

17 December 2018

## NSW Murray and Lower Darling

### Water allocation update

There has been a small improvement in NSW Murray regulated river resources which has met the shortfall to River Murray Increased Flows (RMIF), with the remainder set aside for high priority commitments on 1 July 2019. **Current allocations therefore remain unchanged.**

Although rainfall in the upper Murray catchment for November has been around average, the high initial loss as rainfall soaks into the ground has suppressed runoff. November system inflows have tracked well below average, in the lowest 11 per cent of historical record.

System inflows over the last five months of this water year (July to November) have been tracking in the lowest 9 per cent of historical record. However, the NSW share of system inflows has been much less than Victoria's, meaning that the NSW resource has tracked drier than overall system inflows over this period.

At this time of year, resource improvements must be used to ensure next year's (2019/20) high priority commitments before further allocating to general security users. Therefore, the small remaining improvement has been set aside for this purpose.

This assessment does not include inflows from rainfall across upper Murray catchments in the past week, but it is estimated that current weather systems will not produce an allocation to general security water users.

Allocations in the Lower Darling remain unchanged. The Menindee Lakes system is critically low; just 5 per cent full, holding 88,000 ML. Of this volume, about 19,870 ML is stored in Lake Wetherell, 46,840 ML in Lake Pamamaroo and 12,140 ML in Copi Hollow. The balance is inaccessible in Lakes Cawndilla and Tandure.

Additional information on Lower Darling drought contingency measures is provided in the Drought stage section below.

| 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 has been released for all surface and ground water sources in the NSW Murray Darling Basin. This introduces a staged approach to managing extreme events such as severe droughts or poor water quality events. Incident Response

Guides (IRGs) are being developed for each valley as part of water resource plans to identify triggers and types of actions taken in each stage.

An explanatory section on drought stages has been provided at the end of this statement.

The NSW Murray regulated river water source is assessed to be in Stage 1. There are no account restrictions in force in the valley and water supplies are being managed according to the water sharing plan rules. As mentioned above there is currently a shortfall in meeting next year's (2019/20) high priority commitments, but recovery is expected with summer and autumn inflows.

The Lower Darling regulated river water source is assessed to be in Stage 4, as restrictions limit access to water for critical needs only.

WaterNSW continues to fill temporary block banks in the Lower Darling as part of drought contingency measures to extend access for critical needs for as long as possible. Cease to flow conditions will progressively occur in the river as part of filling these block banks and as upstream supplies deplete.

A temporary water restriction took effect on 4 December 2018. This restricts use to town water supply, domestic use, stock watering, permanent plantings and some limited high security access to Copi Hollow. This restriction will remain until resources improve in the Menindee system. 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)

Operational updates for the Lower Darling regulated system including water storage volumes and relevant drought measures can be found in WaterNSW's state-wide weekly water availability reports ([www.waternsw.com.au/supply/regional-nsw/availability](http://www.waternsw.com.au/supply/regional-nsw/availability)).

### **Murray storage levels (as at 14 December 2018)\***

- Dartmouth Dam is 73 per cent full – falling – holding 2,801,000 megalitres (ML).
- Hume Dam is 41 per cent full – falling – holding 1,232,000 ML.
- Lake Victoria is 82 per cent full – steady – holding 556,000 ML.

\* NSW share of this water is approximately 23%, 49% and 46% for these storages respectively.

### **State sharing of the Murray resource**

The monthly accounts to the end of November indicate 4,930 GL of total Murray resource is available in the very dry (99 percentile) case, of which about 1,370 GL is needed to run the system and therefore 3,560 GL is distributed to NSW and Victoria based on rules in the Murray-Darling Basin Agreement.

The NSW share of this is about 1,210 GL from which commitments to South Australia's entitlement flow and trade adjustments are deducted to leave NSW with 1,085 GL of resource to distribute (99 percentile). This represents an increase of 40 GL from the last assessment.

### **Climatic outlook**

The Bureau of Meteorology seasonal outlook for December 2018 to February 2019 shows no clear indication of drier or wetter conditions for the catchment. Temperatures are likely to be above average.

The Bureau's El Niño-Southern Oscillation (ENSO) Outlook remains at El Niño ALERT and a positive Indian Ocean Dipole (IOD) event persists, but is weakening. El Niño conditions continue to develop with some indicators reaching El Niño thresholds. El Niño conditions are likely to bring warmer than average temperatures for large parts of the continent, while a positive IOD typically has very little influence on Australia from December to April.

