

Was this the worst drought on record?

From 2017 to 2020, NSW experienced record-breaking drought that affected the whole state. Between January 2017 and December 2019, NSW temperatures were the warmest and rainfall was the lowest on record.

This drought was the worst in terms of storage inflows for any 24 month and 36 month consecutive periods for Keepit Dam and combined for Keepit Dam and Split Rock Dam over the historical record from the 1890's until now.

The 24 month combined inflows for the period January 2018 to December 2019 into Keepit Dam and Split Rock Dam were 87% less than the previous worst recorded period from June 1918 to May 1920. The 36 month combined inflows for the period February 2017 to January 2020 were 48% less than the previous worst recorded period in June 2013 to May 2016.

Dam Storage

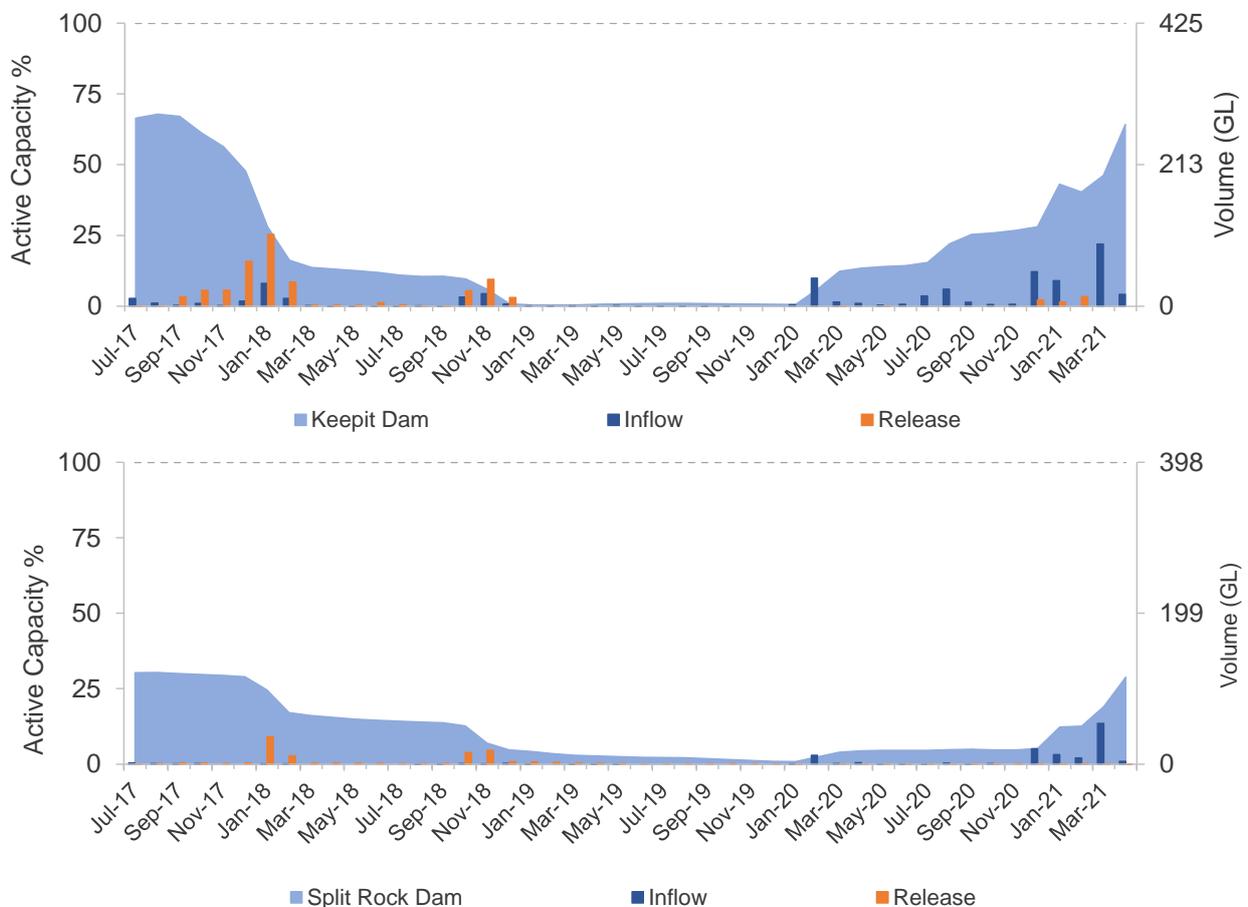


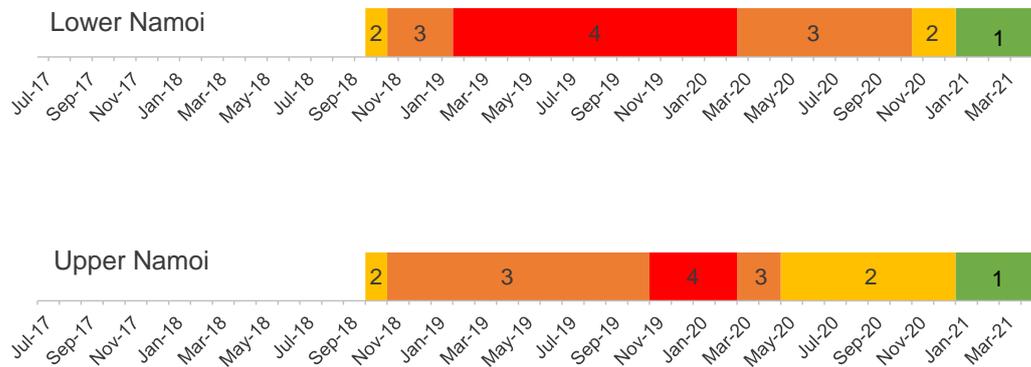
Figure 1 - Monthly storage for the Lower and Upper Namoi Valley

