# Upper Namoi Zone 8 Groundwater Source

## Groundwater annual report 2023.

### Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Upper Namoi Zone 8 Groundwater Source up 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 Namoi Alluvial Groundwater Sources: www.industry.nsw.gov.au/__data/assets/pdf_file/0017/230804/Namoi-Alluvium-WRP-resource-description.pdf

### Description

The Upper Namoi Zone 8 Groundwater Source is located within the Namoi River catchment. The alluvium extends approximately 35 km north from Pine Ridge to Breeza (**Figure 1**).

The Upper Namoi Zone 8 Groundwater Source is made up of sediments deposited by the deposited by the Mooki River and its tributaries and is comprised of clay, silt, sand and gravel.

### Water resource management

#### Water sharing plan

The Upper Namoi Zone 8 Groundwater Source is 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

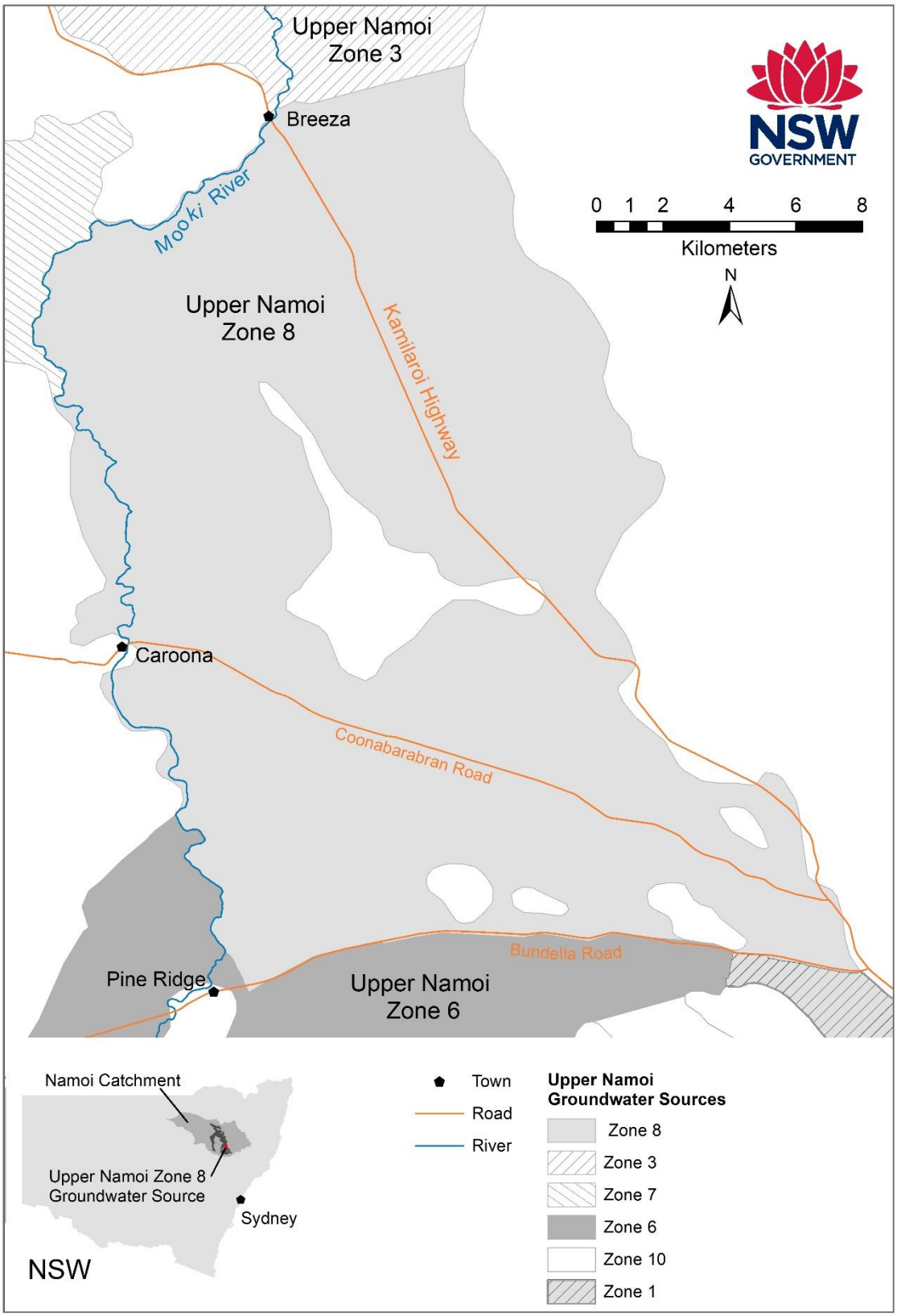
#### Basic rights

Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders 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 114 megalitres (ML).


PUB23/1296

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 2023 are presented in **Table 1**.

