Department of Planning and Environment

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General Purpose Water Accounting Report for the Namoi Catchment 2021–22

Acknowledgement of Country

The Department of Planning and Environment acknowledges Aboriginal people as Australia's First Peoples practicing the oldest living culture on earth and as the Traditional Owners and Custodians of the lands and waters on which we rely.

We acknowledge the people of the Gomeroi/Kamilaroi Nation hold the land and waters of the Namoi River catchment area is of spiritual, cultural, customary and economic importance.

We recognise the intrinsic connection of Traditional Owners to Country and acknowledge their contribution to the management of the Namoi River catchment landscape and natural resources

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More information

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Acknowledgements

Produced by the Water Resource Insights team, NSW Department of Planning and Environment – Water group

Contents

Abbreviations

Abbreviation	Description
ARCGIS	mapping and spatial analysis platform for designing and managing solutions through the application of geographic knowledge
AWAS 1	Australian Water Accounting Standard 1
AWD	available water determination
BoM	Bureau of Meteorology
CAIRO	computer-aided improvements to river operations
ECA	environmental contingency allowance
GIS	geographic information system
GPWAR	general purpose water accounting report
IQQM	integrated quantity and quality model
MDBA	Murray–Darling Basin Authority
ML	megalitres (1,000,000 litres)
ML/d	megalitres per day
MODFLOW	modular, three-dimensional, finite-difference groundwater flow model
SILO	climatic data provision system run by the Queensland Government for the provision of both measured and modelled data
WASB	Water Accounting Standards Board
WaterNSW	WaterNSW is a New South Wales Government–owned statutory corporation that is responsible for supplying the state's bulk water needs, and operating the state's river systems and dams
WSP	water sharing plan

Glossary

Term	Meaning
allocation	the specific volume of water allocated to water allocation accounts in each season, defined according to rules established in the relevant water plan
allocation assignments	the transfer of water between licence holder allocation accounts as a result of a trade agreement The assignment becomes part of the receiver's current year allocation account water.
allocation account	water account attached to an access licence used to track the balance of account water
available water determination (AWD)	the process by which water is made available for use and shared amongst water users who hold a water access licence It determines the volume of water that is to be added to an individual's licence allocation account.
Australian Water Accounting Standard (AWAS)	a national standard that prescribes the basis for preparing and presenting a general-purpose water accounting report (GPWAR) It sets out requirements for the recognition, quantification, presentation and disclosure of items in a GPWAR.
back-calculation	a calculation approach using a mass balance to determine an unknown variable (used to calculate storage inflows based on balancing the change in storage volume where inflow is the only unknown)
basic rights	the non-licensed right to extract water to meet basic requirements for household purposes (non-commercial uses in and around the house and garden) and for watering of stock It is available for anyone who has access to river frontage on their property.
computer-aided improvements to river operations (CAIRO)	a spreadsheet-based water balance model used for optimising river operations (orders and releases)
carryover	the volume or share component that may be reserved by a licence holder for use in the subsequent year
catchment	the areas of land that collect rainfall and contribute to surface water (streams, rivers, wetlands) or to groundwater A catchment is a natural drainage area, bounded by sloping ground, hills or mountains, from which water flows to a low point.
dead storage	the volume in storage that is generally considered unavailable for use (e.g. water level below release valves) due to access and often poor water quality

Term	Meaning
effective storage	the total volume of storage minus the dead storage component — the volume generally considered as useable
effluent	flow leaving a place or process Sewage effluent refers to the flow leaving a sewage treatment plant. An effluent stream is one which leaves the main river and does not return.
entity	a defined geographical area or zone within the accounting region Transactions and reports are produced for each entity.
end of system	the last defined point in a catchment where water information can be measured and/or reported
environmental water	water allocated to support environmental outcomes and other public benefits Environmental water provisions recognise the environmental water requirements and are based on environmental, social and economic considerations, including existing user rights.
evaporation	the process by which water or another liquid becomes a gas Water from land areas, bodies of water, and all other moist surfaces is absorbed into the atmosphere as a vapour.
evapotranspiration	the process by which water is transmitted as a vapour to the atmosphere as the result of evaporation from any surface and transpiration from plants
extraction	the pumping or diverting of water from a river or aquifer by licensed users for a specific purpose (irrigation, stock, domestic, towns, etc.) The volume is measured at the point of extraction or diversion (river pump, diversion works, etc.).
general purpose water accounting report (GPWAR)	a report prepared according to the Australian Water Accounting Standard It comprises several components including a contextual statement, a statement of water assets and water liabilities, a statement of change in water assets and water liabilities, a statement of physical water flows, notes and disclosures, and an assurance and accountability statement.
general-security licence	a category of water access licence implemented under the *Water Management Act 2000* This forms the bulk of the water access licence entitlement volume in NSW and is a low-priority entitlement (i.e. it only receives water once essential and high-security entitlements are met in the available water determination process).
groundwater	water location beneath the ground in soil pore spaces and in the fractures of rock formations
high-security licence	a category of water access licence implemented under the *Water Management Act 2000* It receives a higher priority than general-security licences but less priority than essential requirements in the available water determination process.

Term	Meaning
HYDSTRA database	a database used by NSW Department of Planning and Environment to store continuous, time-series data such as river flow, river height, and water quality
inflows	surface water runoff and deep drainage to groundwater (groundwater recharge) and transfers into the water system (both surface and groundwater) for a defined area
inter-valley trade	trade of licence holder allocation account water via allocation assignment from one catchment to another catchment (or state)
intra-valley trade	trade of licence holder allocation account water via allocation assignment within the same catchment
median	the middle point of a distribution, separating the highest half of a sample from the lowest half
non-physical transaction	an accounting transaction representing a process that is not a component of the water cycle (e.g. an available water determination)
physical transaction	an accounting transaction representing a process of the water cycle (e.g. an extraction)
regulated river	a river system where flow is controlled via one or more major man-made structures such as dams and weirs For the purposes of the *Water Management Act 2000*, a regulated river is one that is declared by the minister to be a regulated river. Within a regulated river system, licence holders can order water against a held entitlement.
share component	an entitlement to water specified on the access licence, expressed as a unit share or, in the case of specific purpose licences (e.g. local water utility, major water utility and domestic and stock), a volume in megalitres The amount of water a licence holder is allocated as a result of an available water determination and the amount they can take in any year is based on their share component.
storage	a state-owned dam, weir or other structure that is used to regulate and manage river flows in the catchment and the water bodies impounded by these structures
storage reserve	proportion of water in a storage reserved in the resource assessment process for future essential or high-security requirements (e.g. town water)
storage volume	the total volume of water held in storage at a specified time
supplementary water	unregulated river flow available for extraction under a supplementary licence
surface water	all water that occurs naturally above ground including rivers, lakes, reservoirs, creeks, wetlands and estuaries
tributary	a smaller river or stream that flows into a larger river or stream Usually several smaller tributaries merge to form a river.

Term	Meaning
ungauged catchment	a catchment without a flow gauge to accurately record stream flows Modelled estimates must be used to approximate the contribution of ungauged catchments to the main river.
water accounting	the systematic process of identifying, recognising, quantifying, reporting, assuring and publishing information about water, the rights or other claims to that water, and the obligations against that water
water assets	the physical water held in storage, as well as any claims to water that are expected to increase the future water resource (e.g. external water entering the system through inter-valley trading)
water liabilities	claims on the water assets of the water report entity, including water that has been allocated to licence holder accounts or environmental accounts, yet to be taken at the end of the reporting period
water sharing plan	a water management plan that defines the rules for sharing of water within a region under the *Water Management Act 2000*

Director's foreword

This is the 13th annual release of the general-purpose water accounting report (GPWAR) for the regulated component of the Namoi Regulated River Water Source. It has been prepared for the accounting period 1 July 2021 to 30 June 2022 (reporting period) under the Australian Water Accounting Standard 1 (WASB, 2012).

The GPWAR provides stakeholders with a consolidated, comparable and publicly accessible set of water accounting information for the water source. The information presented is also used internally for a range of water planning functions and legislative reporting obligations.

Included in the GPWAR are:

- a contextual statement summarising the climatic conditions, water resources, environmental holdings, water trading market and water resource management in the water source for the reporting period
- a physical flow diagram illustrating changes in storage volumes and the associated inflows and outflows
- water accounting statements presenting the opening and closing balances, and itemised changes to these balances for available water resources (water assets) and licenced allocation accounts (water liabilities)
- disclosure notes (linked to the figures within the water accounting statements) providing detailed information of accounting components, including:
  - access licence account balances
  - planned and held environmental water account balances
  - available water determination detailed report
  - temporary trading by licence category
  - supplementary announcements and usage by river reach
  - physical inflows and outflows to the system for the water year.

We have not included in this GPWAR detailed water accounting information on groundwater sources within the surface water accounting extent. We have covered the Peel catchment in a separate GPWAR published on the NSW Department of Planning and Environment website.

As Director Water Analytics, NSW Department of Planning and Environment, I declare:

- the information presented in these accounts as a faithful representation of the management and operation of the Namoi Regulated River Water Sources for the reporting period
- all data presented in this report is based on the best available information at the time of publication
- NSW Department of Planning and Environment has, to the best of its ability, prepared this GPWAR in accordance with the Australian Water Accounting Standard 1.

Danielle Baker
Director Water Analytics,
NSW Department of Planning and Environment

Contextual statement

The Namoi catchment is a sub-catchment of the eastern Murray–Darling Basin. It covers an area of about 42,000 square kilometres, stretching 350 kilometres from the Great Dividing Range near Tamworth to the Barwon River near Walgett. The Namoi is bounded by the Great Dividing Range in the east, the Liverpool Ranges and Warrumbungle Ranges in the south, and the Nandewar Ranges and Mount Kaputar to the north. Elevations range from over 1,500 metres above sea level in the south and east to just 100 metres on the alluvial floodplain of the lower Namoi, west of Narrabri.

Major tributaries of the Namoi River include Coxs Creek and the Mooki, Peel, Manilla, and McDonald Rivers, all of which join the Namoi River upstream of Boggabri. The Peel River, which has a catchment area of around 4,700 square kilometres, contributes an average annual volume of around 280,000 megalitres to the Namoi River. Streamflows in the Namoi catchment are regulated by three major storages: Keepit Dam on the Namoi River, Split Rock Dam on the Manilla River and Chaffey Dam on the Peel River.

Agricultural production comprises approximately half of the regional economy. Major industries include cotton, livestock production, grain and hay, poultry and horticulture. The Peel River also provides the bulk of urban water supply for Tamworth (supplemented by Dungowan storage located on Dungowan Creek). The regulated section of the Peel River is managed under a separate water allocation scheme and water sharing plan to the regulated Namoi River.

The Namoi and Peel catchments were part of the lands originally occupied by the Gomeroi/Kamilaroi people. Today, approximately 100,000 people live within the Namoi catchment, mostly along the river and its tributaries between Tamworth and Narrabri. The largest urban centre in the valley is Tamworth, on the Peel River, which has a population of nearly 33,500. Other major centres are Gunnedah (7,500 people) and Narrabri (6,100 people) — both are located on the banks of the Namoi River. Smaller towns include Barraba, Manilla, Quirindi, Walgett, Wee Waa and Werris Creek.

Significant ecological features of the catchment include the many small floodplain wetlands associated with the river, and the large internal drainage basin of Lake Goran south of Gunnedah. Extensive areas of native woodland are conserved in the Pilliga Forest, which is the largest remaining dry sclerophyll forest west of the Great Dividing Range in NSW.

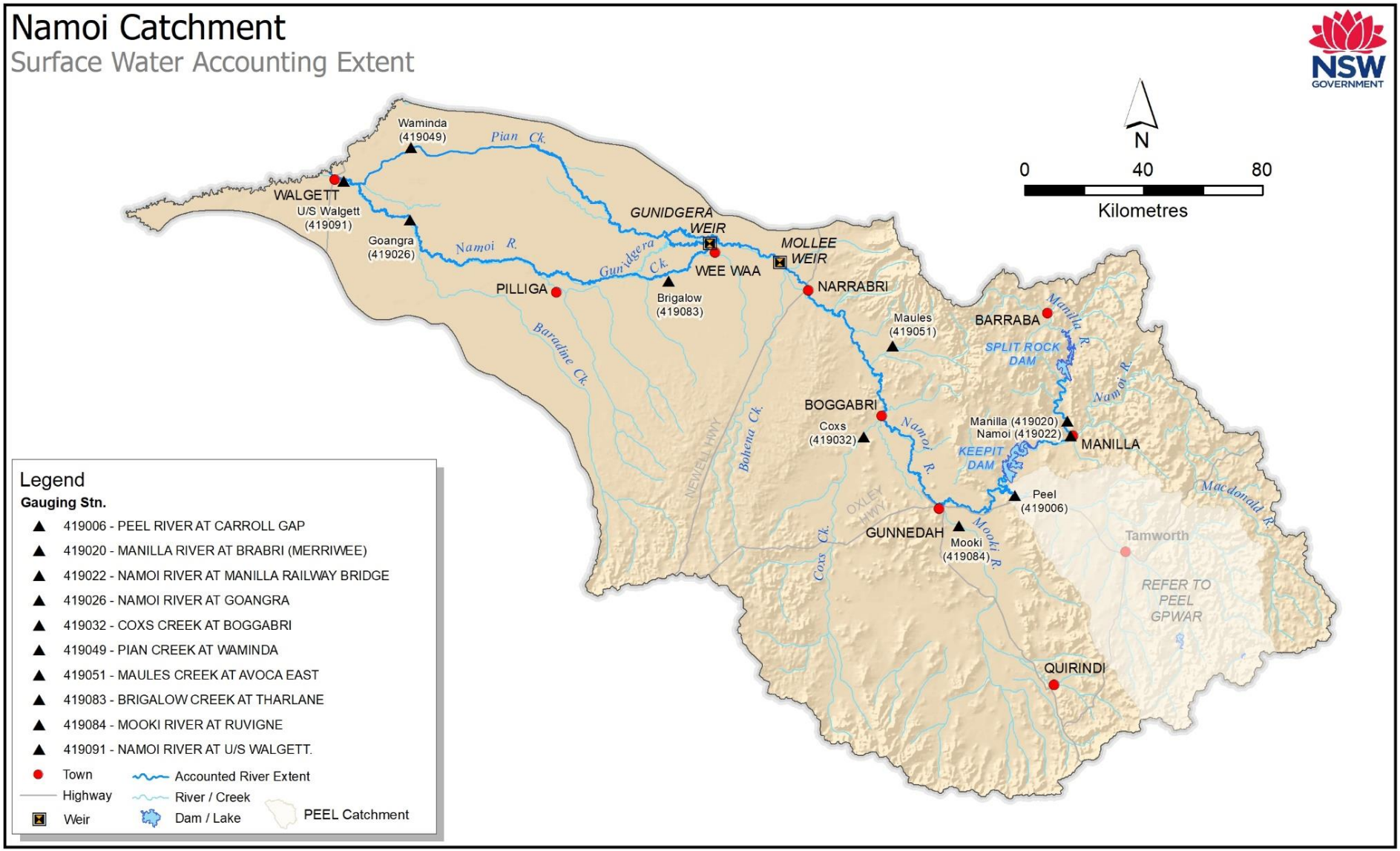
Accounting extent

The accounted river extent is illustrated in Figure 1. It includes the Upper Namoi Regulated River from Split Rock Dam to Keepit Dam, the Lower Namoi Regulated River from Keepit Dam to the Namoi-Barwon River confluence, Pian and Gunidgera Creeks.

The Peel catchment is excluded from this GPWAR[1], apart from the measured total annual flow that leaves the Peel River and flows into the Regulated Namoi River (measured by the flow gauging station at Carroll Gap). All water licences and water provisions managed by *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016* are considered. While estimates of physical groundwater volumes that interact with the regulated river are included in GPWAR statements where possible (and any interactions not directly estimated form part of the unaccounted difference), all other groundwater aquifer flows and groundwater management are excluded from the GPWAR.

[1] The Peel catchment has been covered in a separate GPWAR available on the NSW Department of Planning and Environment website www.industry.nsw.gov.au .

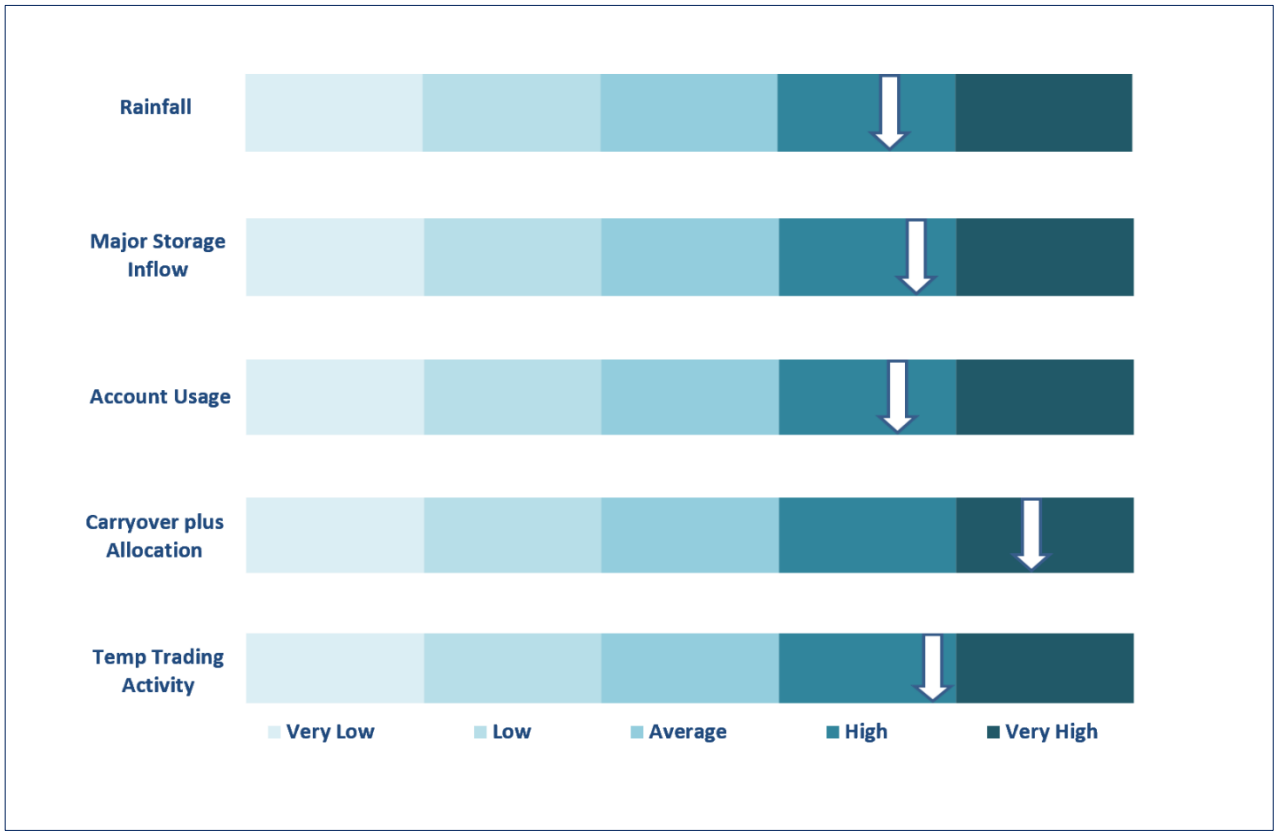
Figure 1: Surface water geographical accounting extent



Snapshot

The key indicators for 2021–22 relative to other years under water sharing plan management conditions are presented in Figure 2 (indicators are averaged across the upper and lower Namoi). For 2021–22 rainfall, major storage inflow, account usage and temporary trading activity were all in the high range while effective allocation (carryover plus allocations from available water determinations) was in the very high range relative to historical long-term information.

Figure 2: Reporting year summary indicators



Climate

At Manilla (upper catchment), 750 mm of rainfall was recorded in the reporting period (Table 1). Comparatively, this volume of rainfall is:

- 119% of the long-term historical median at Manilla
- 66% of the highest rainfall on record at Manilla.

Most rainfall was in November 2021 (175 mm) and March 2022 (103 mm) (Figure 3 and Figure 4).

At Wee Waa (lower catchment), 745 mm of rainfall was recorded in the reporting period (Table 2). Comparatively, this volume of rainfall is:

- 136% of the long-term historical median at Wee Waa
- 67% of the highest rainfall on record at Wee Waa.

Most rainfall was in November 2021 (172 mm) and January 2022 (151 mm) (Figure 3 and Figure 4).

Spatially, rainfall was lower than the reference comparative average (1961–90) across the entire extent of the catchment (Figure 5 and Figure 6).

Figure 3: Monthly rainfall for reporting period and historical medians at Manilla and Wee Waa

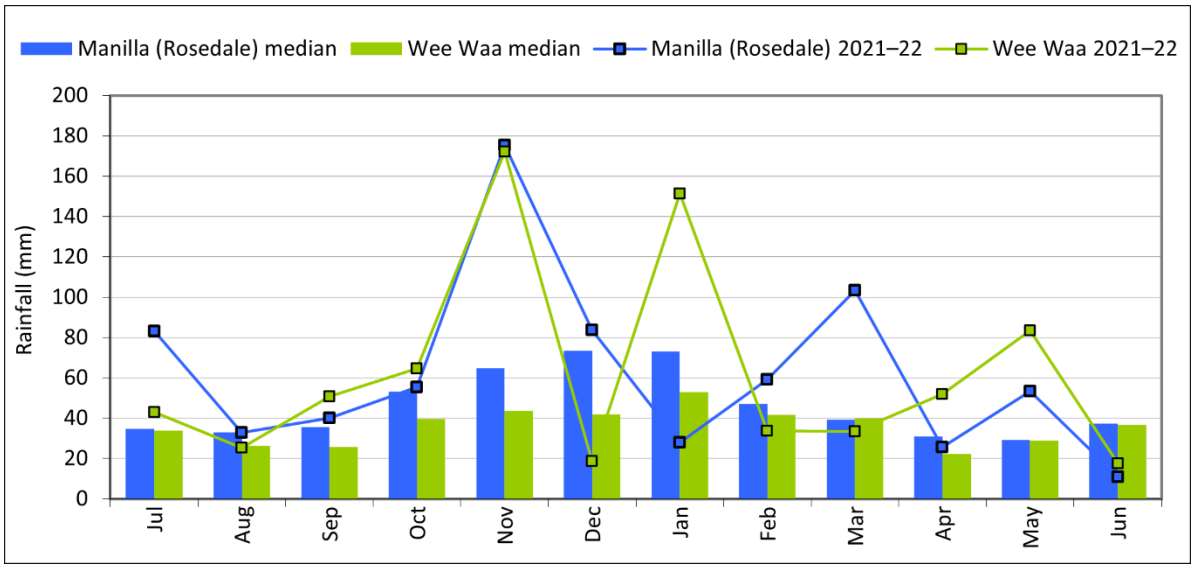


Figure 4: Rainfall deviation for reporting period compared to historical monthly medians at Manilla and Wee Waa

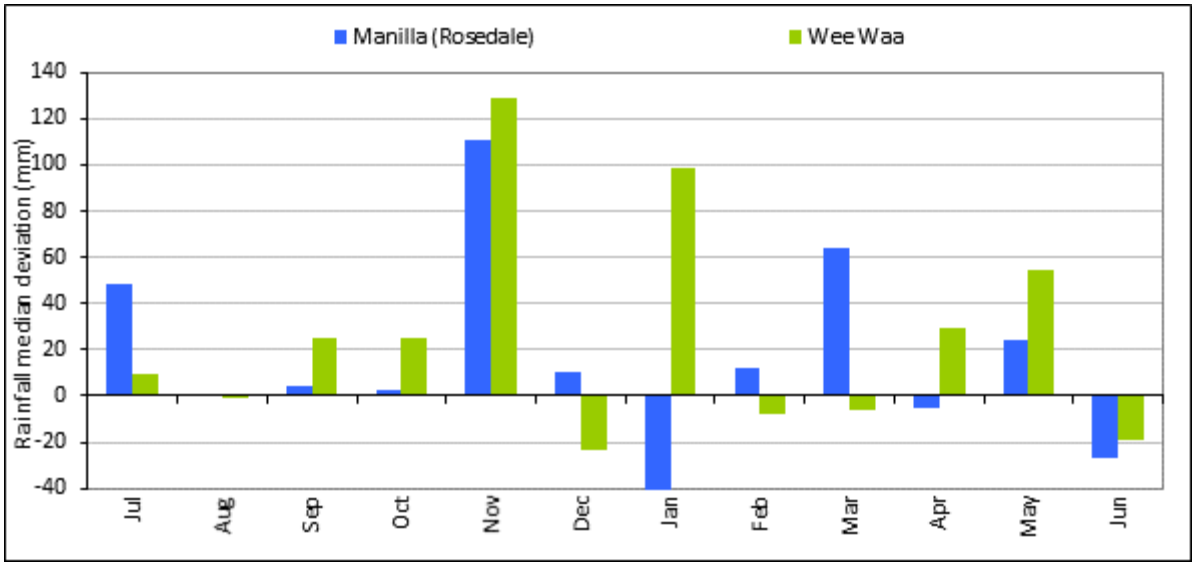


Table 1: 2021–22 monthly rainfall and historic monthly rainfall statistics at Manilla[2]

Manilla	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Annual
2021-22	83	32.9	39.9	55.4	175.2	83.6	27.9	59.2	103.3	25.7	53.2	10.8	750.1
Historical mean	41.06	38.43	41.2	58.72	68.37	75.55	83.93	67.03	53.89	38.36	40	44.3	646.4114
Historical median	34.6	32.9	35.6	53.1	64.7	73.3	73.2	47	39.45	30.8	29.25	37.4	631.15
Historical low	0.9	0	0.4	1.8	1.9	2	1.8	1.5	0	0	0	0.8	221
Historical high	170.6	149.1	166.4	227.3	242	218.4	308.3	263.2	295.2	174.4	173	173.3	1141.7
Year of high[3]	1984	1952	1998	1955	2011	1921	1978	1955	1894	1905	1983	1920	1955-56

Table 2: 2021–22 monthly rainfall and historic monthly rainfall statistics at Wee Waa[2]

Wee Waa	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Annual
2021-22	42.9	25.4	50.8	64.5	172.2	18.6	151.2	33.6	33.5	51.8	83.4	17.4	745.3
Historical mean	41.41	34.61	35.11	47.56	56.51	56.34	77.36	62.54	52.27	36.48	43.13	44.53	586.163
Historical median	33.85	26.4	25.7	39.7	43.65	41.95	52.9	41.6	39.9	22.2	28.75	36.6	547.45
Historical low	0	0	0	0	0	0	0	0	0	0	0	0	238.5
Historical high	156.9	146.7	150.2	198.6	211.1	204	361.2	337.7	365.3	238	213	227	1118.7
Year of high[3]	1921	1918	1998	1950	1924	1921	1974	1956	1894	1989	1991	1920	1889–90

[2] Long-term statistics are from the Bureau of Meteorology—climate data online, using the climatic stations '53044—Wee Waa (George St) and '55031—Manilla Post Office'. Historic record statistics are 1884 to 2022 for Wee Waa and 1883 to 2022 for Manilla.

[3] Year of high is calendar year for monthly highs and water year (July to June) for annual.

Figure 5: Namoi annual rainfall in reporting period

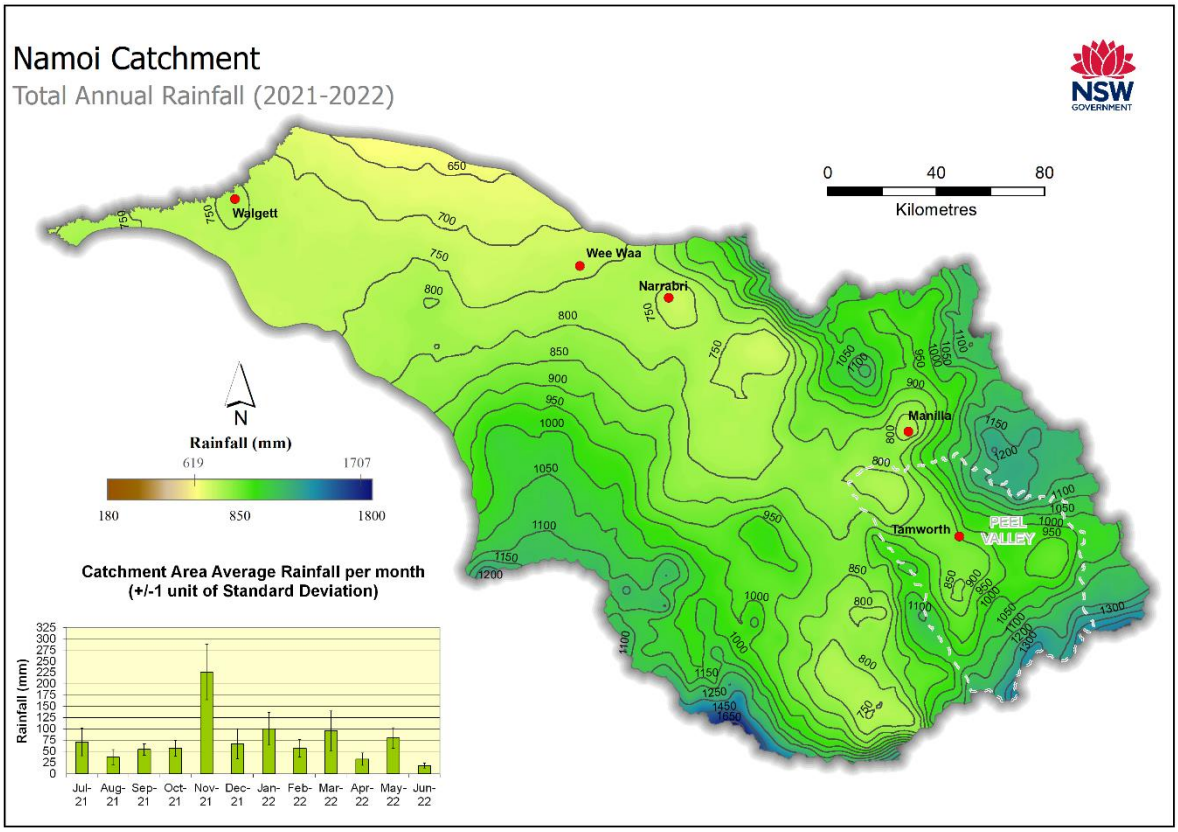
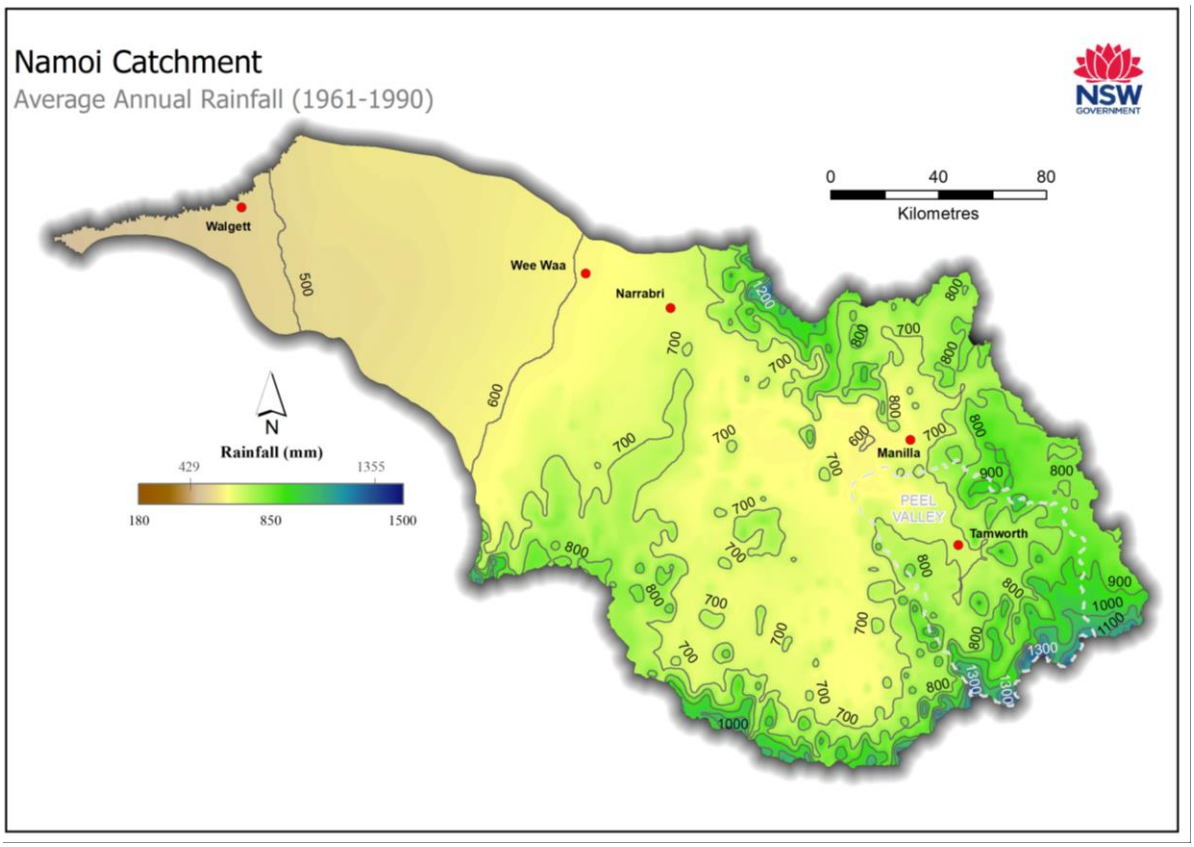


Figure 6: Average annual rainfall in the Namoi catchment (1961-1990)



Dam inflows and volume

Inflows

Historically, the long-term average annual inflow[4] at the Split Rock storage site has varied significantly, cycling through periods of wet and dry flow regimes. Broadly, the data (Figure 7) illustrates predominantly:

- dry conditions 1895 to 1950
- wet conditions 1950 to 1980
- dry conditions 1980 to present.

