

New South Wales

Annual report on water resource use - 2017/18 water year

1. Introduction

This report highlights key aspects of surface water and groundwater management and use in New South Wales (NSW) during the 2017/18 water year commencing 1 July 2017. The report is submitted to the Murray Darling Basin Authority (MDBA) by NSW Department of Industry Water, (DOI Water), under Section 71(1) of the *Water Act 2007* (C'th), Schedule E of the MDB Agreement and Schedule 12, Matter 9.1 and 9.2 of the Basin Plan.

This report is a summary of the detailed data provided to MDBA in the s71/Cap/Matter 9.1/ Matter 9.2 reporting spreadsheets. For more detailed information, such as water use by licence category, valley-specific Cap assessment, or held environmental water (HEW), refer to the spreadsheet reports.

2. Water resource management overview for the State

All groundwater and surface water sources within the NSW Murray-Darling Basin (MDB) are managed under Water Sharing Plans (WSPs) and the *Water Management Act 2000* (*the Act*). The long-term average annual extraction limits (LTAAEL) for each NSW groundwater source and surface water source are outlined in the respective WSP.

At the time of compiling this report, a new metering framework is being rolled out, under the NSW Government's Water Reform Action Plan, for surface water and groundwater systems in NSW. The new framework will improve the standard and coverage of non-urban water meters across NSW. Details of the new NSW non-urban water metering policy can be viewed on the DOI Water website at:

https://www.industry.nsw.gov.au/__data/assets/pdf_file/0017/205442/NSW-non-urban-water-metering-policy.pdf

2.1 Groundwater

Groundwater extraction in 28 of the 44 NSW groundwater Sustainable Diversion Limit (SDL) resource units within the MDB is fully metered. These represent the majority of groundwater licensed entitlements (88%) in the NSW portion of the MDB. Extraction in the remaining 16 SDL resource units is currently only partially metered.

During the 2017/18 water year a total of 1193 GL was extracted from the groundwater SDL resource units within the MDB, including 1016 GL of recorded use and 177 GL of estimated use under basic landholder rights (BLR). The high level of extraction compared to the previous water year reflects the below average rainfall and low surface water availability (including much reduced general security allocations for many regulated rivers) experienced during the 2017/18 water year.

A total of 117 GL of groundwater was traded permanently within water sources; there was no trade between water sources during the water year. This permanent trade includes sale of access licences (71M change in ownership) and transfer of shares (71Q assignment of rights).

229 GL of groundwater allocation was traded (commonly referred to as temporary trade) with most (greater than 94%) of this occurring within the Upper and Lower Namoi, Upper Lachlan Alluvium, Lower Lachlan Alluvium, Lower Murray Alluvium (Deep), Lower Murrumbidgee Alluvium (Deep) and the Lower Gwydir Groundwater

Sources. Supplementary water access licence (SWAL) allocations will no longer be issued for any alluvial groundwater sources in NSW from the commencement of the 2017/18 water year.

2.2 Surface water

All licensed diversions from regulated rivers in the NSW portion of the MDB are metered. Diversions from the Barwon-Darling unregulated river water source and the Fish River Water Supply Scheme in the unregulated portion of the Macquarie valley are also metered. For other unregulated systems in the NSW MDB extraction is not currently metered and an average annual estimate of usage is shown in the section 71 reporting spreadsheets.

Regulated river diversions in the NSW portion of the MDB for the year totalled 4,835 GL, including 648 GL of recorded use by held environmental water (HEW) licences. Estimates of diversions from unregulated systems totalled 334 GL, including 19 GL of metered use in the Barwon-Darling – down from 299 GL in 2016/17 reflecting the reduction in Barwon-Darling river flow events reaching licenced commence to pump thresholds. The general decrease in total NSW diversions under both environmental and consumptive licences reflects the substantial reduction in inflows and subsequent water allocations across most NSW valleys during the 2017/18 water year compared to the previous year.