Table 1: Upper Namoi Zone 8 Groundwater Source share component 30 June 2023

| Access Licence Category | Number of Licences | Total Volume |
|---|---|---|
| Local Water Utility[1] | 1 | 50 |
| Aquifer[2] | 63 | 16,122 |

[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 Upper Namoi Zone 8 Groundwater Source is 16,114 ML/year.

Extraction in the Upper Namoi Zone 8 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 tracking 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)

- 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 Upper Namoi Zone 8 Groundwater Source are provided in **Table 2.**

Table 2: Upper Namoi Zone 8 Groundwater Source 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 |

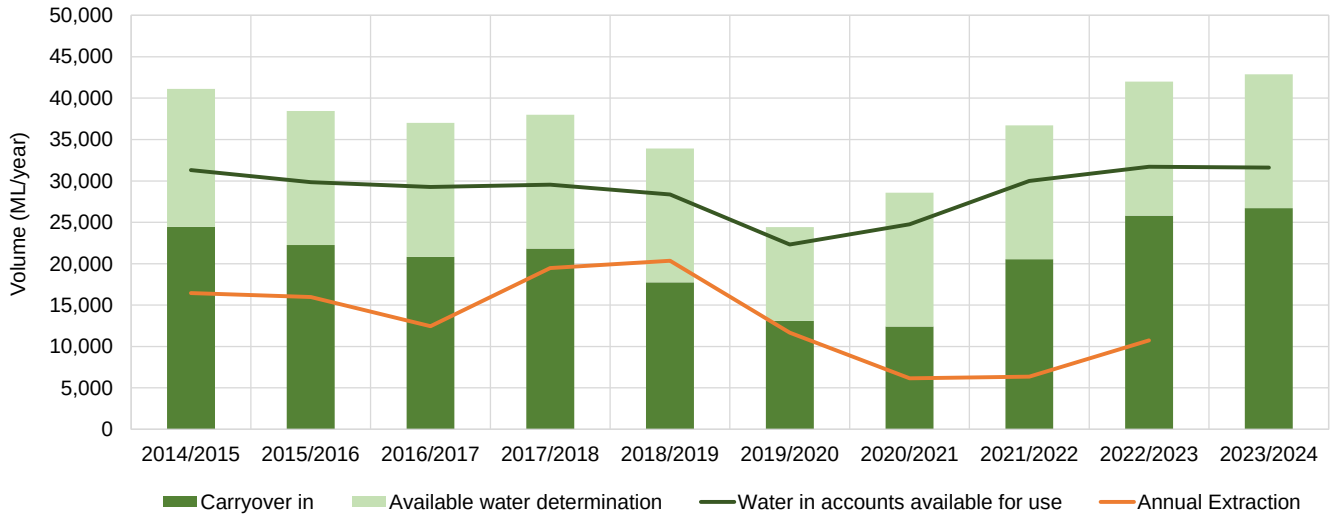
The maximum amount of water that can be debited from an aquifer access licence account in a water year can't exceed 2 ML per unit share component (annual use limit) plus any allocation transferred in (temporary trade), and minus any allocation transferred out. This means that metered extraction plus transfers out can't exceed 200 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.**

The access licence account information for the Upper Namoi Zone 8 Groundwater Source on 1 July 2023 is summarised below:

- Carryover In: 26,707 ML
- Available water determination: 16,172 ML
- Total water in account: 42,879 ML
- Total water available for use: 31,604 ML

Figure 2: Account water availability and usage summary for Upper Namoi Zone 8 Groundwater Source




