



National
Irrigators'
Council

ANALYSIS: MDB WATER BALANCE



OCTOBER 2026

**HOW MUCH WATER IS
ACTUALLY USED IN THE
MURRAY DARLING BASIN?**



National Irrigators' Council
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HOW MUCH WATER IS ACTUALLY USED IN THE
MURRAY- DARLING BASIN?

23 %

HOW MUCH WATER REMAINS IN RIVER SYSTEMS,
NON-DIVERTED?

77 %

Total water taken out of the total water available, based on BoM Data.

Introduction

Thirty years of reform in the Murray-Darling Basin (MDB) has focused on ‘rebalancing’ water use. This has been to strike a sustainable balance between **water diverted** (that is, water used for human consumption, such as town water supplies, agriculture, and other industries) as well as **water not diverted** that remains in river systems, ensuring environmental outcomes can also be achieved.

These reforms began in the 1990s, in response to concerns at the time of ‘over extraction’, and the need to tip the balance back towards water remaining in rivers for the environment.

Therefore, a key piece of information to understand and review water management in the MDB is where that balance is now - between water diverted for human uses, and water not-diverted to remain in rivers. This goes to the original purpose of the Basin Plan.

The Report’s key finding is clear: just 23% of available water is diverted for human uses, leaving 77% in rivers, wetlands, and floodplains to support the environment.

While this may sound like a simple categorisation, this Report has been developed in response to the complexity of reporting on environmental water in the MDB, which tends to occur in piecemeal components often with a focus on entitlements or water licences, not all forms of water. Without a clear understanding of how these different components interact, reporting them in isolation can create a misleading picture of the overall water balance, potentially understating the water supporting the environment and overstating the proportion used by agriculture.

For example, as part of the Discussion Paper for the Basin Plan Review, the Murray-Darling Basin Authority (MDBA) reported:

“The Commonwealth has recovered approximately 20% of the Basin’s consumptive water, and this, along with other environmental water holdings, makes about 27% of the total pool.”¹

This is correct and not a disputed fact. However, this has been interpreted by many as only 27% of water in the MDB being for the environment. That is not correct. The quote is saying that 27% of water licences (i.e. of the water within the consumptive pool) has been recovered to be used for environmental purposes (known as Held Environmental Water (HEW)), which is in addition to all the water which remained in rivers for the environment prior to the Basin Plan. Put simply, the Commonwealth under the Basin Plan has recovered 1 in 4 litres of water from farmers. If you add in water recovered by the States

¹ <https://www.mdba.gov.au/sites/default/files/publications/2026-murray-darling-basin-plan-review-discussion-paper.pdf> [vii]

through various programs, the total number to 1 in 3 litres recovered from farmers for the environment).

Reporting on the quantities of entitlements purchased (or recovered) from the consumptive pool remains an important metric, as it demonstrates the degree of change which has occurred from major reform. However, a central gap, is clear reporting on the components of a full water balance. The full water balance includes looking at total water available such as inflows, rainfall and water in storages – and how it is then managed – including: water licensed to be used by communities, industry, and agriculture; water licences recovered for the environment; water that continues to flow through rivers without being extracted largely for environmental and ecosystem benefits; natural losses and more.

This Report therefore looks to actual data, from the from the National Water Accounts, provided by the Australian Government Bureau of Meteorology (BoM)² which provides a simple breakdown of water ‘take’ (i.e. diversions or use), and total water available.

Put simply, this Report seeks to answer what we observe to be the most asked question on the MDB: **what is the percentage of water actually used in the MDB now, and how much remains in our rivers?**

Data

This Report is based on data from the National Water Account, provided by the Australian Government Bureau of Meteorology (BoM).³ The National Water Account has been prepared since 2010.

For the purposes of this report:

- **Water used** is the volume of water diverted (or ‘used’) out of the system for consumptive uses such as water used for communities, industry, and agriculture (including floodplain harvesting). This does not include water licences for environmental purposes.
- **Water not-diverted** refers to the remaining volume of water, which is not-diverted (or not ‘used’ for consumptive purposes). This includes all forms of water for environmental purposes (such as Held Environmental Water (HEW) and Planned Environmental Water (PEW)) and all remaining forms of water which remains in river systems not-diverted. It is acknowledged that this water is ‘used’ for environmental purposes and maybe diverted for that purpose – this term is simply

² <https://www.bom.gov.au/water/nwa/2024/mdb/index.shtml>

³ <https://www.bom.gov.au/water/nwa/2024/mdb/index.shtml>

referring to water that is not used in a consumptive or extractive sense. The water 'not used' is not water that is available for use by others.