Upper and Lower Namoi Valley snapshot

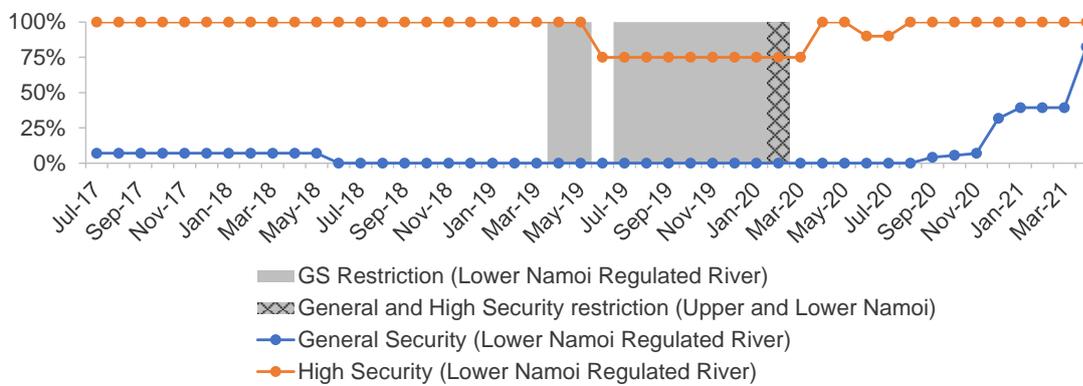
2017 2020 Drought



Drought Stage



Allocations - Lower Namoi



Allocations - Upper Namoi

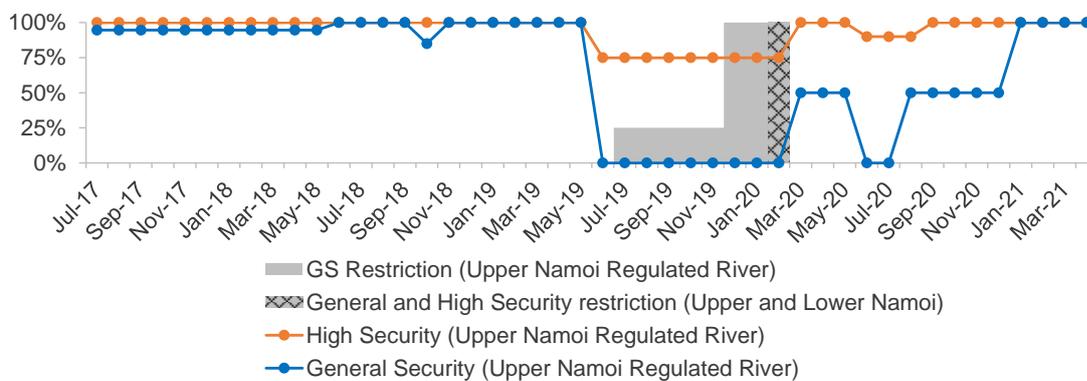


Figure 2 - Monthly drought stage and water allocations for the Lower and Upper Namoi Valley

Measures implemented - July 2017 to October 2018

July 2017

Split Rock Dam was at 30% capacity. High and general security allocations in the Upper Namoi were 100%.

Keepit Dam was at 65%. High security allocations in the Lower Namoi were 100% and general security allocations were 0%, although there was a high volume of water carried over in general security accounts.



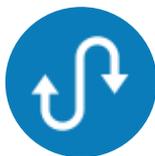
August 2017

Keepit Dam increased to 68% and Lower Namoi general security licences received an allocation of 7.08%.



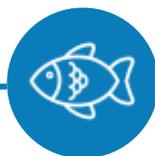
January 2018

45 gigalitres (GL) was transferred from Split Rock to Keepit Dam to assist with providing water deliveries.



March 2018

4,100 megalitres (ML) of Commonwealth environmental water was delivered in the Lower Namoi River through to May 2018 to improve connectivity for fish movement, improve vegetation condition and water quality.