## Groundwater trading

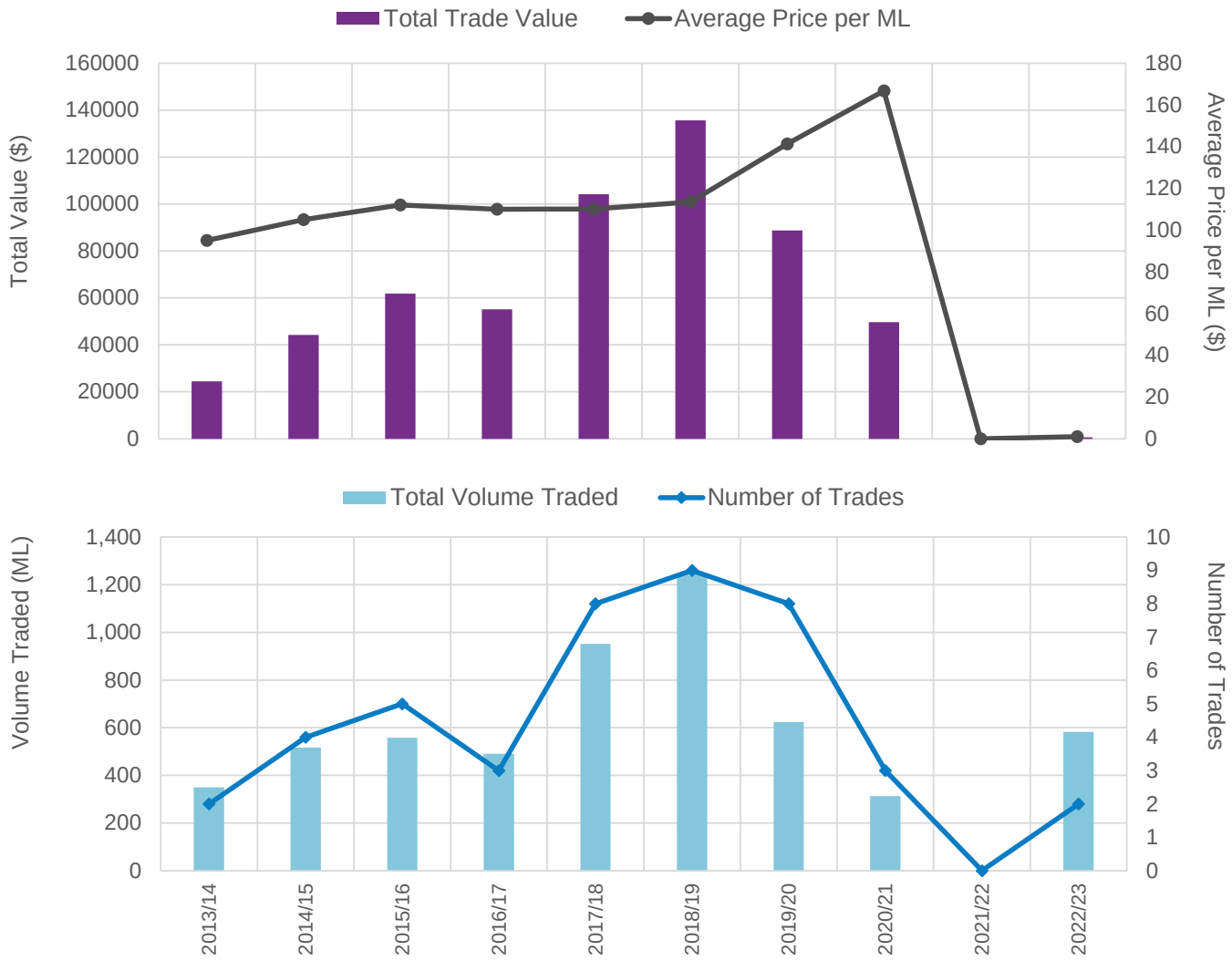
Trades are permitted within but not between Upper Namoi Zone 8 and any other groundwater source. Trades to Upper Namoi Zone 10 groundwater source are permitted but subject to conditions and assessment.

### Allocation assignments (temporary trade)

Trading statistics for the Upper Namoi Zone 8 Groundwater Source are illustrated in **Figure 3**. There have been two temporary trades in the Upper Namoi Zone 8 Groundwater Source in the year 2022/2023 paid at $1 per ML.

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 Namoi Zone 8 Groundwater Source temporary trade statistics >$0/ML



## Bores

There are approximately 375 registered bores across the Upper Namoi Zone 8 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**).

Production bores in the Upper Namoi Zone 8 Groundwater Source are concentrated mainly in North and East of Caroona and some bores are scattered near Breeza. The majority of production bores produce supply in the range of 300 ML/year (**Figure 5**).

Table 3: Approximate number of licensed bores in Upper Namoi Zone 8 Groundwater Source (2023)

| Groundwater Source | Registered Bore Purpose | | |
|---|---|---|---|
| | Basic Landholder Rights | Production | Local Water Utility |
| Upper Namoi Zone 8 | 225 | 149 | 1 |

## Water level monitoring

WaterNSW monitors groundwater levels at 104 monitoring bores at 52 sites in the Upper Namoi Zone 8 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 12**.

