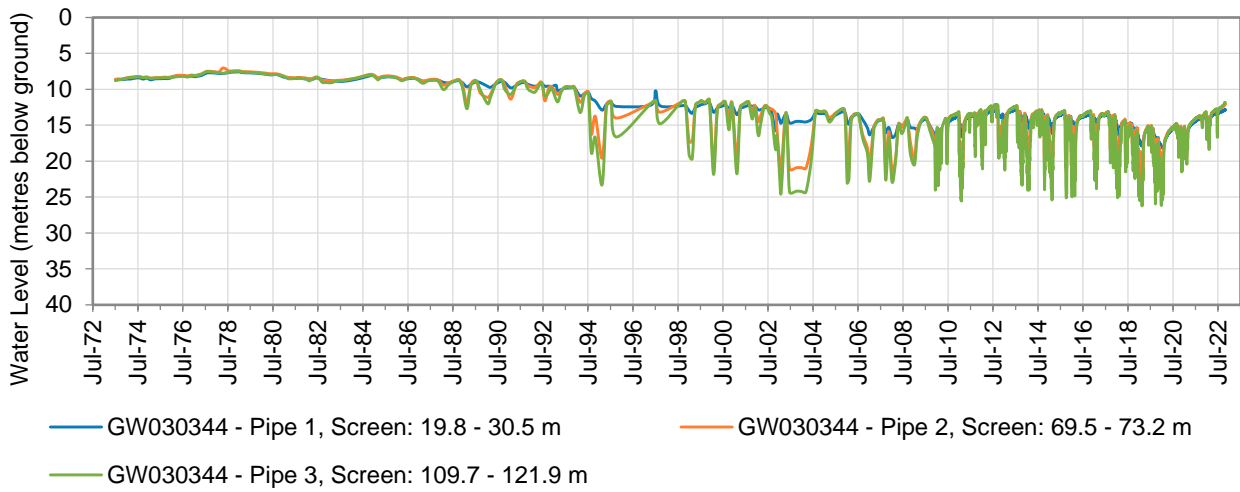


Figure 10: Hydrograph of monitoring bore GW036463 – Upper Namoi Zone 4

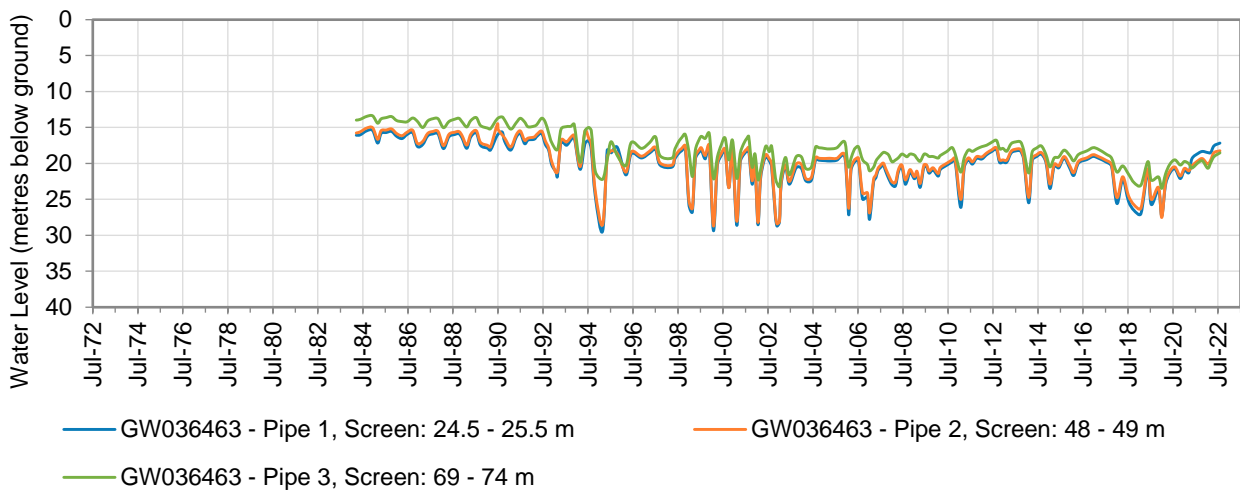


Figure 11: Hydrograph of monitoring bore GW036514 – Upper Namoi Zone 4

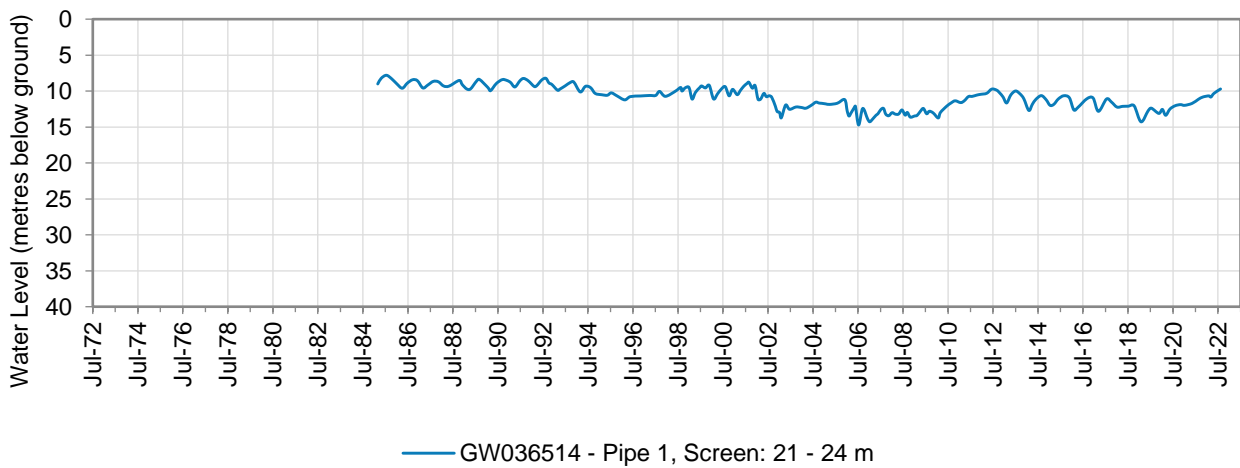


