

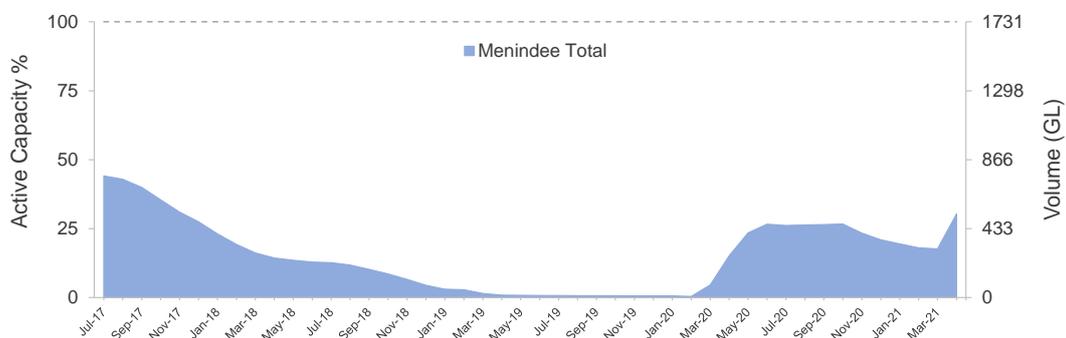
Was this the worst drought on record?

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 Menindee Lakes over the historical period from the 1890's until now.

The 24-month inflows for the period February 2018 to January 2020 were 73% less than the previous recorded lowest inflows during October 2005 to September 2007. The 36 month inflows for the period March 2017 to February 2020, were 55% less than the previous recorded lowest inflows during July 2013 to June 2016.

Dam Storage



Drought Stage



Allocations

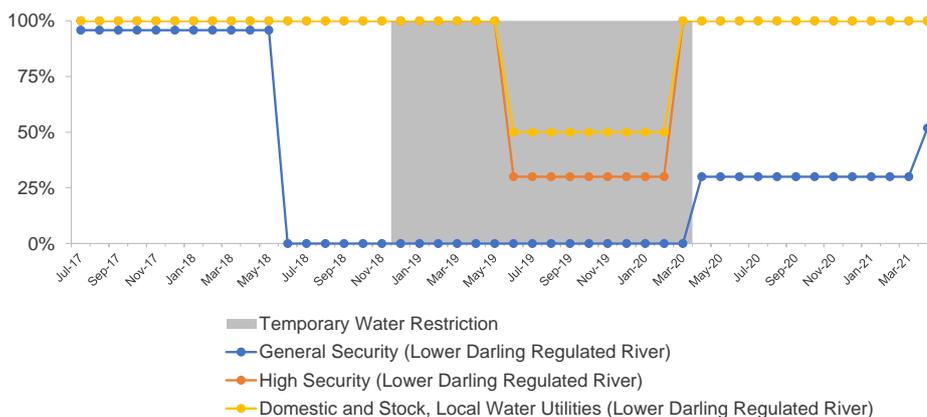


Figure 1 - Monthly storage, drought stage and water allocations for the Lower Darling

Measures implemented - July 2017 to December 2019

July 2017

Menindee Lakes was at 37% capacity. High and general security licence holders received a 100% allocation.

48.8 gegalitres (GL) of environmental releases were made over the water year to assist with follow-up fish breeding.

July 2018

Menindee Lakes had dropped to 9% capacity. High security allocations were 100% and general security 0%.

Two banks were installed below Pooncarie. These pooled water for irrigation of permanent plantings of citrus and grapes.

