



Annual Operations Plan

Lachlan Valley 2019-20



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Acronym	Definition
AWD	Available Water Determination
BLR	Basic Landholder Rights
BoM	Bureau of Meteorology
CWAP	Critical Water Advisory Panel
CWTAG	Critical Water Technical Advisory Group
DPI CDI	Department of Primary Industries - Combined Drought Indicator
DPIE EES	Department of Planning, Industry and Environment - Environment, Energy & Science
DPI Fisheries	Department of Primary Industries - Fisheries
DPIE Water	Department of Planning, Industry and Environment - Water
FSL	Full Supply Level
HS	High Security
IRG	Incident Response Guide
ISEPP	Infrastructure State Environmental Planning Policy
LGA	Local Government Areas
ROSCCo	River Operations Stakeholder Consultation Committee
D&S	Domestic & Stock
vTAG	Valley Technical Advisory Group

Introduction

This year's plan outlines WaterNSW's response to the drought in the Lachlan Valley including:

- identification of critical dates
- our operational response
- potential projects to mitigate the impact of the drought on customers and communities within the valley.

The NSW Department of Planning, Industry and Environment's Extreme Events Policy and Incident Response Guides outline 4 stages of drought. The Lachlan regulated river system is assessed to be in stage 3, which is reflecting the reduced water availability in 2019-20.

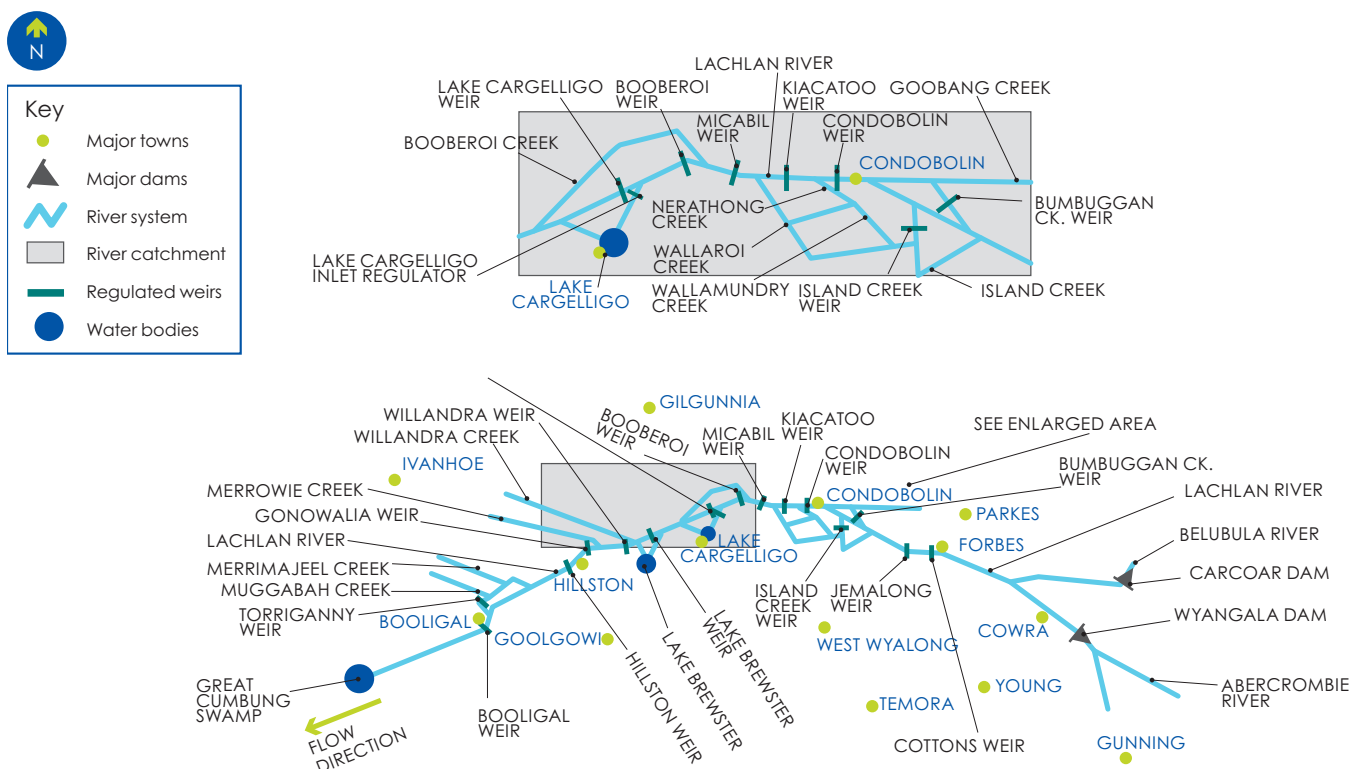
The Lachlan River System

The Lachlan River is the fourth longest river in Australia. The river runs from the Great Dividing Range in central New South Wales, westwards through sloping country in the central catchment, and then across river plains. The river ends at the Great Cumbung Swamp. In times of high flow, water will continue southwards through the swamp to reach floodwaters of the Murrumbidgee River. The wetlands of the Great Cumbung Swamp are extensive and unique.

The catchment is home to about 4% of the population of the Murray–Darling Basin, and the income of the population is primarily derived from agriculture and the supporting industries and services in regional centres.

The main tributaries of the Lachlan River are:

- Abercrombie River
- Belubula River
- Boorowa River
- Mandagery Creek.



Regulated and unregulated system flow trends

The Lachlan River and its floodplains provide a wide range of aquatic habitats such as pools, backwaters and billabongs, instream woody habitats and aquatic plants. The lower Lachlan floodplain has nine nationally important wetlands, including Lake Brewster, the Booligal Wetlands and the Great Cumbung Swamp. The latter features one of the largest stands of river red gums in New South Wales and is one of the most important waterbird-breeding areas in eastern Australia. The headwaters of the Lachlan River are on the Breadalbane Plain between Yass and Goulburn, on the Great Dividing Range in central New South Wales. The river flows north and then west through diverse landscape ranging from temperate forests, woodlands and grasslands in the east to semi-arid woodlands, mallee and scrublands in the west.

The eastern end of the catchment has elevations up to 1,400 m and an annual average rainfall in these cooler regions ranges from 800-1,000 mm. The western end of the catchment is located on warm-hot semi-arid plains, at an elevation of around 200 m, and an annual average rainfall of 300 mm. Monthly rainfall is fairly similar across the year.

Groundwater in the catchment exists in alluvial deposits that extend along the Lachlan River from Cowra to Condobolin, as well as along tributaries of the Lachlan. However, the main resource of good quality (fresh) groundwater is in alluvial aquifers that spread across the western part of the catchment from Lake Cargelligo to beyond Hillston - an area of around 3,300 km². There is streamflow leakage into alluvial groundwater within the catchment, which is expected to rise with increased groundwater use in the upper catchment.