## 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 below 480 GL, the threshold at which the Lower Darling becomes administratively separated from the Murray. Temporary trade with the Murray is therefore closed. Trade typically remains closed until the system recovers to above 640GL. Trade within the Lower Darling water source remains unaffected.

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.watarnsw.com.au](http://www.watarnsw.com.au)) for daily information about the IVT account balance and status of trade.

## Next announcement

There will be no statement on 2 January 2019. Fortnightly assessments and statements for the NSW Murray regulated river will resume in the New Year on **Tuesday 15 January 2019**.

Nevertheless, if weather systems bring significant change in resource availability beforehand, an interim announcement will be provided.

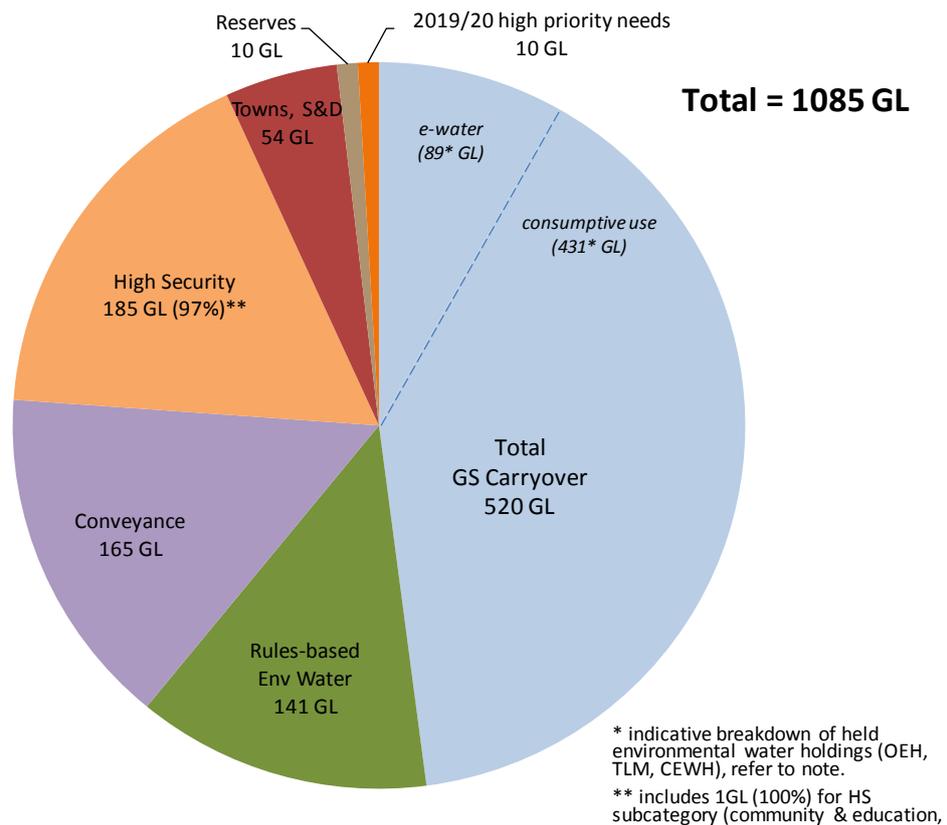
The seasonal outlooks (rocket diagrams) will now cease for this water year. Instead, from mid-February, mid-monthly statements will provide indicative 1 July 2019 allocations as the new water year approaches. This aims to help water users with their end of year water management decisions – whether to use, trade or carryover their account balances.

## NSW Murray resource assessment data sheet

| Resource Distribution (17 December) for 2018-19                          | Volume (GL) |
|--|-------------|
| Total Available Resource <sup>(1)</sup>                                  | 1,085       |
| <b>less</b>  |             |
| Carryover <sup>(2), (7)</sup>  | 520         |
| Rules based Environmental Water <sup>(3)</sup>                           | 141         |
| Towns, Stock, Domestic <sup>(4)</sup>                                    | 54 (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>  | 10          |
| Announced General Security <sup>(7)</sup>                                | 0 (0%)      |
| 2019/20 high priority needs <sup>(8)</sup>                               | 10          |

\*See notes below.