October 2018

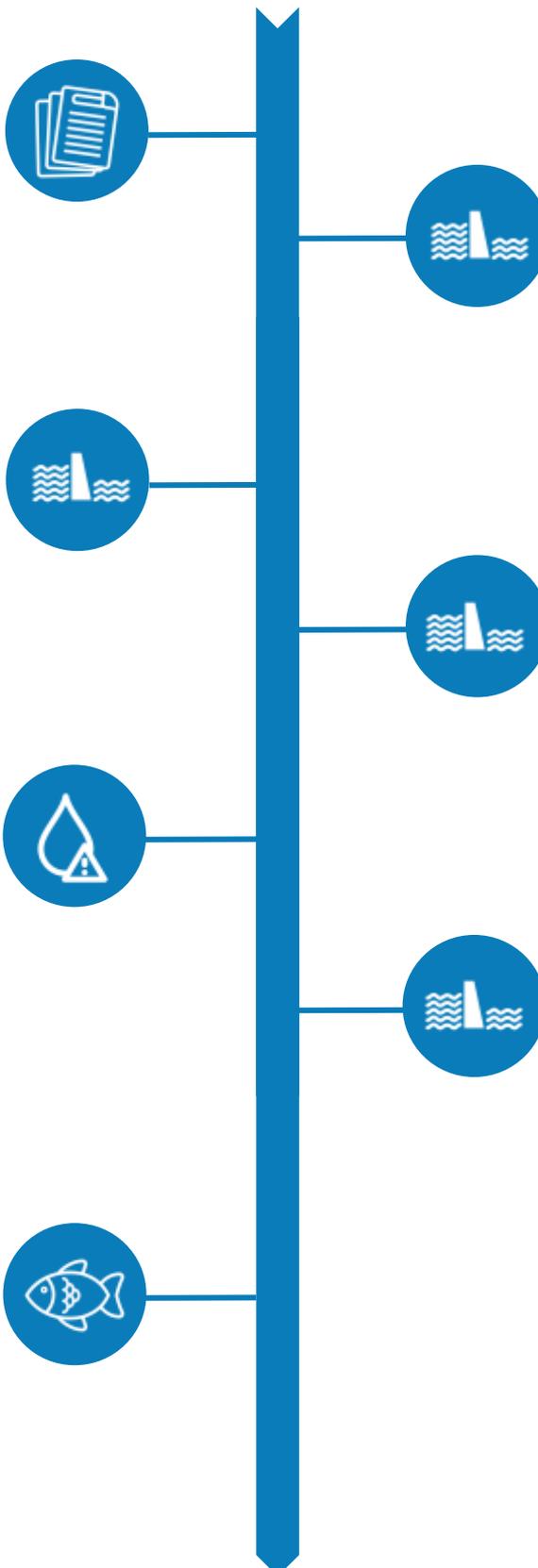
With the introduction of the Extreme Events Policy Drought Stages, the Barwon-Darling was declared to be in Stage 3 – Severe Drought.

December 2018

The Lower Darling was escalated to Stage 4 – Critical Drought.

A temporary water restriction was placed on all general security access licences, to conserve water for essential supplies and high security irrigation from Copi Hollow.

Hundreds of thousands of native fish died over three incidents downstream of Menindee. Low flows combined with extended hot and dry weather resulted in poor water quality, followed by sudden de-stratification of the weir pools resulting in low oxygen.



March 2018

A bank was constructed between Lake Tandure and Lake Wetherell. 7.2 GL of water was pumped from the shallower Lake Tandure and stored in the deeper Lake Wetherell.

August 2018

A bank was constructed between Copi Hollow and Lake Pamamaroo. 12 GL of water was pumped from Lake Pamamaroo to the deeper, smaller Copi Hollow. This extended the water supply for essential needs to Menindee and Broken Hill.

November 2018

Menindee Lakes was at 5% capacity.

At the request of landholders, two additional banks were constructed upstream of Pooncarie. These provided pools for stock and domestic needs.

Measures implemented - January 2019 to March 2020

January 2019

Releases ceased from Menindee Lakes.

Aerators were installed at a number of locations along the Lower Darling to create some refuges for native fish, although incidences of fish deaths continued throughout the warmer months in 2019 and early 2020.

