

15 July 2019

NSW Murray and Lower Darling

Water allocation update

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

Rainfall in June was below average to average over the Murray catchment. Recent rainfall has helped replenish soil moisture stores and will likely improve future catchment runoff response after a hot and dry summer. However, due to the limited rainfall, inflows into headwater storages have been well below average.

NSW Murray's opening resource is 641,000 megalitres (ML), with resource improvements in June contributing to this volume and underpinning the 1 July opening allocations. Full access to carryover is available, estimated to be around 18 per cent of general security entitlement. A final carryover volume will be available at the end of July, after provisional account balances are finalised, however no significant change is expected.

There are shortfalls in operational and environmental commitments of around 45,000 ML, therefore future inflows will need to accrue here as a priority. The NSW Murray Conveyance entitlement must receive 165,000 ML prior to any general security allocations. Currently, the conveyance entitlement has been allocated 20,000 ML.

These shortfalls are similar to those experienced at the beginning of 2018/19 however the volumes are much smaller this year. Winter and spring inflows should resolve the shortfalls.

The Menindee Lakes system remains critically low, below 1 per cent full, holding just 15,300 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 in this system.

2019-20	High Security	General Security	Average Carryover	Drought Stage
Murray	97%	0%	18%	 Stage 2
Lower Darling	100%	0%	19%	 Stage 4

Drought stage

The NSW Extreme Events Policy facilitates 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 2 drought criticality, meaning drought operational planning has commenced in preparation for extreme dry conditions that

may continue through 2019-20. Accordingly a Critical Water Advisory Panel will soon be formed for southern valleys to advise on drought management options.

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

- A temporary water restriction that took effect on 4 December 2018, and renewed on 1 July 2019 for 2019-20, restricting use to town water supply, domestic use, stock watering, permanent plantings.
- Broken Hill's water supply needs are now being met from the Murray using 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: <https://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

Murray storage levels (as at 12 July 2019)*

- Dartmouth Dam is 63 per cent full – falling slowly – holding 2,425,000 ML.
- Hume Dam is 26 per cent full – rising slowly – holding 770,000 ML.
- Lake Victoria is 46 per cent full – rising – holding 308,000 ML.

* NSW share of this water is approximately 28%, 61% and 25% for these storages respectively, or 34% in total.

State sharing of the Murray resource

The monthly end of June accounts indicate that 3,950 gigalitres (GL) of total Murray resource is available in the extreme dry (99th percentile) case, of which about 2,040 GL is needed to run the system. The NSW portion of this shared resource is 630 GL based on rules in the Murray-Darling Basin Agreement. Following adjustments including trade and usage to date, the assessment results in 641 GL of water being available for NSW.

Climatic outlook

The Bureau of Meteorology seasonal outlook for August to October indicates that the upper Murray catchment and parts of the mid-Murray are likely to experience drier than average conditions, while there is no clear indication of drier or wetter conditions for the lower Murray. Temperatures over this period are very likely to be above average.

The Bureau indicates that the main climate drivers remain neutral. Modelling suggests that the El Niño-Southern Oscillation (ENSO) is likely to remain neutral over the coming months; however, a positive Indian Ocean Dipole (IOD) is likely to develop and be the dominant climate driver for the remainder of 2019. A positive IOD will likely mean below average winter-spring rainfall and above average temperatures.

For further details: 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 opened on 1 July with a balance of Snowy water savings volume that would not be delivered downstream, however that initial trade capacity has now been consumed and downstream trade in 2019-20 will open 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) for information about the trade balance and status of trade.

The Menindee Lakes system is effectively empty. Temporary trade with the Murray is 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 **into** the Murrumbidgee Valley is open. Water users are encouraged to monitor the WaterNSW website (www.waternsw.com.au) for daily information about the IVT account balance and status of trade.

Next announcement

The next water allocation statement for the NSW Murray and Lower Darling valleys will be on **Thursday 1 August 2019**.

