

## **2012/13 WATER USE IN NEW SOUTH WALES**

### **4.1 Water Management Overview**

The 2012/13 water year began with generally high water levels in water storages corresponding to initially high levels of water availability. Hot and dry conditions in 2012/13 resulted in periods of low inflows in many valleys and an increased demand for water. Prevailing conditions across much of the Murray-Darling Basin during the water year ensured that many storages finished the year with water levels well short of the previous water year.

New South Wales continued to implement the Murray-Darling Basin Ministerial Council Cap on diversions. The cumulative diversions since the commencement of the Cap accounting in 1997/98 are below Cap in all NSW valleys.

Throughout 2012/13, NSW also made further progress towards accreditation of valley Cap models, including additional work on the Barwon-Darling valley Cap model and the NSW Border Rivers Cap model, which is the only remaining Cap model for major river systems to be presented for accreditation.

During the year, New South Wales continued to develop and implement water sharing plans for rivers and groundwater systems. In October 2012 New South Wales reached a milestone with all surface water sources in the Murray Darling Basin being covered by a water sharing plan. Valley Water Sharing Plans are the primary instrument for sharing and managing water resources in NSW. Each Plan includes a long-term diversion limit (the Plan limit) and rules for adjusting water-sharing if diversions grow beyond the limit set out in the Plan. In all major regulated rivers in the NSW portion of the Basin these Plan limits are below Cap.

The Plan rules are intended to produce environmental benefits, while also ensuring that long-term average diversions do not exceed those which would result from 1993/94 development levels. Assessments of long-term diversions are undertaken annually, and management actions will be undertaken whenever required to ensure that the Plan limit is not exceeded.

### **4.2 Water Use Overview**

The wet conditions experienced during the previous water year meant that 2012/13 commenced with generally high water levels in water storages. Due to the onset of hot and dry conditions throughout the irrigation season, total diversions in 2012/13 were 6,327 GL compared to 4,431 GL in the previous year as reported in the Water Audit and Monitoring Report 2011/12.

Environmental water use in 2012/13 was 490GL compared to 557GL in 2011/12. Most of this environmental water use (65%) was in the Macquarie and Murrumbidgee Valleys.

Assessment of Cap performance for the 2012/13 water year using computer simulation models indicated that actual diversions were significantly less than the modelled Cap target for each valley. The exception is the Gwydir which

had a debit of 18 GL but still maintains a cumulative credit. The cumulative diversions in the Barwon-Darling component of the combined Barwon-Darling and Lower Darling valley are 79 GL in credit. No Cap reporting valleys required a special audit.

All diversions are reported using a July to June water year, and are in accordance with the MDBA Register of Diversion Definitions to the extent that availability of information allows.

### **4.3 Environmental Water Recovery**

This report includes information on water recovered for the environment from either water savings projects or the purchase of water entitlements. Over the last few years substantial volumes of water entitlements have been recovered through The Living Murray initiative, NSW's Riverbank program, projects undertaken by Water for Rivers for the Snowy River, and the Commonwealth entitlement purchase program. The entitlements reported here are those that are formally owned by government for environmental use. There may be further entitlement purchases not reported here where contracts have been exchanged, but the process to list the changed ownership on the NSW Water Access Licence Register is not yet complete.

However, there is additional water made available for environmental purposes through the rules of Water Sharing Plans within NSW. These significant volumes of water are not included in this report, as they do not relate to entitlements and are not accountable under Cap. Whilst work is underway to appropriately reflect these volumes of water for the environment in future reporting, readers need to be aware that this reporting does not yet represent all water committed to environmental purposes within NSW.

### **4.4 Border Rivers**

A Continuous Accounting allocation system has been used in the NSW Border Rivers since 2001/02. The system provides general security licensees with an individual account, which can be credited with water up to 100% of entitlement and allows the continuous carryover of any unused water. Throughout the year and dependent on resource availability, licensees may receive an allocation increment (Available Water Determination), however the maximum that an individual general security licensee can hold in their account at any time is 100%. In any particular season, the volume of water that each licensee can use from their account is also limited to a maximum of 100% plus adjustments for water traded in.