Note the terms diverted and use or used are often interchangeable in this report and mean the same as the word take, which can also be used in key data sources and legislation and have the same meaning.

For full inclusions of data included in each categorisation, refer to the National Water Accounts, or footnotes of Table 1.

Current data published on the BoM website goes back to 2019, when Sustainable Diversion Limits (SDLs) came into effect. The full data set dating back to 2010 was requested by NIC, for the purposes of showing longitudinal trends.

The 2024 National Water Account is the most recent finalised account published by the BoM. Data for 2025 is also provided in this report, noting it may be subject to minor adjustments as quality and assurances processes occur, but major changes are not anticipated. Updates will be provided to this report as additional years becomes available.

Findings

Snapshot

Over the complete data set 2011-2025:

- **Average annual water used by communities, industry and agriculture has been 22.8% of total water available** across the MDB from 2011-2025
- **Average annual water not-diverted, remaining in river systems (including but not limited to water delivered as HEW), is 77.2% of total water available** from 2011-2025

Average Annual Water Use and Water Not Used in the Murray-Darling Basin (2011-2025)

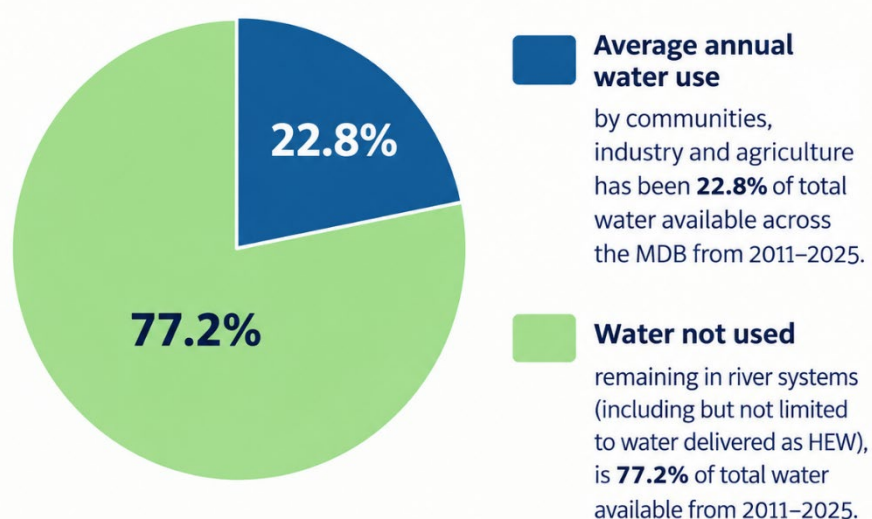


Figure 1: Average Annual surface water use in the Murray-Darling Basin as a percentage of total water available (2011 – 2025)

- Weighted average water available used is 20.7% of total water available across the MDB from 2011-2025
- Weighted average water not diverted, remaining in the river system, is 79.27% of total water available from 2011-2025
- Annual use ranged from 10% of total water available at its lowest (2023) to 35% of total water available at its highest (2013).

Since new Sustainable Diversion Limits commenced (2019):

- **Average annual water available used by communities, industry and agriculture was 21.7%** across the MDB from 2019 to 2025
- **Average annual water available not-diverted, remaining in the river system (including but not limited to water delivered as HEW) was 78.3%** across the MDB from 2019 to 2025
- Weighted average water available used is 19.8% across the MDB from 2019 to 2025
- Weighted average water available not taken 80.19% across the MDB from 2019 to 2025

Detailed findings

Table 1 below provides data from the BoM National Water Accounts on total water available, water accessible, and water used from 2011 to 2025.⁴ It also contains the percentage of water accessible which was used, which is similarly sourced directly from BoM.

This Report furthers this analysis, by also adding:

- Percentage of water available used; and
- Percentage of water available not-diverted.

These percentages are not directly provided in the National Water Accounts but are derived from the data (see blue shaded cells in Table 1).

The data from Table 1 is shown diagrammatically in Figure 2 (annual surface water availability, and usage, in the MDB, 2011-2025), and Figure 3 (annual surface water use as a percentage of total water available) below. The *average* annual use over the time period as a percentage of water available is shown above in Figure 1.

