

15 April 2019

## NSW Murray and Lower Darling

### Water allocation update

Water allocations in the NSW Murray and Lower Darling regulated river water sources **remain unchanged**.

March is historically a low rainfall month, which combined with prevailing dry catchment conditions, has resulted in inflows remaining well below average. Despite these dry conditions, there has been a 25,000 megalitres (ML) improvement in the NSW share of Murray resources. This was primarily due to minor system inflows and better than budgeted system losses following some rainfall in late March.

The small improvement has been used to run the Wakool system and for high priority commitments on 1 July 2019. By setting aside improvements through the remainder of the water year, it is likely that all high priority commitments, including general security carryover, can be met in 2019-20. An outlook for 2019-20 water availability is given below.

While the River Murray system as a whole has experienced 'near extreme' dry inflow conditions of 93 per cent Annual Exceedance Probability (AEP) this water year, the NSW Murray share of the system has tracked even drier at closer to 96 per cent AEP. This disparity has been driven by high inflows from Victorian tributaries this water year.

The Menindee Lakes system remains critically low at 1 per cent full, holding just 18,200 megalitres (ML). Remaining supplies are restricted to critical needs only. Information on Lower Darling drought contingency measures is provided in the Drought stage section below. The widespread cease-to-flow conditions combined with extreme summer weather continue to create significant water quality challenges and community stress.

2018-19	High Security	General Security	Average Carryover	Drought Stage
Murray	97%	0%	31%	 Stage 1
Lower Darling	100%	0%	15%	 Stage 4

### Drought stage

The NSW Extreme Events Policy introduces a staged approach to managing extreme events, such as severe droughts or poor water quality events.

The **NSW Murray** regulated river water source is in Stage 1 drought, meaning it can deliver all account water under normal river operations.

The **Lower Darling** regulated river water source is at maximum Stage 4 drought criticality, with restrictions limiting access to ensure access for critical needs. Measures include:

- A temporary water restriction that took effect on 4 December 2018, restricting use to town water supply, domestic use, stock watering, permanent plantings and some limited high security water from Copi Hollow.
- Broken Hill's water supply needs are now being met from the Murray via the Wentworth to Broken Hill pipeline.
- Essential Water is using Copi Hollow to provide for Menindee and Sunset Strip.
- Releases from Weir 32 ceased in mid-February 2019.
- Access to water along the Lower Darling is from pools created by temporary banks.

The temporary water restriction is likely to remain until resources improve in the Menindee system. Follow this link for further details on the reasons for the temporary restriction:

[www.industry.nsw.gov.au/water/allocations-availability/temporary-water-restrictions](http://www.industry.nsw.gov.au/water/allocations-availability/temporary-water-restrictions)

More information on NSW's Extreme Events Policy and related drought stages can be found at: [www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/extreme-events](http://www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/extreme-events)

### Murray storage levels (as at 12 April 2019)\*

- Dartmouth Dam is 62 per cent full – steady – holding 2,445,000 ML.
- Hume Dam is 17 per cent full – falling – holding 538,000 ML.
- Lake Victoria is 29 per cent full – falling – holding 195,000 ML.

\* NSW share of this water is approximately 24%, 60% and 45% for these storages respectively, or 32% in total.

### State sharing of the Murray resource

The monthly end of March accounts indicate that 2,940 gigalitres (GL) of total Murray resource is available in the extreme dry (99<sup>th</sup> percentile) case, of which about 480 GL is needed to run the system and therefore 2,460 GL is distributed to NSW and Victoria based on rules in the Murray-Darling Basin Agreement. The assessment results in 1,190 GL for NSW.

### Climatic outlook

The Bureau of Meteorology seasonal outlook for May to July shows no clear indications of drier or wetter conditions for a majority of the catchment, with possible drier than average conditions in the headwaters. Temperatures are likely to be above average.

The main climate drivers remain neutral. However, modelling suggests there is a chance that El Niño will develop in the coming months, with the Bureau's El Niño-Southern Oscillation (ENSO) Outlook rising to El Niño ALERT level. If El Niño does develop, it would increase the chances of drier conditions in the south and eastern Australia.

