Use of Long-term Diversion Limit Equivalence (LTDLE) factors for unregulated river systems

Unregulated river systems behave very differently to regulated river systems and have distinct operating rules. Therefore, the calculation of long-term diversion limit equivalence (LTDLE), or 'cap', factors for unregulated water sources has separate considerations to that of regulated water sources.

It should be noted that at the time of writing, less than 3% of all water recovery for the environment in the NSW Murray-Darling Basin is from unregulated water sources and that slightly over 97% is from regulated water sources. This means that almost all recovered water, usually referred to as Held Environmental Water, may be ordered from storage. In contrast, unregulated river systems typically do not have storages and water cannot be ordered. Instead, extraction is governed by conditions at the pump site.

Virtually all unregulated Held Environmental Water (~99.5%) in the NSW Murray-Darling Basin is in five water sources: the Barwon-Darling, Warrego (part of Intersecting Streams), Murray-Below-Mulwala, Murrumbidgee Western and Lower Macquarie. This fact sheet discusses a revised LTDLE factor for Murrumbidgee unregulated water sources.

Information on LTDLE factors in NSW can be found at: www.industry.nsw.gov.au/water/plans-programs/water-resource-plans/ltdle-cap-factors

What is the new LTDLE factor for Murrumbidgee unregulated water sources?

When the 2011 LTDLE factors were revised in 2018, the interim factor for Murrumbidgee unregulated water sources was estimated as 1.0. This factor has since been revised to 0.517. The new figure is derived as follows:

$$\textit{LTDLE for an entitlement type} = \frac{\textbf{long-term water usage by that entitlement type}}{\textbf{volumetric share of that entitlement type}}$$

This method is consistent with that generally used by NSW to update LTDLE factors in 2018, which was independently reviewed. Details are available on the Murray-Darling Basin Authority's website - www.mdba.gov.au/basin-plan-roll-out/water-recovery/factors-water-recovery/water-recovery-factors-new-south-wales

There is no recorded usage data and no modelled estimates available for Murrumbidgee unregulated access entitlements. The previous LTDLE factor was set to 1.0 on the basis that, historically, there were no limitations that would have prevented the full use of a Murrumbidgee unregulated river access licence.

The Murrumbidgee Surface Water Resource Plan cites an estimated long-term annual water usage in unregulated water sources of 42.4 gigalitres; against a volumetric entitlement of 82,072.85 megalitres. Dividing the first figure by the second yields a LTDLE factor of 0.517.

The usage estimate was nominated by the Murray-Darling Basin Authority in its *Review of Cap Implementation 2008-09* (November 2009) and confirmed in 2018.

This estimate of long-term annual usage is the only one available and meets Basin Plan requirements to use the best available information. It was based on NSW unmetered use estimates taken from the 2000 volumetric conversion process, based on crop areas survey and assessed irrigation requirements which reflected improved information at the time.