Most of the regulated valleys in the NSW MDB commenced the water year with low or zero general security allocations. The 2017-18 year began with average to dry conditions across most of NSW with the Bureau of Meteorology declaring September 2017 rainfall across the whole of the state as the lowest on record. This was offset by higher than average rain falling in the southern regions in December. However, significantly dry conditions prevailed across most of NSW from January and into winter 2018 resulting in only small incremental increases to water availability across most valleys.

Total storage levels in the Menindee Lakes fell to 480GL by December 2017. At this threshold the Menindee Lakes system becomes administratively separated from the Murray. Trade of water allocation from the Lower Darling to the Murray also ceased at this point and will remain so until storage levels in Menindee Lakes increase to 640 GL. Construction on the water supply pipeline from near Wentworth on the Murray River to Broken Hill to secure the long term urban water needs for the city is complete and the pipeline commenced operation on 26th February 2019.

3. Cap Compliance

All NSW valleys were fully Cap compliant for 2017/18 and continue to maintain cumulative Cap credits. All diversions are in accordance with the MDBA Register of Diversion Definitions to the extent that availability of information allows.

Although actual diversions exceeded the modelled Cap target (adjusted for trade and environmental use) for the water year in the Gwydir, Namoi, Macquarie, Lower Darling and NSW Murray, no Cap compliance was triggered with the cumulative Cap balance remaining substantially in credit for these valleys. In all other valleys actual diversions were less than the modelled Cap targets with corresponding Cap credits for the water year.

Table 1 summarises the major Cap results for each valley in NSW where accounting against Cap under Schedule E of the MDB Agreement applies. The Barwon-Darling and the Lower Darling are treated as one valley, for Cap auditing purposes with a combined Cap credit of 12 GL for the water year. Additional detailed Cap information is provided in the NSW section 71 reporting spreadsheets and/or the Cap register once finalised for 2017/18.

Table 1. Summary of 2017/18 Cap results for NSW

NSW Cap valley	Cap Target Adjusted for Trade and Environmental Use (GL)	Annual Consumptive Diversions (GL)	Cap Credit for 2017/18 (GL)
NSW Intersecting Streams	N/A	3	N/A
NSW Border Rivers	272	156	117
Gwydir	192	315	-124
Namoi/Peel	311	312	-1
Macquarie/Castlereagh/Bogan	235	376	-141
Barwon-Darling / Lower Darling	116	104	12
Lachlan	411	326	85
Murrumbidgee	2406	1646	759
NSW Murray	1283	1290	-7

4. Water resource summary by valley

4.1 NSW Intersecting Streams

The NSW Intersecting Streams are unregulated systems, with take by water access licence holders not currently metered. Consumptive diversions for 2017/18 are estimated to total 3 GL. There is no Cap established for the Intersecting Streams.

4.2 NSW Border Rivers

The 2017/18 consumptive diversions in the NSW Border Rivers totalled 156 GL consisting of 133 GL of metered regulated diversion and an estimated annual average 23 GL diversion by unregulated river licences which are currently not metered. Regulated diversions were down on the previous water year and reflect the significant reduction in water availability compared to 2016/17, including significantly reduced opportunities for access from declared supplementary events during the water year. Regulated diversions for irrigation totalled 132 GL in 2017/18.

In the regulated system, the general security (A class) licence category commenced the year with 100% allocation. However, allocations for general security (B class) were low at the start of water year and with small incremental increases throughout the water year resulted in total allocations for the year equivalent to 19.62% of entitlement under the continuous accounting system in the Border Rivers regulated river. General security (B class) licences make up the bulk of licenced entitlement in the NSW Border Rivers.

4.3 Gwydir

The 2017/18 consumptive diversions in the Gwydir valley totalled 315 GL. This consisted of 271 GL of metered regulated diversions and an estimated annual average of 44 GL of diversions by unregulated river licences which are not currently metered. Diversions for irrigation in the Gwydir regulated system totalled 267 GL for 2017/18. This includes only 9 GL diverted under supplementary licences.