Figure 12: Hydrograph of monitoring bore GW030468 – Upper Namoi Zone 4

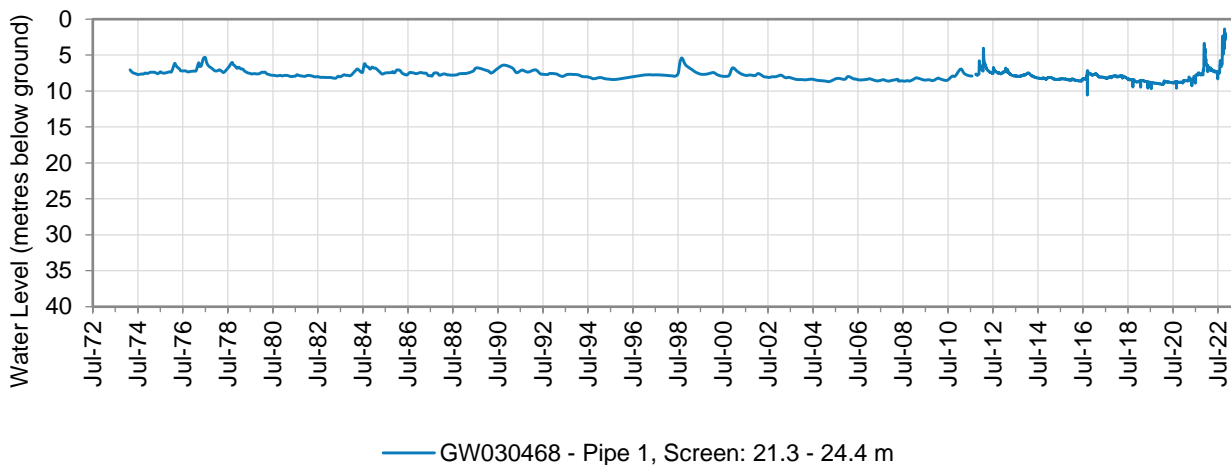


Figure 13: Hydrograph of monitoring bore GW036415 – Upper Namoi Zone 12

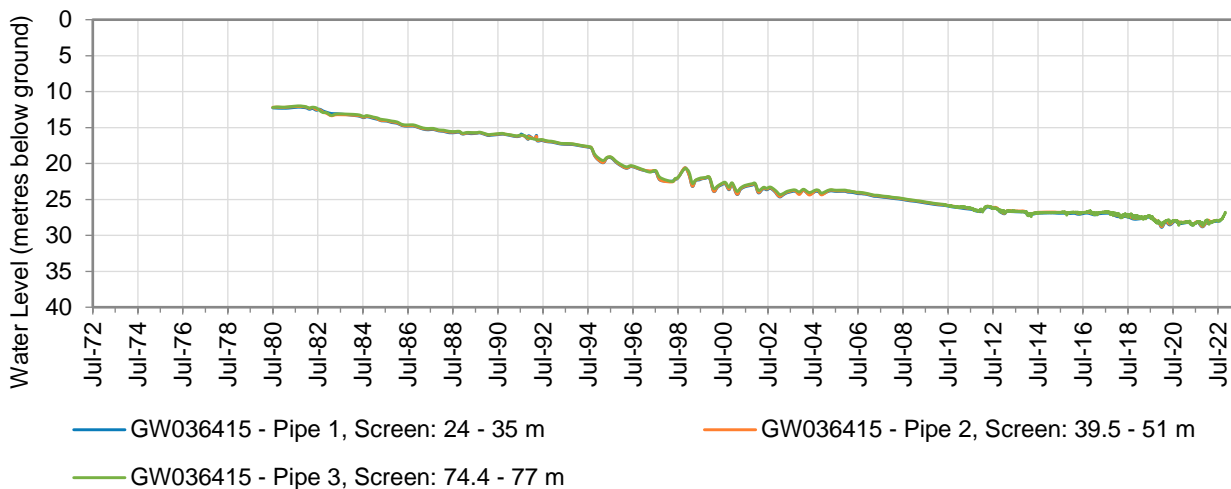


Figure 14: Hydrograph of monitoring bore GW036418 – Upper Namoi Zone 12