Rainfall trends

For the period April 2017 to March 2019, lowest on record rainfall was observed over southern inland Queensland and areas of northwestern New South Wales. Over most of this area, rainfall for the period was less than 50% of the 1961-1990 average. Large areas from central to southwestern Queensland, and northcentral and northwestern New South Wales, into northeastern South Australia, have seen rainfall totals between 40% to 60% of this average, implying that nearly one year's worth of average rainfall has been missed over this two-year period.

The recent dry periods have been especially severe during the cooler months of April to September, an important time for agriculture and the replenishment of surface and groundwater storages across southern Australia. Averaged over the Murray-Darling Basin (MDB), the total rainfall over two consecutive April to September periods was the lowest on record, at 217.5 mm. This is around 15% below the previous record, which saw 255.7 mm over the 1940-41 April to September period. It was also the only instance of an April to September rainfall total below 125 mm in two consecutive years.

Rainfall for the combined two-year 2017 and 2018 April to September period was the lowest on record and very much below average (lowest 10% of all such periods) for large parts of southeastern and southwestern Australia. Around 50% of NSW was lowest on record for these two periods combined.

The 2019 winter continued to see dry conditions, which means three consecutive winters of below average rainfall.

Inflows to Dam

In the 26 months since the last allocation in August 2017, inflows to Wyangala Dam have been approximately 253,000 ML. In the 2019-20 water year up until September, system inflows have been critically low at just 9,000 ML.

Water users in the valley

Basic Land Holder Rights (BLR)

BLR includes water for Domestic and Stock extracted from a water source fronting a landholder's property, or from any aquifer underlying the land, and for native title rights. It is estimated that the volume of BLR in the Lachlan is 4,211 megalitres per year (ML/year).

The water supply system shall be managed so that it would be capable of maintaining supply to those exercising Domestic and Stock rights through a repeat of the worst period of low inflows into this water source (based on historical flow information held by the Department of Planning, Industry & Environment – Water, as at 1 July 2004).

Sufficient volumes of water must be set aside from assured inflows into this water source and reserves held in Wyangala Dam water storage.

The Minister for Water may issue an order under section 324 of the *Water Management Act 2000* to restrict the exercise of Domestic and Stock basic rights from this water source to protect the environment, for reasons of public health, or to preserve basic landholder rights.

Domestic and Stock use

The share components of Domestic and Stock access licences authorised to take water from these water sources will total 12,728 unit shares.

Local Water Utilities

The share components of Local Water Utility access licences authorised to take water from these water sources will total 15,545 ML/year.

High Security

The share components of regulated river (High Security) access licences in the Lachlan Regulated River water source totals 27,680 unit shares.

General Security

The share components of regulated river (General Security) licences in the Lachlan Regulated River water source will total 592,801 unit shares. While the General Security licences hold 592,801 unit shares, the average allocation over the last 10 years in the valley is 41.7%. Pasture and lucerne now have the largest combined irrigated area, followed by cereals and other crops such as oilseeds and legumes. Cotton is irrigated around Condobolin and Hillston, and smaller areas of wine is irrigated around Cowra.

Conveyance

The share component of Conveyance access licences in the Lachlan Regulated River water source is 17,911 unit shares held by Jemalong Irrigation Ltd.

Environmental Water

By limiting long term average annual extractions to an estimated 305,000 ML/year, this plan ensures that approximately 75% of the long-term average annual flow in this water source (estimated to be 1,212,000 ML/year) will be preserved and will contribute to the maintenance of basic ecosystem health. Planned environmental water includes:

1. Two environmental water allowances (EWAs) will be maintained for environmental purposes:
 - a. an environmental water allowance held in Wyangala Dam, known as the Wyangala Environmental Water Allowance (Wyangala EWA)
 - b. an environmental water allowance held in Lake Brewster, known as the Lake Brewster Environmental Water Allowance (Brewster EWA)
2. The Wyangala EWA and Brewster EWA will each be credited with a volume equal to 10,000 ML:
 - a. on 1 July each year, if the total volume of water in the water allocation accounts of regulated river (General Security) access licences exceeds 50% of the total volume of regulated river (General Security) access licence share components, or
 - b. in any water year when the EWAs were not credited on 1 July, when the sum of the volume of water in the water allocation accounts of regulated river (General Security) access licences at 1 July, plus the volume of water provided by available water determinations for those licences during the water year, is equivalent to 75% of total regulated river (General Security) share components
3. Subject to subclause (4), releases from Wyangala EWA and Brewster EWA may be made for environmental purposes including, but not limited to, the following:
 - a. to support the completion of waterbird breeding events
 - b. to support native fish breeding and fish passage
 - c. to provide wetland watering
 - d. to increase flow variability
 - e. to support environmental assets or environmental functions within and downstream of this water source that have been identified as water-dependent Aboriginal cultural values

Note: The values referred to in paragraph (e) will be identified by the Aboriginal Water Initiative and stored on the Aboriginal Water Initiative System database
4. The volume of Brewster EWA available for release from Lake Brewster at any time must be the lesser of:
 - a. the volume of credit remaining in the Brewster EWA
 - b. the active storage in Lake Brewsterminus any water transferred from Wyangala Dam for operational reasons
5. Any credits remaining in Wyangala EWA and Brewster EWA are to be forfeited at the end of each water year

It is not possible to forecast when releases of water from the Wyangala EWA and Lake Brewster EWA will be required, as releases occur in response to unpredictable environmental circumstances. To allow estimation of the effect of the Wyangala EWA and Lake Brewster EWA rules on water extractions, computer modelling has assumed that a total of 5,000 megalitres of Wyangala EWA and of Lake Brewster EWA were released at the end of each year when there was water in the accounts. It is expected that, over the life of the plan, average releases from each account would not exceed these figures.

Environmental flow rules

1. Environmental flows must be released according to the rules in this clause.
2. Subject to subclause (4), translucent flows must be released from Wyangala Dam:
 - a. during the period of 15 May to 15 November in any given year
 - b. when the inflows to Wyangala Dam, since 1 January that calendar year, have been greater than 250,000 ML
 - c. whenever the sum of inflows to Wyangala Dam plus tributary inflows downstream of Wyangala Dam are capable of producing a flow in the Lachlan River at Lachlan Lake Brewster Weir gauge (412048) greater than:
 - ii. 4,000 ML/day, when the volume of water held in Wyangala Dam is less than or equal to 50% of the full supply volume, or
 - iii. 3,500 ML/day, when the volume of water held in Wyangala Dam is more than 50% of the full supply volume
3. The rate of release of translucent flows released under subclause (2) must be the lesser of:
 - a. inflows to Wyangala Dam
 - b. the release necessary to achieve a flow in the Lachlan River at Lachlan Lake Brewster Weir gauge (412048) of:
 - i. 4,000 ML/day plus 25 ML/day for each 1% by which the volume of water held in Wyangala Dam exceeds 0% of the full supply volume, when the volume of water held is less than or equal to 50% of the full supply volume
 - ii. 3,500 ML/day plus 31.25 ML/day for each 1% by which the volume of water held in Wyangala Dam exceeds 0% of the full supply volume, when the volume of water held is greater than 50% of the full supply volume but less than or equal to 80% of the full supply volume
 - iii. 6,000 ML/day plus 100 ML/day for each 1% by which the volume of water held in Wyangala Dam is greater than 80% of the full supply volume