Within these broader trends there are shorter cycles of oscillation between wet and dry conditions.

Split Rock

For the reporting period, inflows to the storage were 176,421 megalitres (Figure 8), which is:

- 251% of the long-term average annual inflow (70,373 megalitres per year)
- Very high relative to the historical period, exceeding 89% of years (between 1892 and 2022)
- The 2nd consecutive year of above average inflows.

The highest inflows occurred in November 2021, with a peak inflow rate of 14,440 megalitres per day (Figure 10).

Keepit

For the reporting period, inflows to Keepit Dam storage were 709,140 megalitres (Figure 9), which is:

- 259% of the long-term average annual inflow (273,642 megalitres per year)
- high relative to the historical period, exceeding 96% of years (between 1976 and 2022)
- The 2nd consecutive year of above average inflows.

The highest inflow occurred in November 2021, with peak inflow rate of 28,388 megalitres per day. This followed very high rainfall in November and December 2021, and well above average rainfall from late January to the end of March 2022 (Figure 11).

Storage volume

Split Rock

- Volume at the start of the reporting period was 125,421 megalitres or 32 % of full supply capacity (Figure 12).
- Volume held at the end of the reporting period was 292,336 megalitres or 74% of full supply capacity, an increase of 42% for the year.
- the maximum volume during the reporting period was 292,336 megalitres, occurring on 30 June 2022.

[4] Inflows are back-calculated storage inflow for the period since storage construction and gauged or rainfall runoff modelled for the period before

Keepit

- Volume at the start of the reporting period was 332,406 megalitres or 78 % of full supply capacity (Figure 13)
- ended the reporting period at 422,790 megalitres or 99 % of full supply, a change of 21 % for the water year
- the maximum volume during the reporting period was 430,272 megalitres, occurring on 23 November 2021

Figure 7: Long-term annual upstream Split Rock cumulative deviation from mean

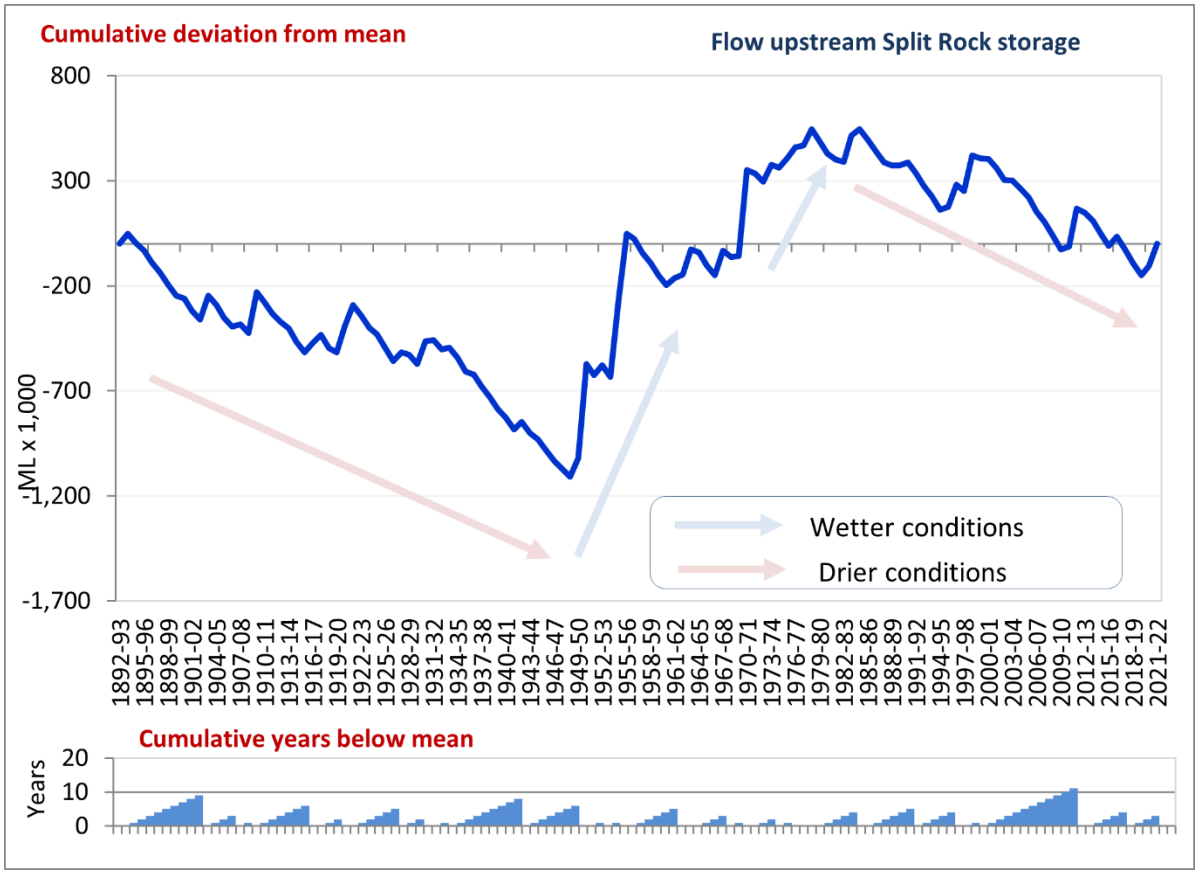


Figure 8: Long-term inflows to Split Rock against mean and reporting year inflow

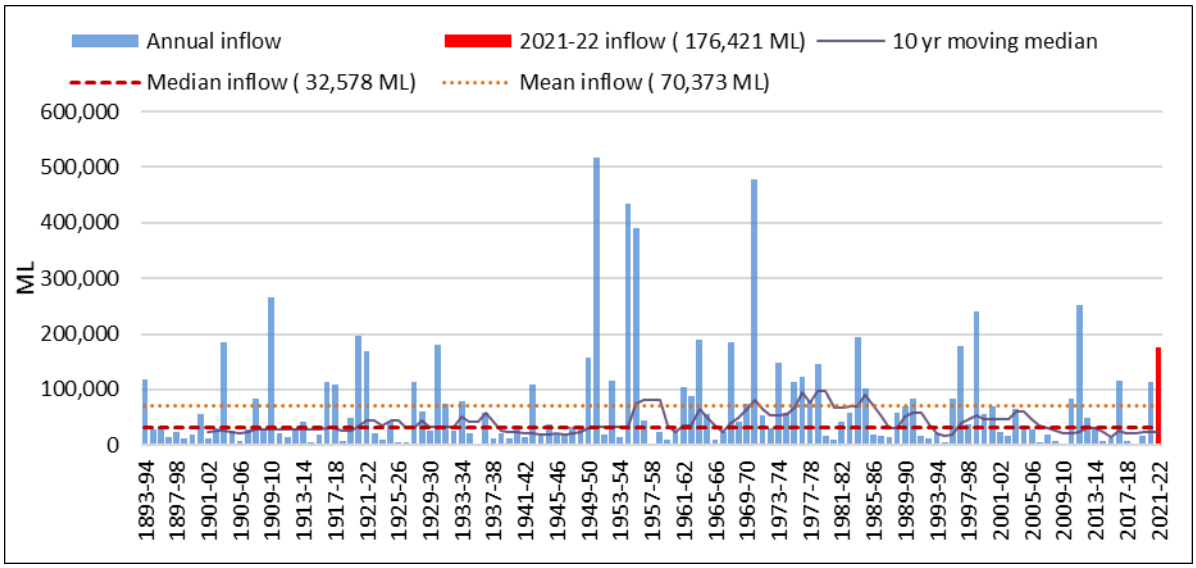


Figure 9: Long-term inflows to Keepit Dam against mean and reporting year inflow

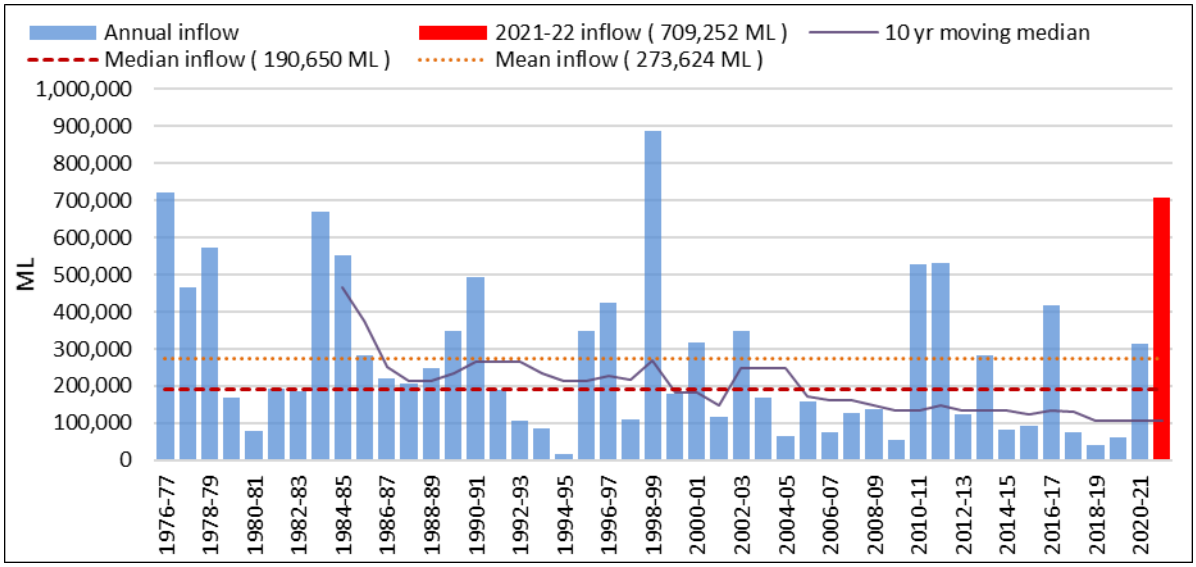


Figure 10: Daily inflows and rainfall at Split Rock 2021–22

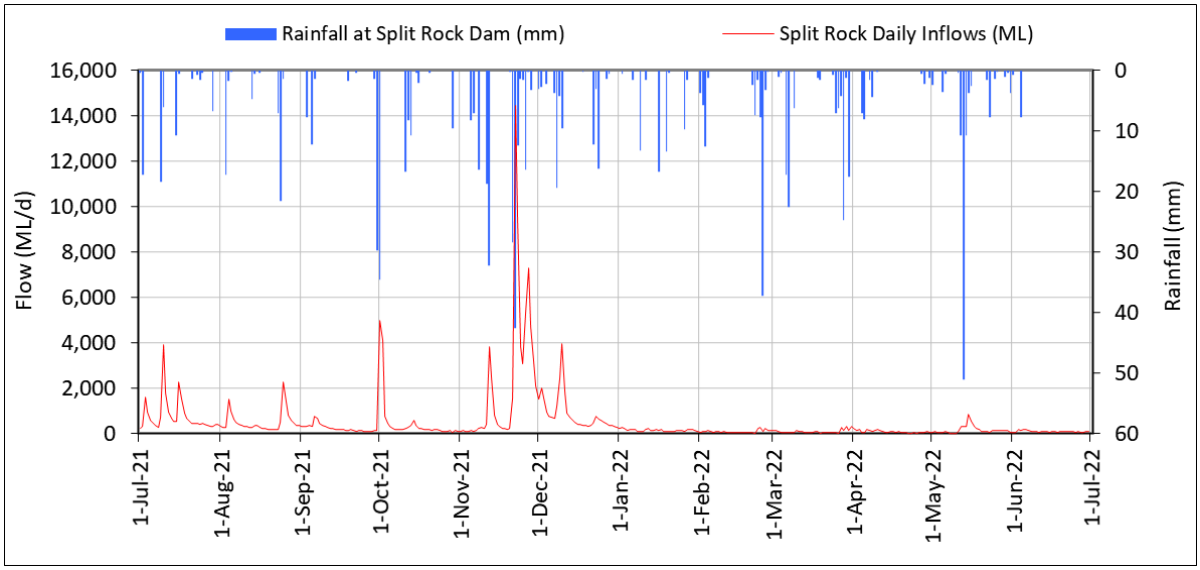


Figure 11: Daily inflows and rainfall at Keepit Dam 2021–22

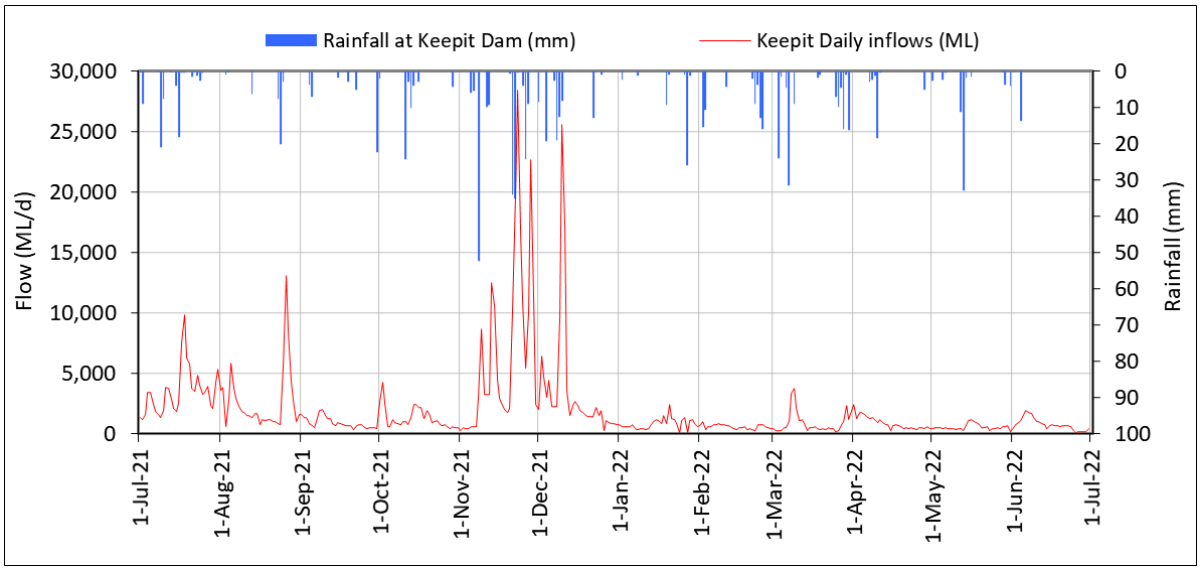


Figure 12: Split Rock Dam volume and percentage reporting period

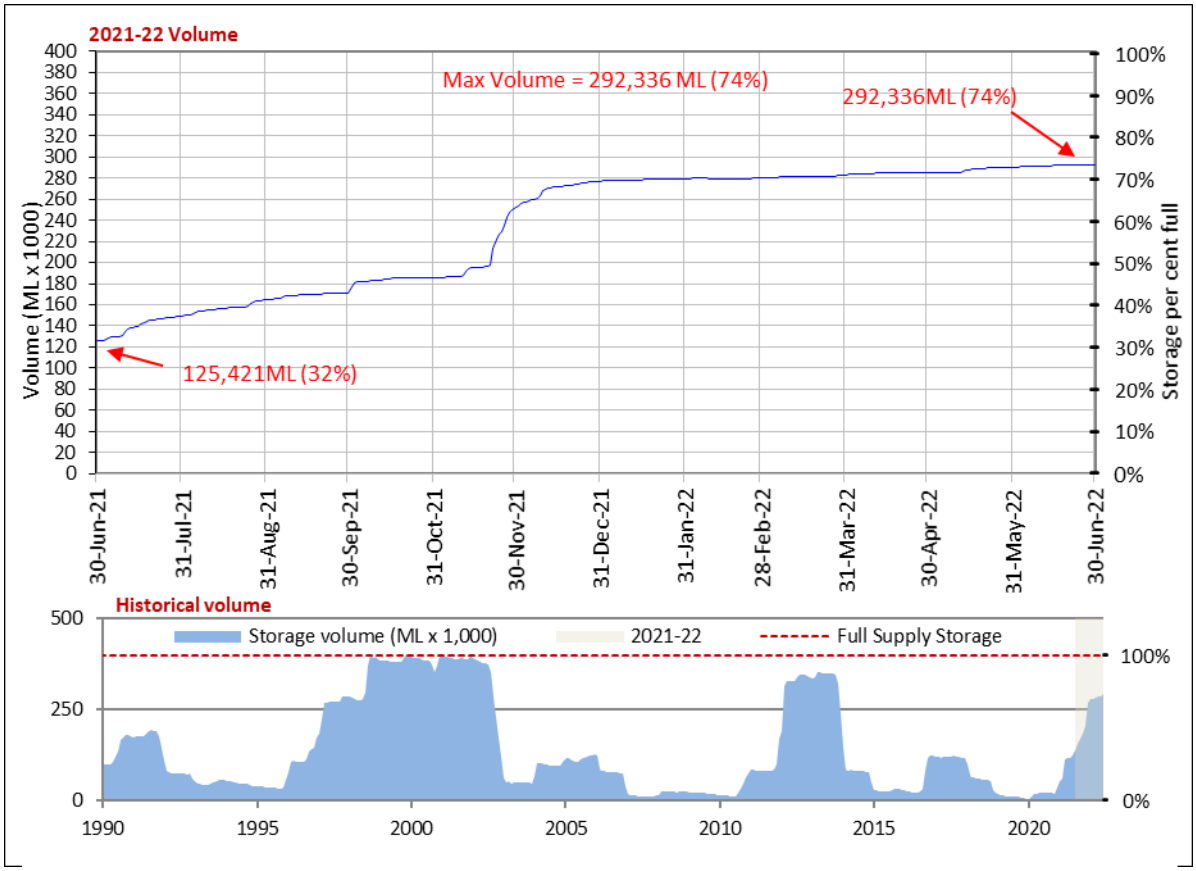
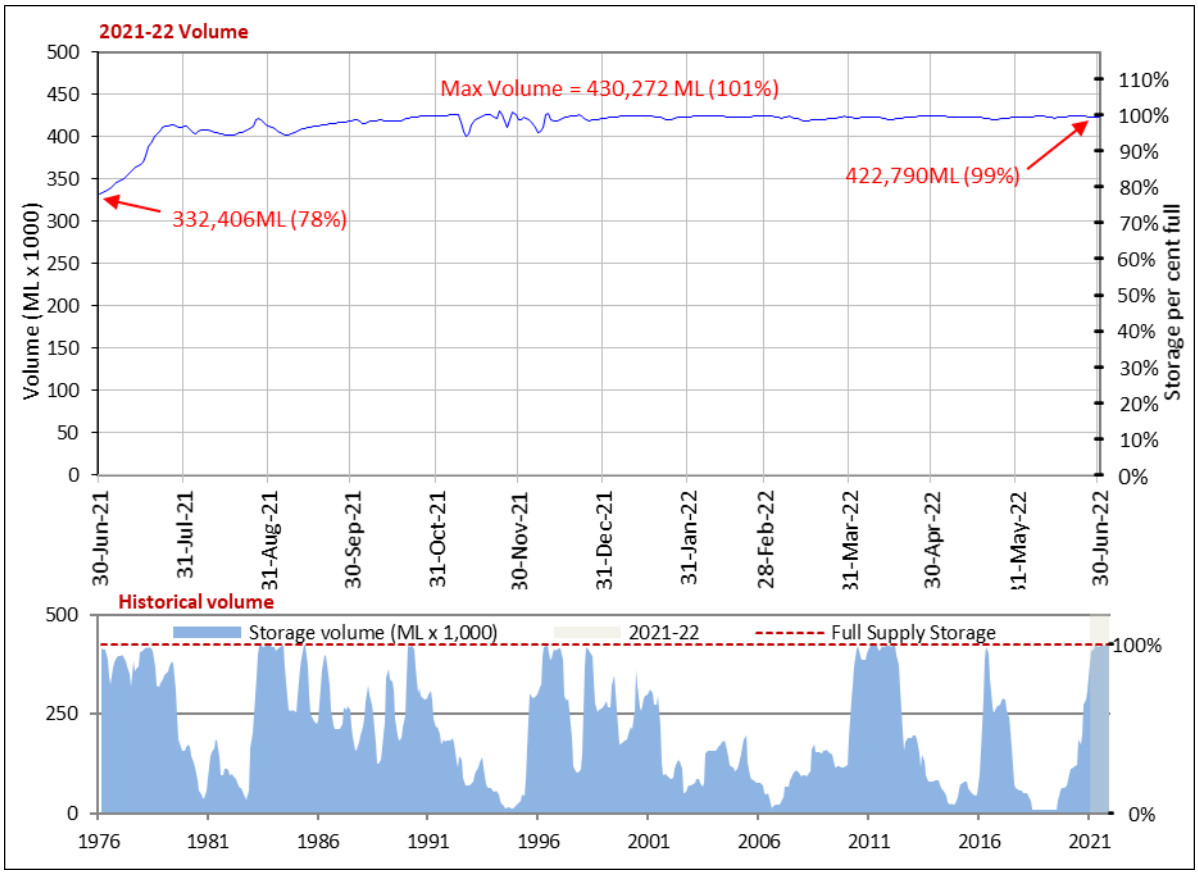


Figure 13: Keepit Dam volume and percentage reporting period



High-flow events

There were two high-flow events recorded during the reporting period (Figure 14). The river height at Gunnedah peaked at 8.6 metres on 28 November 2021 which was above the major flood level of 7.9 metres. A further peak of 7.3 metres was reached on 10 December 2021 which equalled the moderate flood level.

Daily flows at Gunnedah, Mollee and Goangra for the reporting period are illustrated in Figure 15. There were several distinct events during the reporting period with the largest events occurring in November and December 2021.

Figure 14: Namoi River at Gunnedah river heights [5]

[5] Flood severity intervals obtained from the Australian Bureau of Meteorology

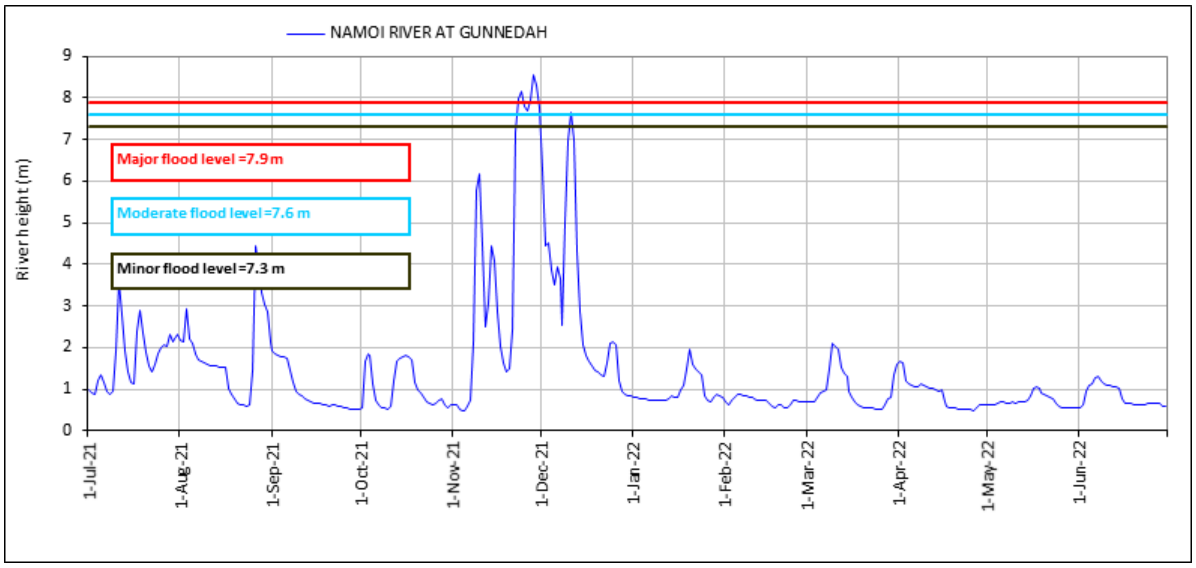
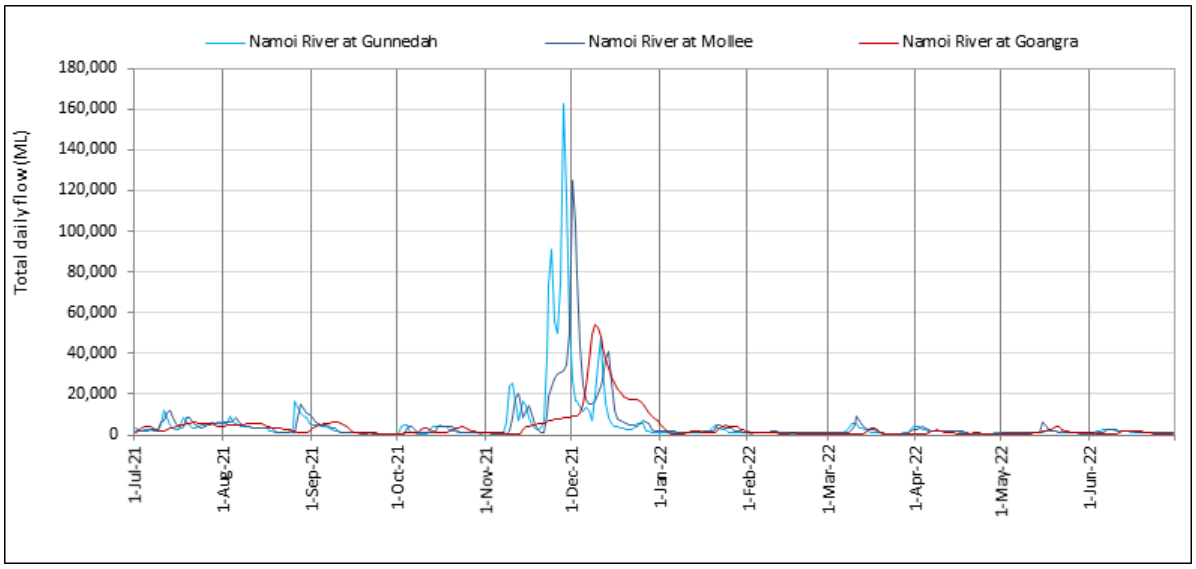


Figure 15: Total daily flow on the Namoi River at Gunnedah, Mollee and Goangra



Surface water resources and management

Legislation

The water source was managed under the rules and requirements set out in the *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016*. This water sharing plan commenced on 1 July 2016 and will remain active until 30 June 2026 (or alternatively a new plan is gazetted). The water sharing plan was produced to meet the water management principles outlined in the NSW *Water Management Act 2000*.

Upper Namoi Regulated River Water Source

Access rights

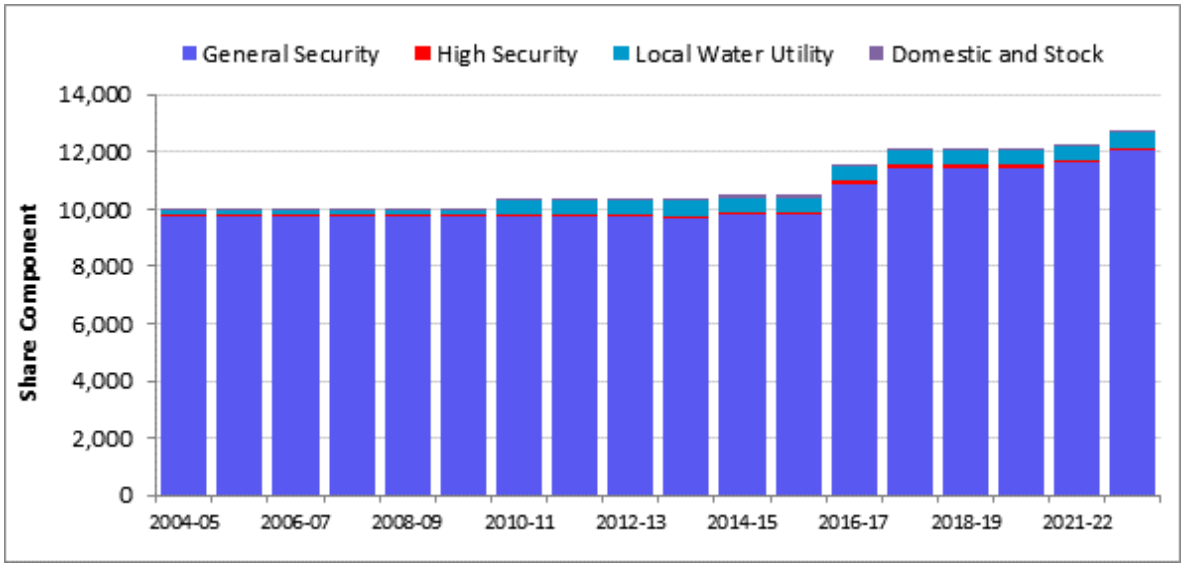
- Access licence share component had a net increase of 463 shares during the reporting period

- Total issued share component on 30 June 2022 across 6 categories of access licence was 12,757 (Table 3).
- Share increase over time is generally associated with shares moving to the upper Namoi from the lower Namoi.
- Historical share component by category (under water sharing plan management) is presented in (Figure 16).

Table 3: Upper Namoi Issued share component

Licence category	Share component 30 June 2021	Share component 30 June 2022
Domestic and Stock	74	74
Domestic and Stock (Domestic)	11	11
Domestic and Stock (Stock)	5	5
Local Water Utility	515	515
General Security	11,609	12,072
High Security	80	80
Total	12,294	12,757

Figure 16: Upper Namoi Issued share component since the commencement of the water sharing plan (excluding supplementary licences)



Allocation Account summary

A summary illustration of the accounting for General Security and High Security access licence categories in the Upper Namoi Regulated River is provide in Figure 17 and Figure 18 respectively. Detailed information on the water accounts for all categories of licence issued are provided in Note 1 of this report.

Figure 17 Annual water account summary Upper Namoi Water Source - General Security

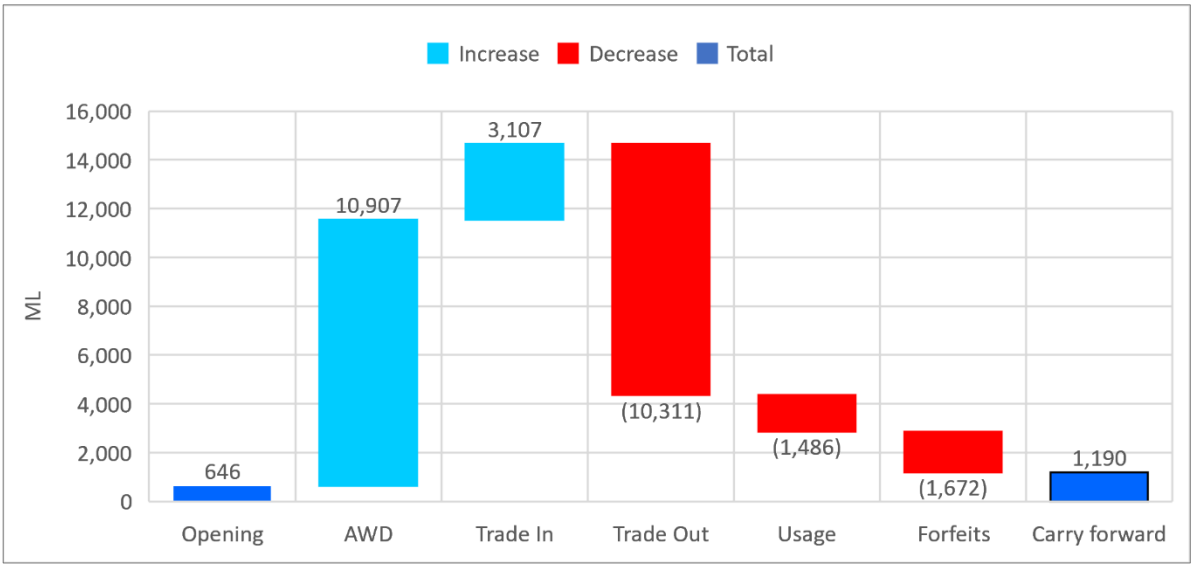


Figure 18 Annual water account summary Upper Namoi Water Source - High Security

Access licence account management

The licence allocation accounting rules that were in place are summarised in Table 4. An annual accounting approach is implemented, and the rules allow for General Security licence holders to carry over unused water up to 0.5 megalitres per issued share. Accounts cannot exceed 100% of issued share component (one megalitre per share).

