



Australian Government
Interim Inspector-General of
Murray–Darling Basin Water Resources

Our ref: D20/339834

Dr Sean Turner
Committee Secretary
The Senate Select Committee on the Multi-Jurisdictional Management and Execution of the Murray-Darling Basin Plan
P O Box 6100
Parliament House
CANBERRA ACT 2600

Dear Sir

I refer to the additional information I provided to the Committee following my attendance at a public hearing in Canberra on 12 May 2020.

Following a webinar conducted on Thursday 21 May 2020 to discuss the Inquiry's findings and recommendations with stakeholders, a participant provided my office with a report (Assessment of environmental water requirements for the proposed Basin Plan: Lower Darling River System <https://www.mdba.gov.au/sites/default/files/archived/proposed/EWR-Lower-Darling-River-System.pdf>) compiled by the Murray Darling Basin Authority (MDBA), which contains the following statement:

"The Menindee Lakes scheme delivers water to South Australia to meet part of its annual entitlement (39% on average)..."

Given this information appeared to differ to information previously provided to the Inquiry by the MDBA and contained in the Inquiry report (pg. 13: "Over the historical record, inflows from the lower Darling have only contributed an average of about 8% of water available in the river Murray system each year"), my office sought clarification from the MDBA in relation to this issue.

I enclose a copy of the correspondence received from the MDBA in clarification of the issue for the information of the Committee.

Yours sincerely

M J Keelty AO
Interim Inspector-General of Murray-Darling Basin Water Resources

26 May 2020

Below is an explanation of the 39% figure in the document “*Assessment of environmental water requirements for the proposed Basin Plan: Lower Darling River System*” which states the following:

“The Menindee Lakes scheme delivers water to South Australia to meet part of its annual entitlement (39% on average). As well as the allocation to South Australia, flows are released into the Lower Darling, to a maximum rate of 9,000 ML/d, to meet monthly target storage levels for Lake Victoria to hold it full over summer to minimise evaporation losses from the Menindee Lakes (Thoms et al. 2000), and to provide water to consumptive users along the Lower Darling.”

Take homes:

- The 39% figure isn’t inconsistent with the 8% figure published recently – they are just comparing different things.
- 8% compares flows out of the Darling with total inflows to the River Murray.
- 39% compares flows out of the Darling with SA entitlement flows.

Details:

- The 8% figure was calculated using monthly data and represents the average % contribution of flows out of the lower Darling at Burtundy compared to *total inflows* to the Murray (from all tributaries and the upper Murray catchment) – looking at the long record up to 2020
- The Darling flows include not only those called by MDBA to supply the Murray but also flood flows.
- It’s not entirely clear where and when the 39% figure first appears or exactly how it was calculated but by working backwards we can essentially recreate the figure.
- It appears the 39% figure was calculated using annual data. This approach overstates the apparent contribution of the Darling particularly during flood years. A flood late in the water year can be accounted as supplying entitlement flow in earlier months.
- A similar calculation using monthly data to better reflect timing gives 27%
- However, both the 39/27 calculations infer that Darling water, before all other sources from the upper Murray, meets the SA entitlement. A more meaningful approach is to use total flows across the border and not to assign a particular purpose to flows from a particular location.
- The average annual contribution of the lower Darling to the Murray flow downstream of the confluence is around 15%. This statistic has been generally used by MDBA in describing the relative contributions. It compares like with like and doesn’t assume a particular purpose for the lower Darling contribution. The equivalent median value is 12-14%.
- The 9,000 ML/d referred to is rarely achievable (when all the lakes at Menindee are full), with flow rates more often around 3,000 – 4,000 ML/d.

Further details

By comparing annual volumes past Burtundy with annual SA entitlement we can re-create a figure of 37%. For simplicity, if we assume the entitlement is always 1850 GL and we divide the annual Burtundy volumes by 1850 (capping the figures to 100% in big flood years) and then average the percentages we get 37%. Noting that SA’s entitlement isn’t always 1850 GL and that we have had various model updates in recent times the difference to the original 39% figure is explainable.

The 8%, 39% and 15% (introduced above) are all accurate in terms of the statistic defined. However, the average contribution of the total flow (15%) is robust, relatively simple and the similar value to the median indicates it is a reasonable descriptor of the true situation, not overly influenced by outliers or easily called into question.