## NSW Murray resource distribution 2018-19 – 17 December 2018



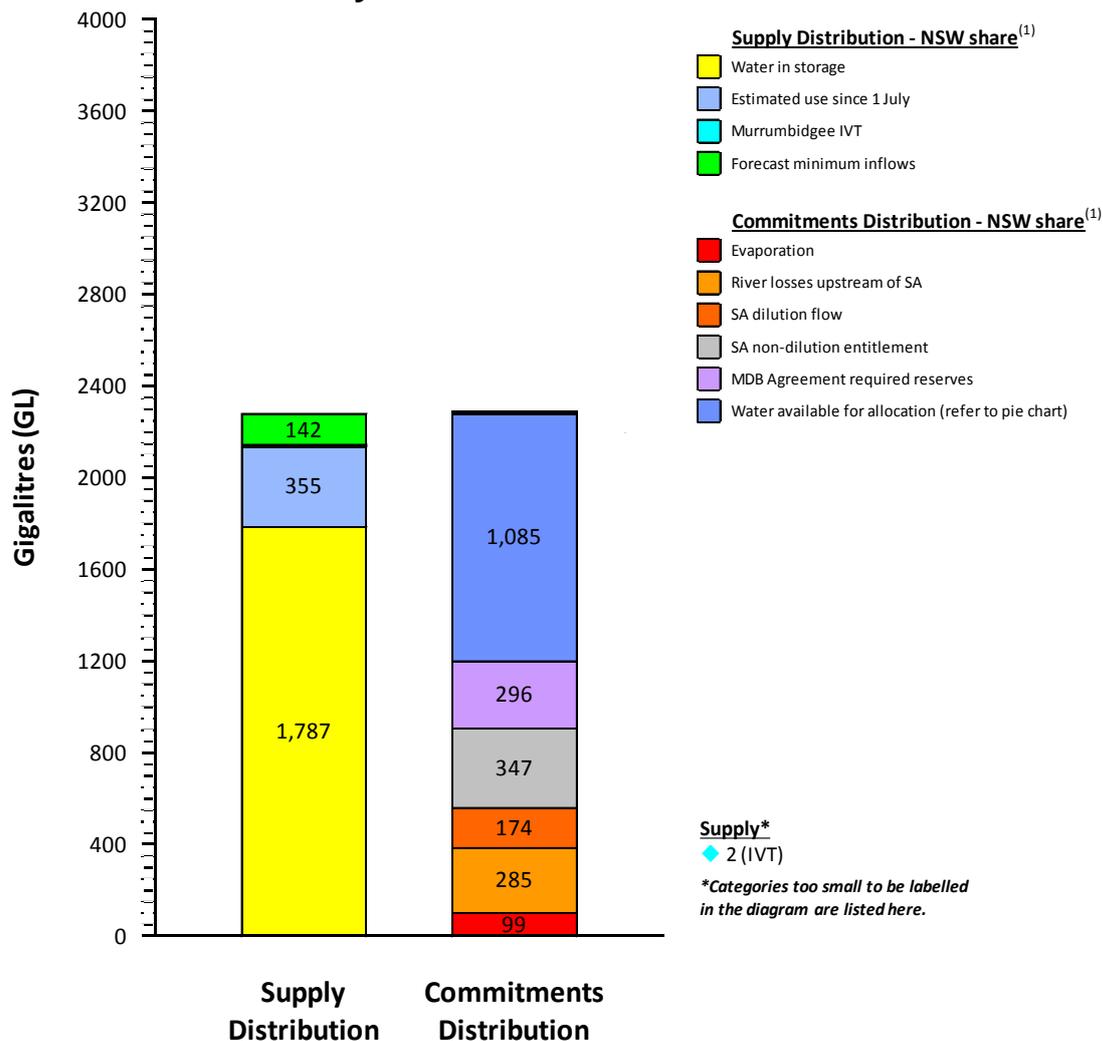
## Data sheet notes

- (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 net M1 releases to date for this water year (2018-19) is estimated to be about 620 GL, and 200 GL 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 1,250 GL 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 6 GL), Wakool system requirements (up to 70 GL, currently 40 GL available), and the Barmah-Millewa Allowance (B-MA) (about 256 GL – currently 100% borrowed). It also includes River Murray Increased Flows (RMIF) in Hume, accrued as part of the Snowy Water Initiative (currently 95 GL). 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 61 GL; 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 0 GL of GS, 24 GL of HS, 25 GL of conveyance allocation and 89 GL 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 resource assessment – comparison with this time last year