NSW Border Rivers general security licensees commenced the season with an average of 100% of licensed entitlement in individual accounts, and received multiple increases to allocations throughout the year as more water became available. Total cumulative allocation announcements for B class general security licences exceeded 100% however licensees were still limited to the maximum 100% use and account limits. There was a net inter-valley

transfer of 22.1 GL out of the NSW Border Rivers to the Queensland Border Rivers.

Within the regulated river system a total of 198 GL was diverted during 2012/13 in the Border Rivers regulated system, including 39 GL of diversions by supplementary access licences.

Diversions in the unregulated sections of the catchment are not currently monitored in general. However, some users outside of the regulated system in the lower valley are metered. At the time of writing this information was unavailable. For the majority of unregulated users without meters, a volume of 23 GL, representing estimated average use, has been included as an estimate of unregulated diversions in 2012/13. This provided a total diversion of 221 GL from the NSW Border Rivers (Table 2).

NSW is preparing a Cap model report for submission to the MDBA for accreditation. Interim modelling results, subject to approval of the proposed Cap for the Border Rivers, indicate a long-term Cap of 234 GL and an adjusted 2012/13 Cap target of 348 GL. Modelled results also indicate a cumulative credit since 1997-98 of 502 GL.

#### **4.5 Gwydir**

A Continuous Accounting (CA) allocation system is used for general security licences in the regulated section of the Gwydir Valley which provides licensees with an individual account that can hold up to 150% of entitlement and allows continuous carryover of any unused water. At any time they may receive an additional allocation increment (dependent on resource availability) up to a maximum account limit of 150%. In any particular season, the volume of water that each licensee can use from their account is limited to a maximum of 125% of licensed entitlement with no more than 300% over any three years plus adjustments for water traded in.

The Gwydir Valley commenced the season with 150% of licensed entitlement in individual accounts, and received further allocations during the water year however, licences were limited by an account limit of 150% and a usage limit of 125% of licensed entitlement as further resources became available during the water year.

Within the regulated river system a total of 381GL was diverted during 2012/13, including 107GL of diversions by supplementary access licences.

Diversions in the unregulated sections of the catchment are not currently monitored in general. However, some users outside of the regulated system in the lower valley are metered. At the time of writing this information was unavailable. For the majority of unregulated users without meters, a volume of 44 GL, representing estimated average use, has been included as an estimate of unregulated diversions in 2012/13. This provided a total diversion of 425 GL for the Gwydir Valley (Table 2).

The Gwydir IQQM model has been accredited following independent review of the model. The Cap target is estimated for the regulated system each year using the Gwydir Valley IQQM. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. It is not currently possible to assess a 2012/13 Cap target

for the unregulated sections of the valley, and the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year. After adjustments for licences purchased for the environment are made, the overall Cap target for 2012/13 is 407 GL. Under the Murray-Darling Basin agreement, annual Cap performances are cumulated from the 1997/98 water year. For the period from 1997/98 this indicates a cumulative Cap credit of 271 GL (Table 4).

#### **4.6 Namoi/Peel**

A Continuous Accounting (CA) allocation system is used for general security licences in the regulated section of the Lower Namoi Valley, which provides licensees with an individual account that can hold up to 200% allocation and allows continuous carryover of any unused allocation. At any time they may receive an allocation increment (dependent on resource availability) up to a maximum account limit of 200%. In any particular season, the volume of water that each licensee can use from their account is limited to a maximum of 125% of licensed entitlement with a maximum of 300% over any 3 years plus adjustments for water traded in.

All high security licences and general security licences in the regulated section of the Peel valley are managed using annual accounts, which forfeit their account balances at the end of each water year. The maximum allocation is 100% of licensed entitlement, which is 17 GL for High Security and 30 GL for General Security.