Table 4: Upper Namoi licence allocation accounting rules

Licence category	Account limit	Carryover limit	Annual use limit	Maximum AWD	3-year use limit
Domestic and Stock	100%	0%	N/A	100%	N/A
Domestic and Stock [Domestic]	100%	0%	N/A	100%	N/A
Domestic and Stock [Stock]	100%	0%	N/A	100%	N/A
Local Water Utility	100%	0%	N/A	100%	N/A

Licence category	Account limit	Carryover limit	Annual use limit	Maximum AWD	3-year use limit
Regulated River (General Security)	1 ML/Share	0.5 ML/Share	N/A	1 ML/Share	N/A
Regulated River (High Security)	1 ML/Share	0 ML/Share	N/A	1 ML/Share	N/A

Extreme events stage and temporary water restrictions (Upper Namoi)

The NSW Extreme Events Policy was released in October 2018 to provide a framework for managing extreme events in the major river systems of the NSW Murray–Darling Basin. This framework is based on a staged approach, providing a range of measures for water managers to implement as conditions deteriorate.

Temporary water restrictions are an example of the type of measures that can be implemented to manage a water shortage. These restrictions are issued under section 324 of the NSW *Water Management Act 2000* and have been implemented in several river valleys in periods of drought to preserve water for critical needs. Table 5 outlines the conditions that may be associated with different stages of criticality for surface water quality. Further information is available at www.industry.nsw.gov.au/water/what-we-do/legislation-policies/eep

Table 5: Determination of stages of criticality for surface water quantity

Stage	Stage description	Stage evidence base
1	Normal management	Can deliver all account water under normal river operations practices
2	Emerging drought (or recovering)	Unable to deliver 100% of high priority account water and maximum expected use of General Security under normal river operations practices
3	Severe drought	Only able to deliver restricted high priority demands and restricted remaining General Security account water
4	Critical drought	Only able to deliver restricted town water supply, stock and domestic and other restricted high priority demands

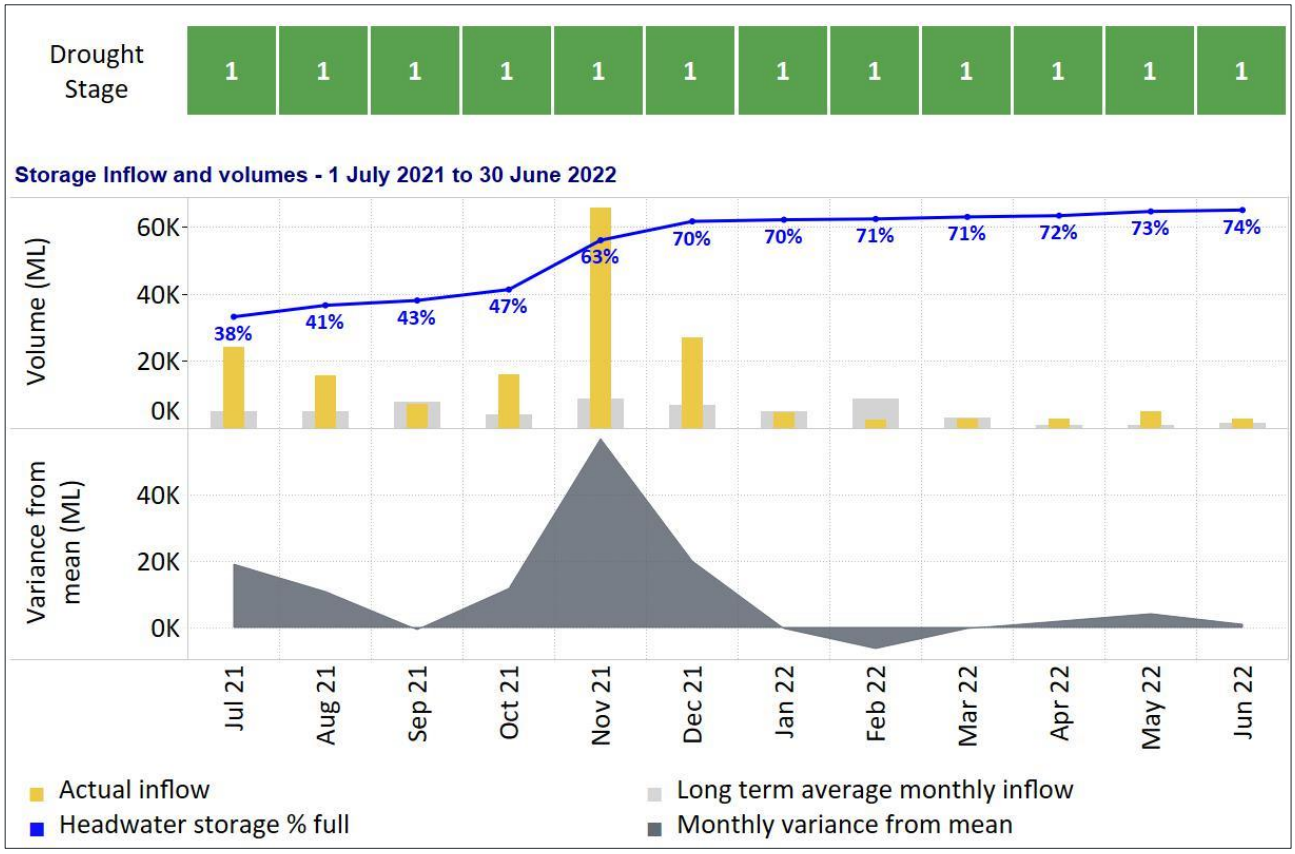
Temporary water restrictions for the reporting period

At the commencement of the 2021–22 water year, there were no restrictions on access to allocations in the Upper Namoi.

Extreme events stage

- At the commencement of the 2021–22 reporting period the Upper Namoi River was in stage 1 (Normal Management) status with Split Rock Dam at 32% of full supply volume (Figure 19).

Figure 19: Drought stage for the reporting period referenced with monthly headwater storage inflows, monthly storage inflow variance from mean.



Water availability

- Local Water Utility and Domestic and Stock access licences (including sub-categories of these) received an equivalent opening available water determination (AWD) of 100%, the maximum allowable under the water sharing plan rules.
- High security access licences received an opening AWD (1 July 2021) of 1.0 megalitres per share (100% equivalent)
- General security access licences carried over 646 megalitres into the 2021–22 water year (6 % equivalent)
- General security access licences received an opening AWD (1 July 2021) of 1.0 megalitres per share (100% equivalent).
- Considering the carryover provision water availability for General Security reached 99.5% effective allocation, which is the lower than the previous reporting period which was the highest under water sharing plan management conditions. (Figure 21)[6].
- Total water availability considering all categories is presented in Figure 21.

Figure 20: Incremental available water determination for Upper Namoi General Security licences as a proportion of share component

[6] At the start of the water sharing plan (2004–05), the department allowed water held in General-Security accounts to be brought forward as an opening balance. This includes all access licences issues under the water sharing plan and therefore held environmental water. Water availability refers to the sum of water that was in holder accounts. It does not consider annual use limits and therefore was not necessarily all available for use in this water year. Accounts with a negative carryover (overuse) can restrict the maximum availability presented. The calculation is based on the end-of-year share component.

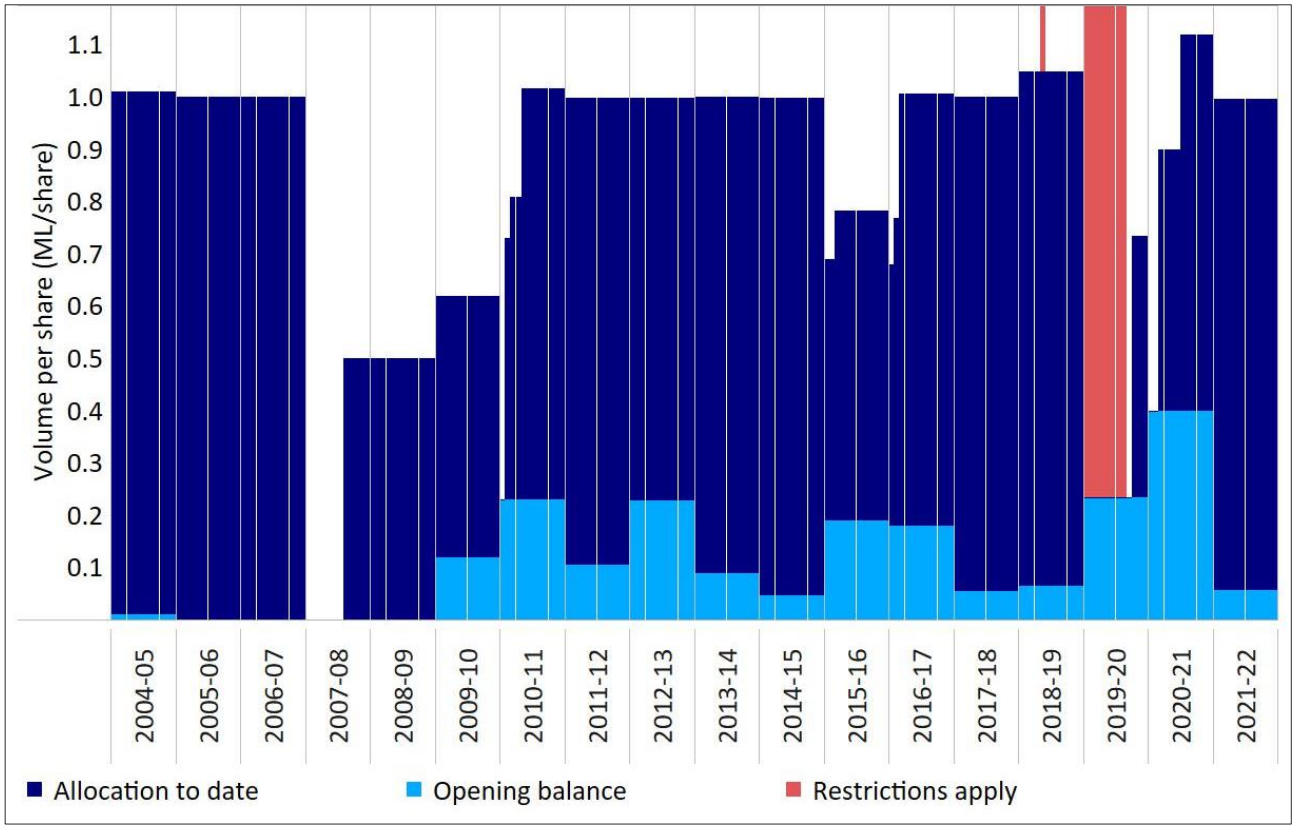
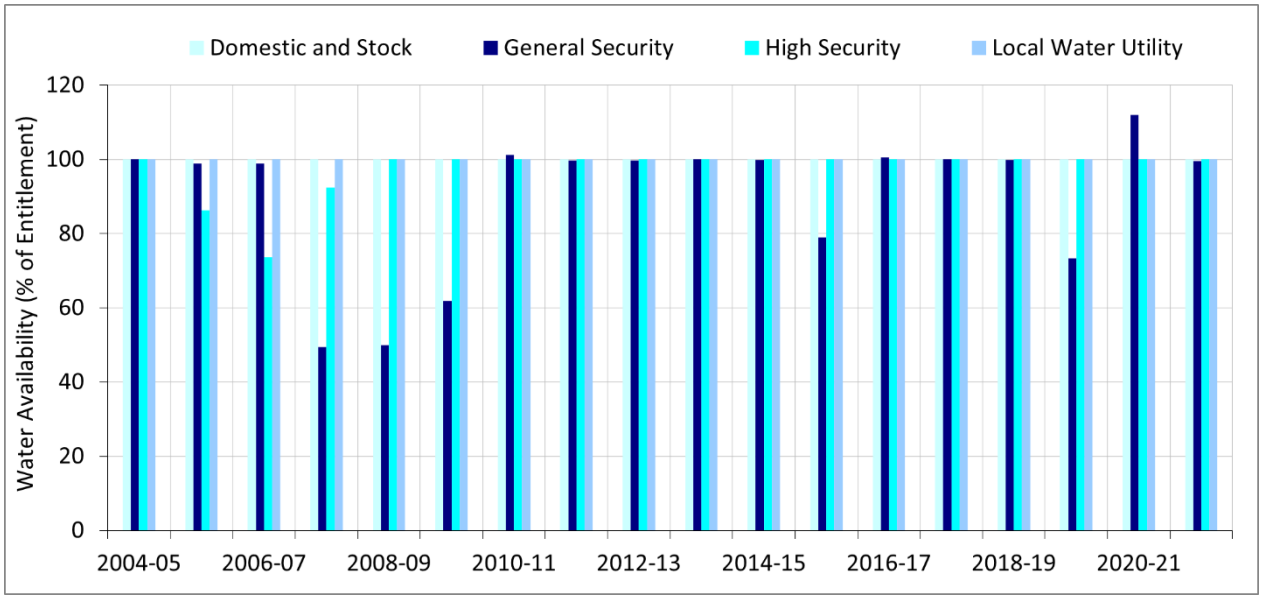


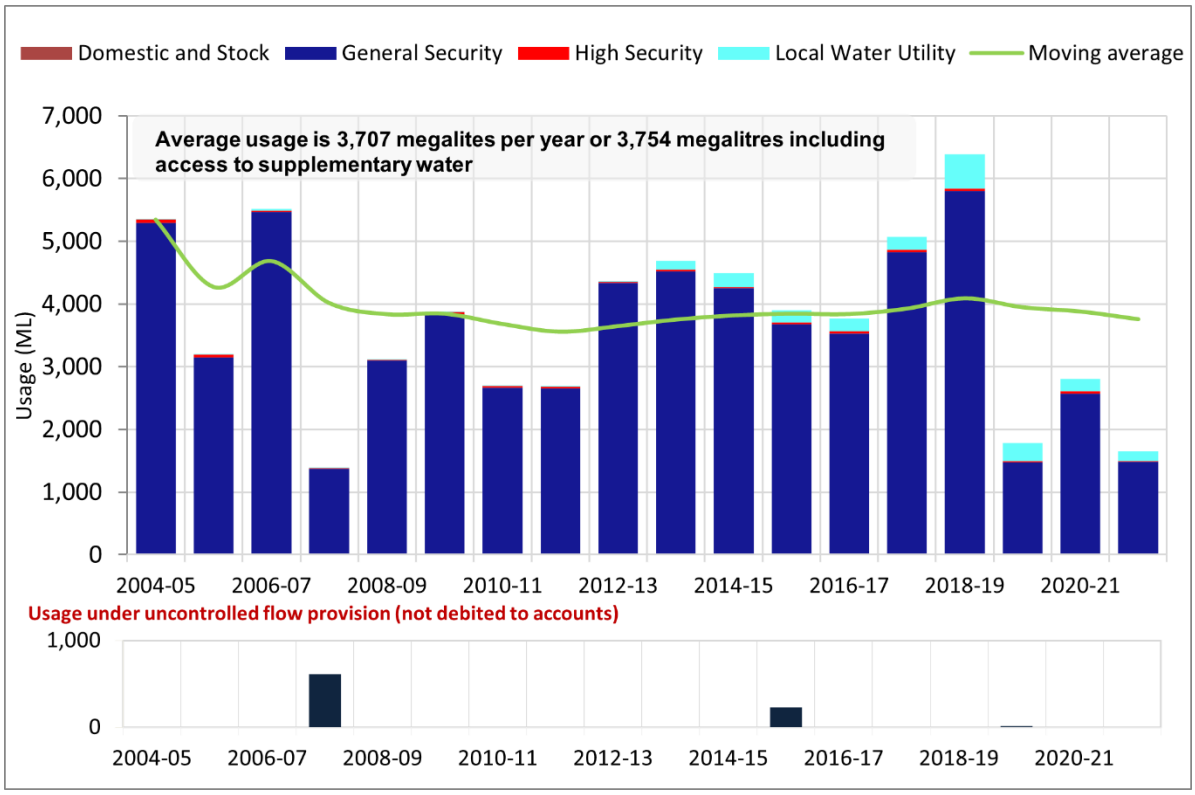
Figure 21: Upper Namoi account water availability (carryover + AWD)



Account usage

- Usage from regulated supply totalled 1,648 megalitres for the reporting period (Figure 22).
- This was a decrease from the previous reporting period and is the 3rd consecutive year of below average usage under water sharing plan management conditions.
- The average usage since 2004–05 is 3,707 megalitres, or 3,754 megalitres allowing for additional take under uncontrolled flow provisions.

Figure 22: Upper Namoi usage by category



Utilisation and inactive share

- 65% of General Security share component was inactive[7] for the reporting period, increasing from 6% in the prior year (Table 6).
- Considering all categories of access licence, 62% of share component was inactive for the reporting period, an increasing from 7% on the prior year.
- Utilisation of available water from regulated supply (excludes uncontrolled flow usages) was down on the prior accounting period to 77%, (Figure 23).

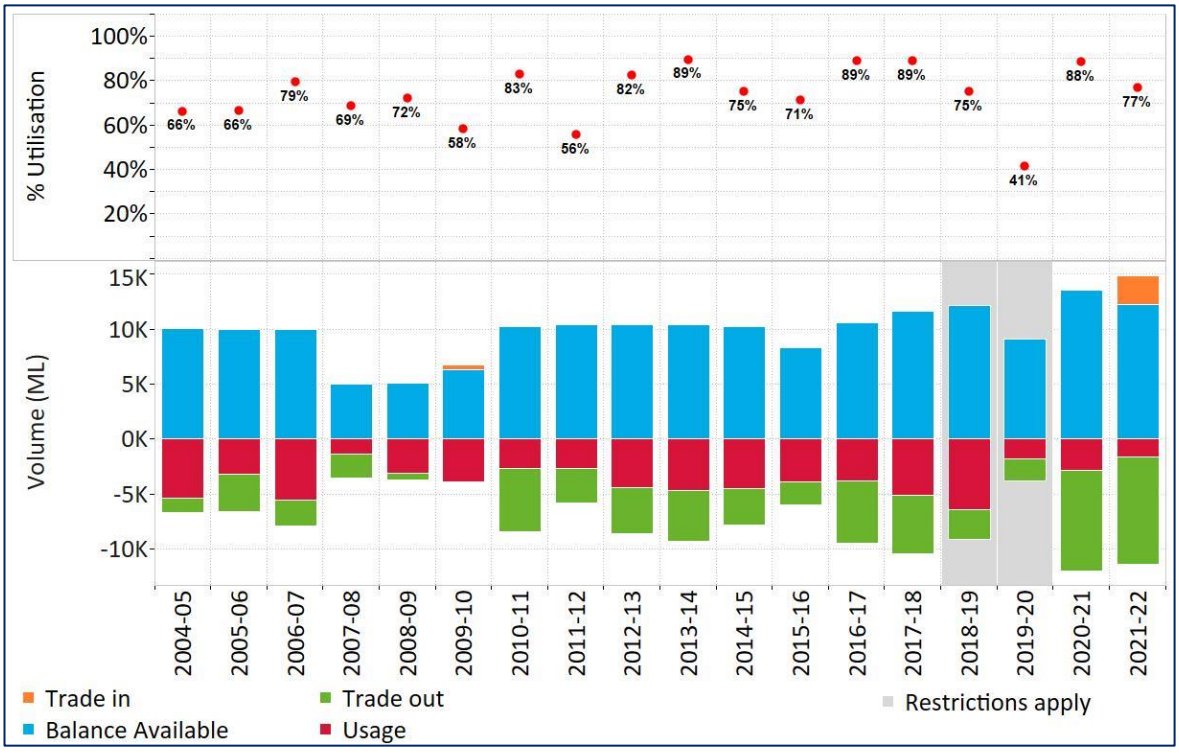
Table 6: Upper Namoi inactive licence summary for the reporting period

Licence category	Inactive licences 2021–22	Inactive share component 2021–22	Inactive share component % of total 2021–22	Inactive share component % of total prior year 2020–21
Domestic and Stock	13	74	100%	100%
Domestic and Stock [Domestic]	4	10	91%	100%
Domestic and Stock [Stock]	1	5	100%	0%
Local Water Utility	0	0	0%	0%
General Security	86	7796.5	65%	6%
High Security	4	10	13%	0%

[7] An access licence is inactive if the holding does not use water or access the temporary trade market for the reporting period.

Licence category	Inactive licences 2021–22	Inactive share component 2021–22	Inactive share component % of total 2021–22	Inactive share component % of total prior year 2020–21
Total	108	7895.5	62%	7%

Figure 23: Upper Namoi percentage utilisation[8]

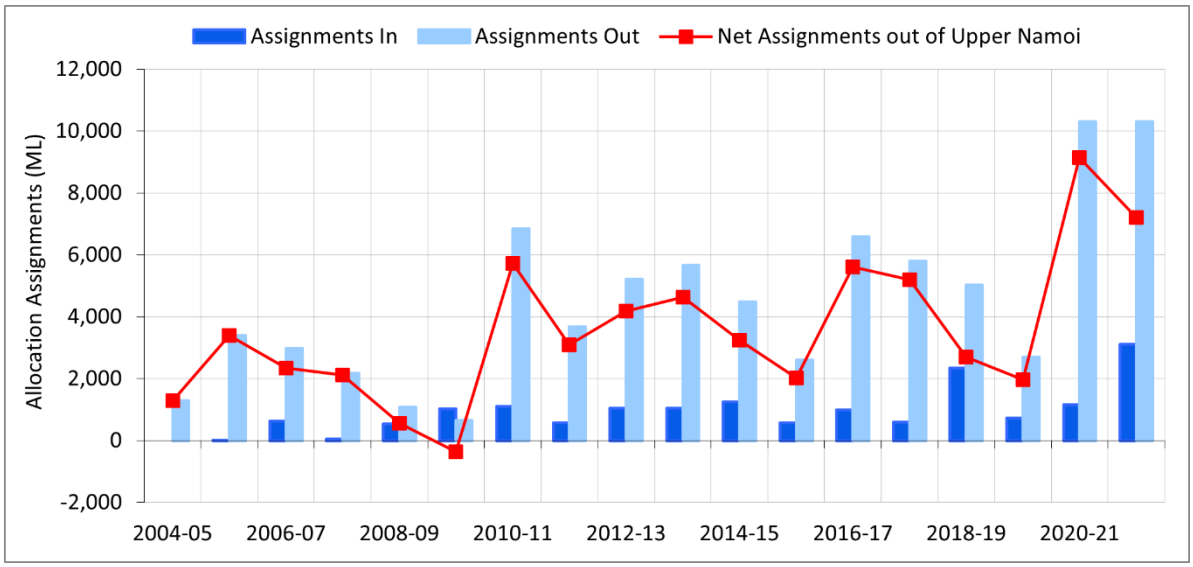


Temporary trading (allocation assignments)

- 10,311 megalitres of allocation was moved out of access licences in the upper Namoi water source and 3,107 megalitres moved in (a net trade out of 7,204 megalitres to the lower Namoi).
- The net trade volume out decreased from the previous reporting period and was the 2nd highest under water sharing plan management (Figure 24).

Figure 24: Upper Namoi trading summary

[8] Includes water availability plus trade in from external water sources against account usage and trade out to external water sources. Excludes supplementary and uncontrolled flow access.

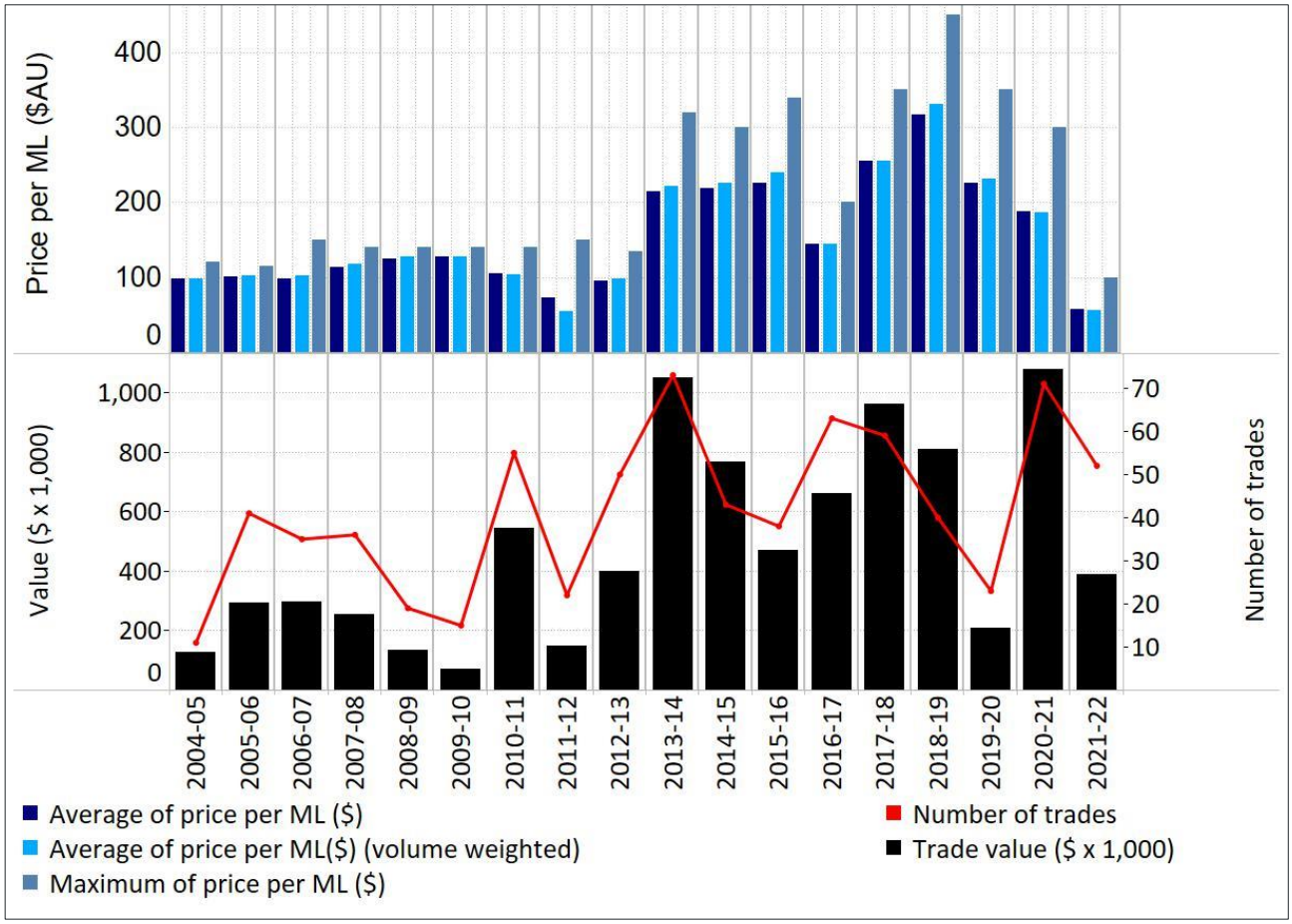


Commercial transactions

- 52 commercial trades[9] were processed, a decrease from the previous reporting period (Figure 25). A total of 6,988 megalitres was transferred under these commercial sales.
- Average consideration per megalitre was $57 ($55 weighted average).
- The maximum consideration paid for temporary water was $100 per megalitre.
- The total trade value was $387,403 (down from $1,077,000 in the prior reporting, and the 3rd lowest under water sharing plan management).

Figure 25: Upper Namoi allocation trading summary

[9] Trades have been considered commercial if consideration per megalitre/share exceeds $1



Permanent trading (commercial share assignments and transfer of licence)

- There has been minimal market activity since water management act implementation (2004–05 to current) (Figure 26).
- There were 4 General Security share assignments (71Q) in reporting period.
- Average trade share was $4,075 (weighted average of $4,204 per share) and a maximum of $4,300 per share.
- No historical sales of High Security have occurred.
- In addition to share assignments 4 commercial transactions (71M) were processed in the reporting period moving a total of 241 shares to a new holder (Figure 27).

Figure 26: Upper Namoi share assignments trade market statistics (General Security)

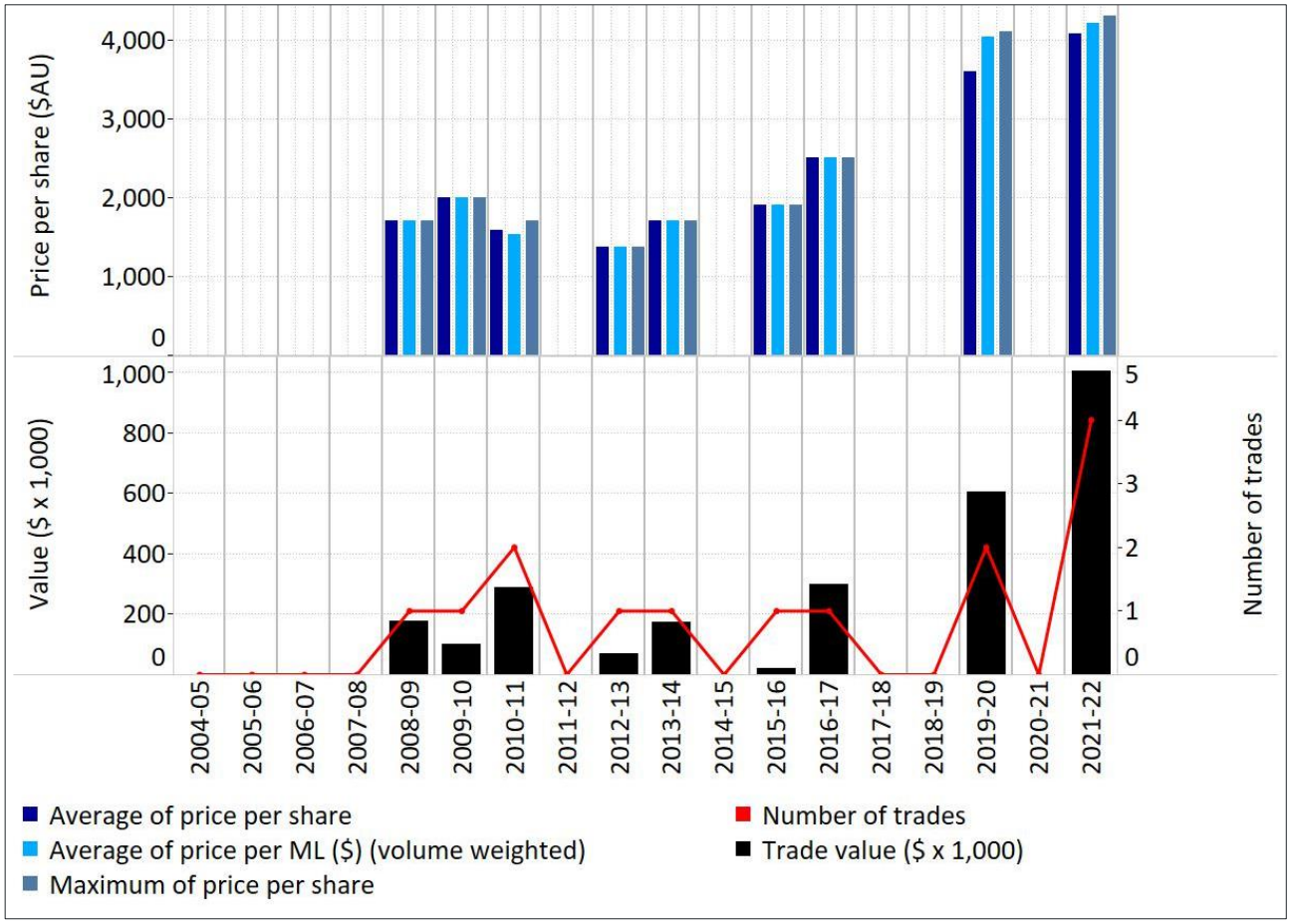
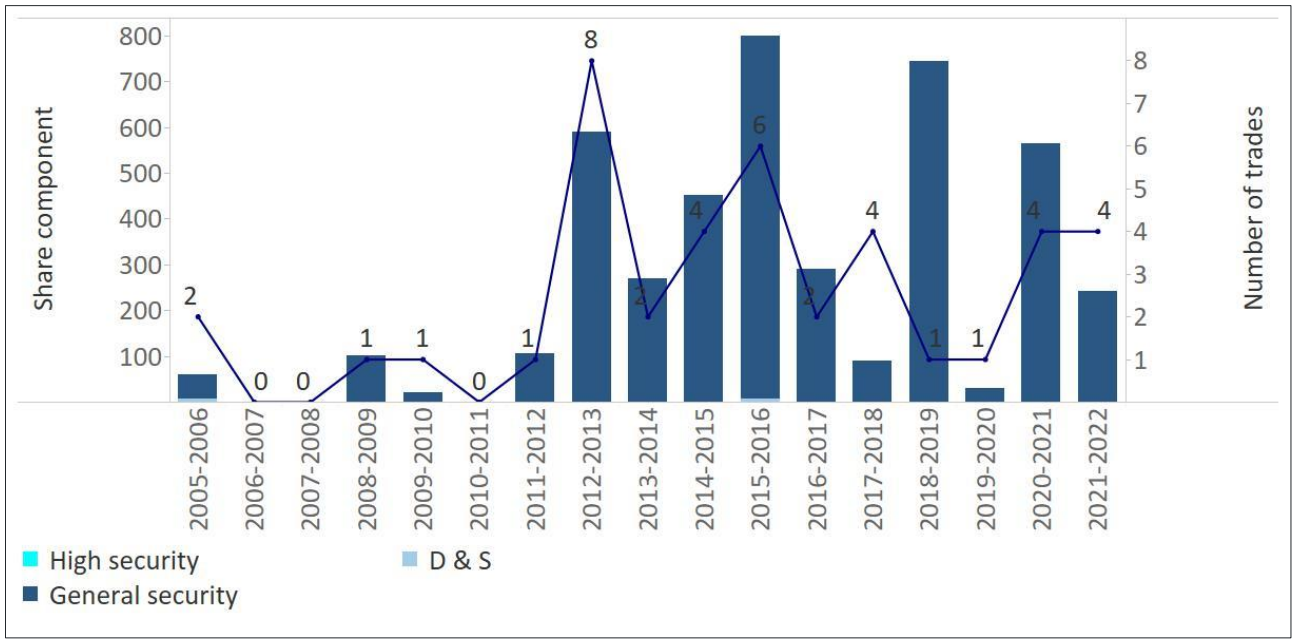


Figure 27: Upper Namoi transfers of licence (share)



Lower Namoi Regulated River Water Source

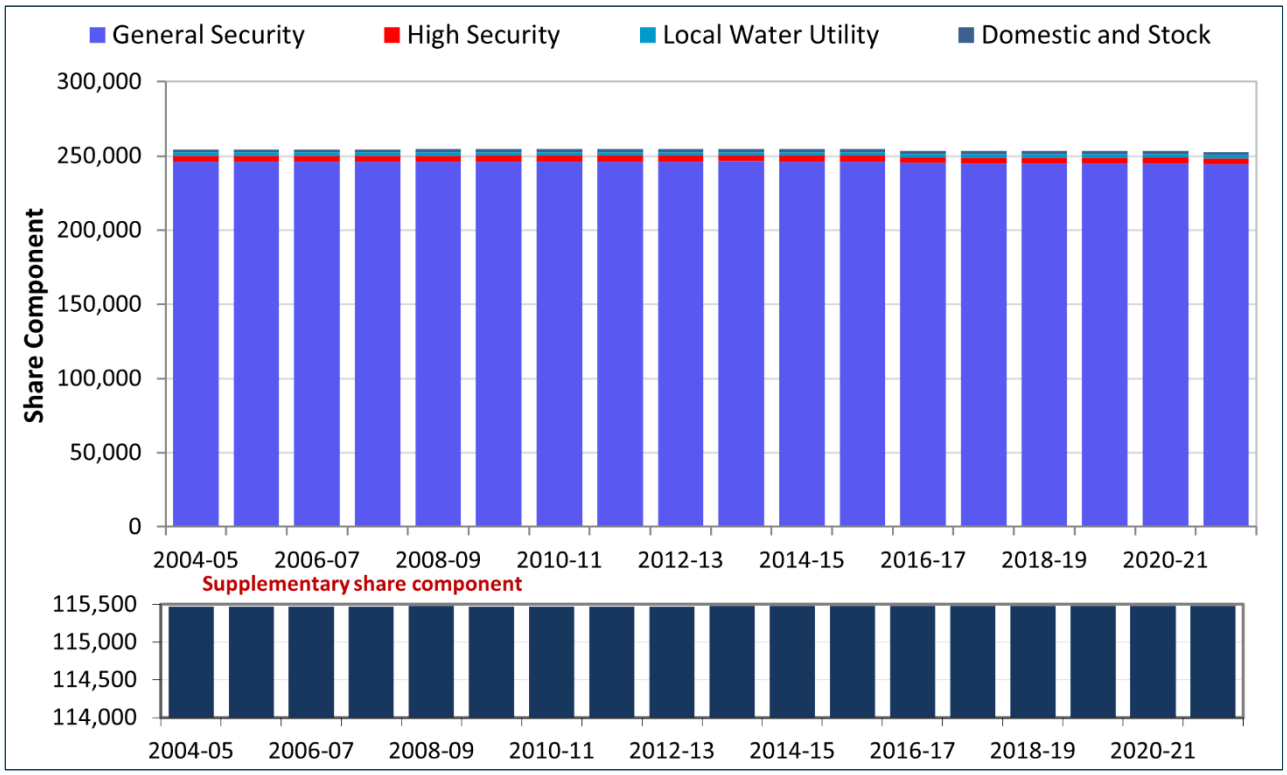
Access rights

- General Security decreased by 463 shares during the reporting period because of cancelled licences (Figure 28).
- Total share component at the end of the reporting period was 368,254 shares including 115,479 shares of supplementary water.