For further details: [www.bom.gov.au/climate/outlooks/#/overview/summary](http://www.bom.gov.au/climate/outlooks/#/overview/summary)

### Trade

In the Murray, trade across the Barmah choke remains restricted to '**no net trade downstream**'. Downstream trade opens to the extent of the volume of any upstream trade. The trade restriction helps to protect existing downstream entitlement holders from an increased risk of delivery shortfall due to the limited physical capacity of the Barmah Choke. Water users are encouraged to monitor the Murray-Darling Basin Authority (MDBA) website ([www.mdba.gov.au](http://www.mdba.gov.au)) for information about the trade balance and status of trade.

The Menindee Lakes system is nearly empty. Temporary trade with the Murray is therefore closed and typically remains closed until the system recovers to above 640 GL and becomes part of the shared Murray system. Trade within the Lower Darling water source is allowed.

Trade **out** and **within** the Murrumbidgee Valley is open, but trade **into** the Murrumbidgee Valley is closed. Trade into the Murrumbidgee Valley will re-open when the Murrumbidgee inter-valley trade (IVT) account balance climbs to 15 GL. Water users are encouraged to monitor the WaterNSW website ([www.waternsw.com.au](http://www.waternsw.com.au)) for daily information about the IVT account balance and status of trade, particularly up-coming seasonal trade closures.

## Next announcement

The next water allocation statement for the NSW Murray and Lower Darling valleys will be issued on **Wednesday, 1 May 2019**. It will be an abbreviated statement to confirm conditions and keep water users updated.

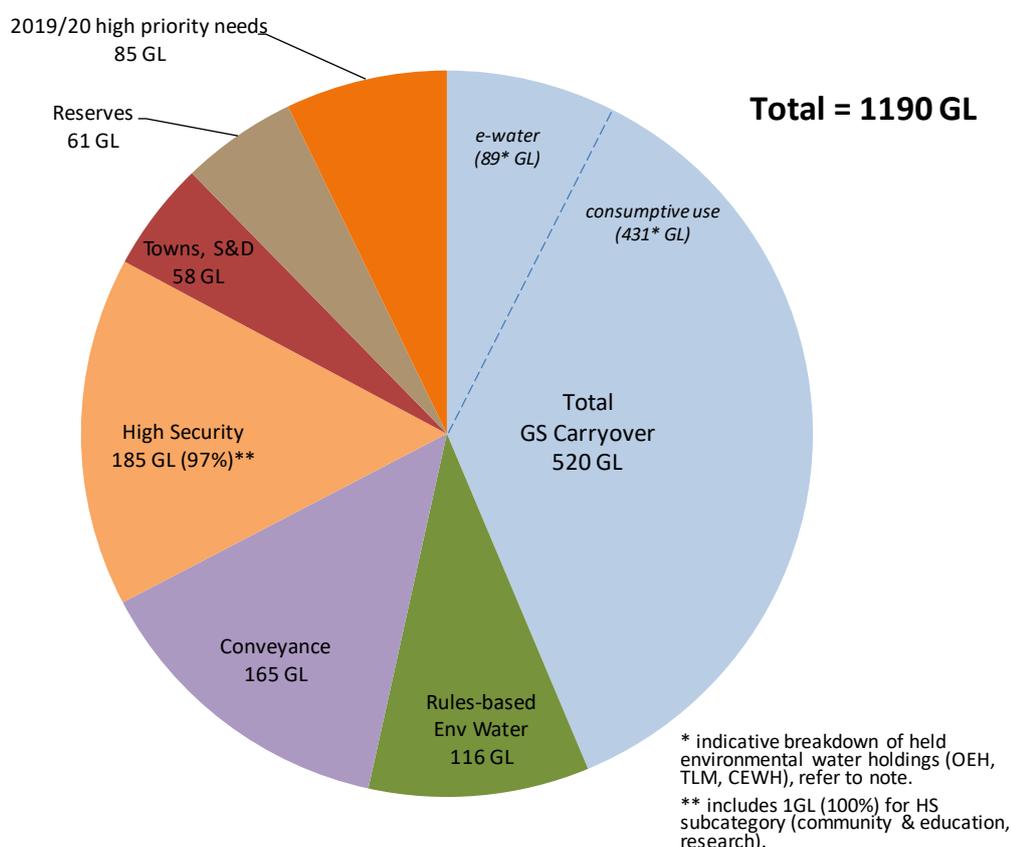
The final allocation update for the water year will be issued on **Wednesday, 15 May 2019**. It will provide the best estimates of expected opening (1 July) water availability and allocations, and the likelihood of improvement under different inflow scenarios.