Subclause (3) (b) (iii) is the maximum release from Wyangala Dam when it is full and is the release necessary to achieve a flow at Lachlan Lake Brewster Weir gauge (412048) of 8,000 ML/day
4. Translucent flows must not be released when flows at Lachlan Lake Brewster Weir (412048), as measured since 1 June that water year, have exceeded 350,000 ML plus the sum of the following over the same period:
 - a. downstream water orders and any losses associated with delivery of these orders
 - b. replenishment flows to effluents downstream of Lake Brewster and any losses associated with the delivery of those replenishment flows
 - c. the volume of water downstream of Lake Brewster Weir resulting from evacuation of airspace made under clause 37 of the Lachlan Water Sharing Plan (WSP) which can be found at legislation.nsw.gov.au
 - d. the volume of water released from the environmental water allowances and the water quality allowances under clauses 27 and 28 of the Lachlan WSP
 - e. the volume of water released to maintain a visible flow at Geramy under clause 31 of the Lachlan WSP

5. Translucent flows must not be used to supply access licence requirements, basic landholder rights or be diverted to or stored in any weir or water storage
6. Tributary inflows occurring when translucent flows are being released under this clause must not be used to supply access licence requirements or basic landholder rights or be diverted to or stored in any weir or water storages, except to the extent that they are in excess of the flow required to meet the flow rates specified in subclause (2) (c)

If flows are insufficient to satisfy subclause (2) (c), or the conditions specified in subclauses (2) (a) or (b) or (4), tributary inflows may be diverted and stored in Lake Cargelligo or Lake Brewster, consistent with normal operational management

7. Releases of water from Lake Cargelligo and Lake Brewster may be substituted for all or part of the translucent flows released from Wyangala Dam, if releasing the translucent flows from Wyangala Dam is likely to cause flooding
8. Water released in accordance with subclause (7) from Lake Brewster must be accounted as translucent flows passing at Lake Brewster Weir for the purposes of subclause (4)
9. In the event that the release capacity of Wyangala Dam is insufficient to produce the release rates specified in subclause (3) (b) in addition to the releases required to satisfy access licence orders:
 - a. releases are to equal the release capacity
 - b. releases to satisfy water orders are permitted to be taken in accordance with access licence water orders
 - c. the volume of the translucent flows released will equal the total volume of water released from Wyangala Dam minus the volume of water released to satisfy access licence holder orders
 - d. the volume of translucent flows required to be released under subclause (3), but not released under this subclause, is to be accrued and released at the earliest opportunity
 - e. releases made under paragraph (d) are not to be subject to the timing and release rate restrictions in subclauses (2) and (3) but are subject to the maximum release rules specified in subclause (4)

Water availability

Available Water Determinations (AWDs) for Lachlan River - 15 October 2019

Licence Category	AWD	Deliverability
Domestic & Stock	100%	Unrestricted
Domestic & Stock - domestic	100%	Unrestricted
Domestic & Stock - stock	100%	Unrestricted
Local Water Utility	100%	Unrestricted
Regulated River (General Security)	0%	N/A
Regulated River (General Security carryover allocations)	N/A	Restricted - please see details below
Regulated River (High Security)	87%	Unrestricted

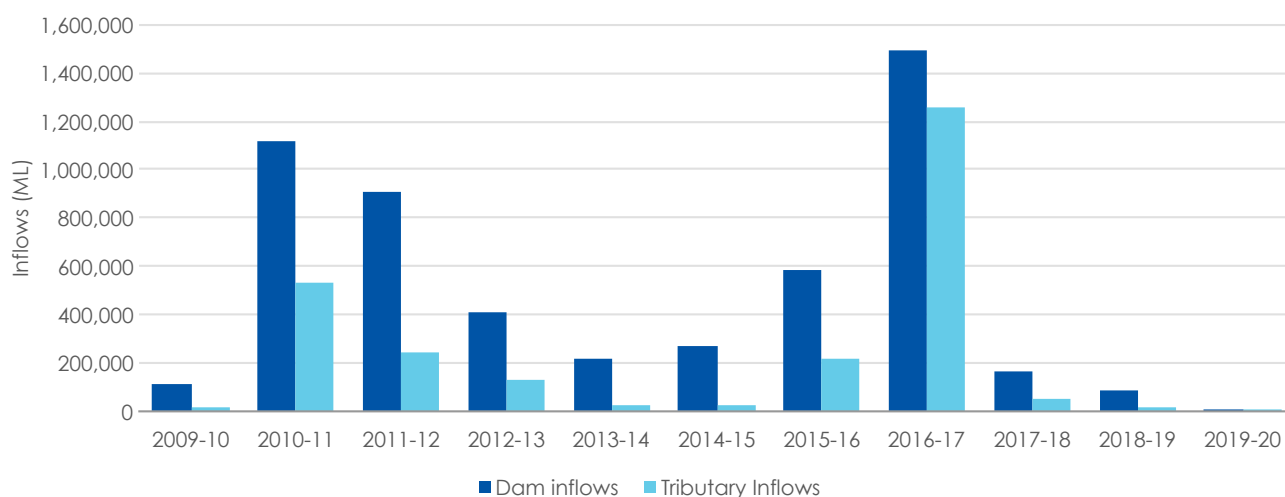
A temporary water restriction under Section 324 of the *Water Management Act 2000* is currently in place. The restriction requires 43 percent of the 1 July account balance of general security access licences to be placed into a drought sub-account, where it cannot be used or traded until conditions improve.

Current Drought Conditions

The system continues to experience low inflows to Wyangala Dam and downstream tributaries. Over the last 10 years, good inflows occurred in three years: 2010-11, 2011-12 and 2016-17.

Extremely low inflows also occurred in three years: 2009-10, 2017-18 to 2018-19 with the storages, during the latter part in millennium drought in 2009, decreasing to 4.7%. The last two years, from October 2017 to September 2019, has seen the lowest on record inflows to Wyangala Dam for a 24-month period, with inflows being similar to the previous 24-month lowest recorded pre 2004 inflows.

Lachlan Valley Inflows



The inflows for the 24 months for Wyangala Dam (October 2017 to September 2019) was 225,000 ML. This is similar to the previous minimum observed 24-month inflow of 232,400 ML.

As of 15 October, Wyangala Dam is at 20% capacity with an active storage volume of 240,000 ML. Deliveries to town water, critical industries and stock and domestic supplies are being maintained.