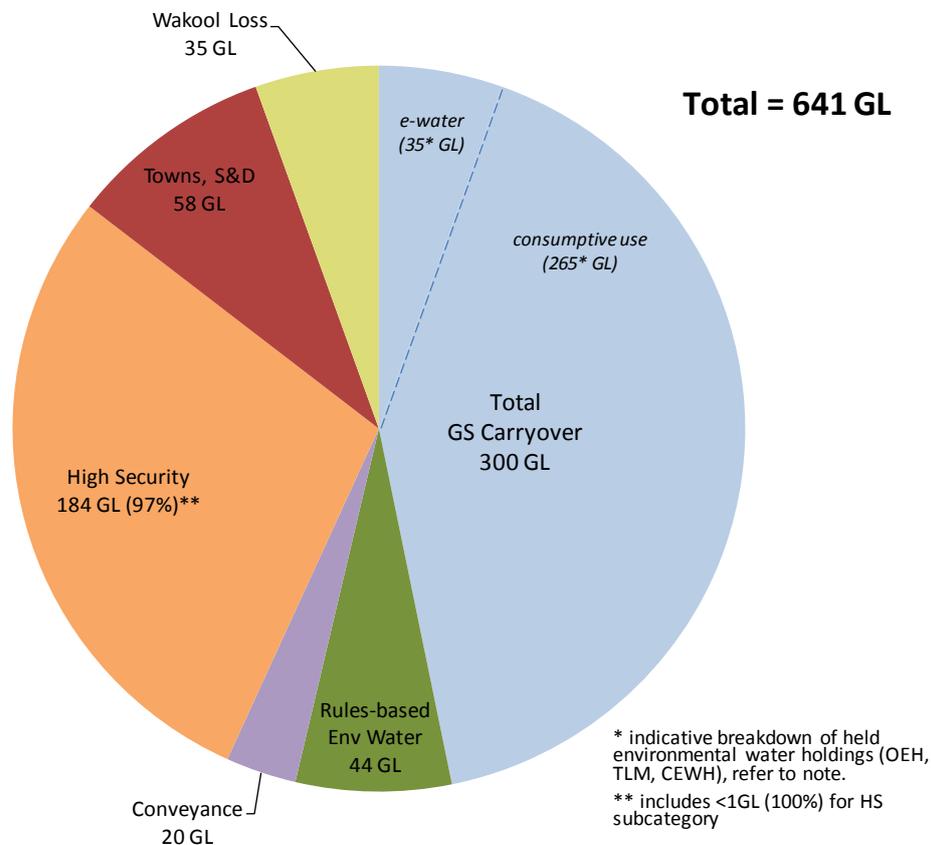
The next updated probability analysis showing likely improvement in water availability under different inflow scenarios, including the rocket diagram will be issued on 15 August 2019.

NSW Murray resource assessment data sheet

Resource Distribution (15 July) for 2019-20	Volume (GL)
Total Available Resource ⁽¹⁾	641
less	
Carryover ^{(2), (8)}	300
Rules based Environmental Water ⁽³⁾	44
Towns, Stock, Domestic ⁽⁴⁾	58 (100%)
Announced High Security subcategory ⁽⁴⁾	<1 (100%)
Announced High Security ⁽⁴⁾	184 (97%)
Conveyance ⁽⁵⁾	20 (6%)
Wakool Loss ⁽⁶⁾	35
Reserves ⁽⁷⁾	0
Announced General Security ⁽⁸⁾	0 (0%)
2020-21 high priority needs ⁽⁹⁾	0