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/

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

Figure 4: Upper Namoi Zone 8 Groundwater Source registered bores

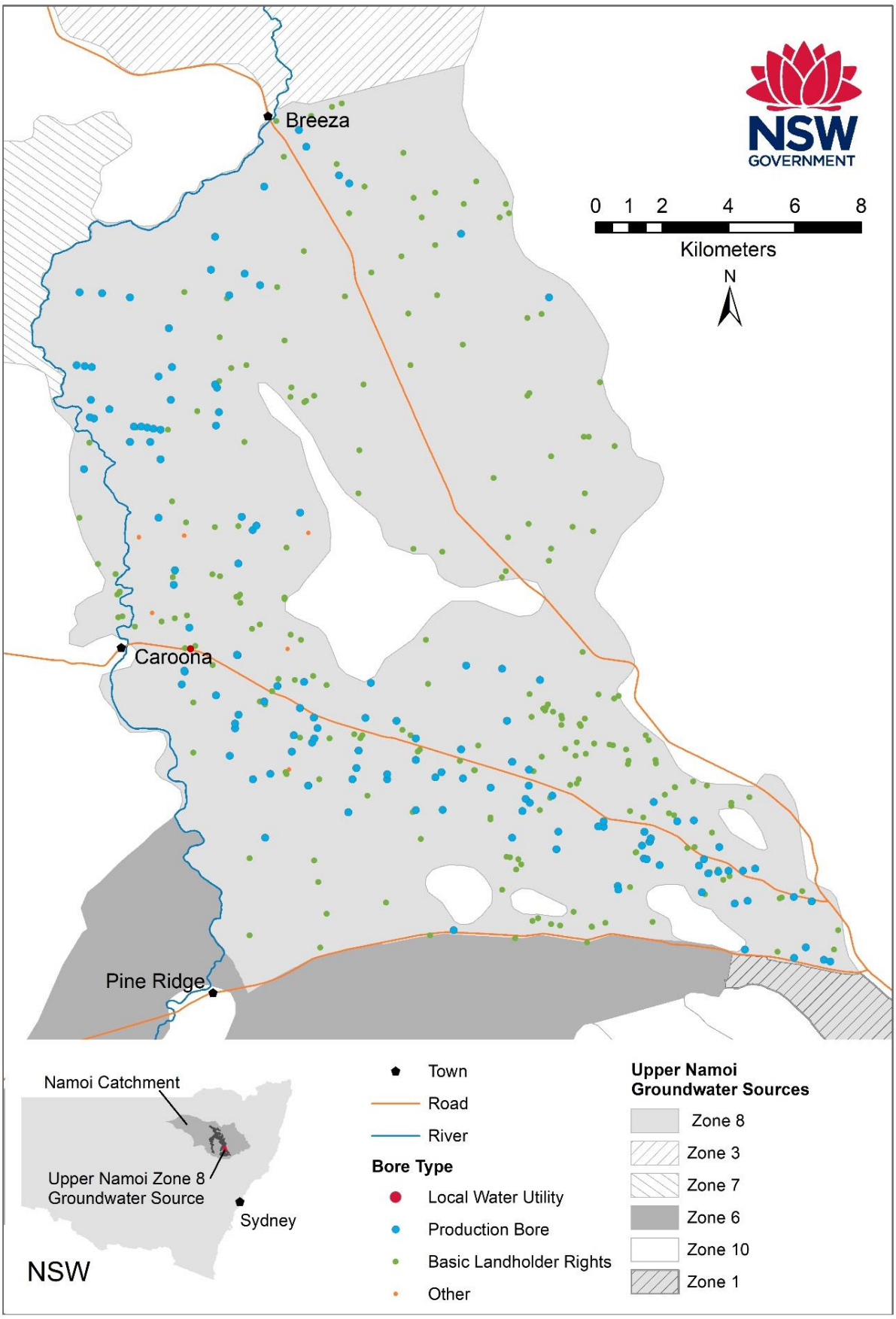


Figure 5: Upper Namoi Zone 8 Groundwater Source water supply bores and distribution of extraction