| Item                              | Mid Dec 2017 (GL) | Mid Dec 2018 (GL) | Comments   |
|-----------------------------------|-------------------|-------------------|--|
| NSW share of total resources      | 2,292             | 1,085             | Significantly lower following very dry conditions since summer 17/18 |
| less                              |                   |                   |  |
| Carryover                         | 730               | 520               | Lower carryover  |
| Environmental                     | 264               | 141               | BMA paid back in 2017.   |
| Towns, Stock, Domestic            | 54                | 54                | Same   |
| Allocation to Conveyance licences | 224               | 165               | Lower due to lower resource  |
| Allocation to High Security       | 185               | 185               | Same   |
| Allocation to General Security    | 774               | 0                 | Lower due to lower resource  |

## NSW Murray water balance – 17 December 2018



## Water balance notes:

- (1) Supply Distribution and Remaining Commitments – the distribution of supply and commitments is being provided on a monthly basis. 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).
  - 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. A negative IVT balance will appear as a commitment of NSW Murray water to the Murrumbidgee, until trades between the two valleys brings the IVT balance up to nil.
  - 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. This volume includes entitlement holder carryover. The allocation of this volume is provided in the above table and pie chart.

## Chances of improvement

The chances of improved inflow conditions and indicative allocations are provided in the following table. Remember, these are based statistically on the historical record. In reality, rainfall and inflows can occur at any time, and allocations will be made on actual conditions.

The table shows that allocations are likely to remain low under all scenarios. It reflects that significant inflows are statistically less likely to occur over summer and that current shortfalls still need to be met along with high priority commitments for 1 July 2019.

## Forecast general security allocation (per cent) – using dry tercile<sup>#</sup>

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

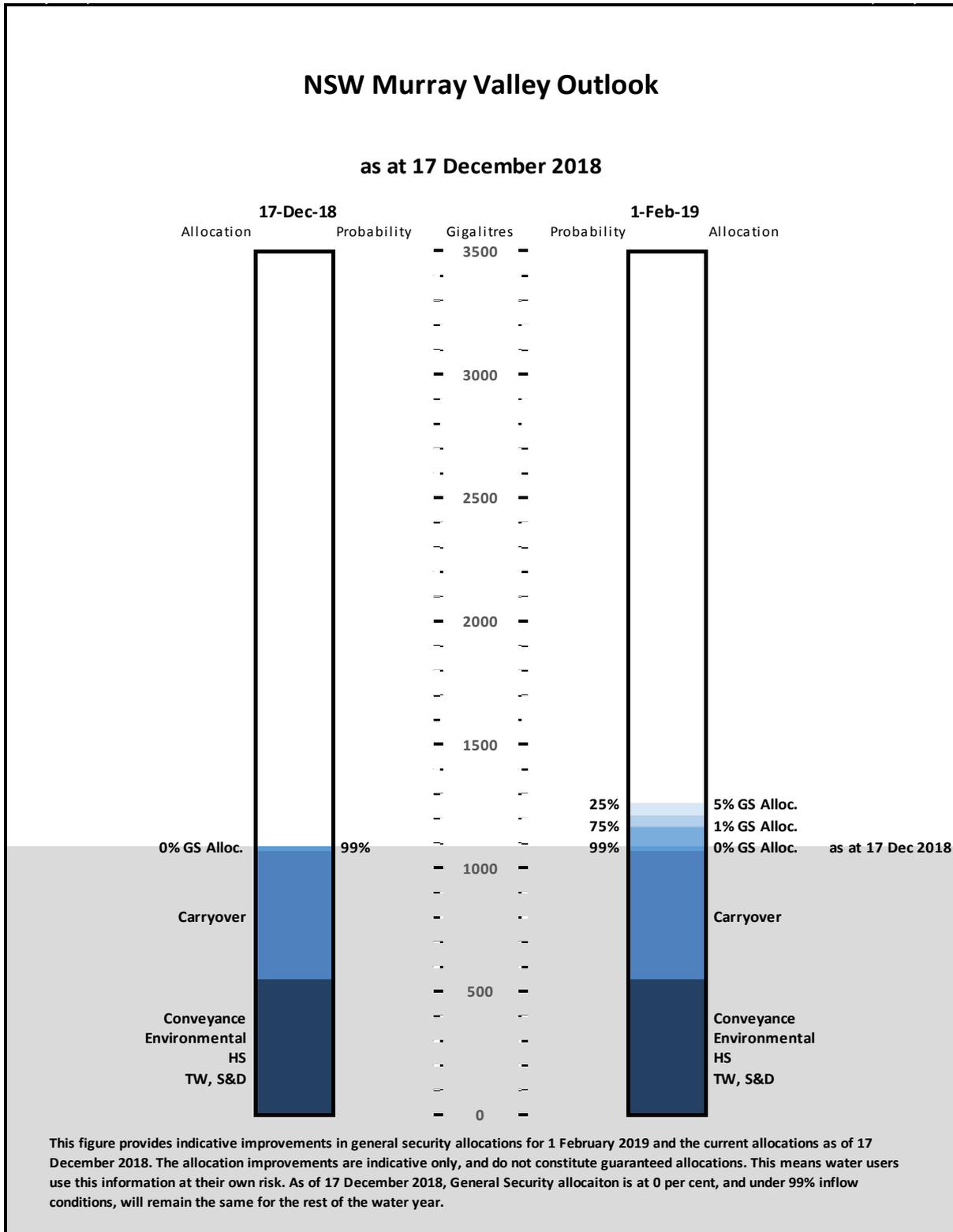
| Potential Inflow Conditions                    | 1 Feb 2019 General Security Allocation <sup>^^</sup> |
|--|--|
| 99 chances in 100 (extreme) (99%) <sup>^</sup> | 0  |
| 9 chances in 10 (very dry) (90%) <sup>^</sup>  | 0  |
| 3 chances in 4 (dry) (75%)                     | 1  |
| 1 chance in 2 (mean) (50%)                     | 2  |
| 1 chance in 4 (wet) (25%)                      | 5  |

