

15 April 2016

NSW Murray and Lower Darling

Water allocation update and outlook for 2016-17

Allocations

In NSW Murray, there is **no increase** in general security allocation at this time. As no significant rainfall event has occurred so far this month, there has been no change in the available resource.

As indicated below, there remains a small chance that inflows for the remainder of this water year will be insufficient to assure full allocation to all high priority entitlements on 1 July; therefore the priority for improvements in remaining months of this water year is to first build toward full allocation for these entitlements on 1 July.

| | High Security | General Security | Average Carryover |
|---------------|---------------|------------------|-------------------|
| Murray | 97% | 23% | 30% |
| Lower Darling | 80% | 0% | Restricted access |

Upper Murray storage levels (as at 14 April 2016)

- Dartmouth Dam is currently 43 per cent full, holding 1,674,000 megalitres (ML).
- Hume Dam is 22 per cent full, holding 652,000 ML.

Outlook

The Bureau of Meteorology (BoM) seasonal outlook for April to June indicates average to below average rainfall in various parts of the Murray catchment in April transitioning to greater chance of wetter conditions in May to June. Above average temperatures are also expected during the coming three months, particularly in April.

The northern wet season is drawing to a close without having produced a significant flow event in the Darling River meaning, it is likely that there will continue to be no contribution to Murray resources from the Darling River system in the foreseeable future.

The southern basin typically receives winter-spring rainfall, meaning that resource improvement can normally be expected across the months July to September.

The current BoM outlook reflects a combination of a weakening El Niño, very warm Indian Ocean temperatures and warm sea surface temperatures around much of the Australian coast. Climate models indicate neutral conditions and La Niña are equally likely in the second half of 2016.

The approximately 50% chance of a La Niña developing in 2016 is about twice the normal likelihood. La Niña is often, but not always, associated with above-average winter-spring rainfall.

Trade

In the Murray, trade across the Barmah choke is restricted to 'no net trade downstream'; however there is currently capacity for downstream trade (by virtue of upstream trades). Each year the trade balance at the choke resets to zero on 1 July and is then credited with the volume of accrued

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Snowy savings. Typically this credit is 20-30 GL, meaning that there will be some capacity for downstream trade to occur from 1 July.

Trade is permitted within the Lower Darling water source but inter-valley trade remains closed due to the severe water shortage.

Water users can trade **into** the Murrumbidgee valley, but trade **out** of the Murrumbidgee valley is closed. Water users are encouraged to monitor the WaterNSW website at www.waternsw.com.au/customer-service/trading/murrumbidgee to keep informed of the Murrumbidgee IVT account balance and status of trade.

Murray water users are reminded that season closing dates for inter-state and inter/intra-valley trade are approaching. Inter-state trade closes 30 April 2016, and inter/intra-valley trade in the region closes 31 May 2016. Additional information on season closing dates can be viewed at <http://www.waternsw.com.au/customer-service/trading>.

Next announcements

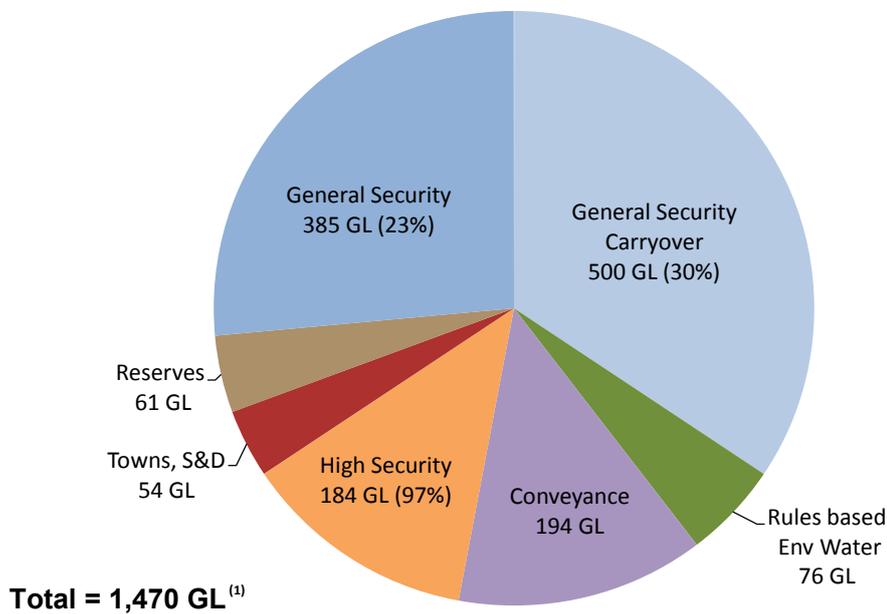
The next allocation update for the NSW Murray will be on Monday **16 May 2016**. It will provide the latest estimates of expected opening (1 July) allocations and the likelihood of water availability improvements into the new water year under different inflow scenarios.