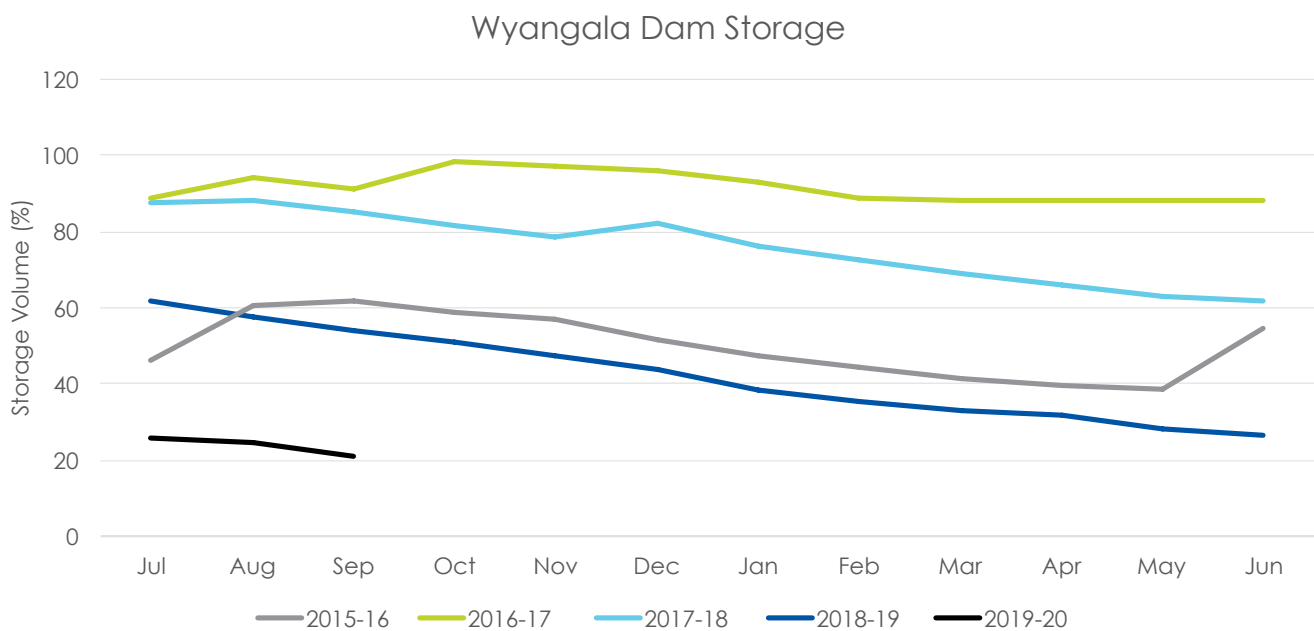
Wyangala Dam Inflows

As a result of the low inflows in Wyangala Dam over the past two years, since being at 98.5% capacity in October 2016 the volume of water has slowly declined. The graph below shows Wyangala Dam's behaviour for the 2018-19 water year, compared to the last four water years.

From the figure below, it can be seen that the volume of Wyangala Dam was around 88% at the start of the 2017-18 water year, and was drawn down to 61% of total capacity at the end of the water year. As the year progressed, inflows remained low. Low rainfall during the 2019 winter, the third winter in a row, has resulted in the Wyangala storage commencing the 2019-20 year at 25%.

In 2018-19 in Lachlan, about:

- 8,354 ML was supplied to town water
- 156,435 ML was provided to general security irrigation
- 26,309 ML to licenced environmental water
- 14,207 ML to planned environmental water
- 224,000 ML was used to run Lachlan rivers with water being lost to groundwater and evaporation



Resource Assessment

The resource assessment is the process of calculating how much water is available based on the rules of the Lachlan WSP. This is done at the end of the month and when any significant inflow event occurs.

The planning horizon for this resource assessment is 19 to 30-months depending on the month of assessment. Taken into consideration is the volume of water held in Wyangala Dam and in storages Lake Cargelligo and Lake Brewster, plus the expected minimum inflow based on historical records for the 19 to 30-month period.

As required by the Lachlan Work Approval, the resource assessment was checked for any new AWD for drought restarting in October 2019. There is no improvement in resources to recommend a new AWD on 1 October 2019. The assessment was checked for additional inflows required in October 2019

for a new AWD on 1 November with drought inflows starting on 1 November 2019. This resulted in a deficit in inflows of 332,000 ML.

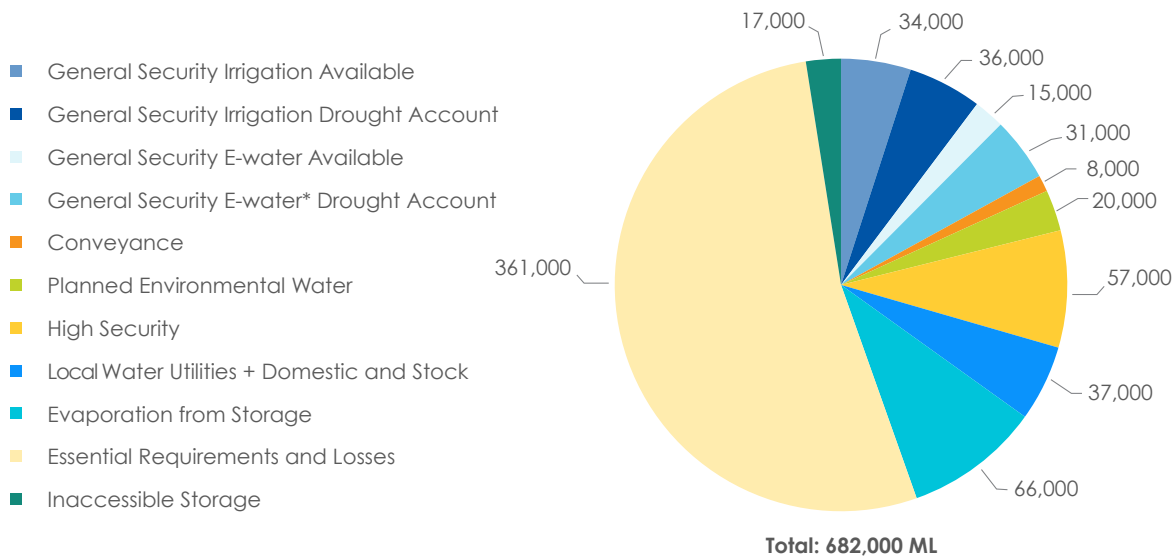
As of 1 October 2019, the total amount of water available in Wyangala Dam is 252,500 ML and 23,000 ML in Lake Cargelligo. Added to this was the expected minimum dam and tributary inflows over the planning horizon of 20-months of 50,000 ML and 25,000 ML respectively, totalling 75,000 ML.

Commitments for the planning horizon include 116,000 ML of General Security carryover allocations, 57,000 ML of High Security allocations, 37,000 ML of towns and Domestic and Stock, and 8,000 ML of Conveyance allocation. About 20,000 ML is set aside for water quality allowance, 66,000 ML for storage evaporation and 361,000 ML for essential requirements and losses resulting from the running of the river to end May 2021, including delivery of replenishment flows and river losses.