## NSW Murray resource assessment data sheet

Resource Distribution (15 April) for 2018-19	Volume (GL)
Total Available Resource <sup>(1)</sup>	1,190
<b>less</b>	
Carryover <sup>(2), (7)</sup>	520
Rules based Environmental Water <sup>(3)</sup>	116
Towns, Stock, Domestic <sup>(4)</sup>	58 (100%)
Announced High Security subcategory (education, research) <sup>(4)</sup>	1 (100%)
Announced High Security <sup>(4)</sup>	184 (97%)
Conveyance <sup>(5)</sup>	165 (50%)
Reserves <sup>(6)</sup>	61
Announced General Security <sup>(7)</sup>	0 (0%)
2019-20 high priority needs <sup>(8)</sup>	85

*\*See notes below.*

## NSW Murray resource distribution 2018-19 – 15 April 2019



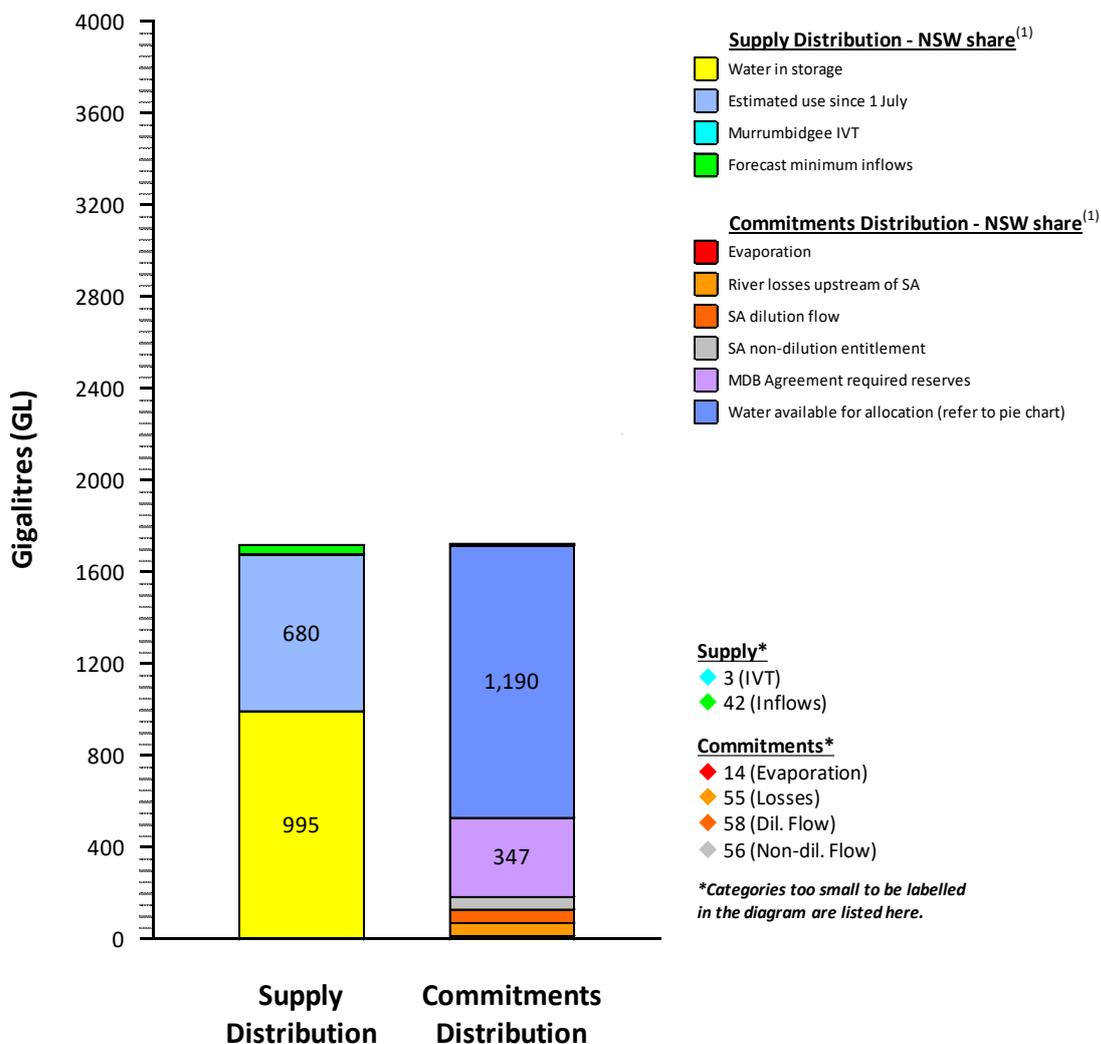
### Data sheet notes

- (1) Total available resource - NSW's state share of active storage volume (Hume, Dartmouth, Menindee and Lake Victoria) as assessed and accounted for under the Murray-Darling Basin Agreement at the time of the assessment plus any usable flows in transit plus assumed (99%ile) inflows for the rest of the year plus Snowy Hydro's assured Required Annual Release (RAR) (including any flex (pre-release) from the prior year), as well as estimated usage to date. Snowy Hydro's M1 releases to date for this water year (2018-19) is estimated to be about 849GL, and 200GL of flex was pre-released in 2017-18. NSW remains in Special Accounting with South Australia (SA), details of which can be found in the MDB Agreement clauses 123-129. Special accounting is triggered when NSW is forecast unable to meet the required reserve of 1,250GL by the end of the water year to supply SA with its entitlement in the following year.
- (2) Carryover – NSW Murray general security water users can carryover a maximum account balance of 50 per cent of their entitlement into the following water year. The account limit is 110 per cent of entitlement, meaning that account credits from allocation and/or carryover cannot exceed 110% of entitlement in any water year. The limit does not include allocation trade.
- (3) Primarily rules-based planned environmental water – water required to be set aside to provide for riverine environments, as per water sharing plan and other interjurisdictional agreements. In the NSW Murray this includes the Murray Additional Allowance (MAA) (about 6GL), Wakool system requirements (normally up to 70GL), and the Barmah-Millewa Allowance (B-MA) (now 261GL – currently 100% borrowed). It also includes River Murray Increased Flows (RMIF) in Hume, accrued as part of the Snowy Water Initiative (currently about 50GL). The total commitments to B-MA and RMIF will decrease over the water year as they are released from Hume for use. Excludes 'licence-based' environmental water also known as held environmental water (HEW).