**See notes below.*

NSW Murray resource distribution 2019-20 – 15 July 2019

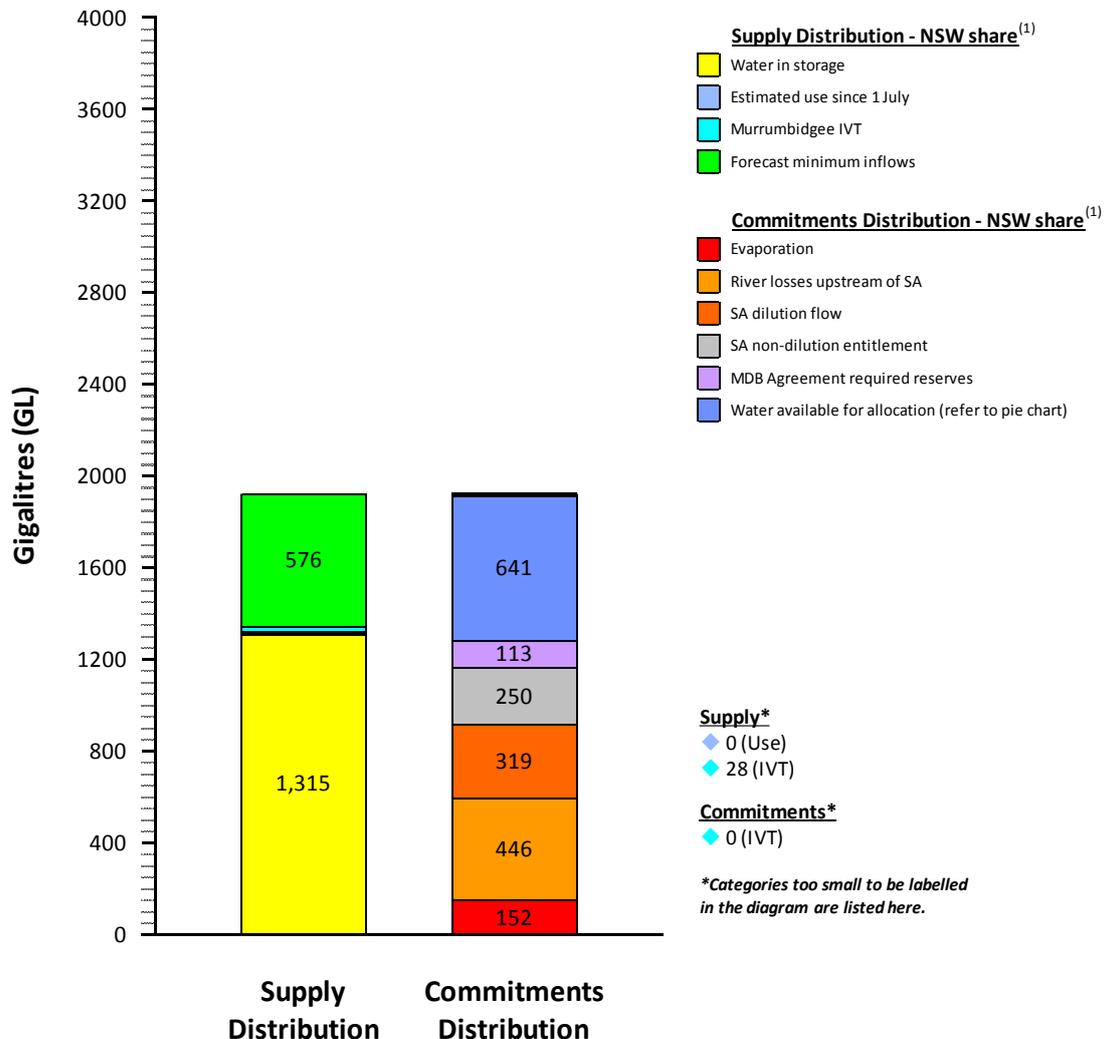


Data sheet notes

- (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 (2019-20) is estimated to be about 198GL. NSW is 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) 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, of which 38 GL is currently available). 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, 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) Wakool Loss – a conveyance volume necessary for NSW to operate the Edward-Wakool system. Normally up to 70 GL, currently 35 GL available. This will accrue as a priority before summer.
- (7) 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.
- (8) 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, 3GL of conveyance allocation and 35GL 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.
- (9) 2020-2021 high priority needs on 1 July 2020 - volume set aside to cover high priority needs on 1 July 2020, for 'Year 2', including potential carryover.

NSW Murray water balance – 15 July 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.

NSW Murray Resource Assessment – Comparison with this time last year

Item	Mid Jul 2018 (GL)	Mid Jul 2019 (GL)	Comments
NSW share of total resources	940	641	Continuation of dry conditions. Lower mainly due to lower carryover.
less			
Carryover	520	300	Lower carryover
Environmental	101	44	Primarily RMIF
Towns, Stock, Domestic	54	58	Broken Hill pipeline entitlement added.
Conveyance	40	20	Lower due to lower resource scarcity.
Wakool Loss	40	35	Similar.
High Security	185	184	Similar.
General Security	0	0	Same. Zero due to lack of resource.

Chances of improvement

The chances of improved general security allocation in the NSW Murray, based on a repeat of historical inflows, are provided in the following table under a variety of conditions. The forecast from July is based on all available historical data as this is historically the most likely time to receive inflows. Note that this gives a better outlook than using just the driest one-third of years on record (dry tercile).

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 months. 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 was the case in the 2018-19 water year on the back of a dry winter in 2018.

It is important to note that 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%) [#]	0	0
9 chances in 10 (very dry) (90%)	0	0
3 chances in 4 (dry) (75%)	0	7
1 chance in 2 (mean) (50%)	0 [^]	30 [*]

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 99% inflow conditions through 2019-20 and GS carryover of 18%.

[#] Extreme dry baseline additionally includes Murrumbidgee end of system flows.