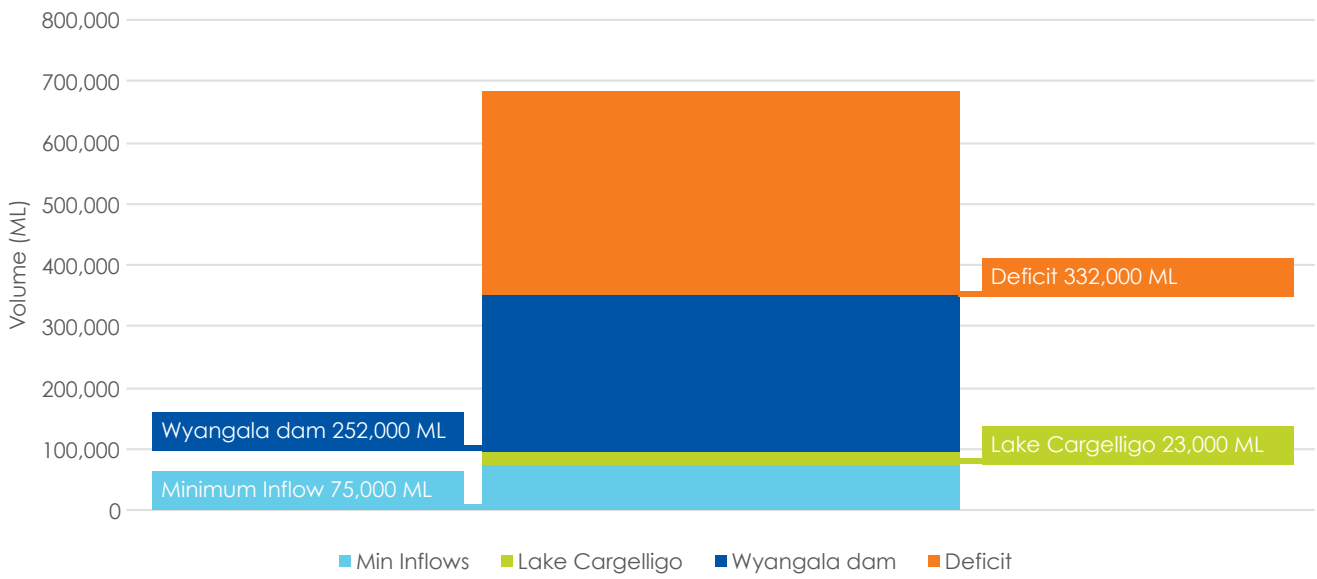
The total available resources amounted to 350,000 ML for the 20-month planning horizon. The total commitments totalled 682,000 ML for the planning horizon. This has resulted in a deficit of 332,000 ML.

This assessment is replicated below in charts and in a water balance table.

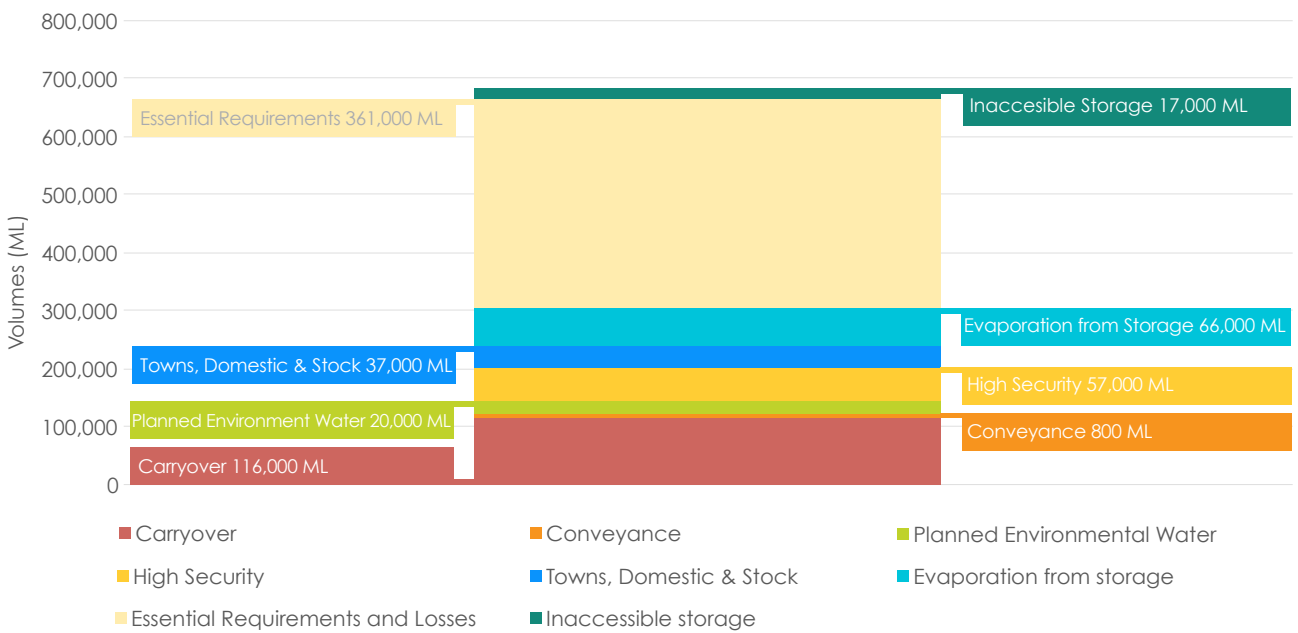
Resource Distribution and Drought Restrictions (October 2019 to May 2021)