- (4) The *Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* has subcategories of high security licences in the Murray Water Source. High security subcategory licences under *Part 7 Division 2 Clause 46(2)* that are present in the Murray include community and education, research, and town water supply. At the commencement of each water year, these licences are to receive 100% allocation, while remaining high security licences are to receive 97% allocation. For the

purposes of this water allocation statement, the high security town water supply allocation volume has been grouped as "Towns, S&D".

- (5) Conveyance entitlement – a category of access licence originally issued to Irrigation Corporations to facilitate delivery of water through their channel systems. Allocation to this category is prescribed in the water sharing plan and is a function of current high and general security allocation.
- (6) Reserves – required primarily under statutory plans, up to 61GL; set aside for critical human needs in accordance with Clause 11.03 of the Basin Plan.
- (7) Held environmental water (HEW) – water administered by environmental water holders is reported here, with the associated portions of general security allocation and carryover also identified in the above pie chart. This reporting of held environmental water is limited to only NSW entitlements, reporting of credits to accounts (not usage or trade), and estimated to be 0GL of GS, 24GL of HS, 25GL of conveyance allocation and 89GL of GS carryover. These entitlements are held and/or managed either singly or jointly by various environmental holder groups, including the NSW Office of Environment and Heritage (OEH), The Living Murray (TLM) and the Commonwealth Environmental Water Holder (CEWH). Details on environmental holdings can be found on individual agency websites.
- (8) 2019-20 high priority needs on 1 July 2019 - at this time of year, it is necessary to look ahead to ensure there is sufficient resource set aside to meet high priority needs on 1 July 2019, for 'Year 2', including potential carryover. This volume will be determined at each assessment and will change as estimates of end of year usage and carryover become more certain, and as weather conditions unfold in coming months.