July 2019

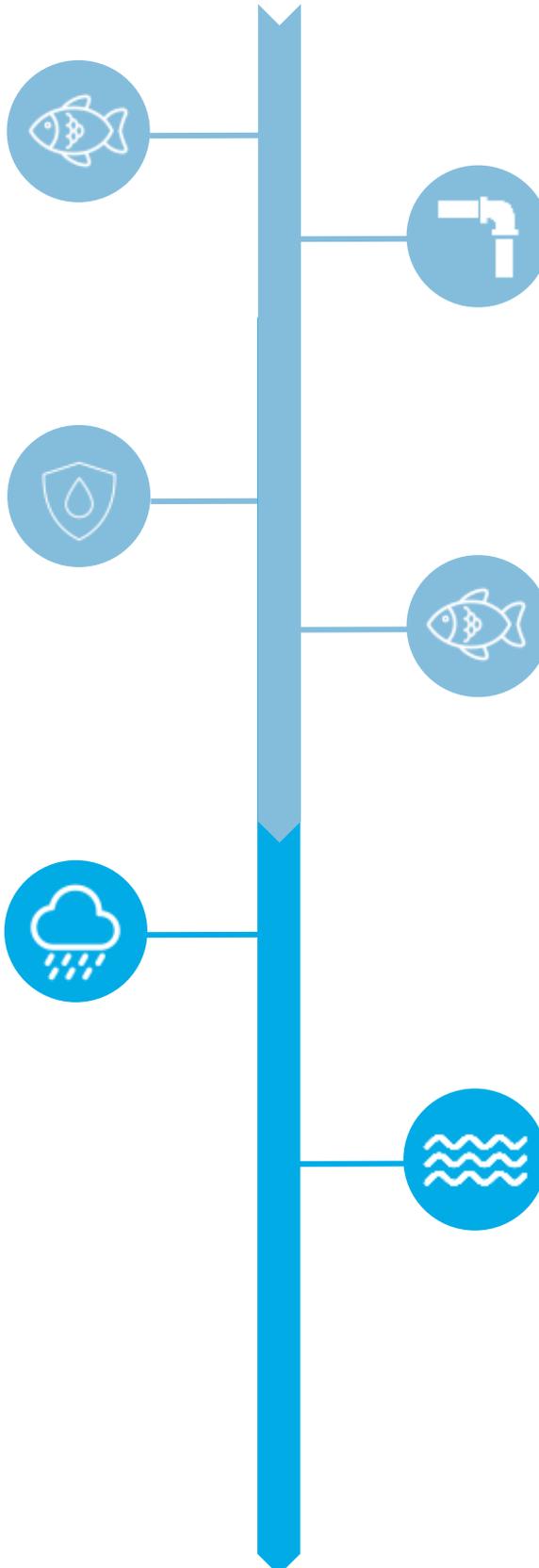
Menindee Lakes was effectively empty at 1% capacity. High security allocations were 30% but access was only from remaining pools of water. General security allocations remained at 0%.

The temporary water restriction was amended to also restrict irrigation from Copi Hollow.

January 2020

There was widespread rainfall in Queensland and across the northern NSW tributaries.

Temporary water restrictions on commercial pumping were applied across the Northern Basin to protect flows into the Barwon-Darling and Menindee Lakes to replenish critical town, domestic and stock and environmental needs.



April 2019

The 270 km pipeline from the River Murray near Wentworth to Broken Hill was completed and began operation. The pipeline secured water supplies for Broken Hill, which had previously relied on Menindee Lakes as the primary water supply.

October 2019

Over 1,100 native fish including Murray cod, golden perch and silver perch were rescued from the drying pools and relocated.

March 2020

Flows began entering Menindee Lakes from early March. Initial flows were of poor quality and were diverted into Lakes Tandure and Pamamaroo.

All banks were removed to accommodate the restarting of flows along the Lower Darling

On 26 March a flow pulse of sufficient volume and water quality to minimise risks to fish commenced. The large pulse flushed and diluted poor-quality water in isolated pools along the Lower Darling and no fish deaths occurred as a result of the releases.

The temporary water restriction on general security access licences and high security irrigation on the Lower Darling was repealed.

Measures implemented - April 2020 to April 2021

April 2020

The Lower Darling was eased to Stage 3 – Severe Drought.

High security allocations were increased to 70% and general security allocations received a 30% allocation.

June 2020

By June, some 670 GL of water had entered Menindee Lakes following January’s rainfall in northern NSW tributaries. This secured water supplies in the Lower Darling for two years.

September 2020

A release of held environmental water commenced to assist with stimulating fish breeding and recovery.

January 2021

No significant inflows had occurred since September 2020 and Menindee Lakes had dropped to 18% capacity.