Supply Source



Commitments

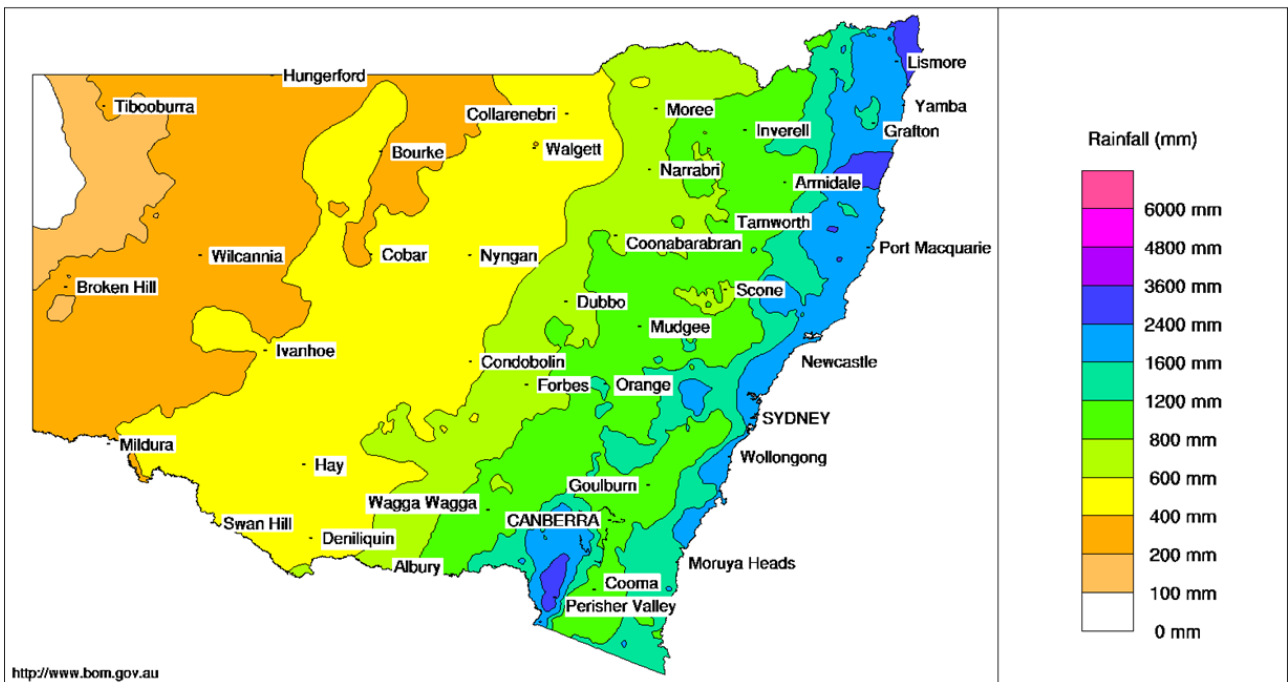


Water resource forecast

Lachlan catchment - past 24-month rainfall

Over the last 24-months, the total rainfall across the Lachlan catchment was in the range of 800mm to 1200mm. The average annual rainfall across the Lachlan is 600mm-1,000mm per year.

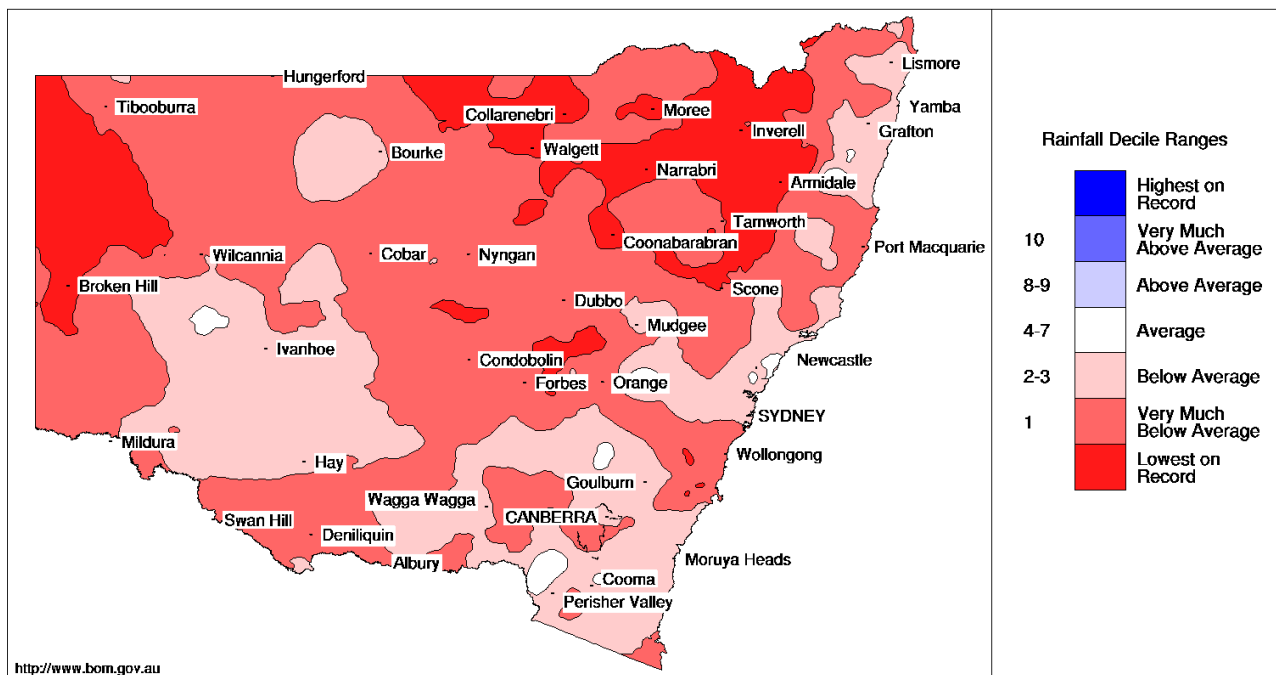
Total NSW rainfall (mm) for 24 months - 1 October 2017 to 30 September 2019



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Issued: 03/10/2019

NSW rainfall deciles for 24 months - 1 October 2017 to 30 September 2019



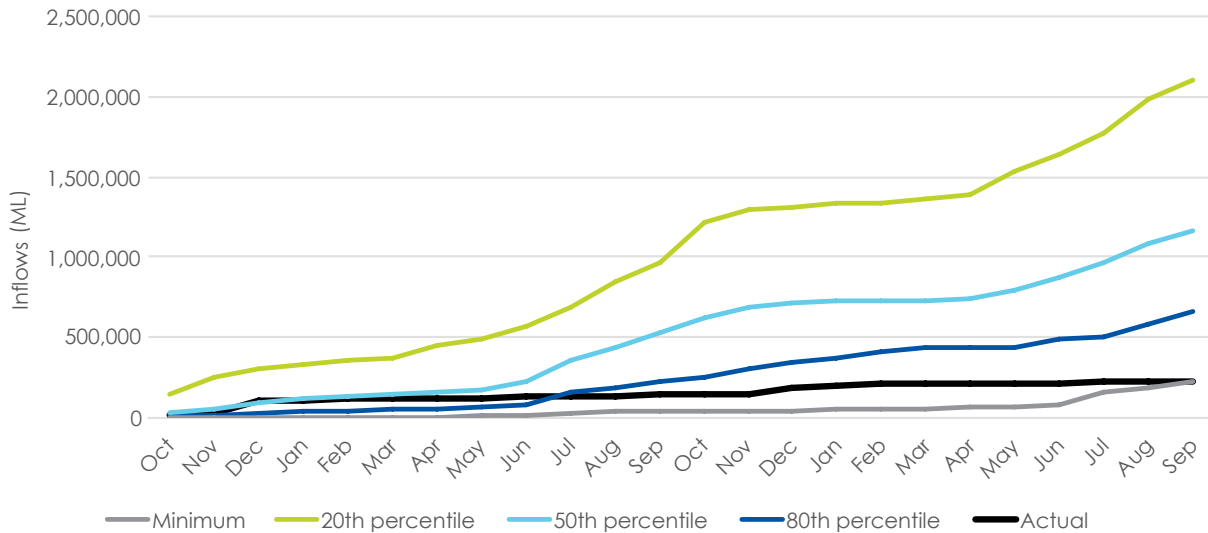
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Wyangala Dam - past 24-month inflows/statistical inflows