In the Gwydir regulated river system, the higher priority licence categories (domestic and stock, local water utility and high security) commenced the water year with the maximum 100% allocation. Diversions under general security licences in 2017/18 relied heavily on water carried over in accounts from the previous year, with total allocation for the water year equivalent to 17.59% of entitlement; down from 79% in 2016/17. A continuous accounting allocation system is used for general security licenses in the Gwydir regulated river.

4.4 Namoi / Peel

Consumptive diversions within the Namoi valley, including the Peel, for 2017/18 totalled 312 GL. This also includes an estimate for unregulated river diversions of 113 GL that are not currently metered. Regulated diversions totalled 199 GL, consisting of 171 GL diversions in the Lower Namoi regulated river, 5 GL in the Upper Namoi regulated river and 23 GL in the Peel regulated river. Diversions for irrigation in the combined Namoi-Peel regulated systems totalled 187 GL.

Similar to the Border Rivers and Gwydir valleys, a continuous accounting system is used for general security licences in the regulated section of the Lower Namoi Valley. Significantly reduced inflows saw total general security allocations in the Lower Namoi for 2017/18 water year equivalent to only 7% of entitlement with much of this year's usage reliant on water carried over in accounts from the previous water year. Account and use limits apply to general security licences in the Lower Namoi.

In the Peel and Upper Namoi regulated rivers, general security licences are managed under annual accounting, with 2017/18 total allocations of 100% for both regulated systems. All higher priority licences throughout the Namoi and Peel valleys received 100% allocations for 2017/18.

4.5 Macquarie / Castlereagh

Within the Macquarie/Castlereagh valley consumptive diversions for 2017/18 totalled 376 GL. This includes an estimated average use of 35 GL of unregulated river diversions that are not currently metered and 11 GL of unregulated metered diversions under the Fish River Water Supply Scheme. Included in the Fish River diversions is 4 GL diverted by WaterNSW (Sydney Catchment Authority) which was transferred out of the MDB to the Sydney Basin.

Regulated diversions in the Macquarie and Cudgegong regulated rivers totalled 330 GL, including 311 GL diversions for irrigation; the bulk of which (307 GL) was in the Macquarie regulated river water source. This compares to total regulated diversions in 2016/17 of just 170 GL.

General security licences in the Macquarie and Cudgegong regulated rivers received an allocation equivalent to 38% of entitlement for the year, down from 100% in 2016/17.

4.6 Barwon – Upper Darling

Consumptive diversions in the Barwon-Darling during 2017/18 were significantly reduced totalling just 19 GL, including metered extraction of 16 GL for irrigation. This is a reflection of the very limited opportunities for licence holders to access water under licensed commence to pump/cease to pump river flow triggers during 2017/18.

Whilst all licence categories received 100% allocations for 2017/18, it should be noted that the Barwon–Darling is an unregulated system, i.e., water is not held in a headwater storage and the opportunity to take water is dependent on gauged flows in the river reaching licensed commence to pump/cease to pump triggers. There is an individual annual use limit

of 300% of entitlement plus adjustment for trades for unregulated A, B and C class licences in the Barwon-Darling.

As shown in **Table 1**, the Barwon-Darling and Lower Darling valleys are treated as one valley for Cap auditing purposes. The 2017/18 combined Cap credit is 12 GL, with a cumulative Cap credit of 648 GL.

4.7 Lachlan

In the Lachlan valley consumptive diversions totalled 326 GL for 2017/18 including an estimated average use of 15 GL of unregulated river diversions that are not currently metered. Regulated diversions in the Lachlan and Belubula regulated rivers totalled 311 GL. Regulated diversions for irrigation totalled 289 GL in the Lachlan regulated river and 8 GL in the Belubula regulated river.