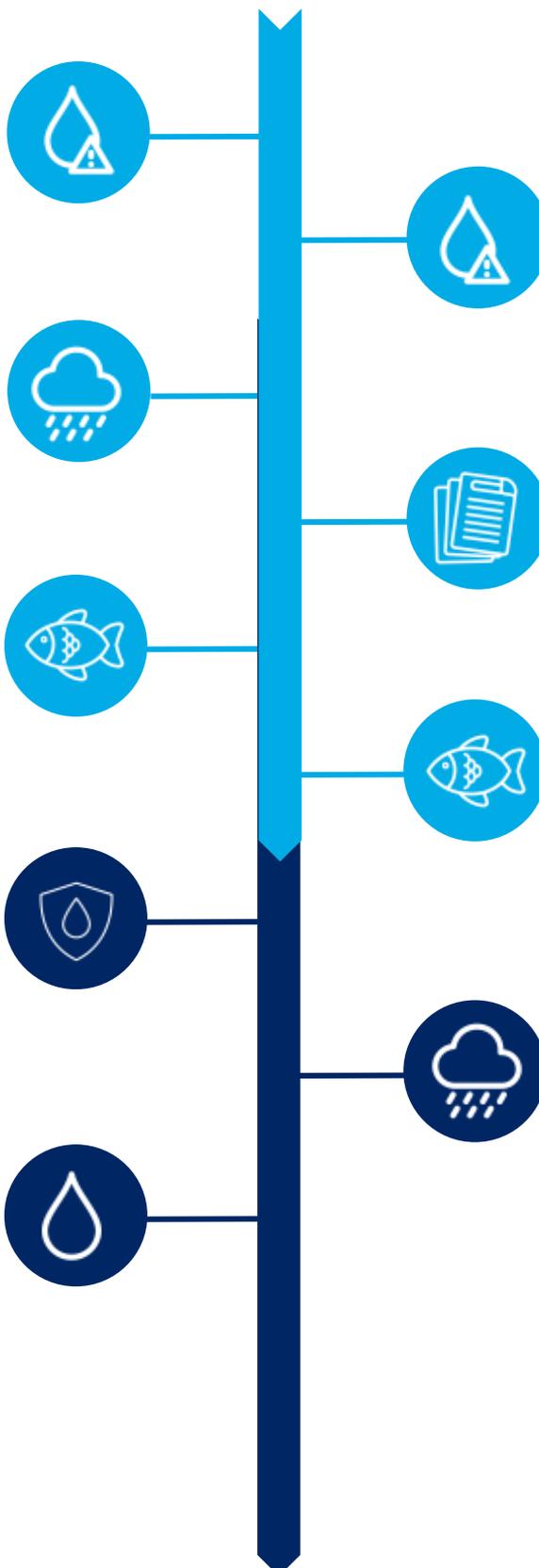
The resumption of flow rule in the Barwon-Darling was triggered, and irrigation access along the Barwon-Darling was restricted for a few weeks.

April 2021

Over 1,000 GL of flows commenced entering Menindee Lakes. This was the largest inflows to the Lakes since 2016 and enabled the watering of Lakes Menindee and Cawndilla for the first time since 2016.

With Menindee Lakes at 30% capacity and rising, high security and general security allocations received 100%.

The Lower Darling was eased to Stage 1 – Normal Operations.



May 2020

The Lower Darling was moved to Stage 2 – Recovering from Drought.

July 2020

The Menindee Lakes were holding 27% capacity. High security licence holders received a 100% allocation and general security received 30%.

December 2020

60,000 Murray cod were released back into the river near Menindee to re-stock and to assist with the recovery of the fish community.

March 2021

A significant rainfall event across northern NSW and southern Queensland catchments provided substantial inflows into the Barwon-Darling with flows reaching Menindee Lakes.

Government assistance and funding

The following government assistance and funding was provided:

- \$500 million strategy to secure Broken Hill's water supplies, including construction of the pipeline from the River Murray, temporary bores to provide back-up supply during the drought for Broken Hill and Menindee and a reverse osmosis plant.
- \$140,000 to the Central Darling Shire Council for water carting to the Menindee area.
- \$240,000 for water carting to the Pooncarie area.
- \$658,500 for emergency groundwater bores in Pooncarie.
- \$700,000 for supplying and transporting bottled water to far west NSW communities.
- \$4.6 million for the installation of the temporary block banks in Lake Wetherell and Copi Hollow and along the Lower Darling.
- \$1.1 million by the Commonwealth Government was committed for the design and consultation to improve fish passage at Weir 32, Pooncarie and Burtundy weirs.
- Application fees for private works were reimbursed to Lower Darling landholders who were not in the area benefitted by the government block banks.
- 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.
- A \$2000 domestic water carting rebate was made available to eligible water users along the Lower Darling.

Drought information sessions

Drought information sessions were held in Pooncarie in February 2019 and May 2019 and in Menindee in October 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 better prepare for potential restrictions and ensure that applications for groundwater approvals and drought infrastructure are in place early.
- 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.
- A number of additional provisions are being applied along the Barwon-Darling to protect flows, including increased A class pumping thresholds, resumption of flow rules, review of North-West Flow Management Plan targets and active management to protect environmental water and improve connection to Menindee Lakes.

- A review of targets, including a Menindee Lakes storage target and principles for restricting commercial access during drought periods and when first flows occur after a prolonged drought, is also underway.
- 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.waternsw.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.