July 2018

Split Rock Dam was at 14% capacity. High and general security allocations in the Upper Namoi were 100%.

Keepit Dam was at 11% capacity. High security allocations in the Lower Namoi were 100% and general security were 0%.



October 2018

The Upper and Lower Namoi Valleys were declared to be in Stage 2 – Emerging Drought.

34.5 GL was transferred from Split Rock Dam to Keepit Dam to assist with providing a final block release to the Lower Namoi to reach Walgett.



Measures implemented - November 2018 to May 2019

November 2018

The Upper and Lower Namoi Valleys were escalated to Stage 3 – Severe Drought.

Keepit Dam was holding 6% and Split Rock Dam was holding 7%.

Upper and Lower Namoi general security users were restricted to accessing 85% of the volume held in their accounts as of 5 November 2018. Following rainfall this was lifted on 28 November, however water users could only extract water ordered before 5 November.

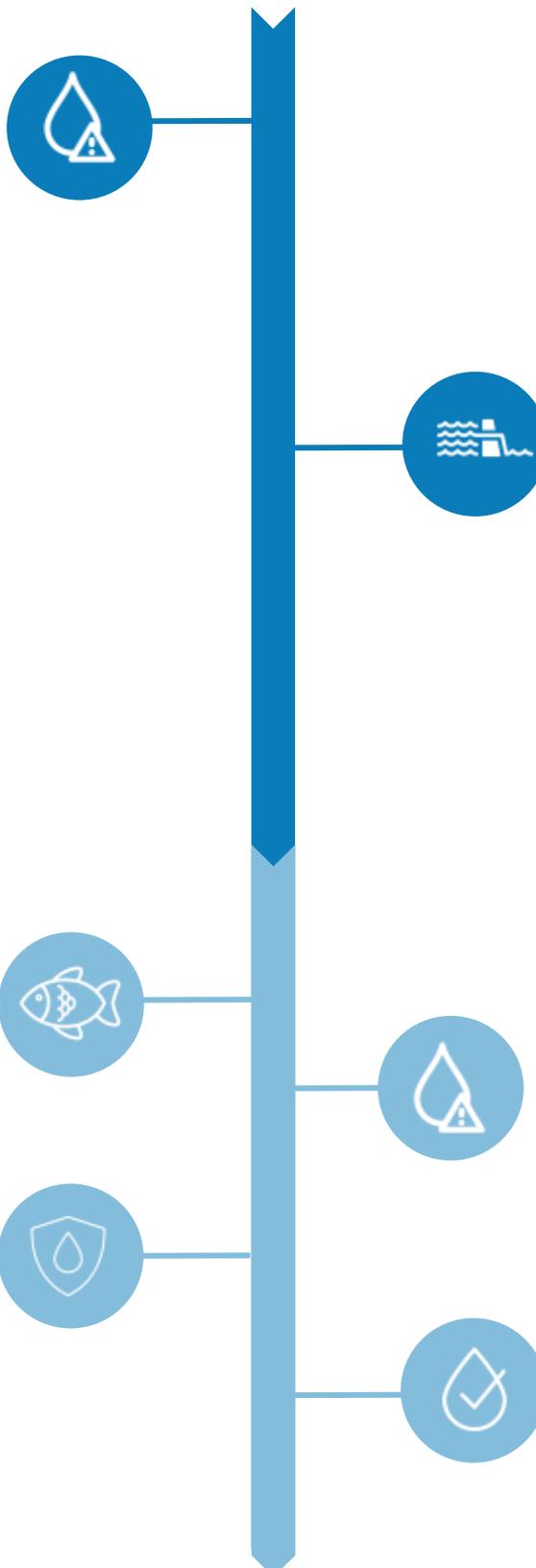
5,500 ML of Commonwealth environmental water was delivered in the Lower Namoi River downstream of Gundigera Weir to refresh refuge pools and increase connectivity as part of the block release.