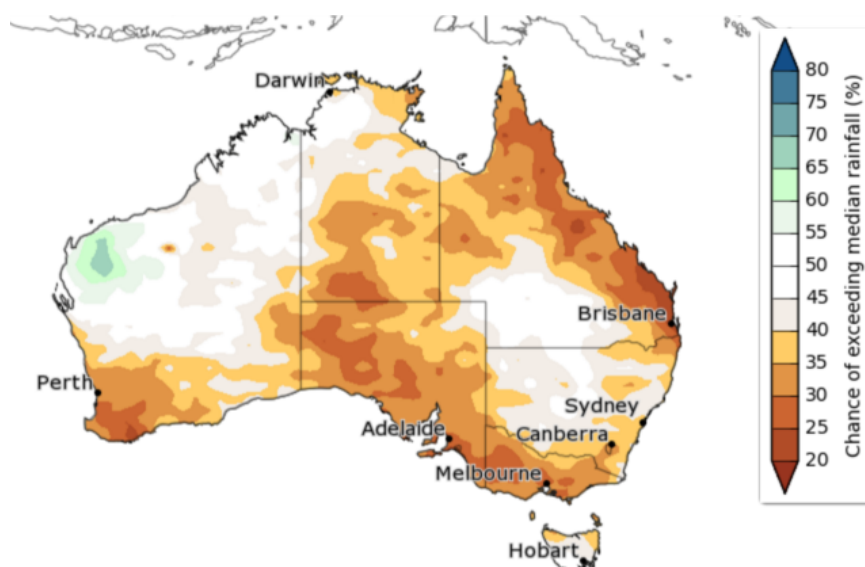
The inflows for the 24-months for Wyangala Dam (October 2017 to September 2019) was 225,000 ML. This is similar to the previous minimum observed 24-month inflow of 232,400 ML.

Wyangala Dam - 24-month inflows/statistical inflows



Three-month weather forecast

Forecasts from the Bureau of Meteorology (BoM) indicate a warmer and drier spring. BoM have indicated that the main influence on weather patterns across NSW at present is the positive Indian Ocean dipole, as sea surface temperatures in the Indian Ocean impact rainfall and temperature patterns over Australia. Cooler than average sea surface temperatures can provide less moisture for frontal systems and lows crossing Australia. Generally, this means there is less moisture than normal in the atmosphere to the northwest of Australia. Rainfall is likely to be below average across most of the country during November and December. Daytime temperatures are very likely to be above average across Australia for the remainder of 2019 and into early 2020. The strong positive Indian Ocean Dipole (IOD) is continuing to influence Australian climate, while a negative Southern Annular Mode (SAM) is also likely to affect the southern half of the country for the remainder of spring. Both these drivers typically bring warmer and drier conditions to much of the southern mainland during spring. The figure below shows that there is a 40-55% probability of the Lachlan Valley receiving above median rainfall during summer.



Annual operations

Operational Rules

Replenishment flows

The Water Minister will determine the volume of replenishment flows to be provided in any water year that are necessary to meet the Domestic and Stock requirements for the following, up to the maximum volume specified:

- a. 12,000 ML/year to Willandra Creek downstream from Homestead Weir to the Ivanhoe/Balranald Road (Grid Reference 229700 east, 6333000 north, Kilfera Map, 1:100,000, Sheet 7731)
Note: This volume includes water for the township of Ivanhoe and Morrison's Lake.
- b. 9,000 ML/year to the Merrowie Creek Trust District downstream to Cuba Dam (Grid Reference 266800 east, 6249000 north, Tarwong Map, 1:50,000, Sheet 7730)
- c. 9,000 ML/year to the Torigany, Muggabah and Merrimajeel Creeks Trust District downstream to the Murrumbidgee Swamp (Angorra Clump) (Grid Reference 281000 east, 6249000 north, Booligal Map, 1:50,000, Sheet 7830 on Merrimajeel Creek and the point on Muggabah Creek at Grid Reference 279000 east, 6239700 north, Booligal Map, 1:50,000, Sheet 7830).
- d. Booberoi Creek is to receive a continuous supply at its off-take at a rate sufficient to provide for town and domestic supply and stock watering and produce a visible flow at the Ginniguldrie Road Bridge, providing that the net volume supplied does not exceed 12,500 ML in any water year.

Airspace operation rules

Airspace operation of Wyangala Dam must be undertaken in accordance with the following rules:

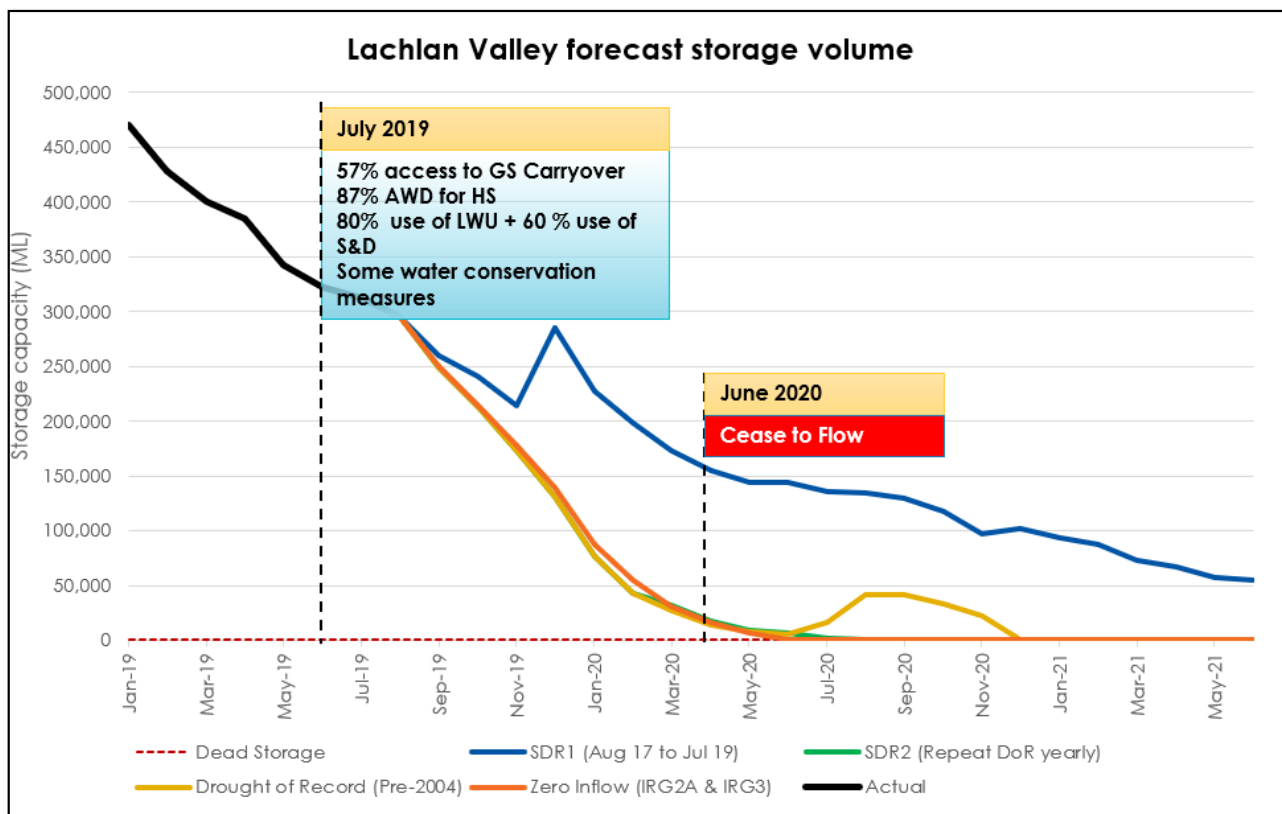
- a. airspace is to be maintained in Wyangala Dam for the purpose of reducing downstream flood damage
- b. the target airspace volume that is to be maintained at any time, must be set so that the probability of the water storage volume being full by the time significant irrigation demand commences is at least 80%
- c. evacuation of airspace should not result in flow at Cotton's Weir, Forbes or Jemalong Weir exceeding the minor flood level at these sites
- d. when Wyangala Dam is within 1% of the airspace target, airspace evacuation releases are to be maintained at the Wyangala power station capacity, if practicable.

