NSW Annual Report on Water Resource Use for the 2019/20 Water Year

Submission to the MDBA Water Take Report

April 2021

NSW Department of Planning, Industry and Environment | dpie.nsw.gov.au

Table of Contents

1. Introduction

This report highlights key aspects of surface water and groundwater management and use in New South Wales (NSW) during the 2019/20 water year commencing 1 July 2019. This report is submitted to the Murray Darling Basin Authority (MDBA) by the NSW Department of Planning, Industry and Environment – Water, (DPIE - Water), under section 71(1) of the *Water Act 2007* (Commonwealth), Schedule E of the Murray Darling Basin 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 the MDBA in the section71/Cap/Matter 9.1/ Matter 9.2 reporting spreadsheets.

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

2. Water resource management overview for 2019/20

The first half of the 2019/20 water year was characterised by ongoing drought conditions across much of NSW, with valleys in the Northern Basin severely affected. Remaining resources were reserved for critical human needs in many valleys, with numerous towns and regional cities in northern NSW on severe water restrictions. Access to water in accounts remained restricted and several regulated and unregulated rivers experienced extended periods of cease-to-flow conditions. A steady improvement in conditions in early 2020 saw some easing of restrictions in the second half of the water year although general security allocations in regulated systems remained very low or zero for the duration of the water year. Tributary inflows downstream of major storages in several regulated systems resulted in some access to supplementary water towards the end of the water year.

Under the NSW Extreme Events Policy, a staged approach was introduced to classify and manage extreme circumstances such as severe drought or poor water quality events; stage 1 criticality being the least severe and stage 4 the most severe.

From mid-January to the end of February 2020 an order under section 324 of the Act restricting the take of water was imposed in all northern valleys and the Barwon-Darling to protect the first flush flow events through those valleys and into Menindee Lakes and the Lower Darling. More details of this first flush flow event can be found on the NSW DPIE website at: https://www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/drought-update/managing-drought-recovery/north-west-flows-in-early-2020

Overall, licenced surface water diversions, including for held environmental water, were relatively low for the 2019/20 water year. Groundwater extraction was also down on the previous water year.

DPIE – Water is continuing to roll out the Water Reform Action Plan including the implementation of the NSW non-urban water metering framework and better management of environmental water in the NSW northern Basin. More details on these and other components of the Water Reform Action Plan can be found at: https://www.industry.nsw.gov.au/water-reform.

Throughout 2019/20, NSW continued to work to finalise all Water Resource Plans (WRPs) for groundwater and surface water systems in the NSW portion of the MDB. All 20 WRPs were submitted to the MDBA for assessment against accreditation requirements of the Basin Plan.

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. The rollout of the non-urban metering framework in NSW will improve the accuracy of extraction data in these systems over time.

During the 2019/20 water year, approximately 1,210 GL was extracted from the NSW groundwater SDL resource units within the MDB, including 1,002 GL of recorded and 19.8 GL of estimated licensed use and 189 GL of estimated use under basic landholder rights (BLR). The volume of licenced groundwater extraction is lower compared to the previous water year; down from 1,173 GL in 2018/19. This reflects some improved rainfall patterns in the second half of the water year, although through the summer peak irrigation period groundwater was in greater demand while surface water availability remained low. Improved estimates of basic rights have also been incorporated into the 2019/20 take. This result in an overall increase of around 12 GL in the estimated take under basic rights compared to 2018/19.

A total of 114 GL of groundwater was traded permanently within water sources; there was no trade between groundwater SDL resource units during the water year. With the exception of trading between the NSW GAB Warrego Shallow and the NSW GAB Central Shallow SDL resource units trading between SDL resource units is not permitted by the water sharing plans. Permanent trade includes sale of access licences (71M of the Act change in ownership) and transfer of shares (71Q of the Act assignment of rights between access licences).

297 GL of groundwater allocation was traded (commonly referred to as temporary trade) with most of this trade volume occurring within the Gwydir Alluvium, Namoi Alluvium, Macquarie-Castlereagh Alluvium, Lachlan Alluvium, Murrumbidgee Alluvium and Murray Alluvium WRP areas.

Except for the Upper Macquarie Alluvium and the Lower Murrumbidgee Deep Alluvium, all NSW groundwater SDL resource units are fully SDL compliant for 2019/20. NSW has submitted reasonable excuse applications under the Basin Plan for the Upper Macquarie Alluvium and the Lower Murrumbidgee Deep Alluvium. If granted these two SDL resource units will be ‘compliant with a reasonable excuse’.