January 2019

Two solar aerators were installed in Keepit Dam to assist with maintaining some critical drought refuges to help prevent fish deaths.

March 2019

A temporary water restriction was placed on the Lower Namoi regulated river (general security) and unregulated river access licences, to protect inflows for essential needs.



December 2018

The block release was completed, and Keepit Dam was effectively empty.

Split Rock Dam was holding less than 5%.

February 2019

The Lower Namoi was declared to be in Stage 4 – Critical Drought.

The Namoi Valley had received its lowest inflows since 1918.

May 2019

The temporary water restriction on the Lower Namoi regulated and unregulated river access was repealed.

Measures implemented - July 2019 to January 2020

July 2019

Keepit Dam was at less than 1% capacity and Split Rock was 2% capacity. High security allocations were 75% and general security were 0% for both the Upper and Lower Namoi.

Town water and high security requirements could not be provided from storage and were dependent on downstream tributary inflows.

A temporary water restriction was applied to general security water users. In the Lower Namoi there was no access to water held in accounts and in the Upper Namoi users were restricted to accessing 75% of the volume in their accounts.

December 2019

The temporary water restriction was extended in the Upper Namoi to prohibit any take of water held in general security accounts.

DPI – Fisheries coordinated a native fish rescue with local groups. Native fish were taken from remaining refuge pools between Keepit Dam and Narrabri and relocated into government and private hatcheries to provide brood-stock to repopulate the Namoi River once drought conditions eased.

Pulse releases were made from Split Rock Dam to supply water for Manilla only.



November 2019

The Upper Namoi was declared to be in Stage 4 – Critical Drought.

There were numerous reports of small fish deaths throughout the Lower and Upper Namoi due to drying pools and low water quality.



January 2020

The Namoi Valley received above average rainfall but only saw minimal inflows due to the very dry catchments.

A temporary water restriction on most commercial pumping was applied across all the Northern Basin. This was to allow for replenishment of town, domestic and stock supplies, and refuge pools, following widespread rain.

Fish deaths occurred due to a rapid reduction in dissolved oxygen levels caused by short and sharp flows following rainfall.

Measures implemented – February 2020 to January 2021

February 2020

The temporary water restriction on river pumping ceased as triggers for first flush flows were met in the Namoi.

The temporary water restriction on water held in general security accounts was repealed.



March 2020

Consistent rainfall saw Keepit Dam increase to 11.3% capacity and Split Rock Dam to 4%.

The Upper and Lower Namoi were de-escalated to Stage 3 – Severe Drought.

A small block release was made from Keepit Dam to supply some domestic and stock users immediately below the dam.

April 2020

High security allocations were increased to 100% and general security to 50% in the Upper Namoi.

The Upper Namoi was eased to Stage 2 – Recovering from Drought.