⁴ See footnotes of Table 1 for methods / inclusions of each term, as consistent with BoM National Water Accounts.

Table 1 - Annual surface water available in the Murray-Darling Basin (data inputs sourced BoM)⁵

Surface water	2025 ⁶	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Water availability	37,431,436	39,048,178	61,421,731	51,460,784	32,166,573	22,282,613	20,528,796	28,374,095	42,313,970	24,795,510	24,993,066	31,830,826	37,063,188	62,494,579	57,222,385
Water accessible	14,233,570	14,776,929	16,133,698	16,526,385	12,499,065	6,945,841	7,037,105	9,975,447	11,695,249	9,778,723	9,338,453	11,581,501	17,947,608	17,363,283	12,087,314
Water used	9,762,438	8,386,436	6,350,243	8,573,349	8,148,554	5,315,319	5,841,944	7,891,237	8,058,393	6,117,244	7,743,780	8,927,171	13,084,223	8,267,618	6,401,212
% of water accessible used	69%	57%	39%	52%	65%	77%	83%	79%	69%	63%	83%	77%	73%	48%	53%
% of water available used	26%	21%	10%	17%	25%	24%	28%	28%	19%	25%	31%	28%	35%	13%	11%
% of water available not used	73.92%	78.52%	89.6%	83.3%	74.67%	76.15%	71.54%	72.19%	80.9%	75.3%	69.0%	71.9%	64.7%	86.7%	88.8%

* Surface water availability is sum of accessible storage at the start of the year (see [Water assets](#)) and estimated inflows into storages and rivers during the year.

** Accessible water is the volume of water that is accessible for consumptive use and is the sum of surface water allocations, other statutory rights, and carryover at the start of the water year.

*** Water used is the volume of water diverted for consumptive use and includes floodplain harvesting. This does not include water for environmental purposes.

**** Water available not used is the remaining water available in river systems, which is not diverted for consumptive purposes.

Notes for each National Water Account are available on the BoM website.

⁵

https://www.bom.gov.au/water/nwa/2024/mdb/supportinginformation/statementdetails.shtml#water_availability

⁶ It is noted that the 2025 data is draft only and may be subject to minor adjustments as quality and assurance processes occur.

Figure 2: Annual surface water availability, and usage, in the Murray-Darling Basin (2011 – 2025)