NSW Murray Resource Assessment Data Sheet

| Resource Distribution (as at 15 April) for 2015-16 | |
|--|----------------------|
| | Volume (GL) |
| Total Available Resource | 1,470 ⁽¹⁾ |
| less | |
| Carryover | 500 |
| Rules based Environmental Water ⁽²⁾ | 76 |
| Towns, Stock, Domestic | 54 (100%) |
| Reserves ⁽³⁾ | 61 |
| Conveyance ⁽⁴⁾ | 194 |
| Announced High Security | 184 (97%) |
| Announced General Security | 385 (23%) |

**See notes below.*

Resource Distribution 2015-16 NSW Murray - 15 April 2016



Notes:

- (1) Includes 16 GL of uncommitted water. This water will assist a potential shortfall in high priority commitments on 1 July 2016.
- (2) Primarily rules-based environmental water – water required to be set aside under water sharing plans to provide for riverine environments. In the NSW Murray this includes Additional Environmental Allowance (AEA) (6 GL), the Barmah Millewa Allowance (B-MA) (which is currently 100 per cent borrowed) and Wakool system requirements (70 GL). Excludes 'licence-based' environmental water.
- (3) Reserves – required primarily under statutory plans; used for emergency purposes and critical needs.
- (4) 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.

NSW Murray resource availability outlook for 2016-17

15 April update

Key information

- This outlook is based on extremely dry (99th percentile) inflows for the remainder of the water year - meaning that 99 years in 100 will provide more water than this outlook.
- Additional information is also provided in the case of wetter (75th percentile) conditions for the remainder of the water year.
- At this stage, if conditions remain dry, April inflows are likely to be in the vicinity of 95th percentile or drier; however, BoM's forecast indicates improved chances of favourable rainfall conditions in late autumn and early winter, which would assist water availability.
- In the highly unlikely event that the 99th percentile scenario unfolds for the remainder of the 2015-16 water year, emergency management activities and allocations would be required.
- Actual future conditions are almost certain to be better, as these estimates are based on conservative assumptions of extreme dry inflows and minimum required Snowy releases.
- Opening general security allocations are forecast to be zero under very dry conditions but the 'wet' season is typically winter-spring with highest inflows from July to September on average.
- System inflows this year have been very dry, 92nd percentile conditions - well below the long-term average and also below the average for the last 10 years which includes the last drought.
- Storage in Hume and Dartmouth is about 1,200,000 ML lower than this time last year.
- It is difficult to reliably predict end-of-year carryover at this stage, as it is highly dependent on weather conditions and individual decisions by water users over the next two months. However it is estimated that carryover could be 500,000 ML, which is similar to the last two years.
- Once the commencing allocation is announced on 1 July 2016, regular assessments will be undertaken and allocation announcements made fortnightly on the 1st and 15th of each month, or next working day following, for the remainder of the water year.
- DPI water will provide an updated outlook on Monday 16 May 2016 as part of the lead up to the commencement of the new water year on 1 July 2016 and then will continue to provide outlook information as the new water year unfolds.