Table 7: Lower Namoi Issued share component

Licence category	Share component 30 June 2021	Share component 30 June 2022	Change
Domestic and Stock	1,721	1,704	0
Domestic and Stock (Domestic)	20	20	0
Domestic and Stock (Stock)	257	257	0
Local Water Utility	2,271	2,271	0
General Security	245,082	244,619	463
High Security	3,418	3,418	0
High Security (Research)	486	486	0
Supplementary Water	115,479.	115,479	0
Total	368,727	368,254	463

Figure 28: Lower Namoi issued share component since the commencement of the water sharing plan



Allocation Account summary

A summary illustration of the accounting for High Security and General Security access licence categories in the Namoi Regulated River is provided in Figure 29 and Figure 30 respectively. Detailed information on the water accounts for all categories of licence issued are provided in Note 1 of this report.

Figure 29 Annual water account summary Lower Namoi Water Source - High Security

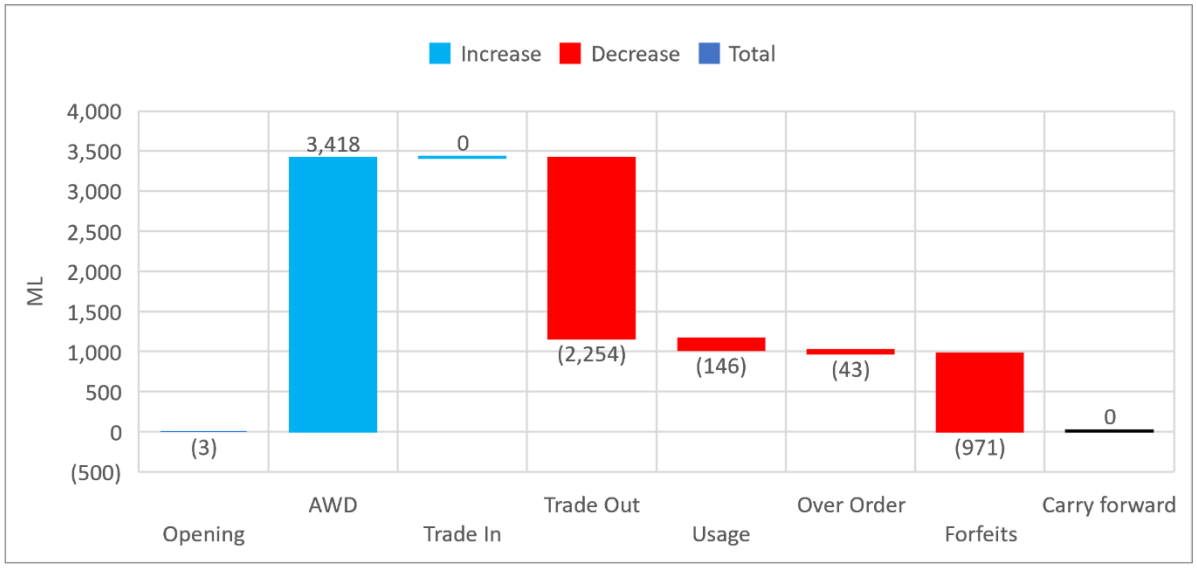
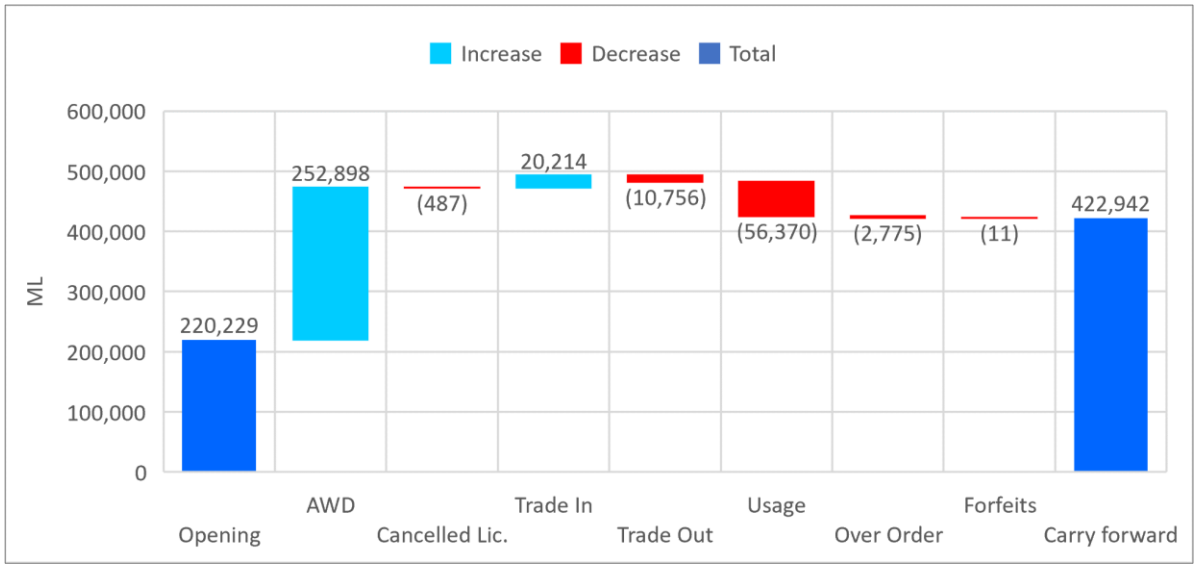


Figure 30 Annual water account summary Lower Namoi Water Source – General Security



Access licence account management

The licence allocation accounting rules that were in place are summarised in Table 8. We apply a continuous accounting procedure, and the rules allow for General Security licence holders to hold and carry over up to 2 megalitres per issued share. Annual account usage cannot exceed more than 1.25 megalitres per issued share and cannot exceed 3 megalitres per issued share in 3 years. All other categories have an account limit of 100% or 1 megalitre per share and cannot carry over water between water years.

Table 8: Lower Namoi licence allocation accounting rules

Licence category	Account limit	Carryover limit	Annual use limit	Maximum AWD	3-year use limit
Domestic and Stock	100%	0%	N/A	100%	N/A
Domestic and Stock [Domestic]	100%	0%	N/A	100%	N/A
Domestic and Stock [Stock]	100%	0%	N/A	100%	N/A
Local Water Utility	100%	0%	N/A	100%	N/A
Regulated river (General Security)	2 ML/share	2 ML/share	1.25 ML/share	N/A	3 ML/share
Regulated river (High Security)	1 ML/share	0 ML/share	N/A	1 ML/share	N/A
Regulated river (High Security) (Research)	1 ML/share	0 ML/share	N/A	1 ML/share	N/A
Supplementary	N/A	0 ML/share	N/A	1 ML/share	N/A

Extreme events stage and temporary water restrictions (Lower Namoi)

Generic policy background on the NSW extreme events policy and temporary water restrictions is provided under 'Extreme events stage and temporary water restrictions (Upper Namoi)' of this document

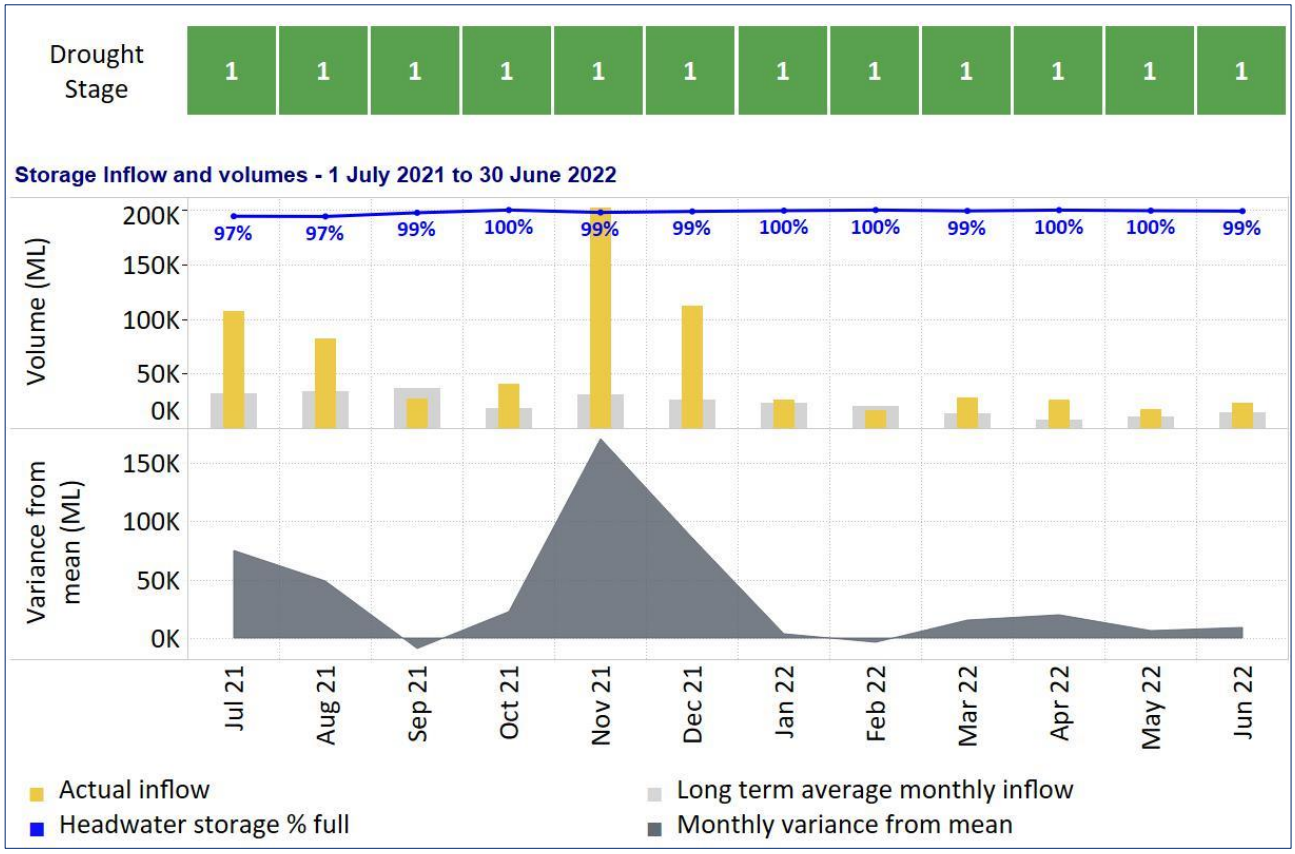
Temporary water restrictions for the reporting period

There were no restrictions in the Lower Namoi during the reporting period.

Extreme events stage

At the commencement of the 2021–22 reporting period the Lower Namoi River was in stage 1 (Normal Management) status with Keepit Dam at 78% of full supply volume

Figure 31: Drought stage for the reporting period referenced with monthly headwater storage inflows, monthly storage inflow variance from mean



Water availability

- Domestic and Stock, and Local Water Utility access licences (including sub-categories of these) received an equivalent opening AWD of 100%, the maximum allowable under the water sharing plan rules.
- Supplementary access licences received an opening AWD of 1 megalitre per share, the maximum allowable under the water sharing plan.
- General Security access licences carried 220,229 megalitres into 2021–22 (90% of issued share) and due to continuing drought, an opening AWD of zero megalitres per share.
- From 7 July 2021 till 7 of June 2022 there were 12 AWD announcements increasing effective allocation (carryover plus AWD) to 160% by 7 December 2021, 177% by 7 February 2022, and 193% with the final AWD on 7 June 2022.
- High Security (and the subcategory High Security – Research) received an opening AWD of 1.0 megalitres per share, the maximum allowable for this category (100% of issued share).
- Considering all categories with regulated supply (excludes supplementary), total water availability was the highest since 2012–13 (Figure 33)[6].

Figure 32: Incremental available water determination for Lower Namoi general security as a proportion of share component

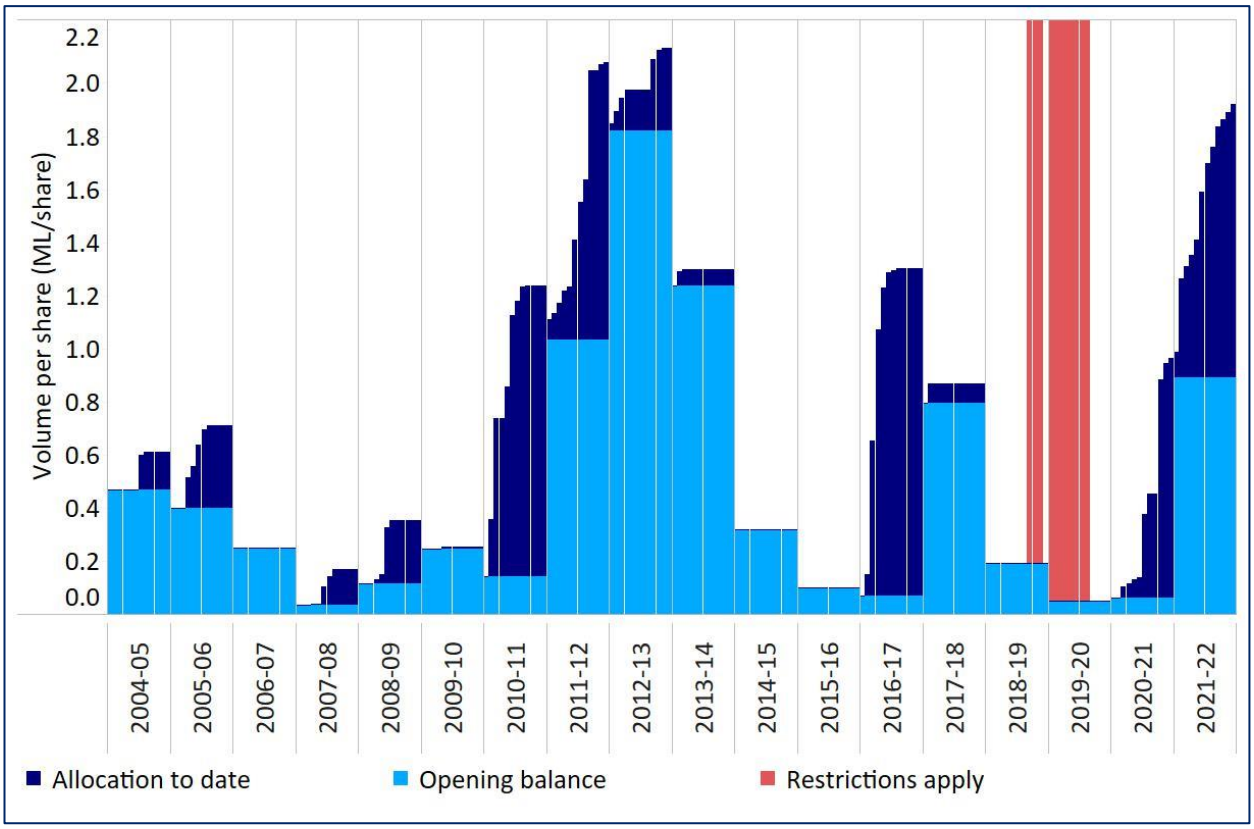
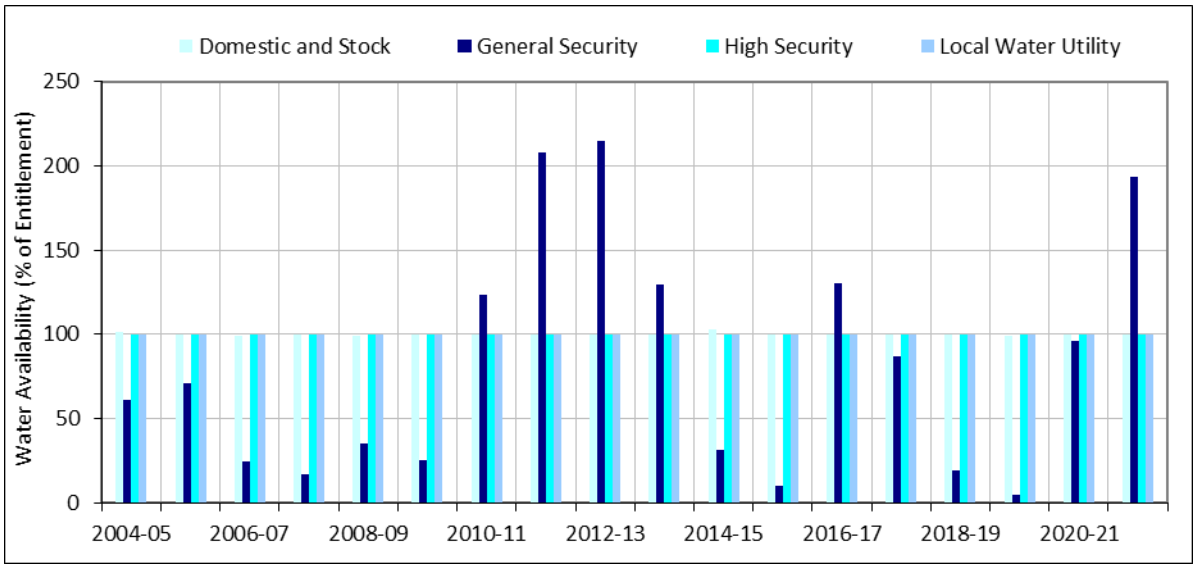


Figure 33: Lower Namoi account water availability (carryover + AWD)

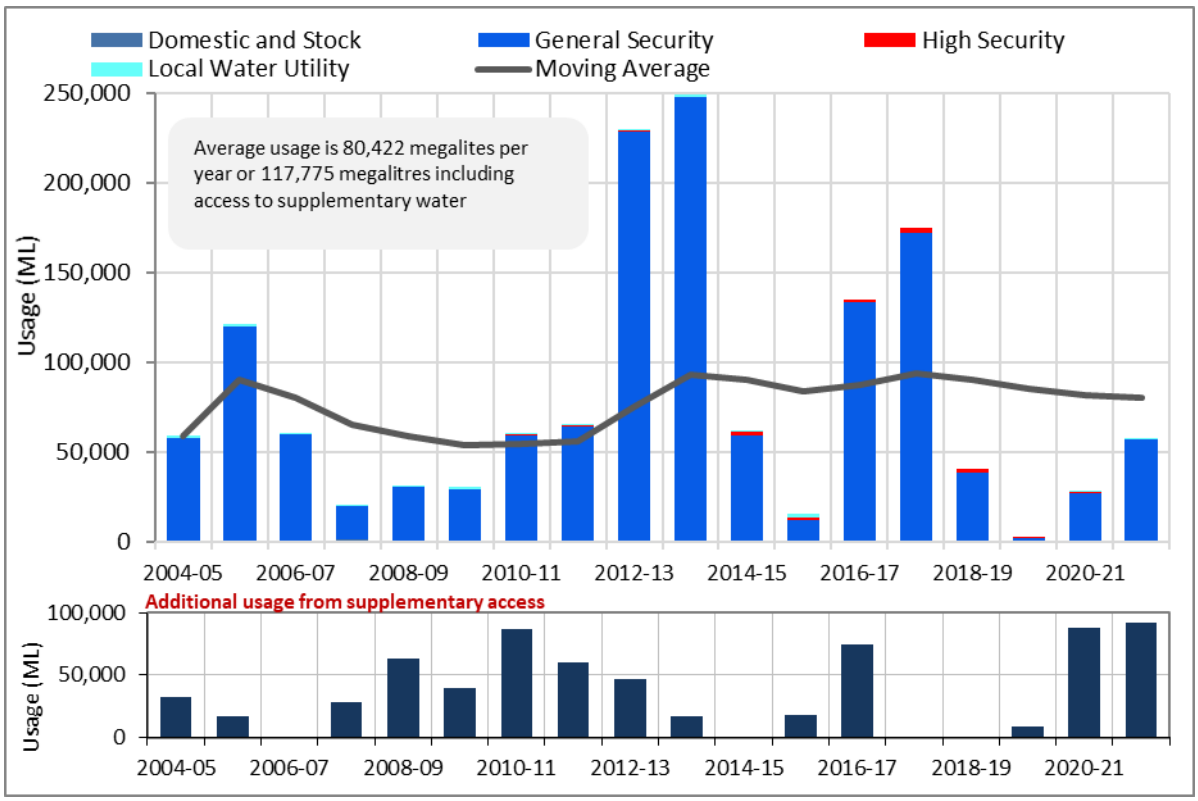


Account usage

- Usage from regulated supply (excluding supplementary water) totalled 57,585 megalitres for the reporting period (Figure 34)
- An additional 92,393 megalitres accessed through supplementary water events. Detailed information on supplementary access is available in note 20 of this GPWAR.
- Usage (across all categories) for the reporting period was 149,978 megalitres, which is higher than the average under water sharing plan management conditions (117,775 megalitres).

- Average usage from regulated supply only (excluding supplementary access) is 80,422 megalitres indicating over the long-term supplementary access accounts for approximately 30% of supply.

Figure 34: Lower Namoi usage by category (excludes supplementary diversions)



Utilisation and inactive share

- 24% of General Security share component was inactive[10] for the reporting period, decreasing from 26% in the prior year (Table 9).
- Considering all categories of access licence with regulated supply, 24% of share component was inactive for the reporting period, decreasing from 25% in the prior year.
- Supplementary water activity increased during the reporting period with only 4% of issued share inactive (8% in the prior reporting period)
- Utilisation[11] of water available to extract from regulated supply (excludes supplementary flow access) increased from 11% in the prior reporting period to 18% for 2021–22.
- This was the 3rd lowest utilisation under water sharing plan management conditions (Figure 35). This is likely due to supplementary water being made available during the reporting period as a result of good rainfall in November and January reducing the need to access general security water.

Table 9: Lower Namoi inactive licence summary[12]

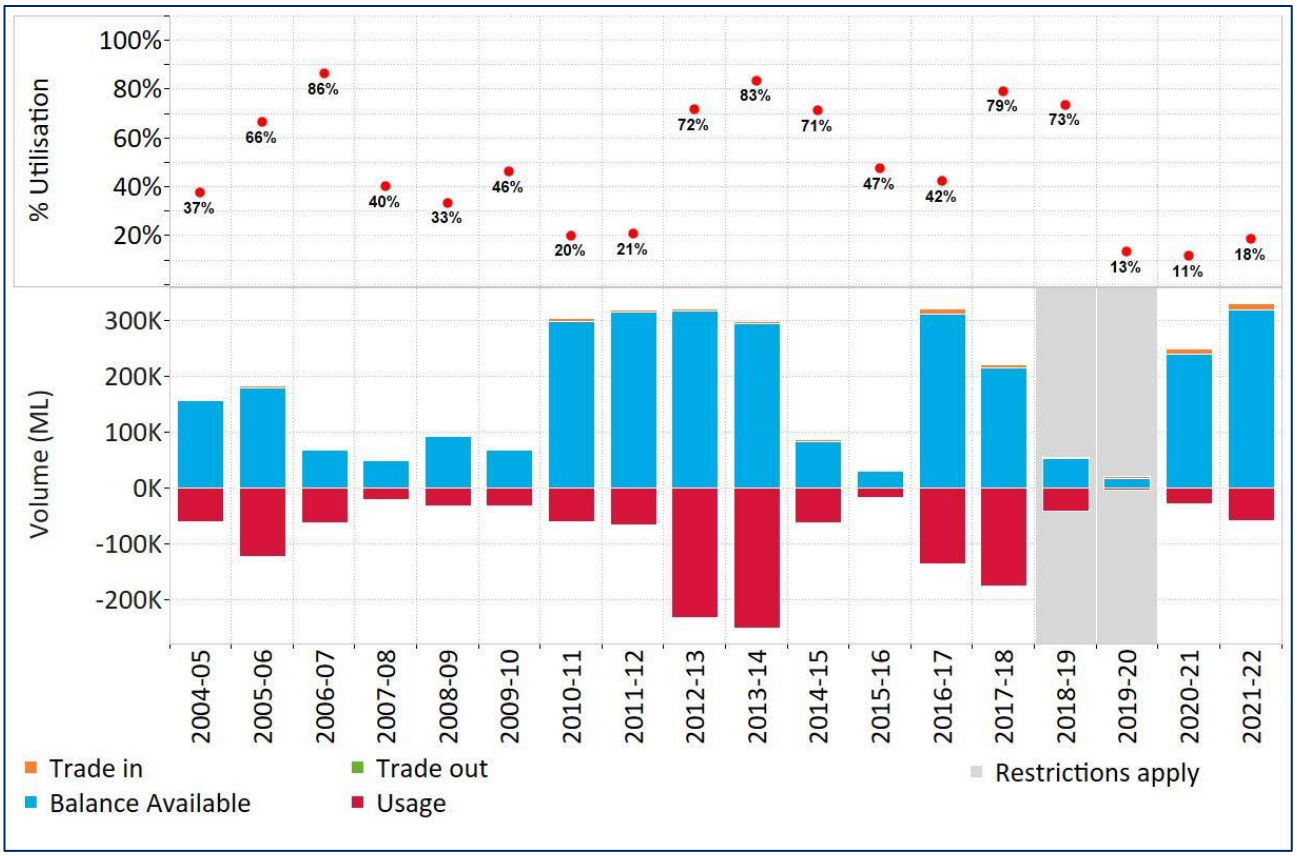
[10] An access licence is considered to be inactive if the holding does not use water or access the temporary trade market for the reporting period.

[11] Utilisation reflects the amount of water used, relative to the maximum amount available for use.

[12] Inactive licences are those licences that have no usage or allocation trade for the water year.

Licence category	Inactive licences 2021–22	Inactive share component 2021–22	Inactive share % of total 2021–22	Inactive share component % of total prior year 2020–21
Domestic and Stock	66	925	56%	52%
Domestic and Stock [Domestic]	5	20	100%	70%
Domestic and Stock [Stock]	20	232	90%	73%
Local Water Utility	0	-	0%	0%
General Security	145	59,306	24%	26%
High Security	5	150	4%	3%
High Security [Research]	0	0	0%	0%
Total (regulated supply)	241	60,633	24%	25%
Supplementary water	76	4,694	4%	8%

Figure 35: Lower Namoi percentage utilisation[13]

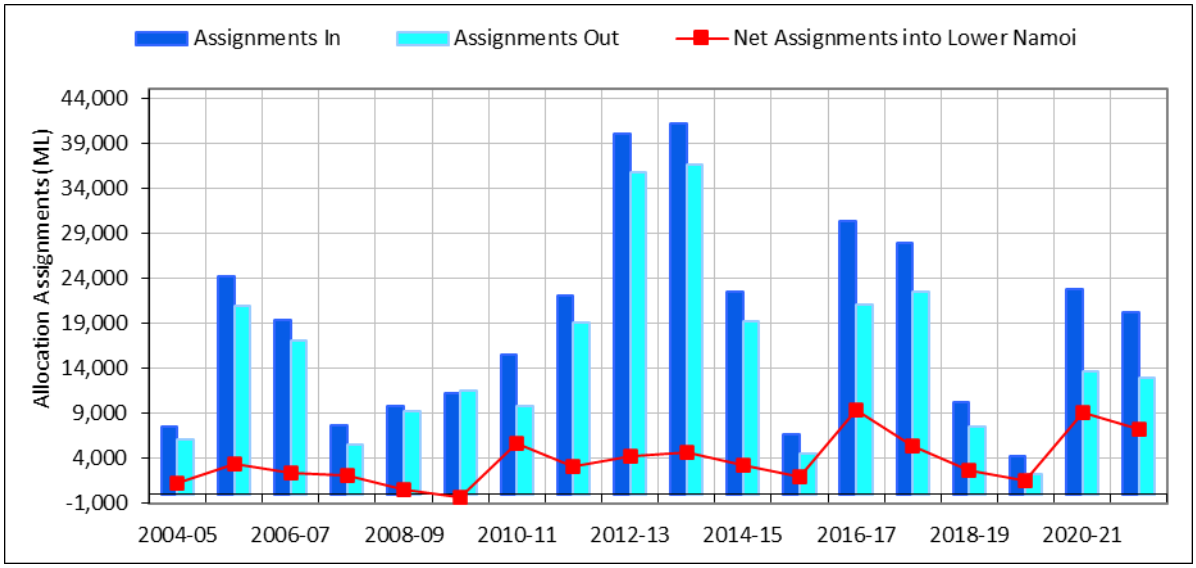


[13] Water availability plus trade in from external water sources against account usage and trade out to external water sources. Excludes supplementary and uncontrolled flow access

Temporary trading (allocation assignments)

- Excluding supplementary water trading, 13,010 megalitres of allocation was moved out of access licences in the lower Namoi water source and 20,214 megalitres moved in (a net trade in of 7,204 megalitres regulated supply to the lower Namoi) (Figure 37)[14].
- Additionally, 7,007 megalitres was assigned between supplementary water access licences
- Allocation assignments between the Peel and Lower Namoi are no longer permitted under the water sharing plan.
- Total trade volume decreased by 11 % compared to the previous reporting period.

Figure 36: Lower Namoi trading summary



Commercial transactions

- Considering commercial temporary trading activity, and excluding supplementary water, the average price of water decreased to $110 per megalitre ($77 weighted average) for the reporting period. (Figure 37). A total of 5,080 megalitres was transferred in 18 transactions.
- The maximum consideration for temporary water was $250 per megalitre.
- The total trade value was $393,000 (down from $1,719,000 in the prior reporting period)

Permanent trading (commercial share assignments and transfer of licence)

- There was 1 General Security commercial share assignment with an average price of $3,450 per share ($3,450 weighted average)
- The maximum per share was of $3,450 for the reporting period (Figure 38).
- The total trade value was $342,000
- In addition to share assignments, 21,479 shares (17 transactions) were exchanged for commercial consideration through transfer of licence dealings (Figure 39), including 7,346 shares of supplementary water.