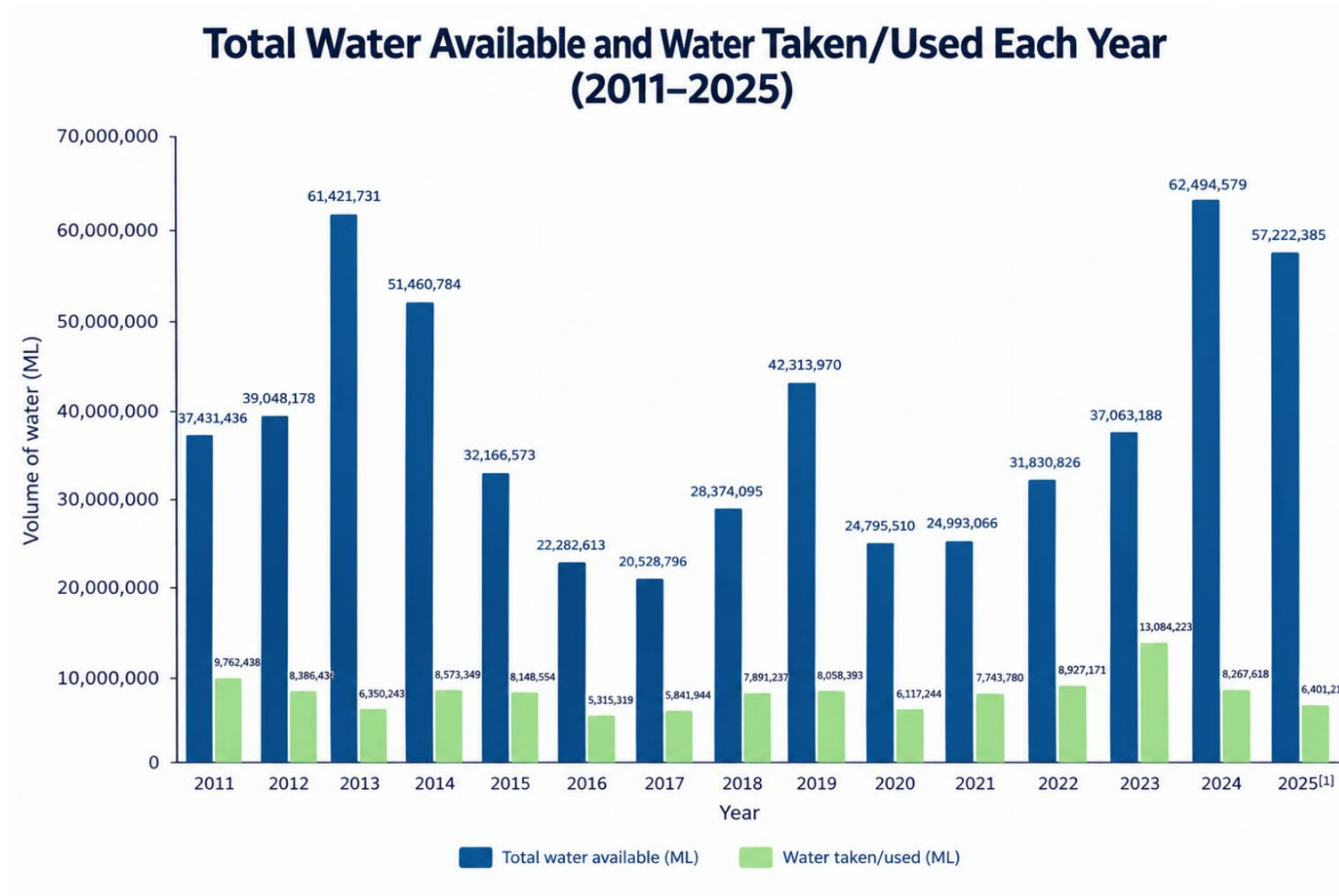
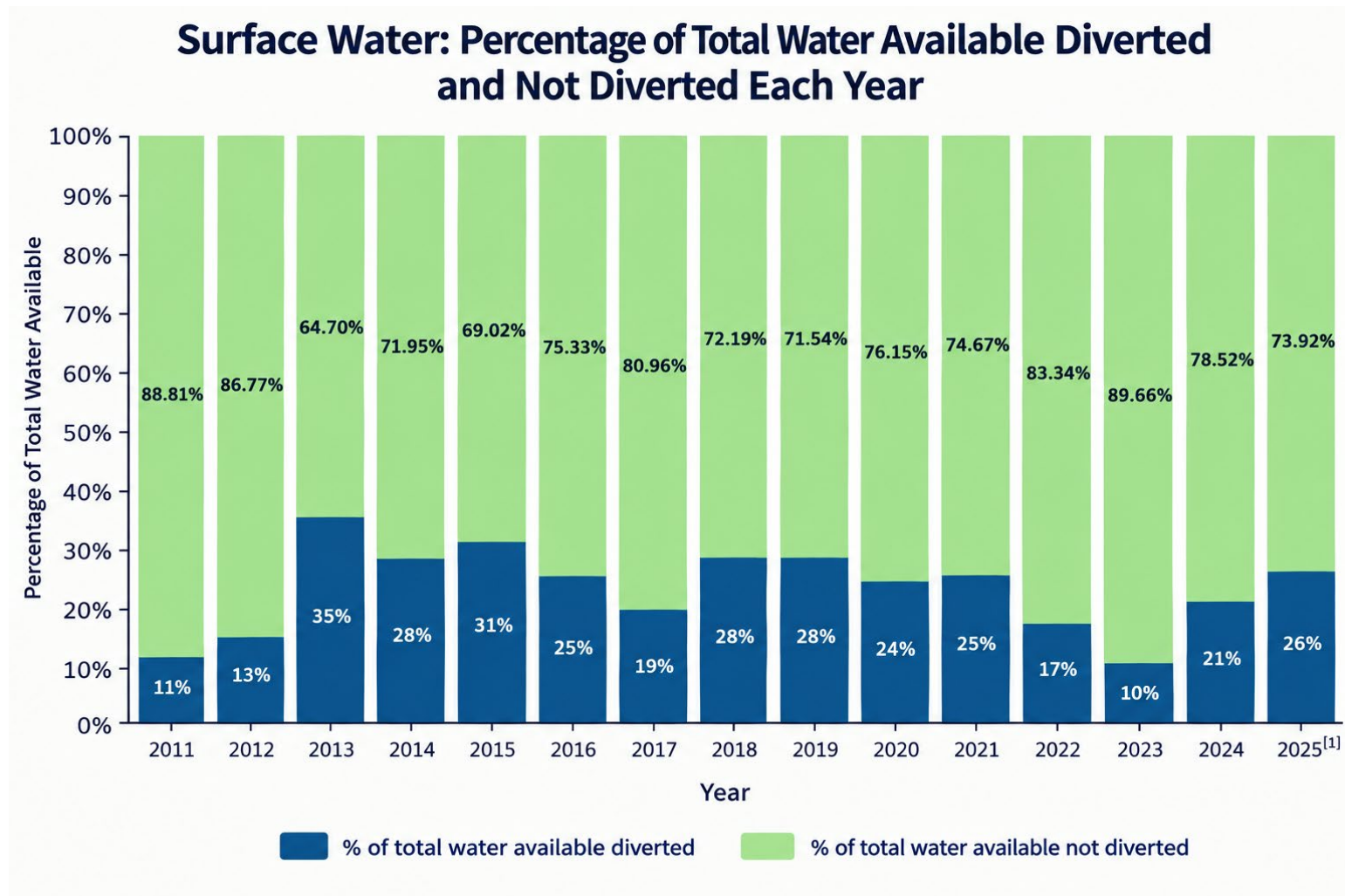