## NSW Murray water balance – 15 April 2019



## Water balance notes:

- (1) Supply Distribution and Remaining Commitments – The volumes in the categories shown are only those relating to NSW's share of the resource, at the end of the preceding month. The categories include the following:

Water in storage: Volumes in the dams at the end of the previous month. (Excludes water in storage unavailable to NSW under the water sharing arrangements of the Murray Darling Basin Agreement).

Estimated use since 1 July: Estimated NSW usage to-date, reconciled periodically with hydrographic updates (meter readings).

Forecast inflows: NSW's share of forecast inflows into the River Murray System based on assumed extremely dry future conditions (includes Snowy Hydro's guaranteed inflows for the water year, and Murrumbidgee end of system flows).

Murrumbidgee IVT: Total Murrumbidgee system water bought by Murray system users that is yet to be delivered, as reported in the Murrumbidgee IVT account balance.

Evaporation: Water set aside for evaporation for the remainder of the year. This reduces as the year progresses.

River losses upstream of SA: Water budgeted for transmission losses from the River Murray system upstream of the South Australian border for the remainder of the year. Generally reduces as the water year progresses.

SA non-dilution entitlement: Water to supply South Australia's entitlement flow, as required under the Murray-Darling Basin (MDB) Agreement. Reduces as water year progresses.

SA dilution flow: Water to provide South Australia's dilution and conveyance component of flow, as required under the MDB Agreement. Reduces as the year progresses, unless Additional Dilution Flow (ADF) is triggered.

MDB Agreement required reserves: Includes conveyance reserve and minimum reserve to be set aside for use in the next water year, as required by the MDB Agreement in clause 102D and 103, respectively.

Water available for allocation: NSW's bulk share of the resource that can be assigned to NSW Murray entitlement holders based on the water sharing plan. Allocation of this volume is provided in the above table and pie chart.

## Water Outlook for 2019-20

### Key information

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- This updated outlook for 1 July 2019 water availability is conservatively based on assumed very dry (95<sup>th</sup> percentile) inflow scenario for the remainder of the water year, and extreme dry (99<sup>th</sup> percentile) conditions for all of 2019-20.
- For context, the River Murray system has experienced very dry conditions this water year (July to March), with overall system inflows tracking around the 93<sup>rd</sup> percentile for much of the year. However NSW's share of inflow is estimated to be closer to 96<sup>th</sup> percentile because Victorian tributary inflows have been about three times greater by volume this year than NSW due to rain-bearing systems pushing further south.
- This forecast information is not guaranteed and should be used at one's own risk.
- It is noted that Snowy Hydro's assessment of potential reduced inflow conditions across the scheme for 2019-20 is having a bearing on the Murray resource availability outlook.
- It is difficult to reliably predict end-of-year carryover, as it is highly dependent on weather conditions over the next few months and individual decisions by water users. Nevertheless, at this early stage, it is estimated that NSW Murray carryover will be much less than last year, likely to be around 15 per cent. The maximum general security carryover allowed for NSW Murray general security water users only is 50 per cent of entitlement.
- Storage in Hume and Dartmouth dams combined is about 1,500,000 ML lower than this time last year.
- As usual, the Barmah Choke trade balance will be re-set on 1 July and reflect the volume of annual Snowy Savings above the choke that will not need to be delivered downstream.
- Once the commencing allocations are announced on 1 July 2019, regular assessments will be undertaken and allocation statements provided fortnightly.