For the Upper Macquarie Alluvium, total 2019-20 usage is 4.21 GL in excess of the 2019/20 permitted take of 18.77 GL. This exceeds the permitted take by 23.5% of the SDL. The Lower Murrumbidgee Deep Alluvium exceeded the permitted take by 20.4% of the SDL. The compliance test is if the exceedance is 20% or more of the SDL.

The variable permitted take methodology for both the Upper Macquarie Alluvium and the Lower Murrumbidgee Deep Alluvium is based on the rainfall during the water year. That is, the permitted take increases during dry years and decreases during wet years in recognition that groundwater is in greater demand during dry seasons when surface water availability is generally lower.

This is a very rudimentary correlation and it is recognised by both the MDBA and DPIE Water as being the first step towards establishing a method for a variable permitted take in groundwater systems.

The annual rainfall in 2019-20 (478.6mm at Dubbo) was 83% of the average rainfall. This corresponds to a permitted take of 105% of the SDL for the Upper Macquarie Alluvium. Until late February 2020 the water year was extremely dry and there was no general security surface water access for irrigation and reduced access for high security surface water users. Therefore, the only available water for this area was groundwater. The rain in the later part of the water year brought the yearly total up, however the bulk of the irrigation season had been very dry and the permitted take method does not take account of the change in seasonal conditions during the year.

In the Lower Murrumbidgee Deep Alluvium area there was a similar pattern of low rainfall and very limited surface water available for the first half of the water year. This meant there was a high demand on groundwater to establish and water crops during these initial very dry conditions. The higher rainfall in early 2020 resulted in the permitted take being equivalent to the SDL as the annual total rainfall was just above average.

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 the annual estimate of usage in the respective WRP is shown in the section 71 reporting spreadsheets. The rollout of the non-urban metering framework in NSW will improve the accuracy of actual take data in unregulated systems over time.

Total usage under regulated river access licences in the NSW portion of the MDB for the year was 1,200 GL. This included 159 GL of recorded use by held environmental water (HEW) licences and 1,041 GL of usage for consumptive purposes.

Estimates of diversions from unregulated systems totalled 476 GL, including 237 GL of metered use in the Barwon-Darling, up from just 2.5 GL in 2018/19. This increased volume reflects the improved conditions and significant increased flows in the Barwon-Darling in the second half of 2019/20. There was no recorded usage under HEW licences in unregulated systems during 2019/20.

The decrease in total NSW usage under both environmental and consumptive licences in 2019/20 reflects the ongoing drought conditions and draw down of water in water allocation accounts over the past two water years.

3. Section 71 reporting - SDL Compliance (surface water)

With the exception of the Barwon Darling, the SDL compliance trigger was not exceeded in any other surface water SDL resource unit in NSW for the 2019/20 water year. As well as being the first water year where compliance against the SDL is enforceable, it is the first year the new annual permitted take models have been utilised for assessing compliance in surface water SDL resource units. Prior to this year during the transition period, the IQQM Cap models were used to assess both Cap compliance and trial compliance with the SDL.

Table 1 summarises the SDL compliance assessment results for the water year in each NSW surface water SDL resource unit, using the best information available when preparing this report. This includes accounting for all forms of take as required under the Basin Plan. The cumulative balance has been adjusted for any disposal and acquisition of held environmental water. Additional detailed information is provided in the NSW section 71 reporting spreadsheets and/or the MDBA Register of Take once finalised for 2019/20.

For the Barwon-Darling and the Lachlan SDL resource units, the annual actual take (AAT) exceeded annual permitted take (APT), resulting in a negative balance. For all other SDL resource units in NSW the AAT was less than the APT. In this first year of SDL compliance, the annual balance is the cumulative balance.

For the Lachlan SDL unit, the negative balance was less than the 20% of the SDL compliance trigger. However, for the Barwon Darling the 20% compliance trigger was exceeded by 21.6 GL or approximately 12.3% of the SDL.

NSW has submitted a claim to the MDBA for a reasonable excuse under section 6.12(4)(a-b) of the Basin Plan for the Barwon Darling. NSW is claiming reasonable excuse categories RE1, that the exceedance is a result of the operation of the submitted WRP, and RE4, that the Commonwealth's incomplete recovery for the environment in the Barwon Darling is beyond NSW's control. At the time of writing this report the MDBA is still to consider the NSW claim for reasonable excuse. If granted the Barwon-Darling will be compliant with a reasonable excuse.