Deliverability

Resource assessment carried out at the end of the 2018-19 water year indicated a deficit in resources to deliver all remaining general security carryover allocations in 2019-20. The assessment has also indicated that Lachlan River would cease to flow by March 2020 without intervention.

Progressive contingency measures including restricting access to General Security carryover allocations, cutting down transmission losses by ceasing flows in the regulated Willandra Creek in summer, and deferring the delivery of domestic and stock replenishment flows to lower Lachlan creeks until the availability of surplus tributary flows have delayed the ceased to flow to June 2020. Further operational changes are being considered to extend the supplies to critical human needs in 2020-21.

The below figure shows a depletion curve for Wyangala Dam considering zero inflows to the dam, and zero downstream tributary flows.



It indicates that in June 2020, there will be cease-to-flow conditions from Wyangala Dam as the dam reaches deep storage level.

While the use of the zero-inflow scenario is extremely conservative, the very dry catchment and the significant depletion of soil moisture across the catchment means the use of this extreme scenario for drought planning purposes is justified.

Overall Scenario Assumption

1. General Security using 57% of 1 July 2019 balance and all are used in 2019-20
2. High Security AWD in 2019-20 of 87%
3. 100% AWD for both Local Water Utilities and Domestic and Stock, but usage considered 80% for Local Water Utilities and 60% for Domestic and Stock
4. Essential requirements for 2019-20, Incident Response Guide 2 with water saving measures
5. Essential requirements for 2020-21, under Incident Response Guide 3
6. Available Water Determination for 2020-21, Local Water Utilities 70%, Domestic and Stock 50%, and High Security 30% as was in the millennium drought
7. Jemalong conveyance is 7,000 ML for 2019-20 and 2,400 ML for 2020-21
8. Essential requirements considered for 2019-20 is 184,000 ML with consideration of applying some water conservation measures (i.e. block releases in Willandra Creek, reduction in Booligal target flows, reduction in operations surplus) and for 2020-21 is 130,000 ML. Additionally, lower Lachlan Domestic and Stock replenishment flows are suspended under zero inflow scenario and second scenario under Drought of Record (pre 2004) reducing the essential requirements in 2019-20 from 184,000 ML to 156,000 ML.

9. No Environmental Water Allowance delivery after 1 July 2019
10. 10,000 ML Water Quality Allowance considered for each water year
11. Deep storage level: 1,000 ML for Wyangala and 15,000 ML for Lake Cargelligo
12. Lake Cargelligo is taken offline from Lachlan River in all scenarios other than Drought of Record (pre 2004) and Synthetic Drought of Record 1
13. End of August 19 assessment.

Critical human needs

Water is being managed in the Lachlan to deliver restricted General Security carryover allocations along with other higher security allocations in 2019-20. Water is also being managed to extend the delivery of critical human needs in 2020-21 with a number of major towns reliant upon surface water to give communities ample time to ensure standby supply is ready .

Existing drought contingency measures, which extend supplies for three months, are:

- restricting access to 43% of general security carryover (67,000 ML saving)
- allocating only 87% to high security (4,000 ML saving)
- ceasing delivery to Willandra Creek from 1 December 2019 to 31 March 2020 (6,000 ML saving)
- ceasing delivery of replenishment flows from Wyangala Dam (24,000 ML saving).

Critical environmental needs

The freshwater environment of the Lachlan Valley is comprised of a range of aquatic habitats, including extensive in-stream pools.

WaterNSW, in partnership with NSW Department of Primary Industries - Fisheries and Dept Planning, Industry & Environment – Environment, Energy & Science, will be identifying critical habitat along the Lachlan River and establishing a monitoring program to assess the health of these sites during the drought.

Basic Landholder Rights and Domestic & Stock

Under the *Water Management Act 2000*, extraction of water for Basic Landholder Rights (BLR) does not require a licence, although in the case of accessing groundwater under BLR the water supply work must still be approved. BLR includes water for domestic and stock purposes extracted from a water source fronting a landholder's property or from any aquifer underlying the land.

The taking of water for domestic purposes by persons exercising basic landholder rights, and the taking of water for domestic purposes or essential town services authorised by an access licence is the second priority under the Act.

The taking of water for stock purposes by persons exercising basic landholder rights, and in the case of regulated rivers, the taking of water for purposes (other than domestic purposes) authorised by a regulated river (High Security) access licence is the fourth priority.

Scenarios

Inflow scenarios and management outcomes:

1. Inflow event upstream of Wyangala Dam and in downstream tributaries
 - i. Any upstream event of Wyangala Dam will be captured in the storage to continue to deliver restricted general security allocations in 2019-20 along the Lachlan River.
 - ii. If sufficient inflows occur, the improvement in resource will be shared to increase the availability of carryover and high security allocation, after first ensuring essential supplies can be met in 2020-21. A relaxation of restrictions this water year is dependent on the timing of inflows to storage.
 - iii. Surplus tributary inflows will be stored in Lake Cargelligo.

Key operational dates

- Releases into Willandra Creek will cease from December 2019 to March 2020.
- Wyangala Dam will cease to flow under zero inflows in June 2020.

Projects

Potential projects and contingency measures in 2019-20 for extending supplies to critical human needs in 2020-21

The following options can be considered as emergency response plans for drought management in Lachlan Valley:

1. Suspend the Lachlan River end of system flow rule and deliver pulses
2. Take Lake Cargelligo offline from Lachlan and Domestic and Stock use
3. Pulsed releases to Booberoi Creek
4. Deliver flows in the Wallamundry Creek system down one creek, rather than three
5. Reconsider the use of the water quality allowance