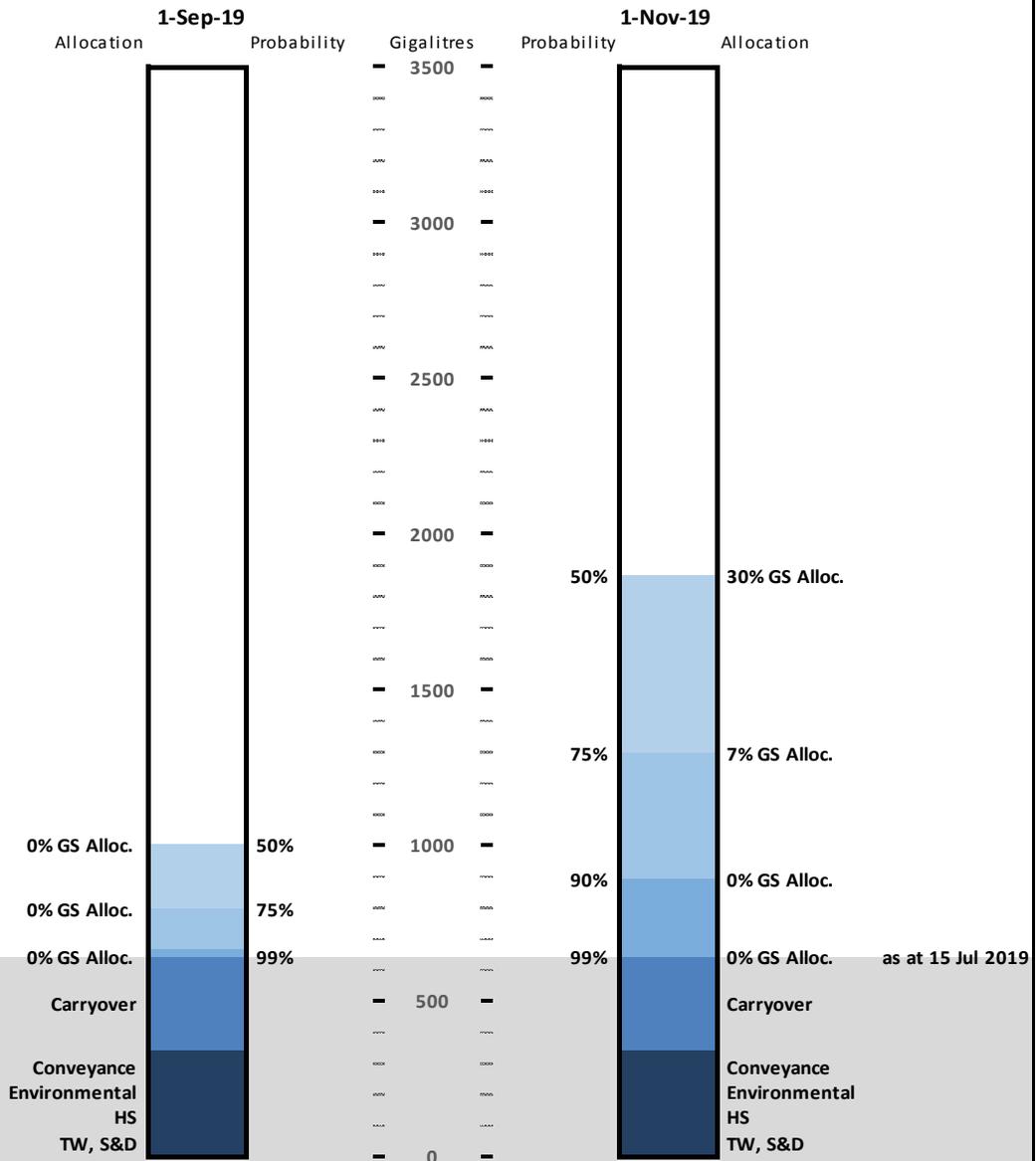
[^] By September, under median (50th percentile) inflow conditions, Conveyance allocation is likely to be about 110 GL.

^{*} Barmah-Millewa Allowance payback commences.

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NSW Murray Valley Outlook

as at 15 July 2019



This figure provides indicative improvements in general security allocations for two forecast snapshots, 1 September 2019 and 1 November 2019. The allocation improvements are indicative only, and do not constitute guaranteed allocations. As of 15 July 2019, General Security allocation is at 0 per cent, and under 99% inflow conditions, will remain the same for the rest of the water year.