Table 1. Summary of 2019/20 SDL compliance for NSW (rounded)

NSW SDL resource unit	Annual Permitted Take (GL)	Annual Actual Take (GL)	Cumulative Balance adjusted for HEW disposal and acquisition (GL)	Compliance trigger (-20% of the SDL) GL
NSW Intersecting Streams	119.3	119.3	0	-23.9
Barwon Darling	202.2	259.9	-57.8	-35.2
NSW Border Rivers	162.9	129.1	33.8	-64.0
Gwydir	258.9	173.1	85.9*	-106.0
Namoi/Peel	320.7	281.0	39.7	-98.1
Macquarie-Castlereagh	412.8	412.3	0.5	-126.8
Lachlan	397.1	408.0	-9.9*	-115.7
Murrumbidgee	1,532.9	1,052.9	485.5*	-441.9
NSW Murray	607.1	493.4	117.4*	-302.4
Lower Darling	11.8	7.7	4.2	-7.1

* Balance has been adjusted for disposal and/or acquisition of HEW in these SDL resource units during 2019/20

4. Cap Compliance (surface water)

Cap compliance trigger thresholds were not exceeded over 2019/20, and all valleys remained fully Cap compliant for 2019/20 with substantial cumulative Cap credits. Compliance with Cap does not apply to groundwater.

For NSW Cap valleys, other than the Lachlan and Barwon Darling, actual consumptive diversions for the year were less than the modelled Cap target (adjusted for trade and environmental use).

Table 2 summarises the Cap results for the water year in each NSW valley 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 debit of 45 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 2019/20.

Table 2. Summary of 2019/20 Cap results for NSW (rounded)

NSW Cap valley	Cap Target Adjusted for Trade and Environmental Use (GL)	Annual Consumptive Diversions 2019/20 (GL)	Cap Credit for 2019/20 (GL)
NSW Intersecting Streams	N/A	5.8	N/A
NSW Border Rivers	55.9	25.6	30.3
Gwydir	59.4	40.1	19.3
Namoi/Peel	144.5	97.3	47.2

Macquarie/Castlereagh/Bogan	118.4	95.2	23.2
Barwon-Darling / Lower Darling	193.2	238.6	-45.4
Lachlan	46.2	86.0	-39.9
Murrumbidgee	915.1	545.8	369.3
NSW Murray	636.2	384.3	251.9

5. Surface water resource summary by valley

5.1 NSW Intersecting Streams

The NSW Intersecting Streams are unregulated systems, with take by water access licence holders not currently metered. Consumptive licensed diversions for 2019/20 have been estimated to total 5.8 GL in line with estimated take in the Intersecting Streams WRP. There is no Cap established for the Intersecting Streams.

5.2 NSW Border Rivers

The 2019/20 licensed consumptive diversions in the NSW Border Rivers totalled 26 GL consisting of 10 GL of metered regulated diversion (adjusted for net interstate use of NSW allocations in the Qld Border Rivers) and an estimated 16 GL diversion by unmetered unregulated river licences. Regulated diversions were down significantly on the previous water years. Regulated diversions for industrial purposes, including for irrigation, totalled 9GL. Usage under supplementary licences from tributary inflows downstream of the major storages formed the bulk of diversions in the NSW Border Rivers, with high security and general security diversions totalling just 0.15 GL in 2019/20.

In August 2019 drought conditions move to the most severe Stage 4 drought criticality, meaning measures were introduced to protect water for critical human needs. There were extended periods of cease-to-flow conditions. Conditions improved towards the end of the water year to Stage 2 drought criticality with drought contingency measures in place such as block releases and water deliveries met from downstream tributary inflows.

In the regulated system, higher priority licence categories received 100% allocation for 2019/20. Both general security (A class) and general security (B class) licence categories received a zero allocation for the year. General security (A class) licences make up only a small portion of the total general security licences in the Border Rivers.

5.3 Gwydir

The 2019/20 licensed consumptive diversions in the Gwydir valley totalled 40 GL, a reduction of 64GL compared to the 2018/19 water year. This volume included 29 GL of metered regulated diversions and 11 GL of unmetered unregulated river diversions estimated in accordance with the method included in the submitted Gwydir WRP. Diversions for industrial purposes, including for irrigation, in the Gwydir regulated system totalled 26 GL for 2019/20, down from 55 GL in 2018/19.