Very dry conditions and low inflows to storages during 2017/18 saw total general security allocations in the Lachlan and Belubula regulated rivers for the year equivalent to only 2% and 0% of entitlement respectively; well down from the 2016/17 water year. As for other NSW valleys, diversions relied almost solely on water carried over in general security licence holders' accounts. There is an annual take limit equivalent to 100% of entitlement plus adjustment for trades for general security licences in the Lachlan and Belubula regulated rivers.

4.8 Murrumbidgee

The 2017/18 consumptive diversions in the Murrumbidgee valley totalled 1,646 GL including an estimated average 42 GL diversions by unregulated river licences which are not currently metered. Regulated diversions totalled 1,604 GL, including diversions under supplementary access licences and supplementary (Lowbidgee) access licences of 40 GL and of 9 GL respectively.

Incremental increases to allocations throughout the water year saw general security allocations reach a total of 45%; down from 100% in 2016/17. Net consumptive temporary trade into the Murrumbidgee valley from other valleys in the southern Basin during 2017/18 was 121 GL.

4.9 Lower Darling

In the Lower Darling consumptive diversions totalled 84 GL in 2017/18. This is up by 76 GL from the previous year reflecting the significant reduction in rainfall and inflows across the Lower Darling catchment in 2017/18. Held environmental water use in the Lower Darling decreased significantly from 2016/17 with 26 GL use in 2017/18 compared to 183 GL held environmental water use in the 2016/17 water year.

Net consumptive temporary trade out of the Lower Darling during 2017/18 was 25 GL, with net environmental temporary trade also out of the Lower Darling of 16 GL.

For Cap auditing purposes the Lower Darling and Barwon-Darling are treated as one valley. The 2017/18 combined Cap credit is 7 GL, with a cumulative Cap credit of 648 GL.

4.10 NSW Murray

Consumptive diversions for the NSW Murray valley totalled 1,290 GL for 2017/18, including an estimated average of 28 GL diversions by unregulated river licences which are not currently metered. This is a 10% increase in consumptive diversions from the 2016/17 water

year which reflects higher demand for water due to the prevailing dry weather conditions experienced during 2017/18.

Regulated diversions for irrigation totalled 1,230 GL. No access to supplementary flows was made available in 2017/18. This is a significant reduction on the 2016/17 water year where 88 GL from declared supplementary events in the NSW Murray was diverted for irrigation.

General security licence holders in the NSW Murray regulated river commenced the water year with very low allocations which were increased incrementally to a total equivalent to 51% of entitlement for the water year. Net consumptive trade into the NSW Murray from other systems in the southern basin during 2017/18 totalled 48 GL.

5. Transition period section 71 reporting

During the transition to SDL period, up to July 2019, NSW is continuing to fulfil its reporting obligations under Section 71 of the *Water Act 2007* (Cth), including accounting against Cap while Schedule E remains current. The reporting requirements under s71 have increased in this transition period to include other forms of non-modelled take such as interception by farm dams and commercial plantations, and Matter 9 reporting under the Basin Plan. Utilising the best available information for 2017/18, permitted take and actual take for these additional forms of non-modelled take are assumed to equal the volumes outlined for the Baseline Diversion Limit (BDL) in Schedule 3 of the Basin Plan.

Estimated volumes for permitted take and actual take under basic rights are equivalent to estimates listed under the requirements for water for BLR in the relevant water sharing plans for both groundwater and surface water in each SDL resource unit.

Floodplain harvesting in NSW is not currently managed by the issuing of an entitlement share and consequently NSW does not make available water determinations (allocations) or require a record of take. In the absence of an annual number, the long-term estimate of floodplain harvesting, estimated by the MDBA, has been included in the s71 reports for permitted take and actual take for the SDL resource units where floodplain harvesting applies. The Healthy Floodplains Project, currently underway in NSW, includes the creation of entitlements for floodplain harvesting and will enable future reporting consistent with s71 annual accounting processes.