<sup>#</sup> Outlook modelling using inflow data for the driest one-third of years only and GS carryover of 31%.

<sup>^</sup> July to November 2018 conditions for the Murray system have been tracking at 91% AEP. NSW’s share of these system inflows has been about one third, as Victorian tributaries have produced considerably higher inflows than NSW tributaries, meaning that NSW has been tracking less than the ‘very dry’ scenario.

The B-M Allowance remains borrowed for all scenarios.

<sup>^^</sup> This forecast is indicative only and not guaranteed allocation. This means water users use this information at their own risk.



## Drought stage trigger levels

The drought stage is determined in accordance with critical trigger levels for this valley as outlined in the Murray Lower Darling Surface Water Incident Response Guide developed by NSW Department of Industry-Water. A drought stage can range from Stage 1 (normal operations) to Stage 4 (critical drought). It is informed by routine water resource assessment results and is triggered by the degree to which water use priorities can be met within the water source. A summary of each drought stage is provided in the table below.

These drought stages are focused on the ability of the regulated river to deliver existing and high priority commitments within the valley. This is distinct from the drought phases determined by the NSW Department of Primary Industries in their Combined Drought Indicator, which is focused on categorising seasonal conditions based on rainfall, soil water, plant growth and drought direction for individual parishes in NSW.

For further details: [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)

## Drought stage trigger levels for surface water – general principles

| Criticality   | Evidence base for surface water  | Broad intent of measures  |
|---|--|---|
| <b>Stage 1</b> Normal management<br>               | Can deliver all account water under normal river operations practices.   | Provide certainty for water use planning.<br>Long term water security and emergency/drought contingency planning.   |
| <b>Stage 2</b> Drought management<br>              | Unable to deliver 100% of high priority account water <b>and</b> maximum expected use of general security under normal river operations practices. | Operational measures in the current water year to reduce transmission losses and prevent potential future failure to supply water in accounts.<br>Drought response readiness Local Water Utilities (LWUs).  |
| <b>Stage 3</b> Severe drought/water shortage<br>   | Only able to deliver restricted high priority demands <b>and</b> restricted remaining general security account water.                              | Restricting access to account water, restricting trade, and suspending some Water Sharing Plans (WSP) rules in addition to increased operational measures to prevent potential future failure to supply water in accounts.<br>Drought management/restrictions (LWUs). |
| <b>Stage 4</b> Critical drought/water shortage<br> | Only able to deliver restricted town water supply, stock and domestic and other restricted high priority demands.                                  | Suspension of some WSP rules.<br>Severe restrictions required to prioritise remaining supplies for critical human water needs.<br>Emergency drought management measures/restrictions (LWUs).  |