For most of the water year, the Gwydir valley remained at Level 3 drought criticality, meaning the need for access restrictions was being monitored closely to protect remaining supplies for critical needs. This situation eased to Level 2 in April 2020 although the improving conditions were monitored closely in case dryer conditions returned.

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. General security licences in 2019/20 had an allocation of just 2% for the water year; although still very low, this was up from a zero allocation in 2018/19. A continuous accounting allocation system is used for general security licences in the Gwydir regulated river.

5.4 Namoi / Peel

Licenced consumptive diversions within the Namoi valley, including the Peel, for 2019/20 totalled 96 GL. This also includes an estimated 78 GL of unmetered unregulated river diversions. Regulated diversions totalled 19.3 GL (rounded), consisting of 11 GL in the Lower Namoi regulated river, 1.8 GL in the Upper Namoi regulated river and 6.5 GL in the Peel regulated river. Diversions for industrial purposes, including for irrigation, in the combined Namoi-Peel regulated systems totalled just 12.7 GL which is a reduction of approximately 37 GL from the 2018/19 water year and well down on average.

The combined Namoi-Peel valleys have had record minimum storage inflows over the last couple of years. The Peel regulated river remained in Stage 4 drought criticality for the entire 2019/20 water year, meaning remaining supplies were reserved for critical needs only. Many urban centres, including the city of Tamworth, remained on Level 5 water restrictions for the year. The regulated Namoi River system was in Stage 4 drought criticality until conditions improved to Stage 3 by March 2020. The Lower Namoi regulated river downstream of Keepit Dam commenced the water year with cease-to-flow conditions and remained so until February 2020.

Similar to the NSW Border Rivers and Gwydir valleys, a continuous accounting system is used for general security licences in the regulated section of the Lower Namoi valley. In the Peel and Upper Namoi regulated rivers, general security licences are managed under an annual accounting system. Minimal inflows resulted in no general security allocations in the Peel and Lower Namoi regulated systems for the 2019/20 water year. Good rainfall in the Namoi catchment from January to April saw some improvements to storage levels in Split Rock Dam and Keepit Dam, resulting in a 50% allocation to a late season general security licences in the Upper Namoi regulated river only. There were only minimal inflows during this time into Chaffy Dam on the Peel River upstream of Tamworth.

5.5 Macquarie / Castlereagh

Licensed consumptive diversions totalled 95 GL in the Macquarie / Castlereagh catchment for the 2019/20 water year. This includes an estimated average use of 44 GL of unmetered unregulated river diversions and 4 GL of unregulated metered diversions under the Fish River water supply scheme. Included in the Fish River diversions is 2 GL diverted by WaterNSW (Sydney Catchment Authority) which was transferred out of the MDB to the Sydney Basin.

Consumptive diversions in the Macquarie and Cudgegong regulated rivers totalled 51 GL, with 40 GL diversions for industrial purposes, including for irrigation, and 11 GL diverted under local water utility and domestic and stock licences. This compares to total regulated consumptive diversions in 2018/19 of 180 GL.

General security licences in the Macquarie and Cudgegong regulated rivers received no allocations for the year, continuing the trend of zero allocations from 2018/19.

Drought conditions continued through much of the water year, with the Macquarie valley remaining at the maximum Stage 4 drought criticality until easing to Stage 3 drought (severe) in May 2020. Temporary water restrictions under section 324 of the Act remained in place to protect critical human needs until May 2020.

5.6 Barwon Darling

Similar to other valleys in the NSW northern MDB, Stage 4 drought conditions prevailed in the Barwon-Darling for the first half of 2019/20 water year with cease-to-flow conditions and remaining water supplies for towns and stock and domestic use at critically low levels during this time. Conditions improved significantly in early 2020 with system inflows from northern NSW and QLD tributaries. Orders restricting access under section 324 of the Act were imposed across the northern valleys, including the Barwon-Darling, until mid-April 2020. This was designed to protect a ‘first flush’ event for critical human and environmental needs, and to ensure flows reached Menindee Lakes and into the Lower Darling.

Once these higher priority needs were assured, including sufficient flows reaching the Menindee Lakes system, restrictions on access for irrigation were lifted. Diversions to the end of June 2020 under A, B and C class licences for industrial purposes, including irrigation, totalled 234 GL. This compares to zero extraction for these licence categories in 2018/19 during the ongoing extreme drought.