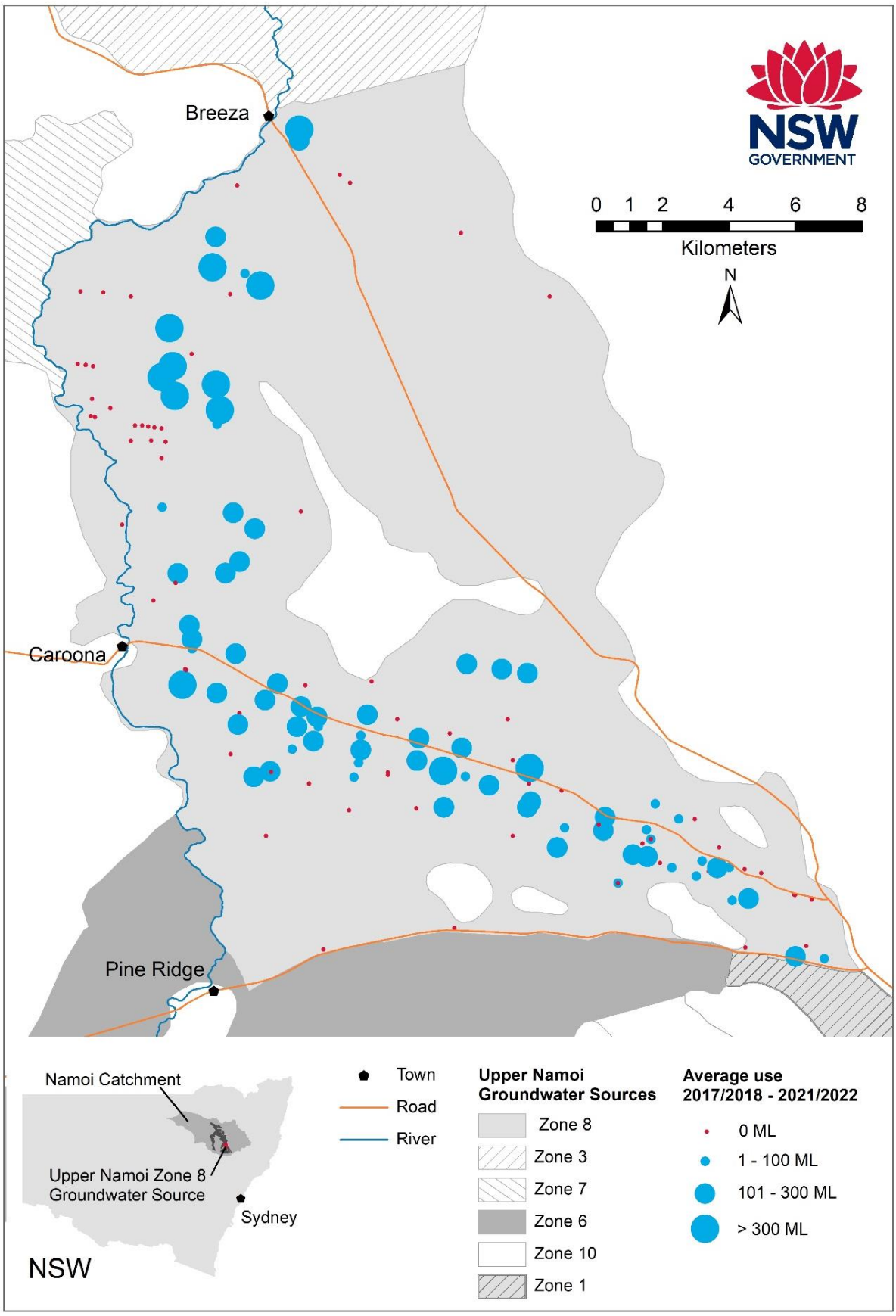


Figure 6: Upper Namoi Zone 8 Groundwater Source monitoring bore sites

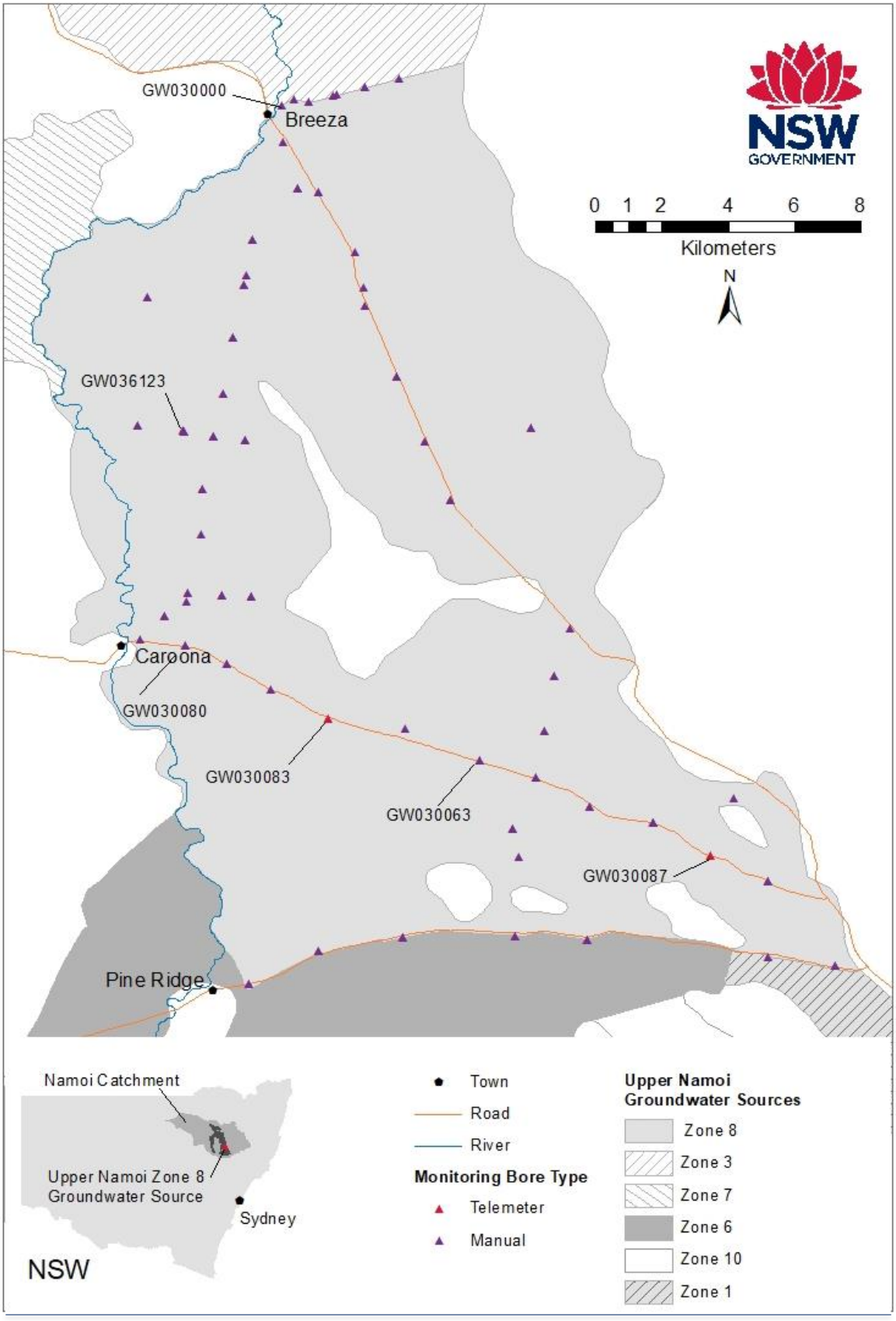


Figure 7: Hydrograph for monitoring bore GW030000

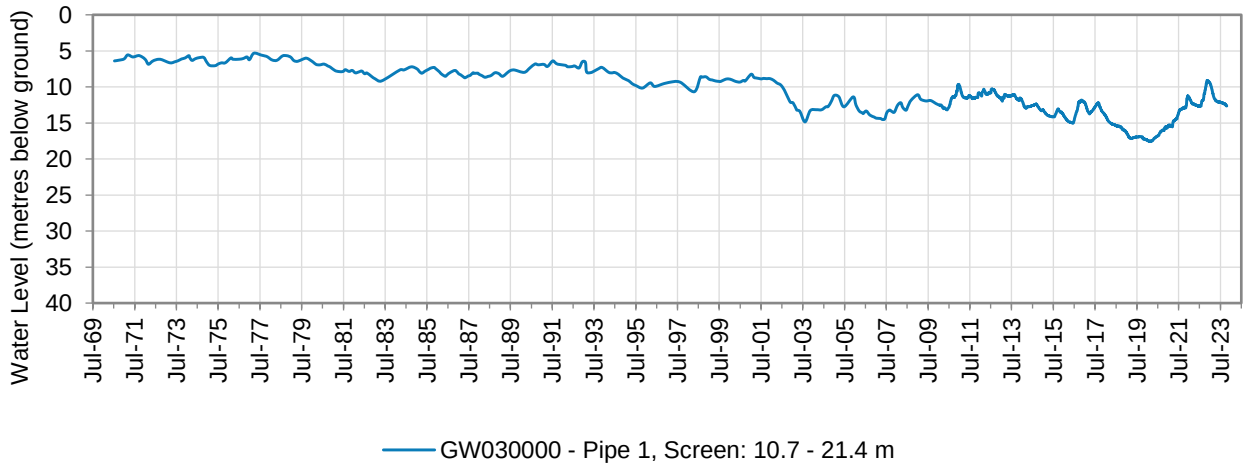



Figure 8: Hydrograph of monitoring bore GW036123

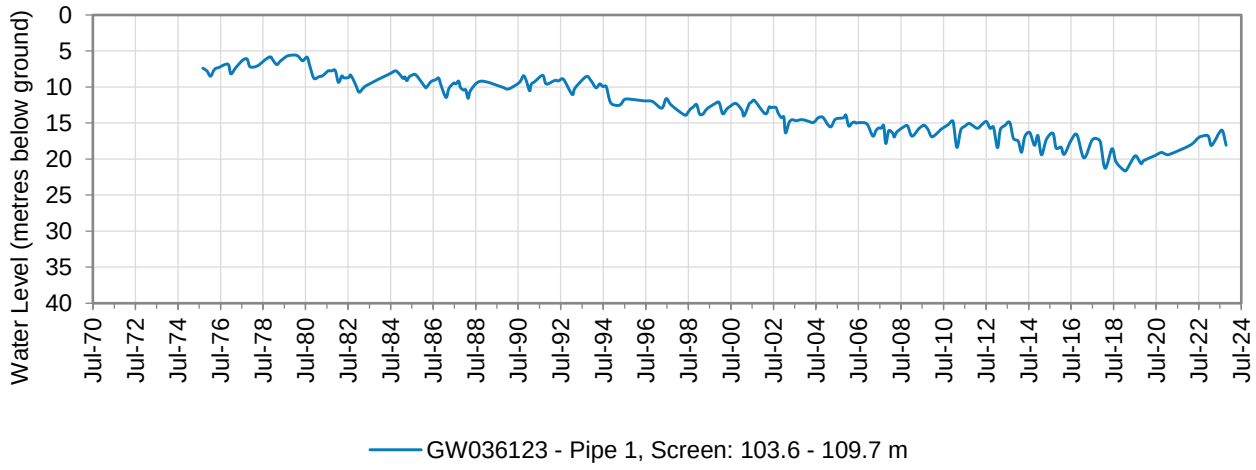



Figure 9: Hydrograph of monitoring bore GW030080

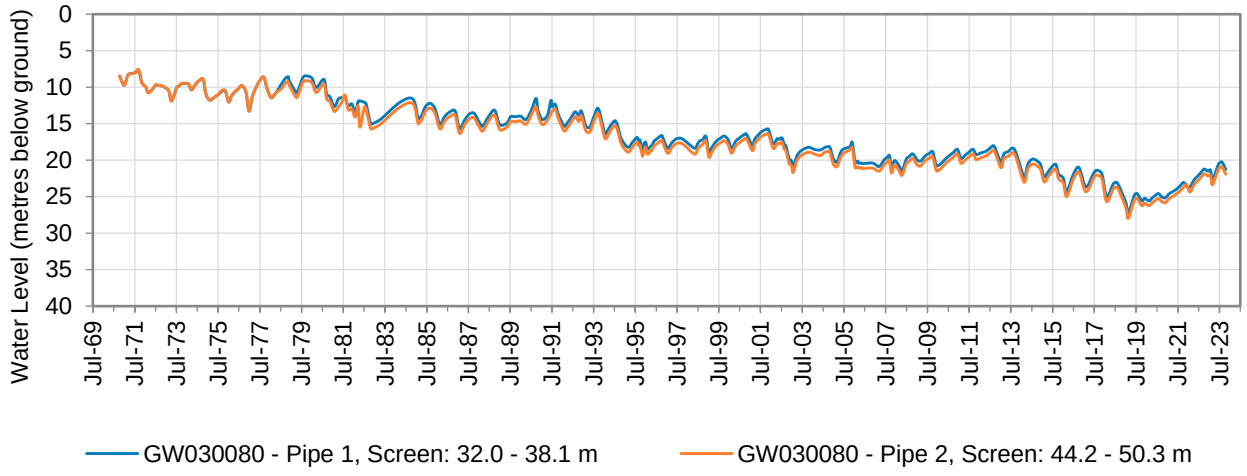


Figure 10: Hydrograph of monitoring bore GW030083

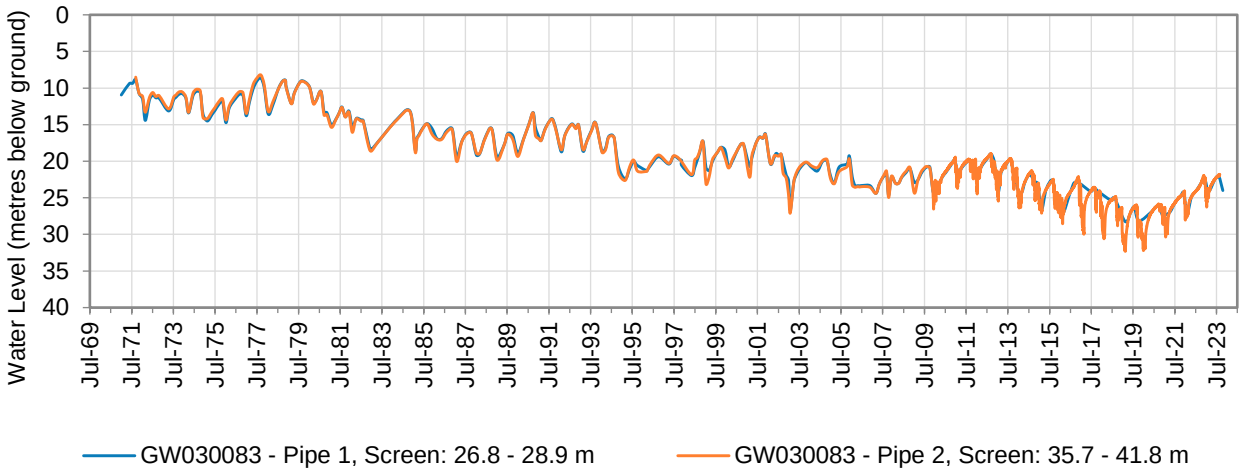



Figure 11: Hydrograph of monitoring bore GW030063