## Indicative allocations on 1 July 2019 – Lower Darling

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- The Menindee Lakes System (MLS) is almost empty, currently holding just 18,200 ML (1 per cent capacity) and is in the highest, Stage 4 drought criticality. In the absence of significant inflows, surface water supplies will be managed adaptively to ensure that any remaining available water is prioritised for critical purposes.
- Allocations can be made to ensure town, domestic, stock and high security access licences held by those allowed to take water, have enough account balance to ensure continued use of water while access to surface water supplies remain. A full (100 per cent) allocation in the Lower Darling on 1 July is not assured.
- Opening general security allocation is likely to be zero (0) per cent of entitlement in the Lower Darling unless there is significant recovery in the Menindee system. Carryover water can remain in accounts and trade within the Lower Darling water source can occur. Lower Darling inter-valley trade can resume once the system recovers above 640 GL.
- Current restrictions on water usage in the Lower Darling are likely to remain in place until there is sufficient recovery of the Menindee Lakes system.
- Water supply for Broken Hill is now being met from the Wentworth to Broken Hill pipeline. Full allocation can be expected in 2019-20 based on NSW Murray resources.

## Indicative allocations on 1 July 2019 – NSW Murray

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- Supplementary access licence holders can receive a full allocation; however diversion will only be allowed during periods of announced supplementary access.
- It is expected that all high priority commitments – including essential supplies, high security and carryover – will be able to be met on 1 July 2019, as winter inflows in most years will provide sufficient inflows.
- Full (100 per cent) allocation can be provided for towns, domestic and stock access licences, and sub-category high security entitlements.
- It is likely that opening allocations for conveyance entitlements will be low and general security entitlements open at zero (0) percent. Conveyance entitlements are to receive 165,000 ML before general security begins to receive allocation.
- In the unlikely event that extreme dry inflow conditions eventuate, it is currently estimated that a 60,000 ML shortfall would exist in meeting full high security and carryover commitments before water is allocated to conveyance entitlement.
- This estimated shortfall volume is expected to reduce and be fully met through the upcoming higher inflow months. However, in the unlikely event of a shortfall, the priorities under the *Water Management Act 2000* can be applied, leading to lower priority licences being impacted to the same extent or greater than higher priority licences.
- Conditions are being closely monitored and more detail, particularly on the shortfall situation and how it can be managed, will be provided in the mid-May statement.
- Water can be set aside for environmental requirements in accordance with the rules of the NSW Murray and Lower Darling regulated rivers water sharing plan.
- Payback of the borrowed Barmah Millewa EWA volume will need to commence when general security allocations reach 30 percent of entitlement.

## Chances of improvement

The chances of improved general security allocation in the NSW Murray after 1 July 2019, based on a repeat of historical inflows, are provided in the following table under a variety of conditions. The forecast is based on all available historical data.

Historically, droughts have a higher likelihood of breaking in the winter/spring seasons than any other season, and therefore there is a possibility that the current drought may break or ease in the coming seasons. However, if this does not occur, the forecasting will change from using all available data to using the driest third of all years (dry tercile), as happened earlier in this 2018-19 water year on the back of a dry winter in 2018.

It is important to note these estimates are indicative improvements only and are not guaranteed allocations. Estimates may change based on weather variability, water management decisions and other events. This means water users should use this information with caution and at their own risk, as it projects many months ahead. The reliability of the outlook is expected to improve as the forecast period reduces.

## Forecast General Security allocation (per cent)

(Any carryover water can be added to these indicative allocations)

Historical Inflow Scenario	1 Sept 2019	1 Nov 2019
99 chances in 100 (extreme) (99%) <sup>#</sup>	0	0
9 chances in 10 (very dry) (90%)	0	0
3 chances in 4 (dry) (75%)	0	4
1 chance in 2 (mean) (50%)	0 <sup>^</sup>	23

Note 1: Estimated values indicative only, not guaranteed and subject to change based on actual events unfolding.

Note 2: Statistical values reflect NSW share of inflows, not whole of system inflows.

Note 3: Multi-history modelling using all years. Assumes 95% inflows for the remainder of the current 2018/19 water year and general security carryover into 2019-20 of 15%.

<sup>#</sup> Extreme dry baseline additionally includes Murrumbidgee end of system flows.

<sup>^</sup> By September, under mean (50<sup>th</sup> percentile) inflow conditions, Conveyance allocations likely to be about 70 GL.

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