While all licence categories received 100% allocations for 2019/20, it should be noted that the Barwon–Darling is an unregulated system. That is, water is not held in a headwater storage and the opportunity to take water (other than when temporary restrictions are in place) 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 for unregulated A, B and C class licences in the Barwon-Darling, provided there is sufficient water carried over in water allocation accounts from previous water years.

5.7 Lachlan

In the Lachlan valley licensed consumptive diversions totalled 86 GL for 2019/20 including an estimated use of 16 GL of unmetered unregulated river diversions. Regulated diversions in the Lachlan and Belubula regulated rivers totalled 70 GL. Regulated diversions for industrial purposes, including for irrigation, totalled 55 GL in the Lachlan regulated river and 3 GL in the Belubula regulated river. Under WSP rules, there is an individual annual take limit equivalent to 100% of entitlement plus adjustment for trades for general security licences in the Lachlan and Belubula regulated rivers.

Continued dry conditions and low inflows to storages during 2019/20 resulted in zero general security allocations in the Lachlan and Belubula regulated rivers. The Lachlan valley remained in Stage 3 drought (severe) for the entire water year. Restrictions under section 324 of the Act were placed on access to a portion of water carried over in general security licence holders' accounts to maintain water security for higher priority needs including town water supplies.

5.8 Murrumbidgee

The 2019/20 licensed consumptive diversions in the Murrumbidgee valley totalled 546 GL including an estimated 42 GL diversions by unmetered unregulated river licences. Regulated consumptive diversions totalled 504 GL, including regulated diversions for industrial purposes, including for irrigation, of 452 GL.

Although general security allocations remained low, totalling just 11%, for the year, the Murrumbidgee valley remained in Stage 1 drought criticality throughout the water year, meaning all allocated water could be delivered under normal regulated river operations.

During 2019/20, there was 140 GL of net consumptive temporary trade out of the Murrumbidgee valley to other valleys in the southern Basin, including interstate. This consisted of 197 GL traded out and 57 GL traded into Murrumbidgee water accounts. In addition, there was 7 GL of environmental water traded into the Murrumbidgee in 2019/20.

5.9 Lower Darling

The Lower Darling was in Stage 4 drought (critical) for much of 2019/20 with restrictions limiting water take for critical needs.

Conditions improved in late March 2020 as inflows from the northern basin began to arrive, lifting storage levels in the Menindee Lakes system to 12% and rising. At that time, regulated releases from Menindee Lakes re-commenced and the Lower Darling moved to Stage 3 drought criticality. By May 2020 the resource conditions had improved sufficiently to allow an allocation for general security licences of 30% and a further easing of drought criticality to Stage 2.

Despite improving conditions late in the water year licensed consumptive diversions totalled just 2 GL in 2019/20. For the second consecutive water year there was zero use of environmental water licences in the Lower Darling in 2019/20.

There was no temporary trade under consumptive or environmental licences either into or out of the Lower Darling during 2019/20.

5.10 NSW Murray

Licensed consumptive diversions for the NSW Murray valley totalled 384 GL for 2019/20, including an estimated f 28 GL diversions by unmetered unregulated river licences.

Regulated diversions for industrial purposes, including for irrigation, totalled 316 GL, including just 2 GL taken under supplementary licences.

Throughout 2019/20 the NSW Murray regulated river remained in Stage 2 drought criticality, meaning drought operational planning had commenced so that contingency measures could be applied to protect critical water supplies if conditions deteriorated further.

General security licence holders in the NSW Murray regulated river received just one allocation for the year of 3%. This allocation in May 2020 was the first for general security licences since March 2018. During 2019/20, there was 25 GL of net consumptive temporary trade into the NSW Murray from other valleys in the southern Basin, including interstate. This consisted of 234 GL traded out and 259 GL traded into NSW Murray water accounts for consumptive purposes. In addition, 12 GL of water was traded into the accounts of NSW Murray environmental licences in 2019/20.

6. Environmental water

6.1 Held environmental water

Recorded usage of held environmental water in NSW surface water SDL units totalled 159 GL during 2019/20. This was down 146 GL or approximately 48% compared to 2018/19, reflecting continued lower than average water availability and drought operation restrictions in many valleys.

Table 3 shows the 2019/20 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 2019.

Most of the total surface water HEW use for the year occurred in the Lachlan, Murrumbidgee and the NSW Murray valleys.