July 2020

90% high security allocations and 0% general security allocations were announced for the Upper and Lower Namoi.

September 2020

Split Rock Dam was at 5% capacity. 100% high security allocations and 50% general security allocations were announced for the Upper Namoi.

Keepit Dam had increased to 25% capacity. 100% high security allocations and 4.2% general security allocations were announced in the Lower Namoi.



November 2020

The Lower Namoi was eased to Stage 2 – Recovering from Drought.

General security allocations in the Lower Namoi increased to 7%.

December 2020

A planned block release from Keepit Dam was cancelled because downstream flows were occurring.



January 2021

Significant inflows occurred, and the Upper and Lower Namoi returned to Stage 1 – Normal Operations.

Split Rock Dam was holding 13% capacity. High and general security allocations were increased to 100% in the Upper Namoi.

Keepit Dam was holding 44% capacity. High security allocations were increased to 100% and general security to 31.7%.

Government assistance and funding

The following government assistance and funding was provided:

- \$3.76 million to Tamworth Regional Council towards the \$17 million upgrade to the Manilla water treatment plant. The project includes a new pump station, intake works and a pipeline from the Manilla River to the Namoi River.
- \$8.25 million to Walgett Council for the Walgett Weir raising. The project increases the weir capacity and includes a fishway to improve fish passage.
- \$1 million to Walgett Council for the construction of an additional bore. Due to water quality issues, a temporary reverse osmosis plant was also funded by the NSW Government.
- Fixed water charges for general security, unregulated rivers and aquifer access licences were waived from July 2018 to June 2021. Fixed charges were also waived for high security and domestic and stock licence holders along the regulated rivers.
- A \$2000 domestic water carting rebate was made available to eligible water users. This included the Upper Namoi between Manilla Weir and Keepit Dam and in the Lower Namoi downstream of Keepit Dam including sections of the Pian Creek, where regulated flows could not be provided during the drought.

Drought information sessions

Drought information sessions were held in Gunnedah in June 2018 and Narrabri in November 2019. Webinars were held in December 2019 and May 2020. Further information can be found at: www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/drought-update/information-sessions

Lessons learnt

Changes being implemented

- The NSW Government is committed to earlier communication with communities when conditions indicate that we may be approaching drought. Clear and early communication will allow landholders and water users to prepare for potential restrictions and ensure that applications for groundwater approvals and drought infrastructure are in place early.
- A review of targets and principles for restricting commercial access when first flows occur after a prolonged drought and improved communication processes is underway.
- Providing more clarity on when block releases are applied.
- To better identify when we are moving into drought (or flood) WaterNSW is developing a framework for measuring risk. This framework will use a variety of indicators such as rainfall deficit, soil moisture and streamflow conditions to provide an early warning of drought or flood to enable the community to be better prepared.
- During the drought, the WaterNSW Insights Portal was launched to provide more specific information to water users on allocations, notices and measures in their area. This is being further updated to include groundwater. Further information at: waterinsights.watarnsw.com.au/
- The department is developing Regional Water Strategies that use climatic modelling to understand the risks associated with more severe climate conditions. These long-term strategies will assess and prioritise policy, operational and infrastructure options that will ensure regions are better prepared for future droughts and a more variable climate. Further information at: www.industry.nsw.gov.au/water/plans-programs/regional-water-strategies

- The NSW Water Strategy sets the strategic direction for water service delivery and resource management in NSW over the long-term. Actions for improving drought planning, preparation and resilience are set out in the NSW Water Strategy Implementation Plan. Further information at: www.dpie.nsw.gov.au/water/plans-and-programs/nsw-water-strategy
- The individual valley Incident Response Guides and the Extreme Events Policy are being updated by reviewing the measures that were applied during the drought, this will improve our future response to drought.
- The Town Water Risk Reduction Program has been developed to enable Local Water Utilities to manage town water risks more effectively. The program will reduce water quality, water security and environmental risks in town water systems in regional NSW. More information can be found at: www.industry.nsw.gov.au/water/plans-programs/risk-reduction
- The department, WaterNSW and the Natural Resource Access Regulator are working together to align the licencing and approvals process to make it easier, quicker and consistent for applicants.