Figure 3: Annual surface water use in the Murray-Darling Basin as a percentage of total water available (data sourced BoM)⁷



⁷ https://www.bom.gov.au/water/nwa/2024/mdb/supportinginformation/statementdetails.shtml#water_availability

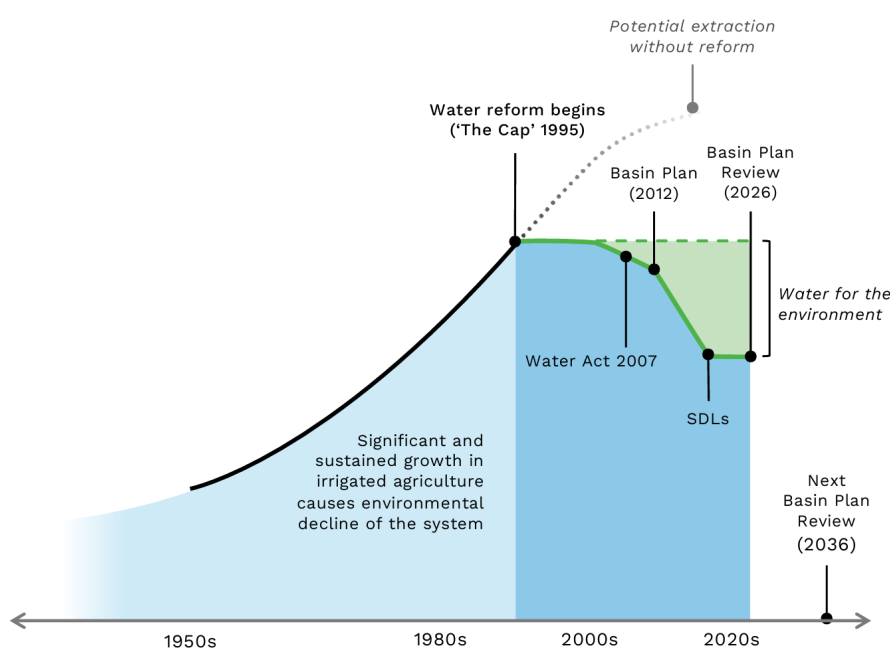
Discussion

Now only 23% of water is diverted from the MDB

The findings show only a relatively small proportion of water is diverted and used in the MDB, out of the total water balance. This reflects 30 years of reform since the late 1990s to address what was considered ‘over extraction’.

Figure 4 below from the MDBA’s Basin Plan Review Discussion Paper shows this reform journey, leading to the current SDLs which came into effect in 2019.

Figure 4: Rebalancing water use in the Murray–Darling Basin (source MDBA)⁸



The green shaded area shows the additional water for the environment that has been acquired through reforms such as the Basin Plan. This is the “water for the environment” that is commonly reported. This is environmental water licences, known as Held Environmental Water (HEW) and largely represents the entitlement portion of overall rebalancing.