Figure 37: Lower Namoi allocation assignments — trade consideration statistics

[14] Supplementary licence trade has been excluded from this plot.

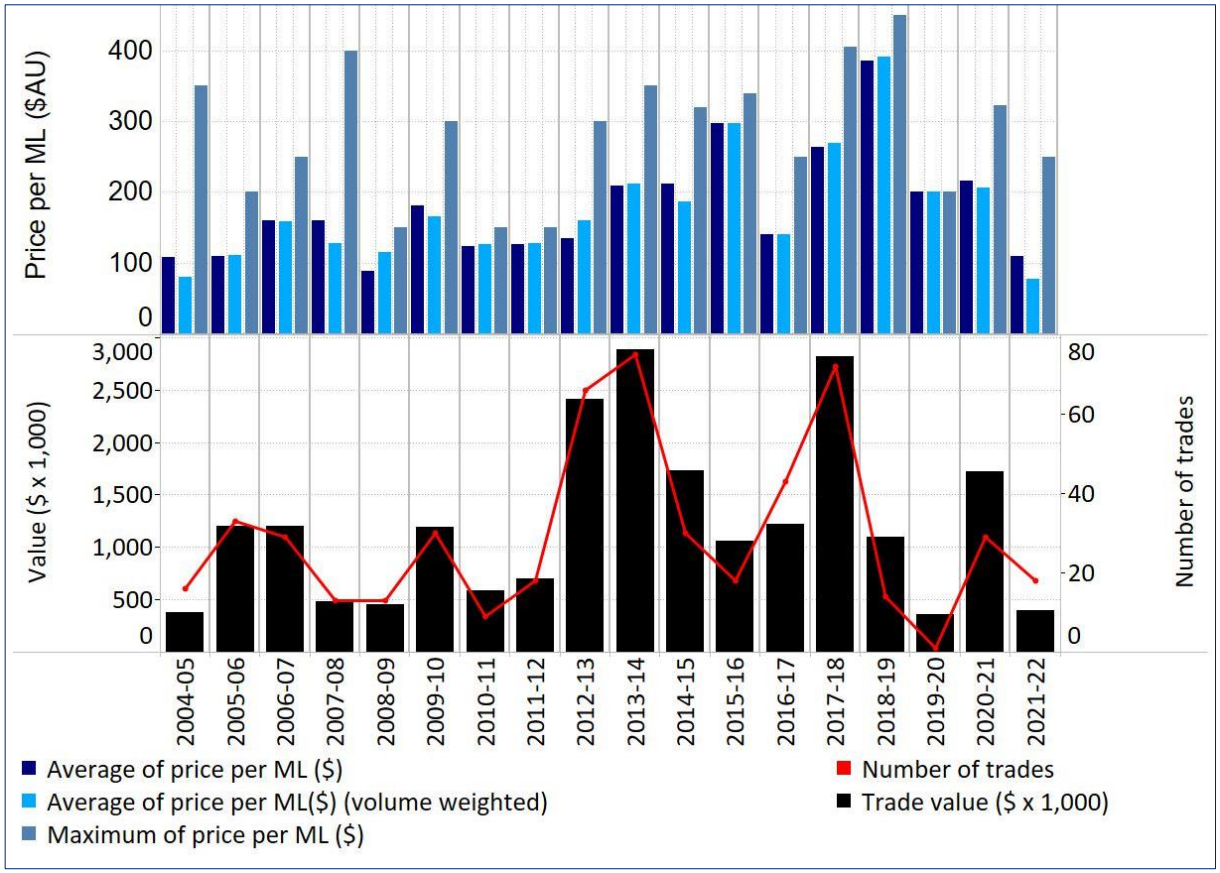


Figure 38: Lower Namoi share assignments trade market statistics (General Security)

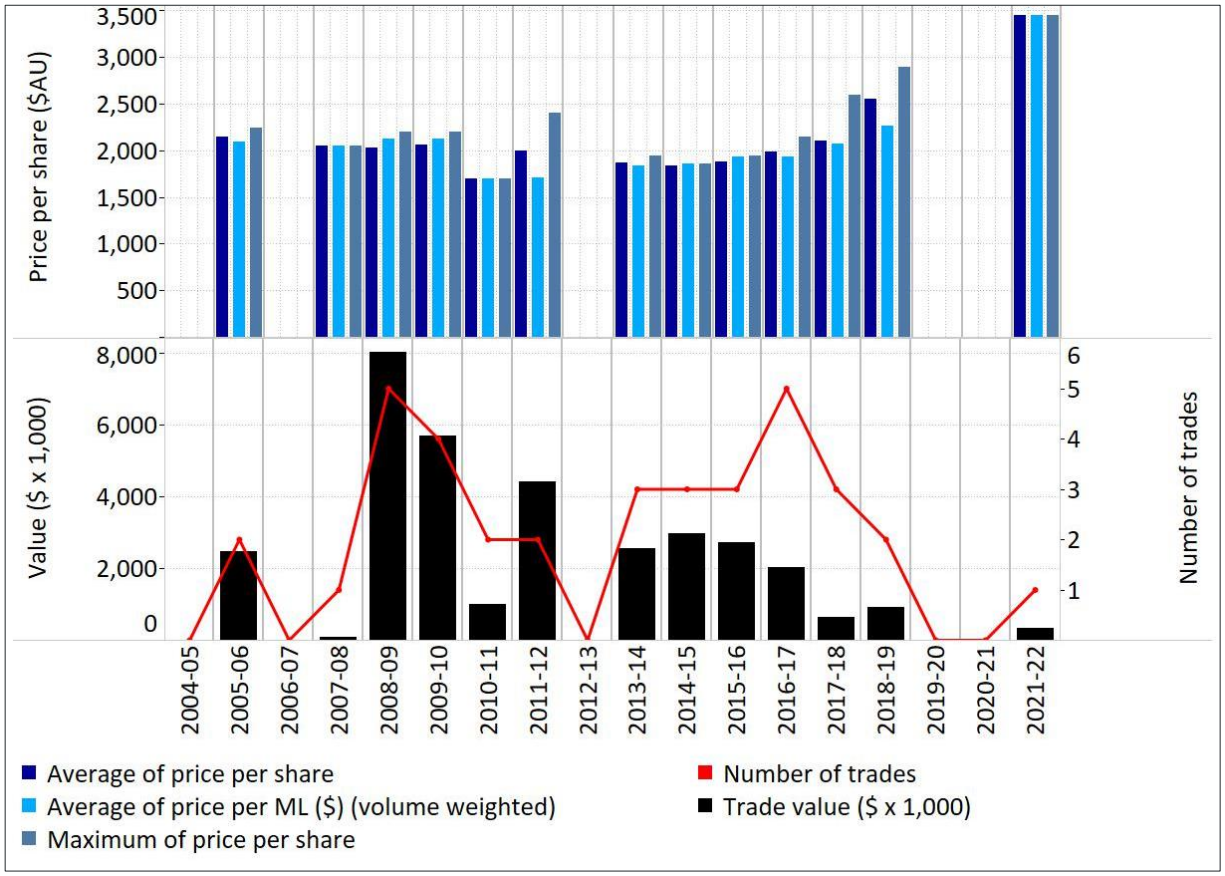
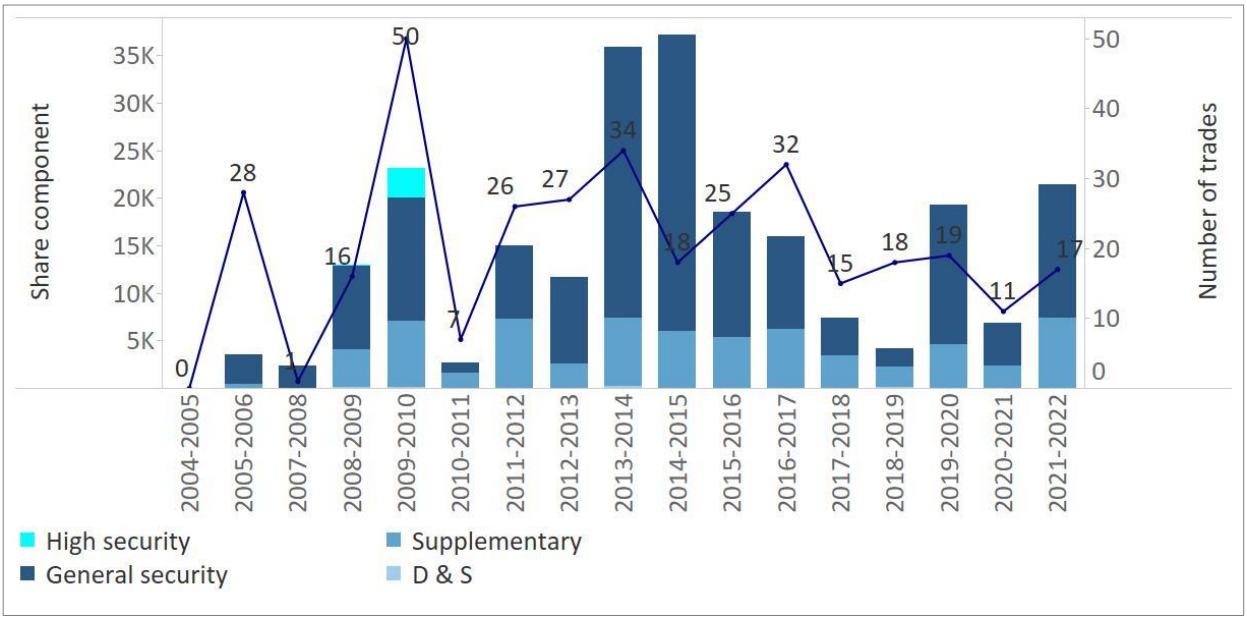


Figure 39: Lower Namoi transfers of licence (share)[15]



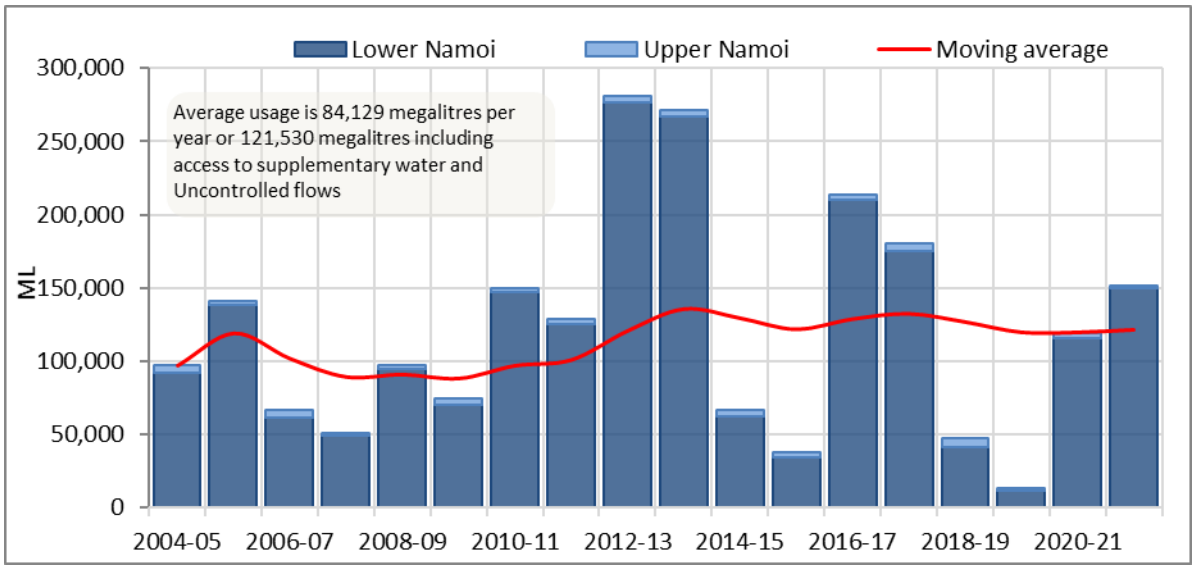
Total usage (combined upper and lower Namoi)

- Considering all categories of access licence and uncontrolled flow provisions, total usage in the combined Namoi[16] was 151,627 megalitres including 92,393 megalitres of supplementary usage.
- The water sharing plan moving-average usage was increased slightly to 121,530 megalitres per year (including supplementary usage)
- Average usage excluding supplementary water was 84,129 megalitres which is a decrease from the previous reporting period (Figure 40).

Figure 40: Namoi combined-average annual account usage and moving-average usage

[15] Only includes transactions where the total consideration of the dealing exceeds $1. All licence categories have been included.

[16] Total annual account usage in the Namoi includes all account usage in both the upper and lower Namoi, which includes the supplementary use in the Lower Namoi.



Environmental water

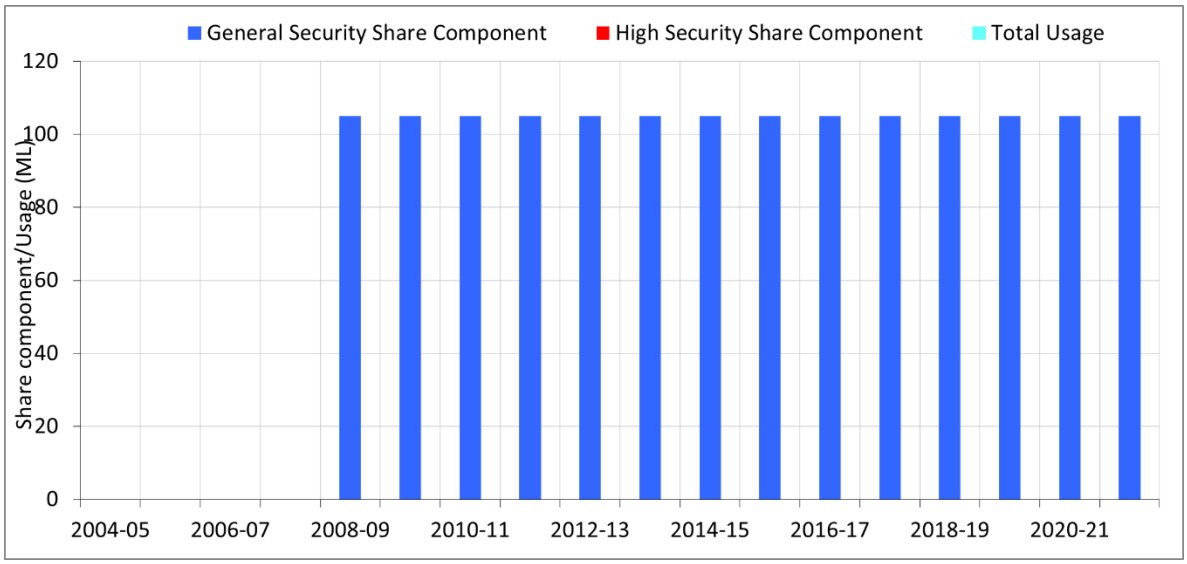
Held environmental water

Held environmental water refers to access licences that are managed to sustain and improve environmental outcomes within the system.

Upper Namoi

- There was no increase to held environmental water in the Upper Namoi for the reporting period (Figure 41).
- Held environmental water totalled 105 General Security shares at the closure of reporting period.
- A High Security licence of zero share component has been held since 2008–09.
- No usage has occurred against the holdings (however, trading to the Lower Namoi for environmental releases is common).
- Carry forward at the end of the reporting period was 0 megalitres

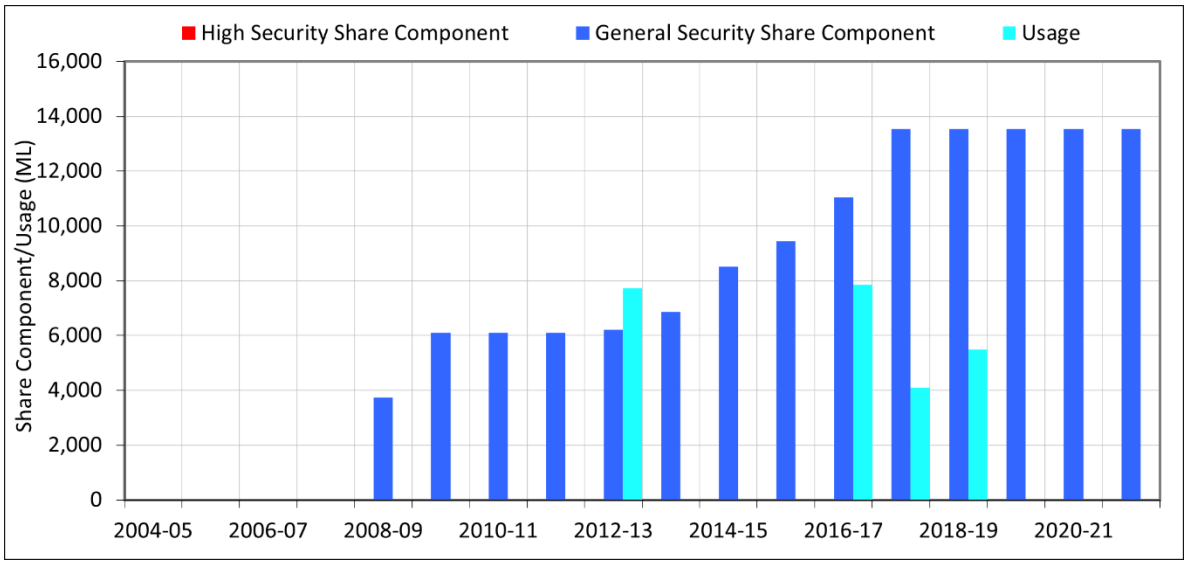
Figure 41: Held environmental water share component and usage in the Upper Namoi



Lower Namoi

- Held environmental water General Security share component totalled 13,548 shares at the closure of reporting period (Figure 42).
- No usage for environmental licences was recorded during the reporting period.
- Carry forward at the end of the reporting period was 27,096 megalitres.

Figure 42: Held environmental water share component and usage in the Lower Namoi



Planned environmental water

Planned environmental water refers to environmental provisions allowed for under Part 3 of the water sharing plan.

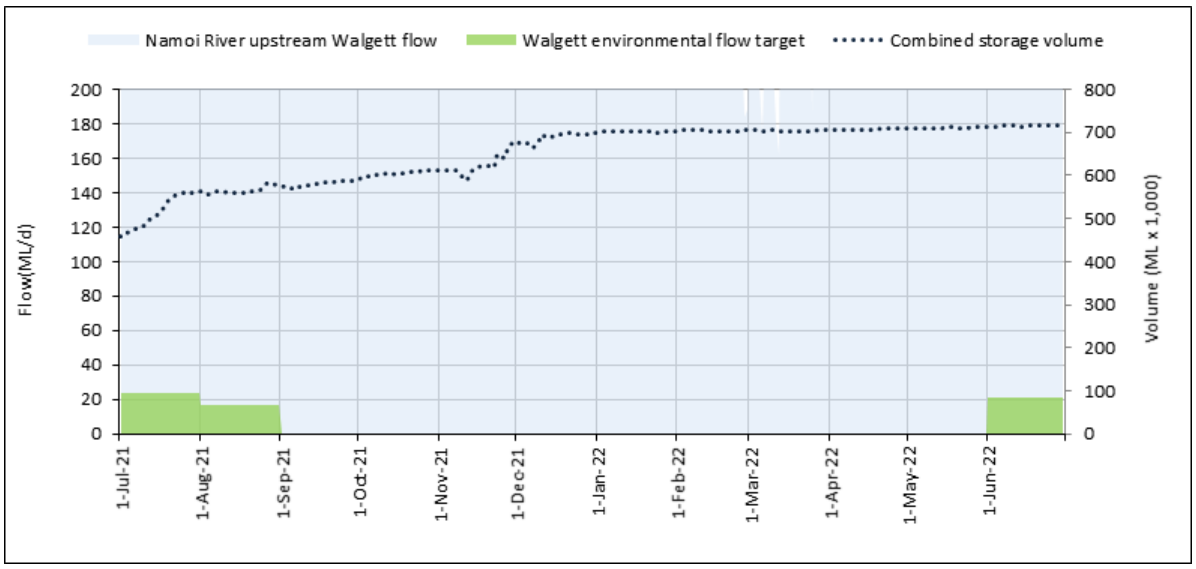
Upper Namoi

There are no specific planned environmental rules relevant for the Upper Namoi (the long-term average annual extraction limit applies to both the upper and lower Namoi collectively).

Lower Namoi

The combined storage volume (Split Rock and Keepit) surpassed 120,000 megalitres during July 2021, resulting in the re-activation of the Walgett end of system environmental flow target. The required target was always met. Combined storage volume, flows and flow targets are illustrated in Figure 43.

Figure 43: Minimum flow requirement performance



Water accounting statements

Significant water accounting policies

We have prepared the water accounting statements in this GPWAR using an accrual basis of accounting. All figures are in megalitres (ML).

We have excluded the 'Statement of Physical Flows' for this GPWAR as we have presented all transactions in the statements of 'Water Assets and Liabilities' and 'Changes in Water Assets and Water Liabilities'.

We have included a diagram representing the physical movements of water to provide a clearer depiction of the accounting processes associated with physical flow movement.

For a detailed explanation of how to interpret the NSW Department of Planning and Environment water accounting statements refer to *Interpreting New South Wales Office of Water General Purpose Water Accounting Reports*, which is available for download on from the NSW Department of Planning and Environment website (www.industry.nsw.gov.au/water).

Quantification of data

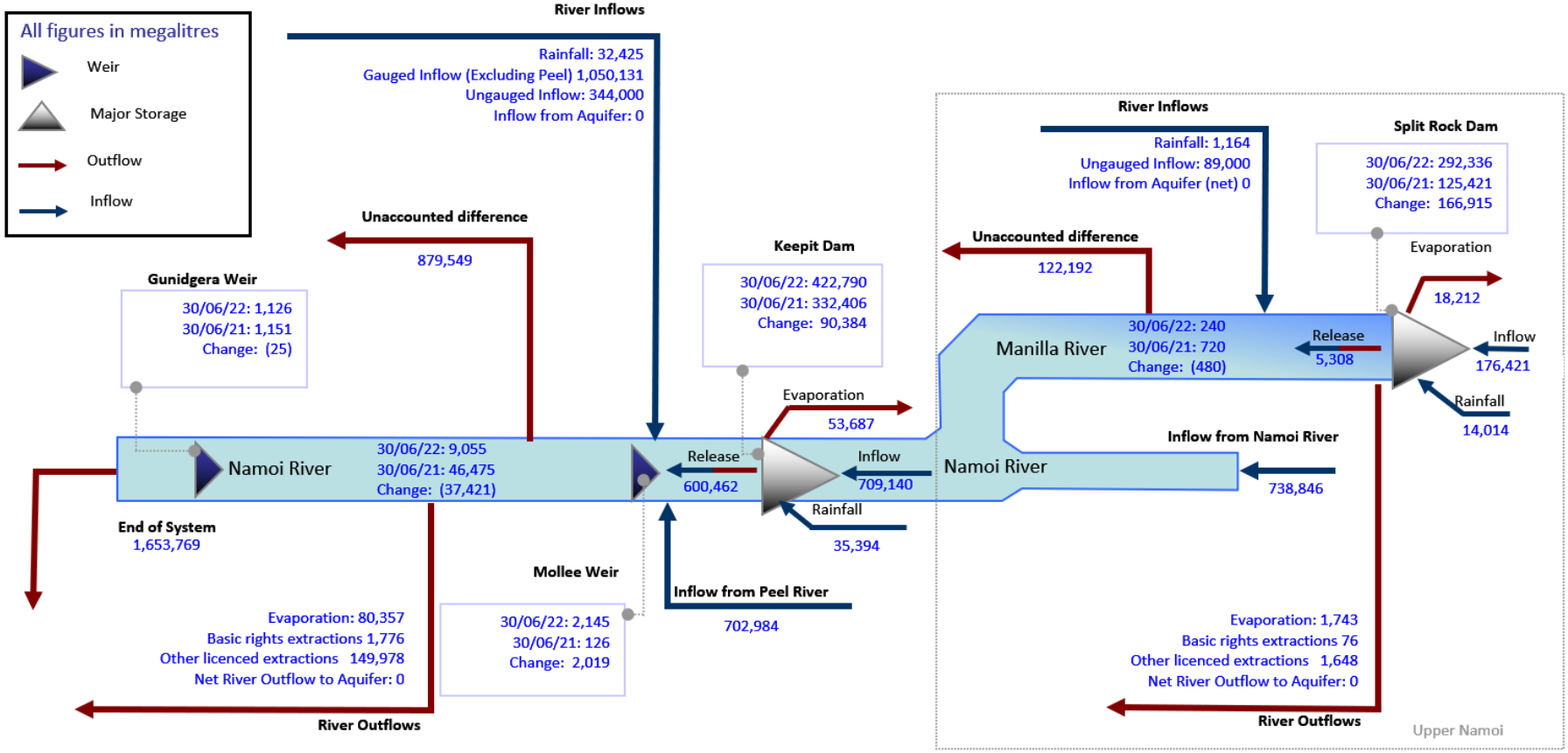
Data accuracy

We have gathered the data used to account for water movement and management from a variety of sources and systems. The data ranges from observed values, where a high accuracy would be anticipated, through to modelled results and estimates, where accuracy can be highly variable, depending on a range of factors. To address the inconsistencies in accuracy and prevent misuse of the data in the accounts, we have added an assessment of accuracy to all figures in the water accounting statements (Table 10).

Table 10: Water account data accuracy estimates key

Accuracy	Description
A1	+/- 0% Data is determined rather than estimated or measured. Therefore, the number contains no inaccuracies.
A	+/- 10%
B	+/- 25%
C	+/- 50%
D	+/- 100%

2021–22 Namoi physical flows mass balance diagram



River inflows and outflows are totalled for the regulated accounting extent

River extractions considers gross diversions (recredits),in stream e-water use and ordered water leaving the system that accounted in other outflow items (detailed in note 21)

Statement of water assets and water liabilities[17]

For the year ended 30 June 2022

In all tables (..) denotes a negative value.

Surface water assets

Surface Water Storage	Accuracy	Notes	30-06-2022	30-06-2021
Split Rock	A	8	292,336	125,421
Keepit	A	8	422,790	332,406
Regulated River - Upper Namoi	A	9	240	720
Regulated River - Lower Namoi	A	9	9,055	46,475
Mollee Weir	B	8	2,145	126
Gunidgera Weir	B	8	1,126	1,151
Total surface water storage (Asws)	-	-	727,692	506,299
Change in surface water storage	-	-	221,392	414,795

Surface water liabilities

Allocation account balances	Accuracy	Notes	30-06-2022	30-06-2021
Upper Namoi	-	-	-	-
Domestic And Stock	A	1	0	0
Domestic And Stock (Domestic)	A	1	0	0
Domestic And Stock (Stock)	A	1	0	0
General Security	A	1	1,190	646
High Security	A	1	0	0
Local Water Utility	A	1	0	0
Lower Namoi	-	-	-	-
Domestic And Stock	A	1	0	0
Domestic And Stock (Domestic)	A	1	0	0
Domestic And Stock (Stock)	A	1	0	0
General Security	A	1	422,942	220,229
High Security	A	1	0	(3)
High Security (Research)	A	1	0	(0)
Local Water Utility	A	1	0	0
Total allocation account balances (Lalloc)	-	-	424,133	220,872
Change in allocation accounts	-	-	203,261	201,392

Surface water net changes

Surface water net assets	30-06-2022	30-06-2021
Net surface water assets (Asws-Lalloc)	303,559	285,428
Change in net surface water assets	18,131	213,403

[17] There may be minor variations from past publications due to improved estimates. Changes will be captured as account adjustments.

Changes in water assets and water liabilities

For the year ended 30 June 2022

1. Changes in surface water storage (physical water balance)

Surface Water Storage Inflows	Accuracy	Notes	30-06-2022	30-06-2021
Split Rock	-	-	-	-
Inflow	A	10	176,421	113,687
Rainfall	B	11	14,014	5,406
Keepit	-	-	-	-
Inflow	A	10	709,140	316,183
Rainfall	B	11	35,394	17,536
Upper Namoi Regulated River	-	-	-	-
Rainfall	B	12	1,164	1,352
Gauged inflow	A	13	738,846	323,708
Ungauged inflow	C	14	89,000	38,000
Inflow from storage releases	A	15	5,308	8,049
Lower Namoi Regulated River	-	-	-	-
Rainfall	B	12	32,425	13,457
Gauged inflow	A	13	1,753,115	425,964
Ungauged inflow	C	14	344,000	8,000
Inflow from groundwater	B	21		
Inflow from storage releases	A	15	600,462	40,999
Total Surface Water Storage Increases (Isws)	-	-	4,499,289	1,312,341

Surface Water Storage Outflows	Accuracy	Notes	30-06-2022	30-06-2021
Split Rock	-	-	-	-
Evaporation	B	11	18,212	6,961
Release (valve/spillway)	A	15	5,308	8,049
Keepit	-	-	-	-
Evaporation	B	11	53,687	28,809
Release (valve/spillway)	A	15	600,462	40,999
Upper Namoi Regulated River	-	-	-	-
Evaporation	B	12	1,743	1,797
Flow leaving	A	10	709,140	316,183
Basic landholder rights extractions	A	18	76	76
Extractions	A	17	1,648	2,802
Unaccounted difference	A	22	122,108	49,578
Lower Namoi Regulated River	-	-	-	-
Evaporation	B	12	80,357	25,896
Flow leaving	A	16	1,653,769	189,275
Basic landholder rights extractions	A	18	1,776	1,776
Extractions	A	17	149,978	115,993
Loss to groundwater	C	21	-	-
Unaccounted difference	A	22	879,549	109,269
Total Surface Water Storage Decreases (Dsws)	-	-	4,277,896	897,546
Net Surface Water Storage Inflow (Isws-Dsws)	-	-	221,392	414,795

2. Changes in allocation accounts

Allocation Account Increases	Accuracy	Notes	30-06-2022	30-06-2021
Upper Namoi	-	-	-	-
Available water determination	-	-	-	-
Domestic And Stock	A1	2	74	74
Domestic And Stock (Domestic)	A1	2	11	12
Domestic And Stock (Stock)	A1	2	5	5
General Security	A1	2	10,907	8,246
High Security	A1	2	80	80
Local Water Utility	A1	2	515	515
Unregulated flow demand	-	-	-	-
Uncontrolled flow (demand)	A	24	0	0
Assignments in	A1	5	3,107	1,164
Lower Namoi	-	-	-	-
Available water determination	-	-	-	-
Domestic And Stock	A1	2	1,704	1,721
Domestic And Stock (Domestic)	A1	2	20	20
Domestic And Stock (Stock)	A1	2	257	257
General Security	A1	2	252,898	220,894
High Security	A1	2	3,418	3,418
High Security (Research)	A1	2	486	486
Local Water Utility	A1	2	2,271	2,271
Unregulated flow demand	-	-	-	-
Supplementary water (demand)	A	20	92,393	87,769
Assignments in	A1	5	20,214	22,780
Total Allocation Account Increases (Iaa)	-	-	388,360	349,711

Allocation Account Decreases	Accuracy	Notes	30-06-2022	30-06-2021
Upper Namoi	-	-	-	-
Account usage	-	-	-	-
Domestic And Stock	A1	3	0	0
Domestic And Stock (Domestic)	A1	3	0	0
Domestic And Stock (Stock)	A1	3	0	5
General Security	A1	3	1,486	2,567
High Security	A1	3	5	32
Local Water Utility	A1	3	158	198
Uncontrolled flow (supply)	A	24	0	0
Account forfeits	-	-	-	-
Domestic And Stock	A1	1	74	74
Domestic And Stock (Domestic)	A1	1	11	11
Domestic And Stock (Stock)	A1	1	5	0
General Security	A1	1	1,672	481
High Security	A1	1	76	38
Local Water Utility	A1	1	357	317
Licence cancelled	-	-	-	-
Domestic And Stock (Domestic)	A1	1	0	1

Allocation Account Decreases	Accuracy	Notes	30-06-2022	30-06-2021
Assignments out	A1	5	10,311	10,301
Lower Namoi	-	-	-	-
Account usage	-	-	-	-
Domestic And Stock	A1	3	492	623
Domestic And Stock (Domestic)	A1	3	0	4
Domestic And Stock (Stock)	A1	3	25	31
General Security	A1	3	56,370	26,504
High Security	A1	3	146	457
High Security (Research)	A1	3	384	303
Local Water Utility	A1	3	168	303
Supplementary Water (supply)	A	20	92,393	87,769
Account forfeits	-	-	-	-
Domestic And Stock	A1	1	1,184	1,070
Domestic And Stock (Domestic)	A1	1	20	15
Domestic And Stock (Stock)	A1	1	227	225
General Security	A1	1	11	0
High Security	A1	1	971	215
High Security (Research)	A1	1	1	183
Local Water Utility	A1	1	2,103	1,968
Over order debit	-	-	-	-
Domestic And Stock	A	4	28	11
Domestic And Stock (Domestic)	A	4	1	1
Domestic And Stock (Stock)	A	4	5	2
General Security	A	4	2,775	860
High Security	A	4	43	92
High Security (Research)	A	4	101	0
Local Water Utility	A	4	0	0
Licence cancelled				
Domestic And Stock	A1	1	0	17
General Security	A1	1	487	0
Assignments out	A1	5	13,010	13,643
Total Allocation Account Decreases (Daa)	-	-	185,099	148,320
Net Allocation Account Balance Increases (Iaa-Daa)	-	-	203,261	201,392

3. Overall changes

Change in surface water net assets	30-06-2022	30-06-2021
Change in Net Surface Water Assets (Isws-Dsws-Iaa+Daa)	18,131	213,403

Note disclosures

Reconciliation and future prospect descriptions

In all tables (..) denotes a negative value.