Indicative allocations on 1 July 2016 – Lower Darling

- In the absence of significant inflows, surface water will continue to be managed adaptively in the Lower Darling ensuring that available water is prioritised for critical purposes. Access to water will be regulated through statutory water restrictions, meaning that only those specific activities that meet exemption criteria are allowed to pump and use raw water.
- Allocations will 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 any surface water supplies remain.
- Allocations for towns, domestic, stock and high security water licences will likely commence at similar levels to last year and be similarly reviewed and updated as available resources permit.
- It is expected that opening general security allocation will be zero (0) per cent of entitlement in the Lower Darling unless there is significant rainfall.
- The likelihood of future Menindee inflows is assessed using the nearest upstream flow gauge in the Darling River at Wilcannia. Based on modelled flows for the last 120 years of historical climate data, by 1 October 2016 there is a 90 per cent chance that the total flow will sum to at

least 40 gigalitres (GL), a 75 per cent chance of 60 GL, and a 50 per cent chance of 210 GL. Similarly, by 1 February 2017, there is a 90 per cent chance of 80 GL of inflow, 75 per cent chance of 150 GL, and 50 per cent chance of 440 GL.

- In broad terms, an event with a volume between 200 – 250 GL past Wilcannia would be required to assure a continuous river release to the Lower Darling and provide some allocation to general security water users.

Indicative allocations on 1 July 2016 - Murray

- Security of water for **towns**, and **domestic** and **stock** access licences, is assured.
- Full allocations for **supplementary** access licence holders, which is available subject to announced periods of supplementary flows.
- Based on dry to extremely dry inflow scenarios (75% - 99%) through to the end of June, a minor shortfall in water to meet **high security** and **carryover** commitments on 1 July is possible.
- In that unlikely event, DPI Water has previously suggested that any shortfall may be shared across these two commitments, with 75 – 90 per cent of entitlement being available for **high security** and **carryover** on 1 July, and the shortfall addressed evenly with the first resource improvements.
- The mid-May update will include the best estimates of potential carryover and resource availability on 1 July, and will confirm arrangements to meet any shortfall in water availability.
- Based on the BoM forecast and a better than extremely dry inflow scenario for the remainder of this year, the probability of a shortfall in water for these high priority commitments on 1 July remains low.
- **General security** allocation will commence at zero (0) per cent of entitlement under very dry conditions.
- Under the water sharing plan, the NSW share of the Barmah-Millewa Forest account water may be borrowed for allocations when general security is less than 30 per cent. This account, fully borrowed this year, will continue to be borrowed in 2016-17 as required.
- At least 80,000 ML of water will be available for allocation to **conveyance** entitlements on 1 July, to ensure high priority water be delivered.

Chances of improvement

The chances of improved general security allocation in the NSW Murray, based on different inflow conditions, are provided in the following tables assuming extreme dry (99%) and dry (75%) inflow conditions for the remainder of this water year.

It can be seen that, because the water year is drawing to a close, there is little difference statistically between the volume delivered by the 99% inflow scenario and the slighter wetter 75% scenario.

Forecast General Security allocation (per cent) – extreme dry inflows (99%)[#]

| Potential Inflow Conditions | 1 Sept 2016 | 1 Nov 2016 |
|---|-------------|------------------|
| 99 chances in 100 (extreme) (99%) | 0 | 0 |
| 9 chances in 10 (very dry) (90%) [^] | 0 | 6 |
| 3 chances in 4 (dry) (75%) | 6 | 29 |
| 1 chance in 2 (mean) (50%) | 21 | 40 ^{**} |

^{##} Multi-history modelling using all years.

[^] Currently tracking in 2015-16 in this (very dry) vicinity.

Assumes extreme dry (99%) inflow for the remainder of the water year and an average general security carryover of 30% (500 GL).
 ** Borrow from B-M Allowance is fully repaid. Pay-back of borrow from B-M Allowance commences at 30% general security allocation.

Forecast General Security allocation (per cent) – dry inflows (75%)#

| Potential Inflow Conditions | 1 Sept 2016 | 1 Nov 2016 |
|-----------------------------------|-------------|------------|
| 99 chances in 100 (extreme) (99%) | 0 | 0 |
| 9 chances in 10 (very dry) (90%)^ | 0 | 9 |
| 3 chances in 4 (dry) (75%) | 9 | 30* |
| 1 chance in 2 (mean) (50%) | 24 | 42** |

Multi-history modelling using all years.

^ Currently tracking in 2015-16 in this (very dry) vicinity.

Assumes extreme dry (99%) inflows in April, dry (75%) inflows in May and June 2016 and general security carryover of 30% (500 GL).

* Commence pay-back of borrow from B-M Allowance.

** Borrow from B-M Allowance is fully repaid.