6. Environmental water

Held environmental water usage in NSW totalled 648 GL during 2017/18. This was down 396 GL or approximately 38% compared to 2016/17, reflecting the reduction in water availability compared to 2016/17.

Table 2 shows the 2017/18 HEW use recorded for each surface water SDL resource unit in NSW. Entitlement volumes shown below are the equivalent in GL of entitlement shares at the start of the water year on 1 July 2017.

The majority of the total HEW use for the year once again occurred in the Murrumbidgee and NSW Murray valleys which together accounted for approximately 72% of all HEW use in the NSW portion of the MDB.

All valleys, with the exception of the Barwon-Darling and the Intersecting Streams, recorded HEW usage for 2017/18. For the NSW Border Rivers, HEW usage was recorded for the first water year since entitlement was recovered for the environment. Compared to 2017/18, HEW usage was up in the Gwydir, Macquarie/Castlereagh, and Lachlan and down slightly in the Namoi/Peel. In the Lower Darling, HEW usage for the water year was significantly reduced compared to the high usage recorded in 2016/17. Reductions in HEW usage were also recorded in the Murrumbidgee and the NSW Murray when compared with 2016/17.

Table 2. Summary of 2017/18 held environmental water use (surface water) in NSW

NSW valley / SDL resource unit	HEW Entitlement (GL)	HEW Use 2017/18 (GL)
Intersecting Streams	18	0
NSW Border Rivers	4	0.7
Gwydir	136	44
Namoi/Peel	12	5
Macquarie/Castlereagh	187	70
Barwon-Darling	30	0
Lachlan	127	37
Murrumbidgee	1112	188
Lower Darling	301	26
NSW Murray	662	278

In NSW planned environmental water (PEW) may be either rules-based or managed in a specified account similar to water accounts for other (licensed) water users. Examples of rules-based PEW include end of system flows, environmental share of supplementary events and other valley specific PEW rules in WSPs.

In several regulated valleys, Environmental Water Advisory Groups (EWAGs) advise on the management and use of account-based PEW such as environmental contingency allowances (ECA) and environmental water allowances (EWA); generally targeting specific environmental assets such as the Gwydir Wetlands and the Macquarie Marshes. Releases from stimulus flow accounts, such as in the Border Rivers usually target a specific reach of the river or environmental benefit downstream of the storage.

Account -based PEW usage for NSW totalled approximately 170 GL for 2017/18. This is a reduction from the total of 315GL for NSW in 2016/17. **Table 3** outlines the volume of account based PEW available and used in each regulated river valley/SDL resource unit where PEW accounts exist. The relevant regulated river WSP details the rules around the management and use of PEW accounts.

With the exception of the NSW Murray and the Lower Darling, usage was recorded for account-based PEW in all other valleys.

Table 3. Summary of 2017/18 planned environmental water use (account-based) in NSW regulated rivers

NSW valley / SDL resource unit	PEW Available 2017/18(GL)	PEW Use 2017/18 (GL)
NSW Border Rivers	8	8
Gwydir	78	3
Namoi/Peel	5	3
Macquarie/Castlereagh	194	64
Lachlan	40	17
Murrumbidgee	155	75
Lower Darling	30	0
NSW Murray	194	0

7. Progress of water reform

During the 2017/18 water year NSW continued to implement the 2013 Intergovernmental Agreement on Implementing Water Reform in the MDB and participated in a range of Basin Plan processes and working groups. Officers from across DOI Water actively participated in a range of interjurisdictional working groups under the Basin Plan Implementation Committee and continued to progress towards the development and accreditation of water resource plans.

In December 2017 the NSW Government launched the Water Reform Action Plan (WRAP) which introduced a renewed approach to equitable and transparent water management in NSW. WRAP achievements to date include the establishment of a new Lands and Water division and the Natural Resources Access Regulator (NRAR) to strengthen compliance and enforcement of water regulation. Further WRAP objectives include better management of environmental water, implementation of a strengthened metering framework and increased transparency in water management.