Reconciliation of change in net water asset to net change in physical water storage[18]	2021-22	2020-21
Change in net surface water assets	18,132	213,403
Non-physical adjustments	-	-
Net change in allocation accounts	203,261	201,392
Net change in physical surface water storage	221,420	414,795

Reconciliation of closing water storage to total surface water assets		30 June 2022	30 June 2021
Closing water storage		-	-
Surface water storage		727,692	506,299
less	River volume (Upper)	(240)	(720)
less	River volume (Lower)	(9,055)	(46,475)
less	Gunidgera weir volume	(1,126)	(1,151)
Less	Mollee weir volume	(2,145)	(126)
Total surface water assets[19]		715,126	457,827

Water assets available to settle water liabilities and future commitments within 12 months of reporting date

The links below give the latest water availability information for the Upper Namoi and Lower Namoi Regulated River Water Sources. This includes carryovers and available water determinations at the time of reporting, along with probability information about the reliability of the Namoi system.

Latest water availability

You can find the latest information on water availability, including water allocation statements, water allocations summaries and the latest available water determinations, on the NSW Department of Planning and Environment webpage (www.industry.nsw.gov.au/water/allocations-availability/allocations)

You can also subscribe to receive the latest updates.

[18] All figures can be derived from or found directly in this report. All figures are reported in megalitres.

[19] While the volume of the river, Gunidgera weir and Mollee weir at the end of the reporting period may be used to subsidise future deliveries, they are not assessed as primary assets for meeting commitments in the upper and lower regulated river water sources and are therefore removed from this reconciliation. This reduction has not been applied in previous GPWARs.

Significant events since the reporting period

Major flooding occurred in the Namoi River significantly effecting all communities throughout the Namoi Valley from September to November 2022. The Namoi River at Gunnedah reached major flood level of 7.9 metres 6 times during this period.

Following significant rainfall events in September and October 2022 Split Rock Dam spilled, for the first time since November 2001, in October 2022.

Keepit Dam continued to spill from July 2022 through till November 2022 with significant flood releases from the dam. Total daily releases peaked at 43,000 megalitres in October 2022 with the total release from July to November being approximately 750,000 megalitres.

System reliability[20]

The latest long-term planning model (IQQM) reflecting a water sharing plan management scenario in the Namoi provides indicative system reliability information for the commencement and closure of a watering season[21]. Model results relate to the Lower Namoi General Security holders only.

In any given year, the simulation indicates High Security entitlements are likely to a have full allocation 100% of the time. At the start of the water year, the long-term simulation indicates that the General Security water availability (carryover plus available water determination) is 200% for 9% of the time and 100% for 44% of the time (Figure 44).

There is a significant increase in availability throughout the water year when usages have commenced and the storage is replenished with new inflow, allowing further announcements. By the end of the water year, the simulation results indicate a water availability equal to or exceeding 100% for 73% of the time (Figure 45).

Figure 44: Start of water year simulated availability for General Security access licences (Lower Namoi)

[20] Models used by state water agencies are subject to continuous improvements and updates. The reliability described in this report represents the information available when the report was compiled and may vary from reliability computed in the latest version of the models.

[21] Modelled data simulated as July to June water year. Simulation period 1 June 1892 to 30 June 2016

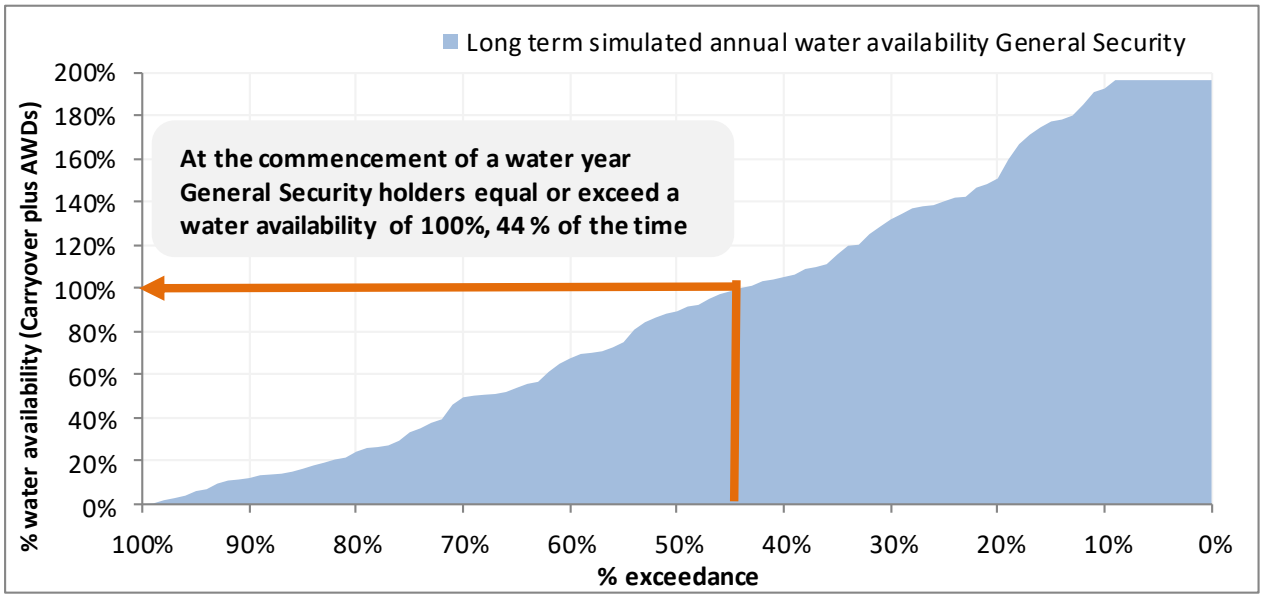
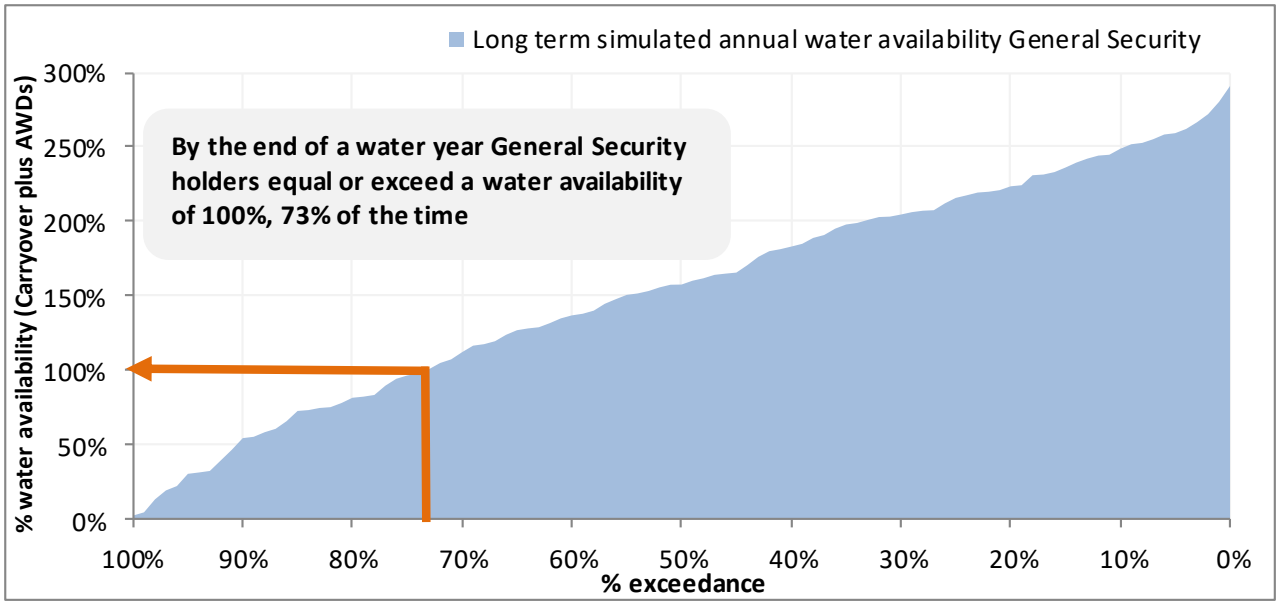


Figure 45: End of water year simulated availability for General Security access licences (Lower Namoi)



Carryovers and available water determinations since this reporting period

Table 11: Upper Namoi Carryovers and available water determinations since reporting period (2021-22 water year) [22]

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total| (%)
Domestic and Stock											
Open	-	74	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	74	74	74	100.00%	100.00%	74	0	74	100.00%	100.00%
Domestic and Stock [Domestic]											
Open	-	11	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	11	11	11	100.00%	100.00%	11	0	11	100.00%	100.00%
Domestic and Stock [Stock]											
Open	-	5	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	5	5	5	100.00%	100.00%	5	0	5	100.00%	100.00%
Local Water Utility											
Open	-	515	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	515	515	515	100.00%	100.00%	515	0	515	100.00%	100.00%
Regulated River (General Security)											
Open	-	12,072	-	-	-	-	1,190	0	1,190	9.90%	9.90%
1-Jul-22	AWD 1.0 ML per Share	12,072	10,842	10,842	89.80%	89.80%	12,033	0	12,033	99.70%	99.70%
Regulated River (High Security)											
Open	-	80	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 1.0 ML per Share	80	80	80	100.00%	100.00%	80	0	80	100.00%	100.00%

[22] Announcements for the reporting period are provided in note 2 of the GPWAR

Table 12: Lower Namoi Carryovers and available water determinations since reporting period (2021-22 water year) [23]

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total (%)
Domestic and Stock											
Open	-	1,704	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	1,704	1,704	1,704	100.00%	100.00%	1,704	0	1,704	100.00%	100.00%
Domestic and Stock [Domestic]											
Open	-	20	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	20	20	20	100.00%	100.00%	20	0	20	100.00%	100.00%
Domestic and Stock [Stock]											
Open	-	257	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	257	257	257	100.00%	100.00%	257	0	257	100.00%	100.00%
Local Water Utility											
Open	-	2,271	-	-	-	-	0	0	0	0.00%	0.00%
1-Jul-22	AWD 100.0%	2,271	2,271	2,271	100.00%	100.00%	2,271	0	2,271	100.00%	100.00%
Regulated River (General Security)											
Open	-	244,619	-	-	-	-	261,010	161,028	422,037	106.7%	172.5%
1-Jul-22	AWD 0.0 ML per Share	244,619	0	0	0.0%	0.0%	261,010	161,028	422,037	106.7%	172.5%
7-Sep-22	AWD 0.05 ML per Share	244,669	10,490	10,490	4.3%	4.3%	261,303	171,224	432,527	106.8%	176.8%
10-Oct-22	AWD 0.35 ML per Share	244,682	41,159	51,649	16.8%	21.1%	306,670	167,016	473,686	125.3%	193.6%
7-Nov-22	Drought Critical Water AWD 8.4 ML Volume	244,706	8	51,657	0.0%	21.1%	473,694	0	473,694	193.6%	193.6%
7-Dec-22	AWD 0.3 ML per Share	244,706	11,851	63,508	4.8%	26.0%	307,478	178,067	485,545	125.7%	198.4%
12-Jan-23	AWD 0.16 ML per Share	244,706	17,851	81,359	7.3%	33.2%	308,450	194,946	503,396	126.0%	205.7%
7-Mar-23	AWD 0.27 ML per Share	244,706	47,731	129,090	19.5%	52.8%	310,006	241,122	551,128	126.7%	225.2%

[23] Announcements for the reporting period are provided in note 2 of the GPWAR

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total (%)
Regulated River (High Security)											
Open	-	3,418	-	-	-	-	0	0	0	0.0%	0.0%
1-Jul-22	AWD 1.0 ML per Share	3,418	3,418	3,418	100.0%	100.00%	3,418	0	3,418	100.0%	100.0%
Regulated River (High Security) [Research]											
Open	-	486	-	-	-	-	0	0	0	0.0%	0.0%
1-Jul-22	AWD 100.0%	486	486	486	100.0%	100.0%	486	0	486	100.0%	100.0%
Supplementary Water											
Open	-	115,479	-	-	-	-	(3)	0	(3)	0.0%	0.0%
1-Jul-22	AWD 1.0 ML per Share	115,479	115,480	115,480	100.0%	100.0%	115,477	0	115,477	100.0%	100.0%

Detailed item notes

Note 1 — Allocation accounts

This note is a reference for the volume held in the allocation accounts at the time of reporting and is also relevant for the various processes that occur to either increase or decrease an allocation account throughout the water year.

The volume of water that is in the licence allocation accounts at the time of reporting is a net balance for the relevant licence category and represents that water that can be carried forward to the next water year as dictated by the carryover rules in place for that year or required under the water sharing plan.

A negative number for the carryover figure indicates that more usage has occurred than has been allocated to the account, and the deficit must be carried forward to the next season.

Water that is in the accounts at the end of a water year but is not permitted to be carried over is forfeited and has been represented as a decrease in water liability.

The accounting presented is relevant to licence category and is therefore inclusive of licences held by environmental holders (these are also detailed separately in Note 6).

Data type

Derived from measured data

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A1 — Nil inaccuracy +/- 0%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

The carryover volume of water in the allocation account for each licence category is determined once all transactions and end-of-year forfeit rules have been applied. Below is list of typical transactions that can apply to an allocation account:

- available water determination (AWD) (detailed in Note 2)
- allocation account usage (detailed in Note 3)
- forfeiture due to:
  - unlimited, limited or no carryover being permitted (end-of-year forfeit)
  - account limit breaches
  - cancellation of licence
- trade of allocation water between accounts (detailed in Note 5)
- determined carryover volume.

Additional information

Table 14 (Upper Namoi) and

Table 15 (Lower Namoi) summarise the water allocation accounts for each category of access licence. Table 13 describes each of the components within the water allocation account balances.

Table 13: Explanatory information for account summary tables (Table 14, Table 15 and Table 25)

Heading	Description
Share	This is the total volume of entitlement in the specific licence category.
Opening balance	The volume of water that has been carried forward from previous years allocation account.
AWD	**Available water determination**: The total annual volume of water added to the allocation account as a result of allocation assessments. This figure includes additional AWD made as a result of a storage spill reset as defined in the water sharing plan.
Lic New	**Licences – New**: Increase in account water as a result of the issuing of a new licence.
Lic Can	**Licences – Cancelled**: Decrease in account water as a result of a licence cancellation where account balance has not been traded to another licence.
Drought sus In	**Drought suspension – In**: Temporary water restriction applied, reducing account water available for use in reported water year
Drought sus Out	**Drought suspension – Out**: Temporary water restriction re-credit increasing account water available for use in reported water year
Asn In	**Assignment – In**: Increase in account water as a result of temporary trade in.
Asn Out	**Assignment – Out**: Decrease in account water as a result of temporary trade out.
Usage	Volume of water that is extracted or diverted from the river and is accountable against the access licence allocation
UCF	**Uncontrolled flow usage**: Volume of non-debit water extracted against general security as per water sharing plan provision in years of reduced allocations
Over-order debit	As a result of water order debiting being applied in a water source water ordered in excess of usage can be debited against an access licence.
During year forfeit	Account water forfeited throughout the year as a result of the accounting rules specified in the water sharing plan. Forfeited water may occur due to account limits being reached, conversions between licence categories and various types of other licence dealings.

Heading	Description
EoY forfeit	**End of year forfeit**: Account water that is forfeited at the end of the water year as a result of carryover rules that restrict the carry forward volume.
EoY avail	**End of year balance – Available**: Account balance that is available to be taken at the conclusion of the water year.
EoY NA	**End of year balance – Not available**: Water in accounts that is not available to be taken as a result of annual use limits that are applied to accounts.
Carry fwd	**Carry forward**: This represents the account water that is permitted to be carried forward into the next water year as determined by the carryover rules.
( )	Negative figures are shown in red brackets

Table 14: Allocation account balance summary for the Upper Namoi (reporting period). See Table 13 for explanation of headings

Category	Share	Opening balance	AWD	Lic New	Lic Can	Drought sus In	Drought sus Out	Asn In	Asn Out	Usage	UCF	Over-order debit	During year forfeit	EoY Avail	EoY NA	EoY forfeit	Carry fwd
Domestic and Stock	74	0	74	0	0	0	0	0	0	0	0	0	0	74	0	74	0
Domestic and Stock [Domestic]	11	0	11	0	0	0	0	0	0	0	0	0	0	11	0	11	0
Domestic and Stock [Stock]	5	0	5	0	0	0	0	0	0	0	0	0	0	5	0	5	0
Local Water Utility	515	0	515	0	0	0	0	0	0	158	0	0	0	357	0	357	0
General Security	12,072	646	10,907	0	0	0	0	3,107	10,311	1,486	0	0	0	2,863	0	1,672	1,190
High Security	80	0	80	0	0	0	0	0	0	5	0	0	0	76	0	76	0

Table 15: Allocation account balance summary for the Lower Namoi (reporting period). See Table 13 for explanation of headings

Category	Share	Opening balance	AWD	Lic New	Lic Can	Drought sus In	Drought sus Out	Asn In	Asn Out	Usage	Over order debit	During year forfeit	EoY Avail	EoY NA	EoY forfeit	Carry fwd
Domestic and Stock	1,704	0	1,704	0	0	0	0	0	0	492	28	0	1,184	0	1,184	0
Domestic and Stock [Domestic]	20	0	20	0	0	0	0	0	0	0	1	0	20	0	20	0
Domestic and Stock [Stock]	257	0	257	0	0	0	0	0	0	25	5	0	227	0	227	0
Local Water Utility	2,271	0	2,271	0	0	0	0	0	0	168	0	0	2,103	0	2,103	0
General Security	244,618	220,229	252,898	0	487	0	0	20,214	10,756	56,370	2,775	11	261,915	161,028	0	422,942
High Security	3,418	(3)	3,418	0	0	0	0	0	2,254	146	43	0	971	0	971	0
High Security [Research]	486	0	486	0	0	0	0	0	0	384	101	0	1	0	1	0
Supplementary	115,479	(1)	115,480	0	0	0	0	7,007	7,007	92,393	0	0	23,085	0	23,088	(3)

Note 2 — Available water determination (AWD) (allocation announcement)

This is the process by which the regulated surface water asset available for use within the regulated system is determined and shared. The process calculates the volume of water we add to an individual's licence allocation account. Announcements of allocations are made on a seasonal basis — usually corresponding with the financial year — and are updated on a regular basis or following significant inflow events. Under the *Water Management Act 2000* the announcements are termed available water determinations.

Data type

Derived from measured data

Policy

Water Management Act 2000 (NSW).

- Chapter 3 — Part 2 Access Licences.
  - Clause 59 — Available Water Determinations.

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

- Part 8 — Limits to the availability of water
  - Division 2 — Available Water Determinations.

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A1 — Nil inaccuracy +/- 0%

Providing agency

NSW Department of Planning and Environment.

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

You can access the Available Water Determination Register at the NSW Department of Planning and Environment website, www.industry.nsw.gov.au/water

Methodology

The available water determination (AWD) applies different concepts and rules depending on the water source.

In the Lower Namoi Regulated Water Source, we calculate AWDs based on a concept of continuous accounting that assesses the resource (water) contained in the headwaters storage. We periodically update projections and distribute the regulated (stored) resource available. All projected requirements are for two years from the date of the assessment. Under continuous accounting, the AWDs are based on the actual volume of water in storage at the time of the resource assessment and do not account for sequences of future inflows.

We calculate the Upper Namoi Regulated Water Source AWDs using annual accounting concepts, with the exception that we do not consider headwater inflows. Calculations are based on the resource held at the point of assessment. This is because Split Rock storage is a shared resource for both the upper and lower regulated water sources. Under the annual accounting, once allocation for essential requirements and high security is secured at 100%, general security is allocated water according to the volume held in Split Rock dam, as defined in Table 16.

Table 16: General security AWD announcement rules for the Upper Namoi Regulated River Water Source

Per unit share (ML)	Volume of water held in Split Rock Dam during the water year (per cent of full supply)
0.0	<5%
0.5	5% - 8%
0.6	8% - 10%
1.0	>10%

Assessments in all water sources involve calculating the effective storage, which is the available storage volume after storage losses are accounted for. Storage losses cannot be controlled by a management rule and, therefore, must be provided for first. Once this has been considered, we allocate water for essential supplies as the highest priority, and then allocate any remaining, uncommitted water in proportion to the amount of entitlement in the remaining resource categories.

The essential supplies mentioned above consist of items such as Stock and Domestic requirements, Local Water Utilities (for example, town water supplies, industrial use), High Security (permanent plantings such as. orchards and vineyards), end-of-system flow requirement resulting from the system operation, and minimum storage releases.

The volume of water distributed to licence categories is expressed as either a volume per share or as a percentage of share component, depending on the category of licence. Table 17 details each licence category and how it is announced.

Table 17: Access licence category announcement type

Licence category	Announcement type
General Security	Volume per share
High Security	Volume per share
Domestic and Stock[24]	Percent of share component
Local Water Utility	Percent of share component

[24] Domestic and Stock consists of three subcategories: Domestic and Stock, Domestic and Stock (Domestic) and Domestic and Stock (Stock). High Security consists of two subcategories: High Security and High Security (Research).

The AWD for supplementary licence accounts is a separate process and is not dependent on the water asset available. It is made once at the start of the year and unless there is a management change due to the growth in use strategy, it is maintained at the maximum value prescribed in the plan, which is generally one megalitre per share (equivalent to 100% of entitlement). Therefore, it is not considered to create a liability on the system and is only considered in terms of an extraction that reduces the water asset.

Additional information

Table 19 (Upper Namoi) and Table 20 (Lower Namoi) contain the allocation summary reports for the reporting period. Table 18 describes components to help interpret the allocation summary tables.

Table 18: Allocation summary report notes

Component	Description
Date	date of applicable transaction (opening balance of available water determinations)
Opening	remaining allocation account balances at the conclusion of the last season that has been carried forward to this season
Individual announcement	actual announcement made to each licence category
Share component (entitlement)	sum of the licensed volume of water within the licence category on the announcement date
Allocation volume (ML)	volume of water credited to accounts within a licence category as a result of the announcement made
Allocation cumulative volume (ML)	cumulative total of the announced volumes for the water year and licence category
Allocation (%)	the announced volume on the specific date expressed as a percentage of the share component
Allocation cumulative (%)	cumulative total of the announced volumes, as at the announcement date, for the water year and licence category, expressed as a percentage of share component
Balance available (ML)	sum of water available in allocation accounts, as at the specified date, that has been made available to be taken during the season
Balance not available (ML)	water allocated that is not accessible at this point in time
Balance total (ML)	sum of all the water credited to allocation accounts as at the specified date
Balance available (%)	sum of water available in allocation accounts, as at the specified date, that has been made available to be taken during the season, expressed as a percentage of share component
Balance total (%)	sum of all the water credited to allocation accounts as at the specified date, expressed as a percentage of share component

Table 19: Allocation announcements for the Upper Namoi regulated river water source

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total (%)
Domestic and Stock											
1-Jul-21	Opening	74	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	74	74	74	100.0%	100.0%	74	0	74	100.0%	100.0%
Domestic and Stock [Domestic]											
1-Jul-21	Opening	11	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	11	11	11	100.0%	100.0%	11	0	11	100.0%	100.0%
Domestic and Stock [Stock]											
1-Jul-21	Opening	5	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	5	5	5	100.0%	100.0%	5	0	5	100.0%	100.0%
Local Water Utility											
1-Jul-21	Opening	515	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	515	515	515	100.0%	100.0%	515	0	515	100.0%	100.0%
Regulated River (General Security)											
1-Jul-21	Opening	11,609	-	-	0.0%	0.0%	646	0	646	5.6%	5.6%
1-Jul-21	AWD 1.0 ML per Share	11,609	10,907	10,907	94.0%	94.0%	11,553	0	11,553	99.5%	99.5%
Regulated River (High Security)											
1-Jul-21	Opening	80	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 1.0 ML per Share	80	80	80	100.0%	100.0%	80	0	80	100.0%	100.0%

Table 20: Allocation announcements for the Lower Namoi regulated river water source

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total (%)
Domestic and Stock											
1-Jul-21	Opening	1,704	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	1,704	1,704	1,704	100.0%	100.0%	1,704	0	1,704	100.0%	100.0%
Domestic and Stock [Domestic]											
1-Jul-21	Opening	20	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	20	20	20	100.0%	100.0%	20	0	20	100.0%	100.0%
Domestic and Stock [Stock]											
1-Jul-21	Opening	257	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	257	257	257	100.0%	100.0%	257	0	257	100.0%	100.0%
Local Water Utility											
1-Jul-21	Opening	2,271	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	2,271	2,271	2,271	100.0%	100.0%	2,271	0	2,271	100.0%	100.0%
Regulated River (General Security)											
1-Jul-21	Opening	245,082	-	-	0.0%	0.0%	215,806	4,423	220,229	88.1%	89.9%
1-Jul-21	AWD 0.0 ML per Share	245,082	0	0	0.0%	0.0%	215,806	4,423	220,229	88.1%	89.9%
7-Jul-21	AWD 0.098 ML per Share	245,082	23,982	23,982	9.8%	9.8%	239,080	5,131	244,211	97.6%	99.6%
6-Aug-21	AWD 0.278 ML per Share	245,082	67,634	91,616	27.60%	37.4%	292,546	19,299	311,845	119.4%	127.2%
7-Sep-21	AWD 0.046 ML per Share	245,082	11,142	102,739	4.5%	41.9%	292,753	30,234	322,987	119.5%	131.8%
8-Oct-21	AWD 0.043 ML per Share	245,082	10,411	113,150	4.2%	46.2%	299,821	33,578	333,398	122.3%	136.0%
4-Nov-21	AWD 0.057 ML per Share	245,082	13,797	126,946	5.6%	51.8%	302,461	44,734	347,195	123.4%	141.7%
7-Dec-21	AWD 0.185 ML per Share	245,082	44,686	171,632	18.2%	70.0%	307,910	83,970	391,881	125.6%	159.9%
12-Jan-22	AWD 0.108 ML per Share	244,920	25,978	197,495	10.6%	80.7%	308,905	108,953	417,858	126.1%	170.6%
7-Feb-22	AWD 0.066 ML per Share	244,619	15,728	212,997	6.4%	87.2%	309,830	123,756	433,586	126.7%	177.2%
7-Mar-22	AWD 0.079 ML per Share	244,619	18,354	231,351	7.5%	94.7%	311,183	140,757	451,940	127.2%	184.8%
7-Apr-22	AWD 0.029 ML per Share	244,619	6,708	238,059	2.7%	97.5%	311,748	146,900	458,648	127.4%	187.5%
6-May-22	AWD 0.027 ML per Share	244,619	6,231	244,290	2.5%	100.0%	311,890	152,989	464,879	127.5%	190.0%

Date	Individual announcement	Share component	Allocation volume (ML)	Cumulative volume (ML)	Allocation volume (%)	Cumulative volume (%)	Balance available (ML)	Balance not available (ML)	Balance total (ML)	Balance available (%)	Balance total (%)
7-Jun-22	AWD 0.037 ML per Share	244,619	8,249	252,538	3.4%	103.4%	312,054	161,074	473,128	127.6%	193.4%
Regulated River (High Security)											
1-Jul-21	Opening	3,418	-	-	0.0%	0.0%	(3)	0	(3)	(0.1)%	(0.1)%
1-Jul-21	AWD 1.0 ML per Share	3,418	3,418	3,418	100.0%	100.0%	3,415	0	3,415	99.9%	99.9%
Regulated River (High Security) [Research]											
1-Jul-21	Opening	486	-	-	0.0%	0.0%	0	0	0	0.0%	0.0%
1-Jul-21	AWD 100.0 %	486	486	486	100.0%	100.0%	486	0	486	100.0%	100.0%
Supplementary Water											
1-Jul-21	Opening	115,479	-	-	0.0%	0.0%	(1)	0	(1)	0.0%	0.0%
1-Jul-21	AWD 1.0 ML per Share	115,479	115,480	115,480	100.0%	100.0%	115,478	0	115,478	100.0%	100.0%

Note 3 — Allocation account usage

This is the volume of water that is extracted, diverted or measured as usage and is accountable against an access licence issued under the water sharing plan. This figure excludes that water accounted as over-order debit, which is accounted for separately (see Note 4).

Data type

Measured/administration data

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

Usage information is determined by either on-farm meters that measure extraction, gauges on diversion works or orders/releases when the volume cannot be effectively metered, such as an environmental watering event.

Meter readings are collected for individual licence holders at intervals during the year and converted via a calibration factor to a volume of water extracted. Water diverted from the river is measured by recording the height at either the gauge or weir, with the volume diverted being derived by passing these heights through a rating table. With potentially multiple categories of access licences being extracted through the same pumps, we need more information and methodologies to separate use under the various licence categories. Below is a description of these:

- based on periods of announcement — during periods of supplementary water announcements, extractions can be debited against the supplementary water licences
- usage based on water orders — users place orders for water against an access licence and usages are debited against accounts in proportion to the orders placed
- licence category apportionment — if no water orders are available, water extracted is apportioned against categories of access licence in order of priority, as set out in the table below. Priority is based on the nature of and rules around each of the licence categories.

Table 21 provides the order in which extractions are apportioned to access licence categories in the water accounting system. This is a generic list. Not all categories will necessarily appear in this GPWAR. There are also various sub-categories of licence associated with some of the categories.

Table 21: Licence category metered usage apportionment

Priority	Surface water
1	Supplementary
2	Uncontrolled Flow
3	Domestic and Stock
4	Regulated River High Security
5	Regulated River General Security
6	Conveyance
7	Local Water Utility
8	Major Water Utility

Additional information

Account usage for the reporting period is illustrated in Table 22.

Table 22: Account usage summary

Category	Lower Namoi (ML)	Upper Namoi (ML)
Domestic and Stock	492	0
Domestic and Stock [Domestic]	0	0
Domestic and Stock [Stock]	25	0
Local Water Utility	168	158
General Security	56,370	1,486
High Security	146	5
High Security (Research)	384	N/A
Supplementary Water	92,393	N/A
Total	149,978	1,649

Note 4 — Water order debiting

In the Lower Namoi regulated water source, the allocation accounts are managed using a water order debiting approach. Accounting under this system defines that the accounts are reduced by the greater of the volume of:

- water extracted and
- water ordered for extraction against an access licence.

Therefore, the volume appearing in statements against the line item 'water order debiting' reflects the amount of water ordered against a category of licence that exceeds the physical extraction that occurred.

Data type

Measured/calculated

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016

- Part 9 — Rules for managing access licences.
  - Division 2 — Water allocation account management.
    - Clause 42 — Volume taken under access licences.

Available on the NSW Department of Planning and Environment website at: www.industry.nsw.gov.au/water

Data accuracy

Estimated in the range +/- 10%.

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

Over-order debiting is a required component of balancing the allocation accounts detailed in Note 1. We calculate the over-order debit component by analysing the recorded extractions against orders for the corresponding measurement period. That is, if metered usage is collected monthly, then the corresponding monthly orders are compared and any orders that exceed the usage are recorded as over-order debit.

Note 5 — Internal trading (allocation assignments)

This represents the temporary trading (allocation assignments) of water between allocation accounts within the regulated Upper and Lower Namoi water sources.

Data type

Administration

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

- Part 10 Access licence dealing rules
  - Clause 50 rules relating to constraints within these water sources

Water Management Act 2000

- Dealings with access licences (Division 4)
  - 71T Assignment of water allocations between access licences

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A1 — Nil inaccuracy +/- 0%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

Trading is permitted between certain categories of access licences and between certain water sources. This is detailed in the water sharing plan or stipulated under the licence holder's conditions.

The net internal trade for each licence category is zero for a water year. As such, trades occur as both a water liability decrease (sellers of water) and a water liability increase (buyers of water).

Additional information

Account usage for the reporting period is illustrated in Table 22

Table 23 and Table 24 provide allocation assignment summary figures (total volumes) between licence categories. All figures represent a volume in megalitres.

Table 23: Upper Namoi allocation assignments summary. Figures are in ML

From	To Lower Namoi General Security	To Upper Namoi General Security	Total
Upper Namoi – General Security	9,778	533	10,206
Total	9,778	533	10,206

Table 24: Lower Namoi allocation assignments summary

From	To Lower Namoi General Security	To Lower Namoi Supplementary	To Lower Namoi Domestic and Stock	Total
Lower Namoi – General Security	8,181	-	-	8,181
Lower Namoi – High Security	2,254	-	-	2,254
Lower Namoi – Supplementary	-	7,007	-	7,007
Lower Namoi - Domestic and Stock	-	-	-	0
Upper Namoi - General Security	9,778	-	-	9,778
Total	20,109	7,007	0	29,795

Note 6 — Held environmental water

This represents that environmental water that is held as part of a licensed volumetric entitlement. These licences are either purchased on the market by environmental agencies or issued as a result of water savings achieved through investment by those agencies.