However, what is rarely reported, is all the water that exists above this line (non-diverted, which has never been an entitlement to be diverted). It is this baseline component of existing environmental measures, that the Basin Plan reforms added to as “water for the environment” or HEW via the purchase of water licences from irrigators and other measures. The 3,256 GL of HEW (2,267 GL as LTDLE)⁹ now owned by the Commonwealth

⁸ <https://www.mdba.gov.au/sites/default/files/publications/2026-murray-darling-basin-plan-review-discussion-paper.pdf>

⁹ <https://www.dcceew.gov.au/cewh/manage-water/basin/water-holdings#commonwealth-environmental-water-holdings>

Environmental Water Holder is within the proportion non-diverted, combined with the water that already exists within state and Basin planning arrangements.

The exact numbers and percentages vary year to year, as both volumes of water accessible for use and water taken are influenced by water availability, seasonal conditions, rules of access and water user behaviours¹⁰.

Updated findings from earlier estimates, based on actual data

NIC has previously reported that 28% of water is diverted and used, with 72% not diverted and left in rivers for the environment. This Report presents updated findings based on actual water use data over time, and incorporating more recent data points, to provide a more robust assessment of water diversions relative to total water availability.

Previous estimates were based on the data presented in Table 1 of the *Basin Plan 2012 (Cth)* (extract below) on inflows and diversions, sourced from the historical record up to 2011. That data was subsequently adjusted to account for various water recovery measures implemented since that time, resulting in lower estimated diversion volumes. The outcomes from previous methods resulted in the main finding that 28% of total water balance was diverted, with 72% remaining in rivers.

Table 2: Extract of Table 1 from the *Basin Plan 2012 (Cth)* legislation

Table 1: Murray-Darling Basin long-term annual inflow and water use

Surface-water	GL
Inflows	
Inflows to the Basin	31,599
Transfer into the Basin	954
Total	32,553
Water use	
Watercourse diversions	10,890
Interceptions	2,733
Water used by the environment and losses	13,788
Outflows from the Basin	5,142
Total	32,553

Sources: MDBA 2011a, MDBA 2011d.

Note 1: The diversions shown in this table are based on Authority estimates and correspond to those outlined in Schedule 2.

Note 2: The total inflows into the Basin shown in this table are the Authority's best estimate of surface-water runoff generated across the Basin and are based on modelled inflows adjusted where necessary to incorporate the effects of interception activities. This differs from other methods of assessing total Basin water availability such as inflow data based on CSIRO 2008, which modelled flows at the point of maximum flow under without-development conditions.

Note 3: Some estimates have been subject to rounding.

In contrast, the findings presented in this Report draw on actual data on both water use and availability, over a more recent period, providing a more accurate and contemporary assessment of the proportion of total water availability that is diverted and used.

¹⁰

https://www.bom.gov.au/water/nwa/2024/mdb/supportinginformation/statementdetails.shtml#water_availability

The main differences between our previous and current findings can be attributed to:

- Improved methods, based on actual data of water diverted and used, and availability;
- More contemporary data points, inclusive of Basin Plan implementation years, and post commencement of SDLs.

Smaller adjustments may also be attributed to:

- Actual water use tracking below allowable limits (the SDLs) which was not expected nor modelled as part of the Basin Plan;
- Water recovery exceeding initial Basin Plan targets through the inclusion of additional water for the environment.

This updated analysis offers a stronger evidence base for understanding the extent of water diversions relative to available water resources.

Looking at the full water balance matters

When looking at the full water balance, it is clear that total water diversions represent only a relatively small proportion of the total water balance.

If, however, we were just to look at the portion of the total water balance which is the subject of an access licence, the findings appear rather different. Below, the year 2024 is used as a case study (as the most recent year with full data published), to show these differences. The BoM reports that for 2024:

Approximately 67% of the total surface water diverted was for consumptive use by individual users, 4% was supplied to the urban system and 1% was for individual users under a basic right. The remaining 28% of this volume was used for environmental purposes.¹¹

Therefore, 28% of water licences were used for environmental purposes in 2024, however, this contributed to other forms of environmental and other water, to result in 79% of total water being non-diverted and left in rivers. These are vastly different statistics and demonstrate the importance of care in presenting data on water use, to manage the risk of misinterpretation, confusion, or misleading claims.