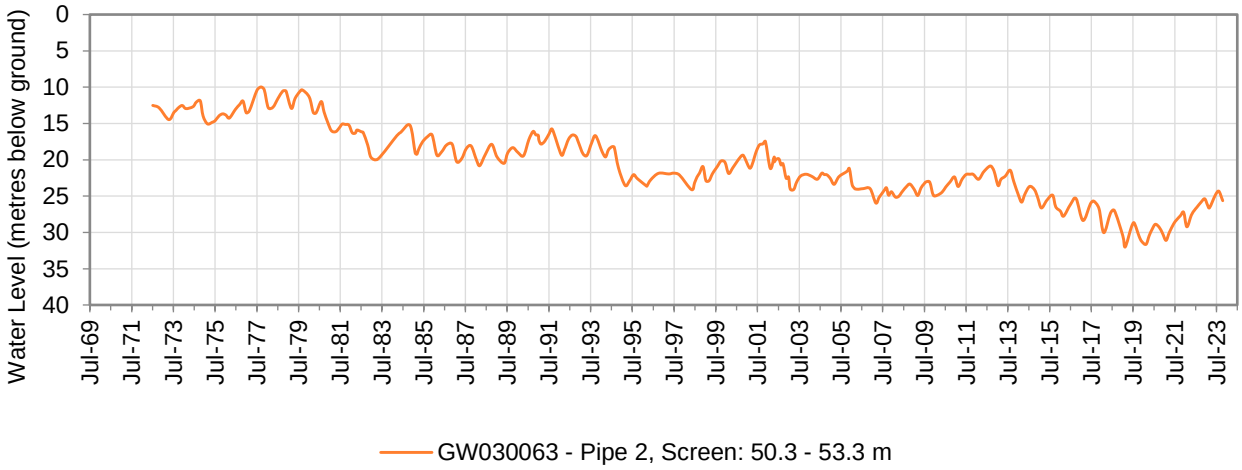
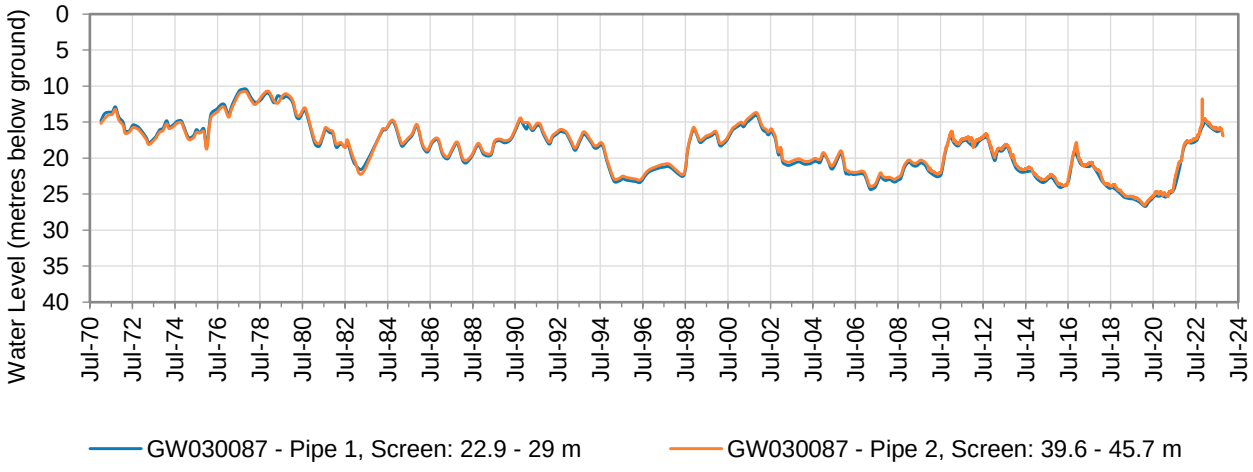



Figure 12: Hydrograph of monitoring bore GW030087



## Managing decline in groundwater levels

In February 2022 the NSW Department of Planning and Environment published reports on how groundwater levels have been changing since monitoring began in the 1970s-80s across 29 inland alluvial groundwater systems.

Department hydrogeologists reviewed and analysed data from 1,300 groundwater monitoring sites including in the Upper Namoi Zone 8 Groundwater Source. They looked at how deep the groundwater levels fall during the summer irrigation season and the level to which they recover when the bore pumps are turned off during winter.

Groundwater levels have generally fluctuated within acceptable levels of decline and recovery across the state however in some localities including parts of the Upper Namoi Zone 8 Groundwater Source, groundwater levels are not able to fully recover before the following irrigation season starts, this decline in recovered water level is seen even with the few good rainfall seasons between 2020 and 2023.

Further information is available at: water.dpie.nsw.gov.au/allocations-availability/managing-decline-in-groundwater-levels

An information session was held in Quirindi in 2022 following the report being published to discuss water level declines in the Upper Namoi Zone 8 Groundwater Source. The department will further consult with stakeholders in early 2024 to provide an update of the status of the groundwater levels and discuss options for future management of the resource.

Further information will be updated on the website at the location in the link provided above prior to any consultation sessions.