These licences are held within the same licence categories as all other water access licences and so are subject to the same operating rules. Therefore, they are subject to the following key rules:

- available water determinations (AWD) for their share of the entitlement to be added to accounts
- carryover rules — the forfeiting of unused water that cannot be carried over
- provide water orders before use.

These licences are used to provide environmental benefit and outcomes to the catchment by either providing water to, or supplementing water requirements of, specific environmental events or incidents.

Data type

Measured

Policy

Water Management Act 2000

Data accuracy

A1 — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

You can access the Available Water Determination Register at the NSW Department of Planning and Environment website, www.industry.nsw.gov.au/water

Methodology

The water held for the environment represents a volume of water in corresponding allocation accounts. This allocation account represents the sum of the remaining volume of held environmental water at the end of the water year once all transactions and forfeit rules have been applied to the accounts. These environmental balances are at the licence category level and represent the water that can be carried forward for use in the next year. Below is list of typical transactions that can apply to an environmental allocation account:

- available water determination (AWD) (detailed in Note 2)
- allocation account usage (detailed in Note 3)
- forfeiture due to:
  - unlimited, limited or no carryover being permitted (end-of-year forfeit)
  - account limit breaches
  - cancellation of licence.
- trade of allocation water between accounts
- determined carryover volume.

In addition, the trade and purchase of environmental water is tracked to capture the movement of environmental entitlement both in number of entitlements, and volume.

Additional information

Table 25 and

Table 27 present the annual account summary balances for held environmental licences. The processes presented in the balance are described in Table 13. Table 26 and Table 28 provide changes to environmental holdings for the reporting period.

Table 29 presents temporary trade volumes associated with held environmental licences for the reporting period.

Table 25: Lower Namoi regulated water source environmental account balance summary. See Table 13 for explanation of headings

Category	Share 30 June 2022	Opening balance	AWD	Lic New	Lic Can	Drought sus In	Drought sus Out	Asn In	Asn Out	Usage	Water order debit	During year forfeit	EoY Avail	EoY NA	EoY forfeit	Carry fwd
General Security	13,548	12,918	14,073	0	0	0	0	105	0	0	0	0	0	17,040	10,056	0
High Security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supplementary water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 26: Lower Namoi regulated water source environmental holding summary

Category	Volume 30 June 2021	Volume 30 June 2022	Volume Difference	No. Licences 30 June 2021	No. Licences 30 June 2022	No. Licence Difference
General Security	13,548	13,548	0	3	3	0
High Security	0	0	0	1	1	0
Supplementary water	0	0	0	1	1	0

Table 27: Upper Namoi regulated water source environmental account balance summary See Table 13 for explanation of headings

Category	Share 30 June 2022	Opening balance	AWD	Lic New	Lic Can	Drought sus In	Drought sus Out	Asn In	Asn Out	Usage	Water order debit	During year forfeit	EoY Avail	EoY NA	EoY forfeit	Carry fwd
General Security	105	0	105	0	0	0	0	0	105	0	0	0	0	0	0	0
High Security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 28: Upper Namoi regulated water source environmental holding summary

Category	Volume 30 June 2021	Volume 30 June 2022	Volume Difference	No. Licences 30 June 2021	No. Licences 30 June 2022	No. Licence Difference
General security	105	105	0	2	2	0
High security	0	0	0	1	1	0

Table 29: Namoi environmental trade

Licence category	Lower Namoi General Security
Upper Namoi General Security	105

Note 7 — Environmental provisions

Minimum end –of-system flow target

This refers to the maintenance of a flow rate that leaves the Namoi River in line with the end- of-system environmental flow provision, as specified in the *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016*. The rule states that in the months of June, July and August, a minimum daily flow that is equivalent to 75% of the natural 95th percentile daily flow for each month, shall be maintained in the Namoi River at Walgett (gauging station number 419091). As a volumetric target, this is equivalent to 21, 24 and 17 megalitres per day respectively. The rule is not applicable when the sum of the water stored in Keepit Dam and Split Rock Dam is less than 120,000 megalitres.

Long-term average extraction limit (LTAEL)

By limiting long-term average extractions to an estimated 238,000 megalitres per year, this plan ensures that approximately 73% of the long-term average annual flow in the water source (estimated to be 870,000 megalitres per year) will be preserved and will contribute to the maintenance of basic ecosystem health.

Data type

Derived from measured data

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016

- Part 3 — Environmental Water Provisions.
  - Clauses 13, 14 — Planned Environmental Water.

Available on the NSW Department of Planning and Environment website at: www.industry.nsw.gov.au/water.

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment — HYDSTRA

Methodology

For the minimum end-of-system flow target: Walgett daily flows are calculated by processing a gauged stream level through a rating table that converts it to a flow rate. These Walgett flows are then compared to the target flows to check for compliance against the water sharing plan rules.

Long-term average extraction limit: The assessment against the LTAEL shall include the sum of all licensed usage (including held environmental), basic rights extractions, net trade out of the water source and water taken under flood plain harvesting rights.

Note 8 — Surface water storage

This is the actual volume of water stored in the individual surface water storages at the date of reporting. The volumes provided represent the total volume of water in the storage, including dead storage, which is the volume of water that can't be accessed under normal operating conditions (for example, the volume below a low-level outlet). It is assumed that the dead storage can be accessed if required via alternative access methods such as syphons.

Data type

Derived from measured data

Policy

Not applicable

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment — HYDSTRA

Methodology

Storage volumes are calculated by processing a gauged storage elevation through a rating table that converts it to a volume. For plots of the daily storage volumes refer to Figure 12 and Figure 13.

Additional information

Table 30: Storage summary

Name	Capacity (ML)	Dead storage (ML)
Split Rock Dam	397,370	3,160
Keepit Dam	425,510	6,550
Gunidgera Weir	1,900	375
Mollee Weir	3,250	50

Note 9 — River channel storage

The volume of water stored in the river channel on the day of reporting.

Policy

Not applicable

Data type

Derived from measured data

Data accuracy

B — Estimated in the range +/- 25%

Providing agency

NSW Department of Planning and Environment

Data sources

NSW Department of Planning and Environment: HYDSTRA, CAIRO

Methodology

For any river section *i*, the volume of water in the section is:

$$V_i = Q_i \times T_i$$

The river channel storage will be equal to the sum of all river section volumes.

$$Total\ river\ volume\ = \sum_{i=1}^{n} V_i$$

Table 31: Summary of river channel storage calculation components

Symbol	Variable	Data source	Unit
Q	average flow in the river section, calculated by averaging the daily flows at the upstream and downstream river gauges	HYDSTRA	ML/day
V	volume in each river section	Calculated	ML
T	average travel time for a parcel of water to travel through the river section	CAIRO	days

Assumptions and approximations:

- Travel times are estimated to the nearest day.
- We assume that daily flow change between gauging sites is linear.

Note 10 — Storage inflow

Storage inflow refers to the volume of water flowing into the major headwater storages — Split Rock Dam and Keepit Dam.

Policy

Not applicable

Data type

Derived from measured data

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data sources

NSW Department of Planning and Environment: HYDSTRA

Methodology

In most of the major storages in NSW there is no direct measurement of inflows. However, it is possible to calculate inflows by using a mass balance approach (based on balancing the change in storage volume) where inflow is the only unknown. This is referred to as a back-calculation of inflows.

The back-calculation figures were derived using a one-day time-step with the inflow calculated according to the equation below. The daily inflows are then summed to provide an annual inflow figure.

$$I = \sum_{i=1}^{n} \left(\Delta S_i + O_i + Se_i + \frac{(E_i - R_i) * A_i}{100} \right)$$

Table 32: Components for back-calculation of inflow

Symbol	Variable	Unit
I	Inflow	ML/day
ΔS	Change in storage volume	ML
O	Outflow	ML/day
Se	Seepage	ML/day
R	Rainfall	mm/day
E	Evaporation (Mortons shallow lake estimation, SILO)	mm/day
n	Number of days in the year (e.g. 365)	
A	Surface area — derived from height to surface areas lookup curve	Ha

For Keepit Dam, inflow is provided by both the Manilla River and inflow from the upper Namoi (unregulated) river. This split was estimated in the GPWAR by subtracting the inflow from the Namoi River upstream of the Manilla River (419005) and the flow from Halls Creek (419029) from the total back-calculated inflow. For daily storage inflows, refer to Figure 10 and Figure11.

Assumptions and approximations:

- Seepage was assumed to be zero.

Note 11 — Storage evaporation and storage rainfall

This refers to the volume of water effective on Spilt Rock and Keepit Dams that is either lost as a result of evaporation or gained as a result of rainfall.

Data type

Derived from measured data

Policy

Not applicable

Data accuracy

B — Estimated in the range +/- 25%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment, HYDSTRA

QLD government, SILO (www.longpaddock.qld.gov.au/silo)

Methodology

Volume applied for evaporation and rainfall on these storages is achieved by first calculating a daily time-series of storage surface area using a height-to-area lookup curve as defined in HYDSTRA.

Daily rainfall and evaporation data is then applied to the area time-series to achieve a volume in megalitres which is then aggregated to an annual figure. The rainfall and evaporation data utilised is equivalent to the data used to derive storage inflow (detailed in Note 10) with the same pan factor applied to the evaporation data

Rainfall volume (ML) =

$$\mathbf{V} = \sum_{i=0}^{n} \left(\frac{R_i \times \mathrm{A}_i}{100} \right)$$

Evaporation volume (ML) =

$$\mathbf{V} = \sum_{i=0}^{n} \left(\frac{E_i \times \mathrm{A}_i}{100} \right)$$

Table 33: Components for storage evaporation and rainfall

Symbol	Variable	Unit
V	Volume	ML/year
R	Rainfall	mm/day
A	Surface area — derived from height-to-surface areas lookup curve	Ha
E	Evaporation (Mortons shallow lake estimation, SILO)	mm/day

Note 12 — River evaporation and river rainfall

This refers to the volume of water effective on the accounted river reach that is either lost as a result of evaporation or gained as a result of rainfall.

Data type

Derived from measured data

Policy

Not applicable

Data accuracy

C — Estimated in the range +/- 50%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment: HYDSTRA, ARCGIS

Queensland government: SILO (www.longpaddock.qld.gov.au/silo)

Methodology

The volume applied for evaporation and rainfall on the regulated river is achieved by first calculating a daily time-series of river area. This is achieved by breaking the river up into reaches and utilising the cross sections recorded at river gauging locations to determine the average width of the river with a given daily flow. River length is then determined between two gauging locations using ARCGIS and as such an area for each reach can be defined.

$$\text{Area } (m^2) = \text{Average W } (m) \times \text{L } (m)$$

In the formula, W is the daily width determined from the gauging cross sections and L is the length as determined through ARCGIS analysis.

With daily area determined, various climate stations are then selected based on their proximity to each river reach. Rainfall and evaporation data is then extracted from SILO and applied to the area time-series to achieve a volume in megalitres which is then aggregated to an annual figure.

Rainfall:

$$\text{Volume (ML)} = \text{Rainfall (mm)} \times \text{Area } (m^2) \times 10^{-6}$$

Evaporation:

$$\text{Volume (ML)} = \text{ETo (mm)} \times \text{Kc} \times \text{Area } (m^2) \times 10^{-6}$$

Where ETo is reference evapotranspiration from SILO and Kc is crop factor for open water (1.05)

Note 13 — Gauged tributary inflow

The inflow into the regulated river that occurs downstream of the headwater storages that is measured at known gauging stations.

Policy

Not applicable

Data type

Measured data

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data sources

NSW Department of Planning and Environment: HYDSTRA

Methodology

The flows are obtained by measuring river heights at gauging stations along the river, and then passing these heights through a rating table that converts them to a daily flow volume.

Additional information

The total gauged inflow for the reporting period equals the sum of the inflows for the gauged tributaries defined in the table below.

Table 34: Summary of gauged tributary inflow (Upper Namoi)

Station	Station name	Catchment area (km^2)	Inflow (ML)
419005	Namoi at North Cuerindi	2,510	682,950
419029	Halls Creek at Ukolan	357	55,896
Total gauged inflow	-	-	738,846

Table 35: Summary of gauged tributary inflow (Lower Namoi)

Station	Station name	Catchment area (km^2)	Inflow (ML)
419006	Peel River at Carroll Gap	4,670	702,984
419084	Mooki River at Ruvigne	Not available	653,310
419032	Coxs Creek at Boggabri	4,040	318298
419083	Brigalow Creek at Tharlane	333	38,715
419051	Maules Creek at Avoca East	739	39,808
Total gauged inflow	-	-	1,753,115

Figure 46: Upper Namoi gauged tributary inflows

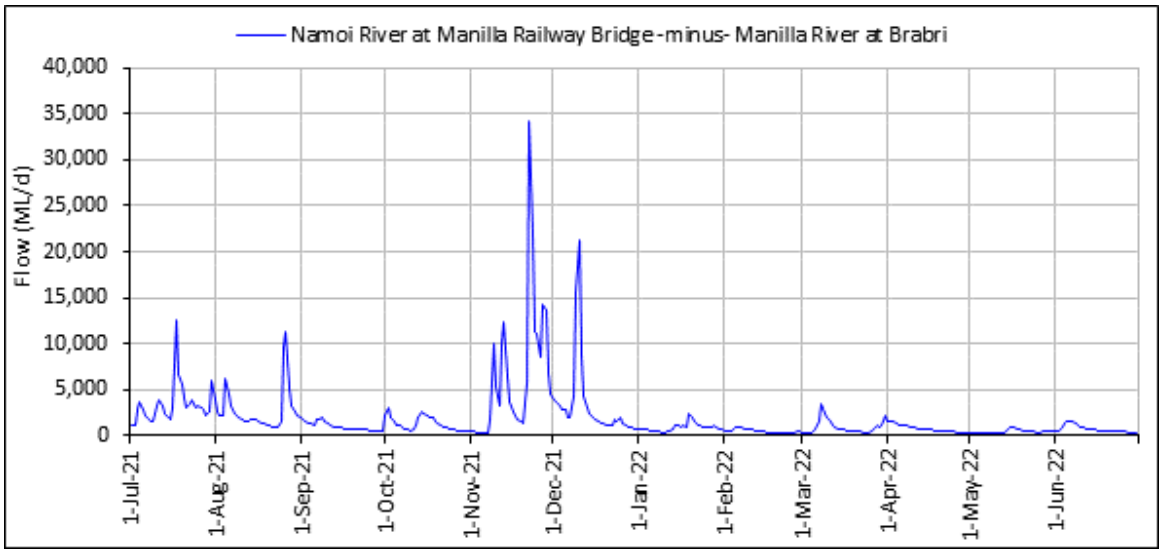
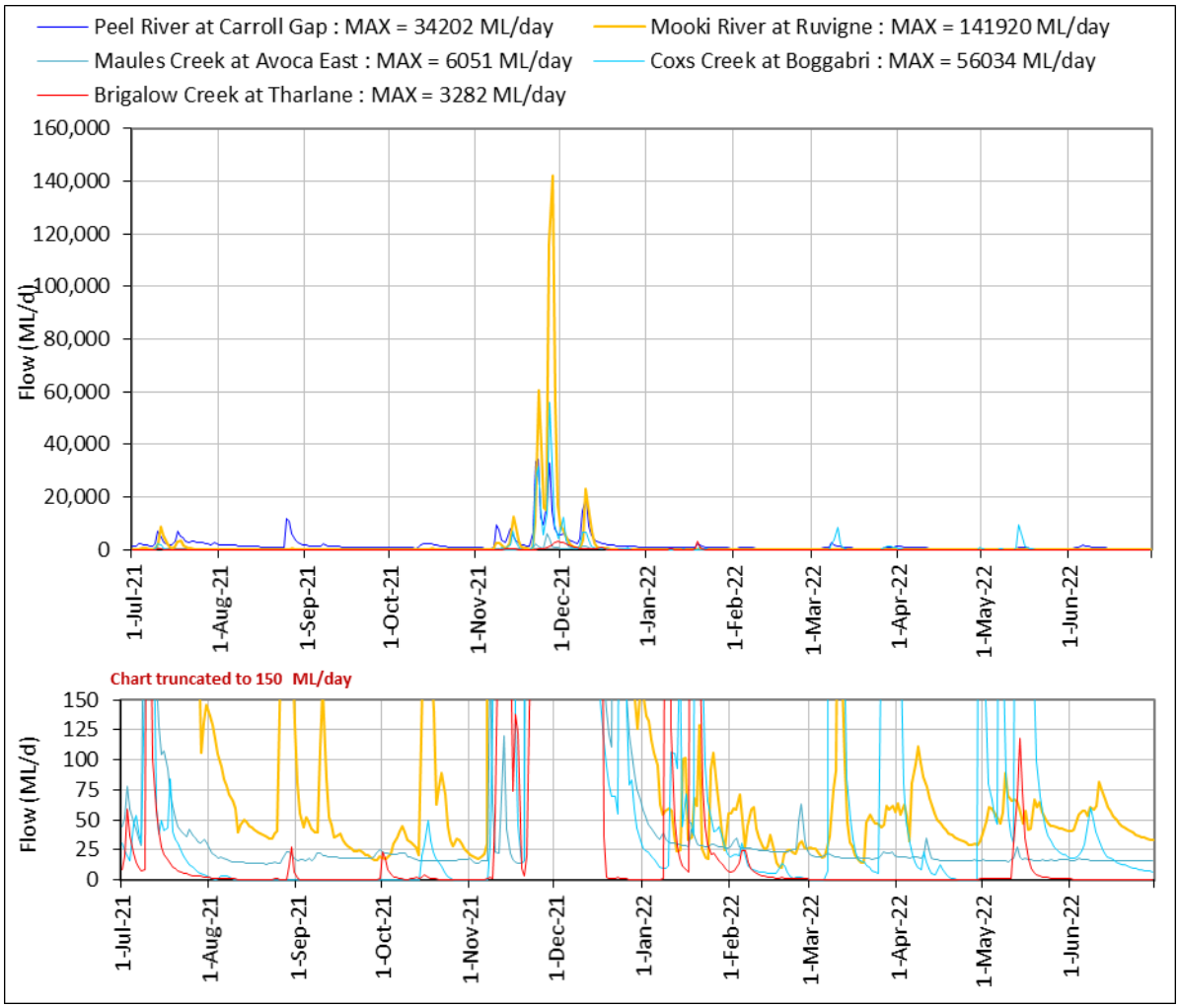


Figure 47: Lower Namoi gauged tributary inflows


Peel River at Carroll Gap : MAX = 34202 ML/day
Mooki River at Ruvigne : MAX = 141920 ML/day
Maules Creek at Avoca East : MAX = 6051 ML/day
Coxs Creek at Boggabri : MAX = 56034 ML/day
Brigalow Creek at Tharlane : MAX = 3282 ML/day
Flow (ML/d)
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1-Jul-21
1-Aug-21
1-Sep-21
1-Oct-21
1-Nov-21
1-Dec-21
1-Jan-22
1-Feb-22
1-Mar-22
1-Apr-22
1-May-22
1-Jun-22
Chart truncated to 150 ML/day
Flow (ML/d)
150
125
100
75
50
25
0
1-Jul-21
1-Aug-21
1-Sep-21
1-Oct-21
1-Nov-21
1-Dec-21
1-Jan-22
1-Feb-22
1-Mar-22
1-Apr-22
1-May-22
1-Jun-22

Note 14 — Ungauged runoff estimate

This is the inflow into the river that occurs downstream of the headwater storages and is not measured.

Policy

Not applicable

Data type

Estimated

Data accuracy

C — Estimated in the range +/- 50%

Providing agency

NSW Department of Planning and Environment

Data sources

CAIRO, jointly owned by the NSW Department of Planning and Environment and WaterNSW

Methodology

To derive an estimate, a simple mass balance approach was adopted whereby known inflows and outflows were combined with an assumed loss factor. No estimate was made for the areas below the Goangra gauge in the Namoi River and Waminda gauge in Pian Creek. Upper Namoi estimates were based on inflows between Split Rock Dam and Keepit Dam.

$$UI = EoS - SR - GI + E + LE$$

Where:

- **UI** = Ungauged Inflow Estimate
- **EoS** = Gauged Flow at the point in the system where no further inflow is estimated downstream for the purposes of this ungauged calculation
- **SR_k** = Storage release
- **GI** = Gauged inflows
- **E** = Extractions (excluding any that are below the nominated 'EoS')
- **LE** = Estimated losses. For 2021-22 this was assumed to be 20% of the measured water (gauged flow plus storage releases) entering the system for the Upper Namoi, 5% from Keepit Dam to Mollee Weir and 20% downstream of Mollee Weir.

Table 36: Summary of ungauged inflow estimate

Catchment	Total volume estimated (ML)
Upper Namoi	89,000
Lower Namoi	344,000

Note 15 — Dam releases, river inflow from dam releases

This is the volume of water released from Split Rock and Keepit storages. In the accounting process, this release is represented as both a decrease in asset (of the dam) and an equal increase in asset (of the river).

Policy

Not applicable

Data type

Measured data

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data sources

NSW Department of Planning and Environment: HYDSTRA

Methodology

The flows are obtained by measuring river heights at a gauging station downstream of the dam wall, and then passing these heights through a rating table that converts them to a daily flow volume. The releases have been represented in the Statement of Changes in Water Assets and Water Liabilities as both a decrease in water asset (water leaving the dam) and an equal volume of increase in water asset (water released increasing the volume of the river). It would also have been possible to account this as a transfer in asset whereby the volumes would not appear in the statements.

Additional information

Dam releases from Split Rock and Keepit dams are shown in Figure 48 and Figure 49, respectively.

Figure 48: Split Rock Dam storages releases for reporting period

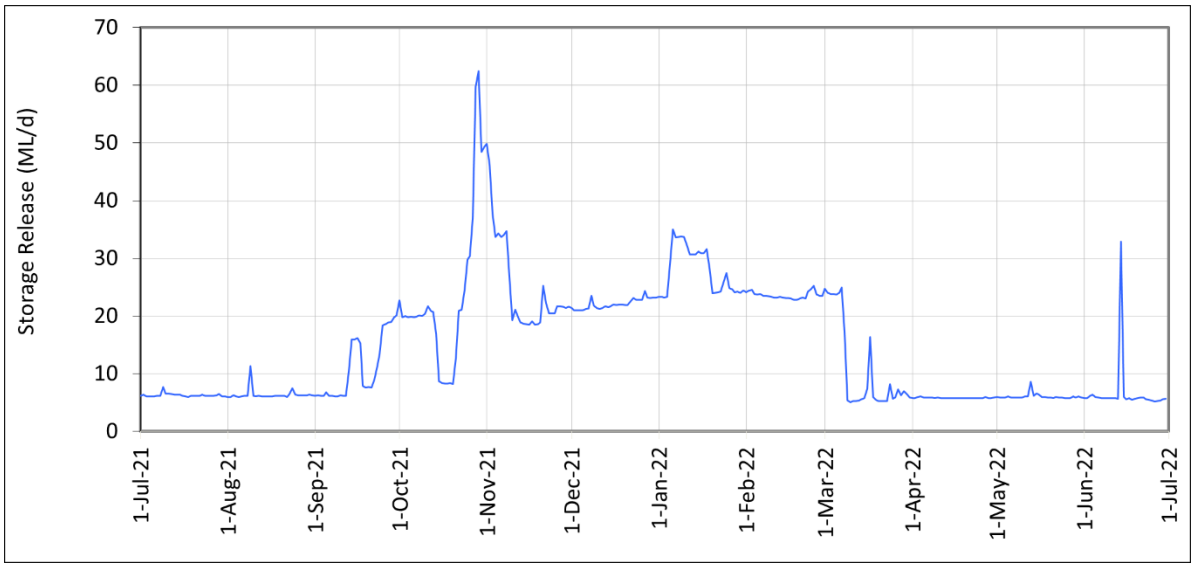
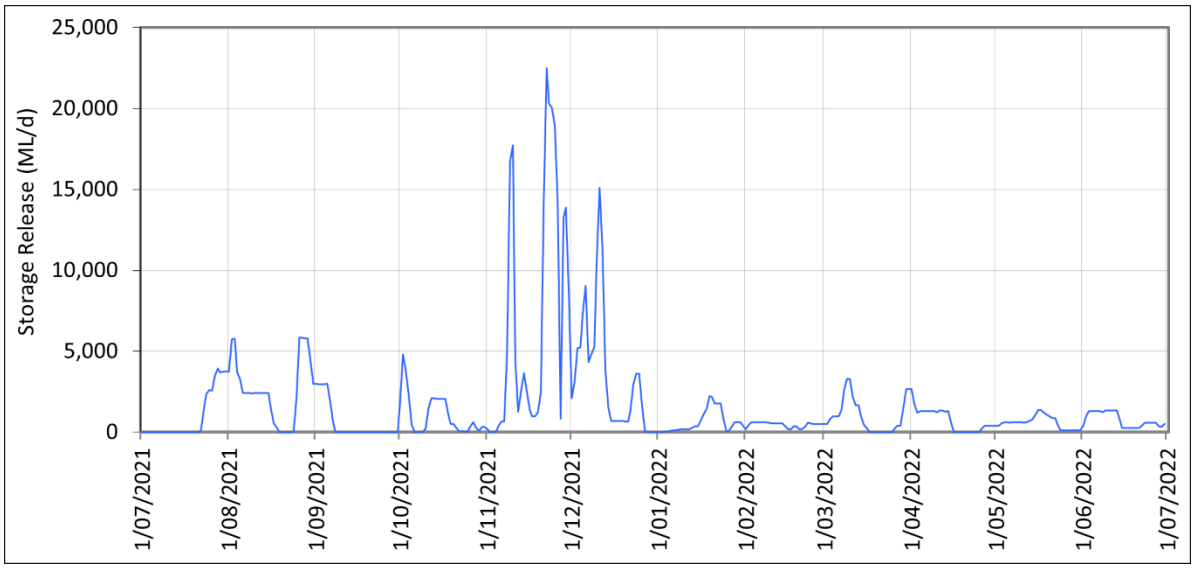


Figure 49: Keepit Dam storage releases for reporting period



Note 16 — End of system flows

This refers to flow that leaves the entity and does not return to the entity.

An end-of-system environmental flow provision for the Namoi is specified in the *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016*. Details on this provision are specified in Note 7 of this GPWAR.

Data type

Derived from measured data

Policy

Not applicable

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment — HYDSTRA

Methodology

This is the summation of flows at gauging site/s measuring the volume of water that leaves the entity at end of system locations.

While it appears that the most logical site to record the end-of-system flow for the Namoi is at Walgett (419091), since completion of the project to raise the weir, this gauge only provides level information and no discharge. Previously it was not appropriate as it was backwater affected in periods of flooding in the Barwon River.

Therefore, for the Namoi reporting entity, the end of system flow has been considered to be the summation of the flow passing the Namoi River at Goangra (419026) and Pian Creek at Waminda (419079).

Gauges at these locations record a time series of heights that are then converted to a volume of water based on a derived 'height to flow' relationship (rating table).

Additional information

The flow leaving the Namoi system through Waminda and Goangra gauging stations are presented in Table 37, Figure 50 and Figure 51.

Table 37: End-of-system gauging site flows

Station	Location	Total flow (ML)
419026	1,432,410	1,432,410
419049	221,359	24,046
Total	-	1,653,769

Figure 50: Pian Creek at Waminda flow

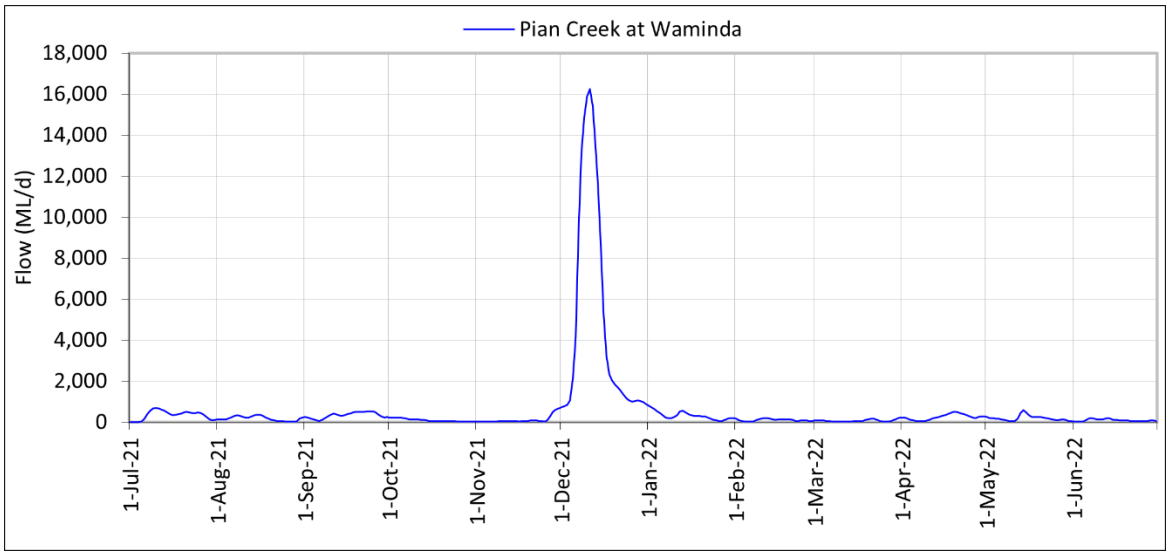
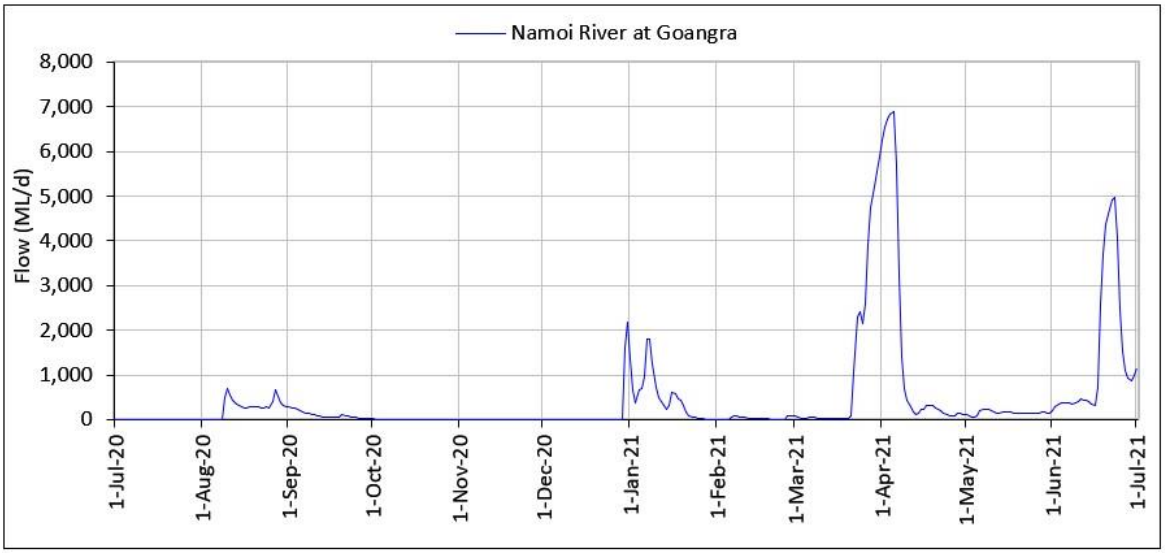


Figure 51: Namoi River at Goangra flow



Note 17 — Extractions from river

This is the actual volume of water directly pumped or diverted from the regulated river by licence holders. Occasionally, (generally in the case of environmental water) volumes are ordered against a licence account for in-stream benefits or to pass through end-of-system target points. As such, the volume reported to be physically extracted from the accounted river extent will not always be equal to the amount of water debited against accounts for usage, which has been described in Note 3. The volume stated for extractions from river excludes basic rights extractions, which is reported as a separate line item and detailed in Note 18.

Data type

Measured data

Policy

Not applicable

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

For the purposes of this GPWAR, extraction from the river is the total volume metered and debited to the allocation accounts, minus any licenced account water that can be identified as being used within the system or ordered to be passed through the system. These volumes are generally associated with environmental water orders and have already been accounted for in other line items.

Additional information

For the reporting period, no licenced account water was identified as being used within the system or ordered to be passed through the system (that is, we assume that all account usage was extracted/diverted from the accounted extent of the regulated river).

Table 38: Reconciliation of physical extraction to account usage (ML)

Item	Lower Namoi	Upper Namoi
Licenced extractions from River [25]	149,978	1,648
plus **Licenced flow leaving System**[26]	0	0
plus **In stream licenced usage** [27]	0	0
equals **Total account usage** [28]	149,978	1,648

[25] Direct licenced extractions from the river excluding basic rights usage estimate

[26] Licenced water ordered to leave the accounted Namoi extent for environmental benefits

[27] Water ordered and used within the accounted system for environmental benefit (not extracted from the river)

[28] The total amount of water accounted for usage against the allocation accounts

Note 18 — Basic rights extractions

This is the non-licensed right to extract water to meet basic requirements for household purposes (non-commercial uses in and around the house and garden) and for watering of stock. It is available for anyone who has access to river frontage on their property.

This water cannot be used for irrigating crops or garden produce that will be sold or bartered, for washing down machinery sheds or for intensive livestock operations.

In times of limited supply, there may be restrictions on taking water for domestic and stock use.

Data Type

Estimated

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

- Part 4 Basic Landholder Rights
  - Clause 17 Domestic and stock rights

Available on the NSW Department of Planning and Environment website at: www.industry.nsw.gov.au/water.