Stakeholders have long questioned why reporting tends to focus on just water licences for the environment, rather than the full picture, as this can present a misleading picture of how water is shared and managed across the system. This is particularly concerning given the complexity of the different forms of water supporting environmental outcomes, which may not be readily understood by broader audiences, potentially leading to an

¹¹https://www.bom.gov.au/water/nwa/2024/mdb/supportinginformation/statementdetails.shtml#water_availability

incomplete or inaccurate understanding of the overall water balance. When queried, agencies have said that reporting has occurred this way for several reasons, such as:

- Most reporting is in relation to progress on implementation of the Basin Plan, rather than as a general communication tool;
- Differing opinions on what constitutes ‘water for the environment,’ and whether rules-based environmental water (Planned Environmental Water, or PEW) and water left non-diverted is for the environment; or
- Previous data limitations.

Additionally, stakeholders also have questioned if data is intentionally presented to skew the full picture, to meet political or other objectives.

We are also concerned that there are general misunderstandings even amongst decisionmakers who believe that the only water for the environment is Held Environmental Water as managed by the Commonwealth Environmental Water Holder. This is not the case.

While reporting the percentage of water licences now used for environmental purposes remains an important piece of information for very specific reporting purposes, a recommendation of this report is to improve communication on what specifically that statistic is showing and include it alongside the full water balance to show the full picture.

While there are differing views on what constitutes ‘water for the environment,’ a simple breakdown of water diverted and used, and non-diverted and remaining in rivers is critical to providing a more complete picture for stakeholders. Consistent, standardised reporting over time will help stakeholders better understand the different forms of water supporting environmental outcomes, the distinction between entitlements and actual water use, and how water is shared across the system.

What this means for the MDB

Given the findings of this report that only 23% of the total water balance is diverted and used for agriculture, industry, and communities– the challenge of the MDB is now no longer one of over-extraction. This is consistent with analysis of data from the Murray-Darling Basin Authority which shows 92% of environmental indicators would not improve by simply recovering more water but require direct measures instead.

This means for future iterations of the Basin Plan, focus can now shift to targeting the other non-water drivers of environmental degradation such as invasive species, habitat decline, barriers to fish passage and environmental water delivery to floodplains and wetlands.

A failure to move-forward, acknowledge the substantial change which has occurred in the Basin, and look at what tools are required today – risks not only industries and communities – but also the necessary investment in what environmental measures are required. Indeed, moving forwards is not about trade-offs between agriculture and the environment ‘competing’ for water shares. Those sharing arrangements have now been established, with low diversion rates for a major developed Basin. The challenge is now how to best target today’s ecological threats, which are not about “just adding water.”

Recommendations

1. As part of the National Water Accounts published by the BoM, include percentages of water available diverted and used, and non-diverted or remaining in rivers, as a key part of reporting. Note: we recommend the BoM update their language on take to diversions and use, to be consistent with state language.
2. For water agencies:
 - a. When reporting on water recovery out of the consumptive pool (a subset of total water available), ensure clear context is provided on what is being reported to avoid misinterpretation or confusion that it refers to the full water balance.
 - b. Increase reporting on the full water balance (i.e. total percentage of water available diverted and used, and non-diverted or remaining in rivers), as part of water reviews and reports, given the central purpose of the Basin Plan was to rebalance this. For example, this should be a forefront finding of the 2026 Basin Plan Review.
3. Move forward from continual reform of water rebalancing to direct measures to target key ecological drivers, such as invasive species, habitat degradation, barriers to fish migration, and water delivery onto floodplains and wetlands – which “just adding water” cannot fix.

Conclusion

A central question to water management in the MDB is: how much water is actually used and for what purposes?

The answer to this question must be inclusive of all forms of water, including all forms of water diverted and used, as well as all forms of water non-diverted and left remaining in rivers.

A tendency to focus on a narrow cross-section of data (just the water on entitlements) has resulted in confusion and failure to disclose the full extent of water for the environment, as misleading reporting on extent of water diverted in relative terms.

It will be important to continue to update these statistics over time, as new data for each new water year becomes available.

Ultimately, what this Report shows is the balance which has been struck in the MDB, with over three-quarters of water now remaining in rivers, not diverted – a critical piece of information for decision makers to consider as part of the Basin Plan Review.

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Background on the Murray Darling Basin Review



Moving Forwards: NIC Review of the Murray Darling Basin Plan



Background on the Murray Darling Basin Plan



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