The Intersecting Streams, NSW Border Rivers, Namoi/Peel, Barwon-Darling and Lower Darling all recorded zero HEW usage for 2019/20. Compared to 2018/19, HEW usage was down in all surface water valleys except for the Lachlan and NSW Murray.

Table 3. Summary of 2019/20 held environmental water use (surface water) in NSW

NSW valley / SDL resource unit	HEW Entitlement 2019/20 (GL)	HEW Use 2019/20 (GL)
Intersecting Streams	18	0
NSW Border Rivers	4	0
Gwydir	136	11
Namoi/Peel	15	0
Macquarie/Castlereagh	187[a]	5
Barwon-Darling	30	0
Lachlan	127	31

Murrumbidgee	1,136[b]	36
Lower Darling	323	0
NSW Murray	673[c]	76

[a] This includes 3 GL of unregulated river HEW entitlement

[b] This includes 10 GL of unregulated river HEW entitlement

[c] This includes 13 GL of unregulated river HEW entitlement

No HEW usage was recorded in 2019-20 in the groundwater SDL units in NSW where environment licences are held. Table 4 shows the entitlement and usage for groundwater HEW in 2019-20.

Table 4. Summary of 2019/20 held environmental water use (groundwater) in NSW

NSW groundwater SDL resource unit	HEW Entitlement 2019/20 (GL)	HEW Use 2019/20 (GL)
Billabong Creek Alluvium	0.029	0
Lachlan Fold Belt	0.029	0
Lower Lachlan Alluvium	0[a]	0
Lower Murrumbidgee Alluvium (Deep)	6.905	0
Lower Murray Alluvium (Deep)	1.323	0
Lower Murray Alluvium (Shallow)	0.033	0
Upper Murray Alluvium	0.137	0

[a] This is a zero-share water access licence

6.2 Planned environmental water

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 surface water regulated valleys, Environmental Water Advisory Groups (EWAGs) advise on the management and use of account-based PEW such as environmental contingency allowances (ECA), environmental water allowances (EWA) and water quality allowances (WQA). Specific environmental assets such as the Gwydir Wetlands, Macquarie Marshes, Lowbidgee Floodplain or the Barmah-Millewa forest are generally targeted. Releases from stimulus flow accounts, such as in the NSW Border Rivers, usually target a specific reach of the river or an environmental benefit downstream of the storage.

Table 5 outlines the volume of account-based PEW available and used in each surface water regulated river valley/SDL resource unit where PEW accounts or allowances exist. The relevant regulated river WSP details the rules around the management and use of PEW accounts. Account-based PEW use for NSW totalled approximately 41 GL for 2019/20; well down from 2018/19 total PEW usage of 240 GL, reflecting the low surface water availability in most valleys.

Table 5. Summary of 2019/20 planned environmental water use (account-based) in NSW surface water regulated rivers

NSW valley / SDL resource unit	PEW Available 2019/20 (GL)	PEW Use 2019/20 (GL)
NSW Border Rivers	8.0	0
Gwydir	24.5	5.2
Namoi/Peel	0	0
Macquarie/Castlereagh	69.4	0
Lachlan	20.0	1.3
Murrumbidgee	77.9	28.6
Lower Darling	0	0
NSW Murray	5.7	5.7

7. Progress of water reform

During the 2019/20 water year, NSW continued its ongoing commitment to the 2013 Intergovernmental Agreement on Implementing Water Reform in the MDB and participated in a range of Basin Plan processes and working groups. Significantly, all 20 WRPs for both surface water and groundwater in NSW have now been submitted to the MDBA for accreditation assessment. The submitted WRPs are the result of extensive stakeholder and agency consultation over several years.

NSW is progressing work aimed at better management of environmental water both in the northern basin and the southern connected systems.

Prerequisite policy measures (PPMs) have been in effect in the Murrumbidgee and Murray Lower Darling since 1 July 2019 with two environmental watering events using PPMs implemented during 2019/20 in the Edward-Wakool system and the Millewa Forest. Further environmental watering events involving PPMs are currently being planned and implemented for the next (2020/21) water year.

In addition, commencing 1st December 2020 NSW is implementing active management of environmental water in the unregulated portions of the Lower Gwydir and Lower Macquarie valleys, as well as in the Barwon-Darling unregulated river.

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 the Natural Resources Access Regulator (NRAR) to strengthen compliance and enforcement of water regulation and the roll out of the non-urban metering framework to improve the standard and coverage of non-urban water meters across NSW. Further WRAP objectives include better management of environmental water and increased transparency and best practice in water management.