Data accuracy

C — Estimated in the range +/- 50%

Providing agency

NSW Department of Planning and Environment

Data source

Water Sharing Plan for the Upper and Lower Namoi Regulated River Water Sources 2016

Methodology

The estimation of domestic and stock rights uses a series of approximations for water usage, stocking rates, population and property shape, based on local knowledge to calculate riparian (stock and domestic) requirements in megalitres per year. The annual extraction for domestic and stock rights in the water accounts is assumed to be the estimated figure stated in the *Water Sharing Plan for the Upper and Lower Namoi Regulated River Water Source 2016*, which is 160 megalitres per year for the Upper Namoi and 1,776 megalitres per year for the Lower Namoi.

Note 19 — Replenishments flows

This refers to the water that must be set aside in Split Rock and/or Keepit Dam as part of the essential requirements for the provision of flows to Pian Creek. The water is to supply water for households, town use and stock. For accounting purposes, it is wholly within the system, so it does not appear as a separate entry in water accounting statements.

The requirement is that up to two replenishment flows, producing a visible flow for five or more consecutive days at Waminda gauge, are to be provided annually with total flows that must not exceed 14,000 megalitres in a single water year at Pian Creek downstream of Dundee. The two replenishments are generally delivered from unregulated flows in the system but can be supplemented from Keepit Dam releases if necessary.

Data type

Calculated from measured data

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016

- Part 12 System operation rules
  - Clause 59 Replenishment flows

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment — Water NSW Compliance Report (Internal document)

Methodology

Up to two replenishment flow events are to be provided annually from a combination of unregulated flows and Keepit Dam releases and diverted down Gunidgera/Pian Creek system, with Pian Creek at Waminda gauging station used for compliance.

Additional Information

With wet conditions thorough out the water year and large volumes of available water there was no requirement for replenishment flows in the 2021-2022 reporting period.

Flow was present at Wamindra for the entire reporting period with sufficient flows to meet stock and domestic needs.

Note 20 — Supplementary extractions

This is the volume of water extracted or diverted under supplementary access licences during announced periods of supplementary water. Supplementary flow events are announced periodically during the season when high flow events occur. The period of extraction and the volume of water to be extracted is determined based on the rules as set out in the water sharing plans.

Supplementary access licences differ from other categories of access licence in that the volume of water in the account refers to an annual upper limit for extractions and its provision is totally reliant on the occurrence of high flow events.

Data type

Measured data

Policy

Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated Rivers Water Sources 2016

- Part 8 Limits to the availability of water
  - Division 2 — Available water determinations
    - Clause 38 Available water determinations for supplementary water access licences
- Part 9 Rules for managing access licences
  - Division 3 — Extraction conditions
    - Clause 48 Taking of water under supplementary water access licences in the Lower Namoi Regulated River Water Source

Available on the NSW Department of Planning and Environment website at: www.industry.nsw.gov.au/water.

Data accuracy

A — Estimated in the range +/- 10%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

Supplementary water extraction and diversion data is collected by either on-farm meters that measure extraction or gauges on diversion works. Meter readings are collected for individual licence holders at intervals during the year and converted via a calibration factor to a volume of water extracted.

Water diverted from the river is measured by recording the height at either the gauge or weir, with the volume diverted being derived by passing these heights through a rating table. However, with

supplementary water being extracted through the same pumps as those extracting water under other categories of access licences, we need more information to separate out supplementary extraction. Licence holders notify us of their intention before pumping or diverting water during the declared supplementary event and provide meter readings both at the start and end of pumping. This allows the supplementary flow extraction to be assessed independently of other categories of access licences.

Additional information

Upper Namoi

In the Upper Namoi there were no announcements for events that allowed access to during uncontrolled flows

Lower Namoi

In the Lower Namoi there were nine supplementary access events announced with a total volume of 92,386 megalitres extracted. Daily supplementary extractions, totals extraction by river section and operational supplementary announcements are presented in Figure 52 Table 39 and

Figure 53 respectively.

Figure 52: Daily supplementary extractions and historical sequence

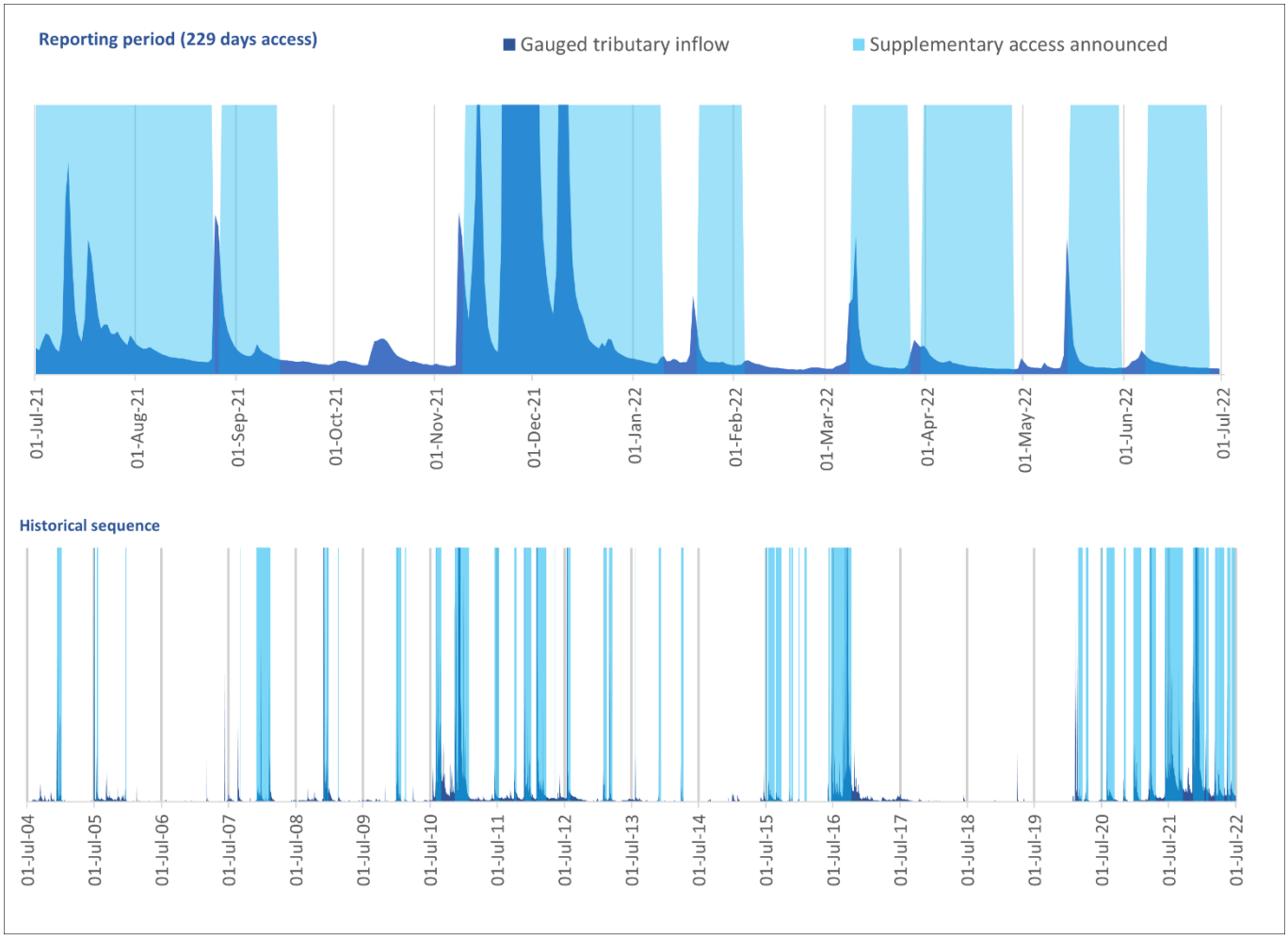


Table 39: Lower Namoi Supplementary event announcements

Announce date	% use limit	Section	Start date	End date	Supp. usage	UCF usage
01-Jul-21	100	Unnamed Water Course	01-Jul-21	10-Jul-21	451.5	0
01-Jul-21	100	Mollee Weir To Gunidgera Weir	01-Jul-21	08-Jul-21	214.8	0
01-Jul-21	100	Weeta Weir To Duncan Gauge	01-Jul-21	08-Jul-21	0	0
01-Jul-21	100	Duncan Gauge To Bugilbone	01-Jul-21	08-Jul-21	0	0
01-Jul-21	100	Edenmore To Goangra	01-Jul-21	08-Jul-21	772.2	0
01-Jul-21	100	Goangra To Walgett	01-Jul-21	10-Jul-21	50	0
09-Jul-21	100	Gunidgera Weir To Gulgareena	09-Jul-21	14-Aug-21	271	0
09-Jul-21	100	Cutting To Hazeldean	09-Jul-21	14-Aug-21	550	0
09-Jul-21	100	Cutting To Knights	09-Jul-21	15-Aug-21	6106.4	0
09-Jul-21	100	Knights To Cubbaroo	09-Jul-21	15-Aug-21	218.7	0
09-Jul-21	100	Cubbaroo To Rossmore	09-Jul-21	17-Aug-21	664.8	0
09-Jul-21	100	Rossmore To Dundee	09-Jul-21	20-Aug-21	314.4	0
09-Jul-21	100	Unnamed Water Course	11-Jul-21	14-Aug-21	487.5	0
09-Jul-21	100	Narrabri To Mollee Weir	09-Jul-21	14-Aug-21	190.9	0
09-Jul-21	100	Gunnedah To Boggabri	27-Jul-21	15-Aug-21	105.8	0
09-Jul-21	100	Boggabri To Narrabri	09-Jul-21	15-Aug-21	174.8	0
09-Jul-21	100	Mollee Weir To Gunidgera Weir	09-Jul-21	14-Aug-21	2127.4	0
09-Jul-21	100	Gunidgera Weir To Weeta Weir	09-Jul-21	15-Aug-21	385.5	0
09-Jul-21	100	Weeta Weir To Duncan Gauge	09-Jul-21	16-Aug-21	85.1	0
09-Jul-21	100	Duncan Gauge To Bugilbone	09-Jul-21	18-Aug-21	48.9	0
09-Jul-21	100	Edenmore To Goangra	09-Jul-21	14-Aug-21	419.2	0
09-Jul-21	100	Goangra To Walgett	11-Jul-21	24-Aug-21	422	0
27-Aug-21	100	Mollee Weir To Gunidgera Weir	27-Aug-21	03-Sep-21	1265.6	0
27-Aug-21	100	Duncan Gauge To Bugilbone	29-Aug-21	11-Sep-21	219.3	0
27-Aug-21	100	Goangra To Walgett	04-Sep-21	13-Sep-21	249	0
27-Aug-21	100	Ana Br.Namoi River	28-Aug-21	09-Sep-21	0	0
27-Aug-21	100	Duncan Warrambool	29-Aug-21	09-Sep-21	0	0
27-Aug-21	100	Gunidgera Weir To Gulgareena	28-Aug-21	09-Sep-21	519.1	0
27-Aug-21	100	Gulgareena To Cutting	29-Aug-21	09-Sep-21	261	0
27-Aug-21	100	Cutting To Hazeldean	30-Aug-21	09-Sep-21	0	0
27-Aug-21	100	Cutting To Knights	30-Aug-21	09-Sep-21	1445	0
27-Aug-21	100	Cubbaroo To Rossmore	31-Aug-21	09-Sep-21	0	0
27-Aug-21	100	Rossmore To Dundee	04-Sep-21	09-Sep-21	253	0
27-Aug-21	100	Unnamed Water Course	28-Aug-21	09-Sep-21	120	0
27-Aug-21	100	Narrabri To Mollee Weir	27-Aug-21	09-Sep-21	55.4	0
27-Aug-21	100	Keepit Dam To Gunnedah	27-Aug-21	09-Sep-21	0	0
27-Aug-21	100	Gunnedah To Boggabri	27-Aug-21	09-Sep-21	35.6	0
27-Aug-21	100	Boggabri To Narrabri	27-Aug-21	09-Sep-21	79.4	0

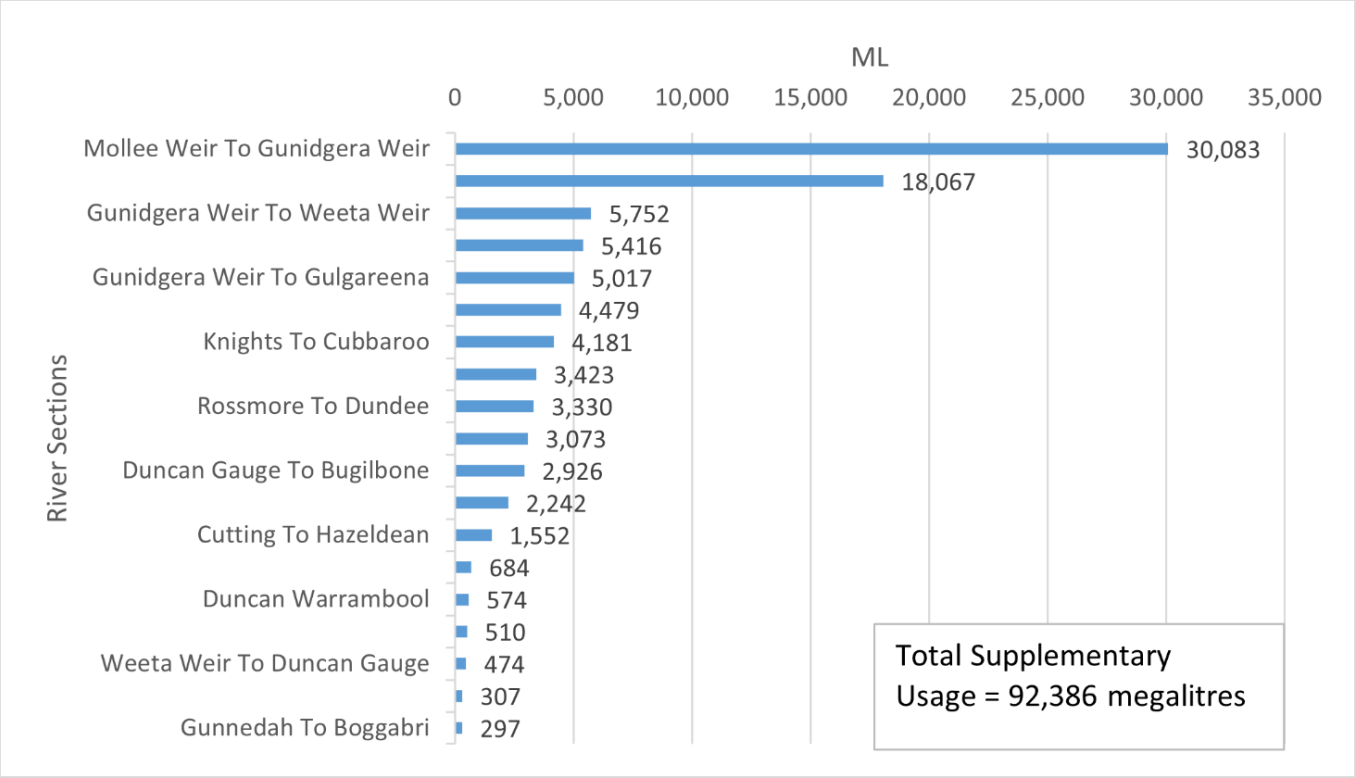
Announce date	% use limit	Section	Start date	End date	Supp. usage	UCF usage
27-Aug-21	100	Mollee Weir To Gunidgera Weir	09-Sep-21	12-Sep-21	612.2	0
27-Aug-21	100	Gunidgera Weir To Weeta Weir	28-Aug-21	09-Sep-21	148	0
27-Aug-21	100	Weeta Weir To Duncan Gauge	28-Aug-21	09-Sep-21	180.2	0
27-Aug-21	100	Bugilbone To Edenmore	01-Sep-21	09-Sep-21	0	0
27-Aug-21	100	Edenmore To Goangra	29-Aug-21	10-Sep-21	712.8	0
10-Nov-21	100	Ana Br.Namoi River	10-Nov-21	31-Dec-21	0	0
10-Nov-21	100	Duncan Warrambool	13-Nov-21	04-Jan-22	0	0
10-Nov-21	100	Gunidgera Weir To Gulgareena	10-Nov-21	31-Dec-21	2579.4	0
10-Nov-21	100	Gulgareena To Cutting	11-Nov-21	01-Jan-22	0	0
10-Nov-21	100	Cutting To Hazeldean	13-Nov-21	03-Jan-22	309.3	0
10-Nov-21	100	Cutting To Knights	11-Nov-21	01-Jan-22	3572.1	0
10-Nov-21	100	Knights To Cubbaroo	12-Nov-21	02-Jan-22	1621.1	0
10-Nov-21	100	Cubbaroo To Rossmore	13-Nov-21	03-Jan-22	1259.7	0
10-Nov-21	100	Rossmore To Dundee	13-Nov-21	08-Jan-22	2447.8	0
10-Nov-21	100	Unnamed Water Course	11-Nov-21	01-Jan-22	1253	0
10-Nov-21	100	Narrabri To Mollee Weir	10-Nov-21	29-Dec-21	60.6	0
10-Nov-21	100	Keepit Dam To Gunnedah	10-Nov-21	28-Nov-21	0	0
10-Nov-21	100	Gunnedah To Boggabri	10-Nov-21	28-Dec-21	129.1	0
10-Nov-21	100	Boggabri To Narrabri	10-Nov-21	29-Dec-21	383.6	0
10-Nov-21	100	Mollee Weir To Gunidgera Weir	10-Nov-21	30-Dec-21	9957.8	0
10-Nov-21	100	Gunidgera Weir To Weeta Weir	11-Nov-21	31-Dec-21	1904.1	0
10-Nov-21	100	Weeta Weir To Duncan Gauge	12-Nov-21	01-Jan-22	12	0
10-Nov-21	100	Duncan Gauge To Bugilbone	13-Nov-21	05-Jan-22	589.8	0
10-Nov-21	100	Bugilbone To Edenmore	14-Nov-21	05-Jan-22	823.2	0
10-Nov-21	100	Edenmore To Goangra	16-Nov-21	07-Jan-22	0	0
10-Nov-21	100	Goangra To Walgett	17-Nov-21	09-Jan-22	1131.7	0
20-Jan-22	100	Knights To Cubbaroo	23-Jan-22	29-Jan-22	580.5	0
20-Jan-22	100	Mollee Weir To Gunidgera Weir	22-Jan-22	27-Jan-22	3183.3	0
20-Jan-22	100	Weeta Weir To Duncan Gauge	24-Jan-22	29-Jan-22	0	0
20-Jan-22	100	Bugilbone To Edenmore	27-Jan-22	31-Jan-22	39.8	0
20-Jan-22	100	Goangra To Walgett	30-Jan-22	03-Feb-22	840	0
20-Jan-22	20	Duncan Warrambool	24-Jan-22	28-Jan-22	0	0
20-Jan-22	20	Gunidgera Weir To Gulgareena	24-Jan-22	28-Jan-22	592	0
20-Jan-22	20	Cutting To Hazeldean	25-Jan-22	01-Feb-22	200	0
20-Jan-22	20	Cutting To Knights	24-Jan-22	29-Jan-22	1245.5	0
20-Jan-22	20	Knights To Cubbaroo	30-Jan-22	01-Feb-22	628	0
20-Jan-22	20	Cubbaroo To Rossmore	27-Jan-22	30-Jan-22	300	0
20-Jan-22	20	Rossmore To Dundee	27-Jan-22	02-Feb-22	314.7	0

Announce date	% use limit	Section	Start date	End date	Supp. usage	UCF usage
20-Jan-22	20	Unnamed Water Course	24-Jan-22	28-Jan-22	376.1	0
20-Jan-22	20	Gunnedah To Boggabri	21-Jan-22	25-Jan-22	0	0
20-Jan-22	20	Boggabri To Narrabri	21-Jan-22	26-Jan-22	45.9	0
20-Jan-22	20	Gunidgera Weir To Weeta Weir	22-Jan-22	28-Jan-22	960.2	0
20-Jan-22	20	Duncan Gauge To Bugilbone	24-Jan-22	29-Jan-22	82.7	0
08-Mar-22	100	Cutting To Knights	12-Mar-22	21-Mar-22	3980.3	0
08-Mar-22	100	Knights To Cubbaroo	13-Mar-22	22-Mar-22	752.3	0
08-Mar-22	100	Mollee Weir To Gunidgera Weir	10-Mar-22	18-Mar-22	4491.8	0
08-Mar-22	100	Weeta Weir To Duncan Gauge	11-Mar-22	20-Mar-22	196.8	0
08-Mar-22	100	Duncan Gauge To Bugilbone	13-Mar-22	21-Mar-22	1197.1	0
08-Mar-22	100	Bugilbone To Edenmore	14-Mar-22	23-Mar-22	1320.8	0
08-Mar-22	100	Edenmore To Goangra	14-Mar-22	23-Mar-22	715.2	0
08-Mar-22	100	Goangra To Walgett	14-Mar-22	26-Mar-22	1397.3	0
08-Mar-22	35	Ana Br.Namoi River	10-Mar-22	16-Mar-22	0	0
08-Mar-22	35	Duncan Warrambool	12-Mar-22	22-Mar-22	210	0
08-Mar-22	35	Gunidgera Weir To Gulgareena	11-Mar-22	19-Mar-22	1055.5	0
08-Mar-22	35	Gulgareena To Cutting	12-Mar-22	20-Mar-22	248.9	0
08-Mar-22	35	Cubbaroo To Rossmore	13-Mar-22	22-Mar-22	721.7	0
08-Mar-22	35	Rossmore To Dundee	15-Mar-22	23-Mar-22	0	0
08-Mar-22	35	Unnamed Water Course	13-Mar-22	21-Mar-22	1273	0
08-Mar-22	35	Narrabri To Mollee Weir	11-Mar-22	17-Mar-22	0	0
08-Mar-22	35	Keepit Dam To Gunnedah	09-Mar-22	15-Mar-22	0	0
08-Mar-22	35	Gunnedah To Boggabri	09-Mar-22	15-Mar-22	0	0
08-Mar-22	35	Boggabri To Narrabri	10-Mar-22	16-Mar-22	0	0
08-Mar-22	35	Gunidgera Weir To Weeta Weir	11-Mar-22	19-Mar-22	1436	0
31-Mar-22	100	Duncan Warrambool	04-Apr-22	24-Apr-22	363.5	0
31-Mar-22	100	Cutting To Hazeldean	02-Apr-22	19-Apr-22	0	0
31-Mar-22	100	Cutting To Knights	02-Apr-22	19-Apr-22	1517.3	0
31-Mar-22	100	Mollee Weir To Gunidgera Weir	31-Mar-22	19-Apr-22	4876.4	0
31-Mar-22	100	Weeta Weir To Duncan Gauge	02-Apr-22	19-Apr-22	0	0
31-Mar-22	100	Duncan Gauge To Bugilbone	04-Apr-22	24-Apr-22	705.6	0
31-Mar-22	100	Bugilbone To Edenmore	06-Apr-22	27-Apr-22	0	0
31-Mar-22	50	Gunidgera Weir To Gulgareena	31-Mar-22	17-Apr-22	0	0
31-Mar-22	50	Gulgareena To Cutting	01-Apr-22	19-Apr-22	0	0
31-Mar-22	50	Knights To Cubbaroo	03-Apr-22	20-Apr-22	310.7	0
31-Mar-22	50	Cubbaroo To Rossmore	04-Apr-22	22-Apr-22	445	0
31-Mar-22	50	Unnamed Water Course	02-Apr-22	19-Apr-22	905	0
31-Mar-22	50	Gunnedah To Boggabri	31-Mar-22	18-Apr-22	0	0

Announce date	% use limit	Section	Start date	End date	Supp. usage	UCF usage
31-Mar-22	50	Boggabri To Narrabri	31-Mar-22	18-Apr-22	0	0
31-Mar-22	50	Gunidgera Weir To Weeta Weir	01-Apr-22	19-Apr-22	918.4	0
31-Mar-22	50	Edenmore To Goangra	07-Apr-22	23-Apr-22	423.8	0
31-Mar-22	50	Goangra To Walgett	09-Apr-22	27-Apr-22	380	0
15-May-22	100	Duncan Warrambool	16-May-22	21-May-22	0	0
15-May-22	100	Cutting To Hazeldean	15-May-22	20-May-22	0	0
15-May-22	100	Cutting To Knights	15-May-22	20-May-22	200	0
15-May-22	100	Mollee Weir To Gunidgera Weir	15-May-22	20-May-22	995.8	0
15-May-22	100	Weeta Weir To Duncan Gauge	16-May-22	21-May-22	0	0
15-May-22	100	Duncan Gauge To Bugilbone	16-May-22	21-May-22	82.2	0
15-May-22	45	Gunidgera Weir To Gulgareena	15-May-22	26-May-22	0	0
15-May-22	45	Knights To Cubbaroo	16-May-22	26-May-22	69.7	0
15-May-22	45	Cubbaroo To Rossmore	17-May-22	27-May-22	32	0
15-May-22	45	Rossmore To Dundee	18-May-22	28-May-22	0	0
15-May-22	45	Unnamed Water Course	16-May-22	26-May-22	113	0
15-May-22	45	Gunnedah To Boggabri	15-May-22	26-May-22	0	0
15-May-22	45	Boggabri To Narrabri	15-May-22	26-May-22	0	0
15-May-22	45	Gunidgera Weir To Weeta Weir	15-May-22	26-May-22	0	0
15-May-22	45	Bugilbone To Edenmore	19-May-22	27-May-22	0	0
15-May-22	45	Edenmore To Goangra	25-May-22	30-May-22	30	0
15-May-22	45	Goangra To Walgett	22-May-22	27-May-22	8.5	0
06-Jun-22	44	Ana Br.Namoi River	13-Jun-22	21-Jun-22	00-Jan-00	0
06-Jun-22	44	Gunidgera Weir To Gulgareena	10-Jun-22	18-Jun-22	0	0
06-Jun-22	44	Gulgareena To Cutting	10-Jun-22	18-Jun-22	00-Jan-00	0
06-Jun-22	44	Knights To Cubbaroo	12-Jun-22	19-Jun-22	00-Jan-00	0
06-Jun-22	44	Cubbaroo To Rossmore	12-Jun-22	19-Jun-22	0	0
06-Jun-22	44	Rossmore To Dundee	13-Jun-22	21-Jun-22	0	0
06-Jun-22	44	Unnamed Water Course	11-Jun-22	18-Jun-22	436.7	0
06-Jun-22	44	Narrabri To Mollee Weir	08-Jun-22	18-Jun-22	0	0
06-Jun-22	44	Keepit Dam To Gunnedah	08-Jun-22	18-Jun-22	0	0
06-Jun-22	44	Gunnedah To Boggabri	08-Jun-22	18-Jun-22	26.9	0
06-Jun-22	44	Boggabri To Narrabri	08-Jun-22	18-Jun-22	0	0
06-Jun-22	44	Gunidgera Weir To Weeta Weir	09-Jun-22	18-Jun-22	0	0
06-Jun-22	44	Bugilbone To Edenmore	16-Jun-22	24-Jun-22	58.2	0
06-Jun-22	44	Edenmore To Goangra	18-Jun-22	25-Jun-22	0	0
06-Jun-22	44	Goangra To Walgett	19-Jun-22	26-Jun-22	0	0
06-Jun-22	100	Duncan Warrambool	14-Jun-22	21-Jun-22	0	0
06-Jun-22	100	Cutting To Hazeldean	11-Jun-22	18-Jun-22	493	0

Announce date	% use limit	Section	Start date	End date	Supp. usage	UCF usage
06-Jun-22	100	Cutting To Knights	11-Jun-22	18-Jun-22	0	0
06-Jun-22	100	Mollee Weir To Gunidgera Weir	08-Jun-22	18-Jun-22	2358.2	0
06-Jun-22	100	Weeta Weir To Duncan Gauge	11-Jun-22	18-Jun-22	0	0
06-Jun-22	100	Duncan Gauge To Bugilbone	14-Jun-22	21-Jun-22	157	0

Figure 53: Lower Namoi supplementary usage by river section



Note 21 — River and groundwater interaction

This note refers to water that has been identified as either flowing from the connected alluvium to the accounted river extent (increase in water asset), or alternatively from the accounted river extent to the alluvium aquifer (decrease in water asset).

A detailed water budget for the groundwater aquifers associated with these estimates is in the groundwater appendix of this document.

Data type

Modelled

Policy

Not applicable

Data accuracy

D — Estimated in the range +/- 100%

Providing agency

NSW Department of Planning and Environment

Data source

NSW Department of Planning and Environment MODFLOW (Data inputs from HYDSTRA, GDS)

Methodology

For the Upper and Lower Namoi groundwater sources, the annual budget has been estimated using the NSW Department of Planning and Environment MODFLOW models for the upper and lower Namoi Groundwater Management Area. (For a more detailed explanation of the Method, see 'Method A' in the document NSW General Purpose Water Accounting Reports - Groundwater Methodologies, available for download from the NSW Department of Planning and Environment water website.)

Additional information

River and aquifer interactions were not quantified in this flow balance for the 2021–22 GPWAR.

Note 22 — Unaccounted difference

In theory, if all the processes of a water balance could be accurately accounted for, the unaccounted difference would be zero. In reality, because of uncertainty about many of the volumes presented in the accounts, the variety of data sources, and not all processes of the water cycle being accounted for, the statements are not balanced at the end of the accounting process. To balance the accounts, a final balancing entry is required, and this is termed the unaccounted difference. As technology improves the accuracy improves of the account estimates, we anticipate that, relatively, this figure should be lower in future accounts.

Data type

Not applicable

Policy

Not applicable

Data accuracy

D — Estimated in the range +/- 100%

Providing agency

Not applicable

Data source

Not applicable

Methodology

The unaccounted difference is equal to the amount required to obtain the correct volume in river at the end of the reporting period, after all the known physical inflows and outflows have been accounted for. The double-entry accounting process attempts to represent the physical movement of water by creating a river asset. The opening and closing balance of the river volume was estimated according to Note 9.

Surface Water Unaccounted difference

$$UVSW = Rs - Rc + RI - Ro$$

Where:

- UVSW = Unaccounted difference for Surface Water
- Rs = Opening river volume estimate
- Rc = Closing river volume estimate
- Ro = Physical outflows from the river (e.g. extractions)
- RI = Physical inflows to the river (e.g. runoff, return flows, dam releases)

Note 23 — Adjusting entry

This is a line item that is used to correct balances in the accounts. The double entry accounting being applied is a continuous process whereby the closing balance of one year is the opening balance for the following year.

Occasionally, we need to correct accounts for a variety of reasons including when we have identified an error in the previous year's reporting, a balance in the previous year has been since adjusted, or when a process that had previously been reported cannot be supplied and the associated asset or liability must be removed to maintain the integrity of the statements.

This is different to the unaccounted difference component, which is a physical volume required to achieve mass balance after all the known processes have been accounted.

Data type

Calculated

Accuracy

A1 — Nil inaccuracy +/- 0%

Providing agency

NSW Department of Planning and Environment

Data source

Not applicable

Methodology

A journal entry is placed in the comparative year to ensure correct opening balances are achieved in the reporting year.

Additional information

No adjusting entry was required for the reporting year.

Note 24 — Uncontrolled flow usage (Upper Namoi)

This refers to a specific volume of non-debit water. This is uncontrolled flow, as defined in the water sharing plan. It is water pumped or diverted from the river for consumptive use by general security licence holders during announced periods of unregulated inflows to the water source. However, the volume pumped during these unregulated inflow events is limited. This is based on the rules defined in the water sharing plan where volumes pumped that exceed the limit are debited against the licence holder's general security account.

Data type

Measured data

Policy

Water Sharing Plan for the Upper and Lower Namoi Regulated River Water Sources 2016

- Part 8 Limits to the availability of water
  - Division 2 — Available water determinations
    - Clause 37 Available water determinations for regulated river (general security licences)

Available on the NSW Department of Planning and Environment website at www.industry.nsw.gov.au/water

Data accuracy

A1 — Nil inaccuracy +/- 0%

Providing agency

NSW Department of Planning and Environment

Data source

Water Accounting System jointly owned by NSW Department of Planning and Environment and WaterNSW

Methodology

- When available water determinations for general security access licences in the Upper Namoi are less than or equal to 0.60 megalitres per unit share, access to uncontrolled flow may occur during periods of announced uncontrolled flow events
- The maximum volume of uncontrolled flow licence holders are allowed to take is the lesser of:
  - 1 megalitre per share, minus the total allocation announcements within a water year (as an equivalent percentage per share)
  - 0.5 megalitres per share.
- If the above limits are exceeded with uncontrolled take volumes throughout the water year, the exceedances will then be debited against the general security access licence account.
- Uncontrolled flow usage is measured in the same way as general security extractions but is tagged as uncontrolled flow in the accounting system. As uncontrolled flow is extracted

through the same pumps as those extracting water under other categories of access licences, we need more information to identify periods and, therefore, volumes of uncontrolled flow extractions. This is achieved by holders notifying us of their intent before pumping or diverting water during a declared uncontrolled flow event and providing meter readings both at the start and end of pumping. This allows us to assess the uncontrolled flow extraction independently of the other categories of access licences.

References

WASB 2012, Australian Water Accounting Standard 1 Preparation and Presentation of General Purpose Water Accounting Reports (AWAS 1), Bureau of Meteorology