In 2012/13 Lower Namoi Valley general security licensees commenced with an average of 179% of licensed entitlement in individual accounts, and received further allocation increases during the water year. Peel valley General Security licensees commenced the season with 78% allocation and ultimately received an allocation of 83% in early January 2013. The Upper Namoi valley licensees commenced the season with 100% allocation.

Within the Namoi Peel regulated river systems a total of 287GL was diverted during 2012/13, with regulated river licences diverting 269 GL in the Lower Namoi Valley, 4 GL in the Upper Namoi Valley, and 13 GL in the Peel Valley. This includes supplementary access licence diversions of 46 GL in the Lower Namoi Valley during periods of high river flows when supplementary events were declared.

Diversions in the unregulated sections of the catchment are not currently monitored however a volume of 113 GL, representing estimated average use, has been included as an estimate of unregulated diversions in the Namoi and Peel Valleys. This provided a total diversion of 400 GL for the greater Namoi Valley (Table 2).

The Cap target is estimated for the regulated system each year using the Namoi Valley IQQM, which has been accredited for Cap purposes by the MDBA appointed independent auditor. This target is the estimated diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels.

An IQQM for the Peel Valley regulated system has also been developed and used to assess preliminary Cap performance. The Peel Valley IQQM has also been accredited following independent review of the model. It is not currently possible to assess a 2012/13 Cap target for the unregulated sections of the valley, and the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year. The combined Cap target for 2012/13 is 417GL. After adjustments for licences purchased for the environment are made, the overall Cap target for 2012/13 is 409GL. Under the Murray-Darling Basin agreement, annual Cap performances are cumulated from the 1997/98 water year. Since 1997/98, the Namoi/ Peel Cap valley has a cumulative Cap credit of 328 GL (Table 4).

#### **4.7 Macquarie/ Castlereagh/ Bogan**

Licensees with general security licences in the regulated section of the Macquarie Cudgegong Valley received an initial allocation of 28% for 2012/13. At the commencement of the water year in the Macquarie River, carryover equated to 99% of general security allocations and carryover for Cudgegong users was equivalent to 242% of entitlement. Further allocation increases totalling 64% of entitlement were received through the water year.

Within the Macquarie Cudgegong regulated river systems a total of 421GL was diverted during 2012/13. This includes diversion by supplementary access licences of 2 GL in the Macquarie Valley.

Diversions in the unregulated sections of the catchment are not currently monitored in general. However, some users outside of the regulated system in the lower valley are metered. At the time of writing this information was unavailable although the volume is not thought to be significant. For the majority of unregulated users without meters, a volume of 35 GL, representing estimated average use, has been included as an estimate of diversions in 2012/13. This provided a total diversion of 456GL in the Macquarie Valley (Table 2).

The Macquarie Valley IQQM model has been accredited following independent review of the model. The Cap target is estimated for the regulated system each year using the Macquarie Valley IQQM. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. It is not currently possible to assess a 2012/13 Cap target for the unregulated sections of the valley, and the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year. After adjustments for licences purchased for the environment are made, the overall Cap target for 2012/13 is 532 GL. Under the Murray-Darling Basin agreement, annual Cap performances are accumulated from the 1997/98 water year. For the period since 1997/98 this indicates a cumulative Cap credit of 977 GL (Table 4).

#### **4.8 Barwon-Upper Darling**

Extractions in the Barwon-Darling were limited to 198 GL at the beginning of the 2012/13 water year in line with the most recent model estimate. The total volume of extractions in the Barwon-Darling in 2012/13 was 189 GL.

The Cap target is estimated each year using the reviewed and updated Barwon-Darling Valley IQQM, which has been presented for accreditation by the independent auditor. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. The Cap target for 2012/13 is 213GL – no trade or environmental adjustments to the target were necessary.

Under the Murray-Darling Basin agreement, annual Cap performances are cumulated from the 1997/98 water year and since this point in time the cumulative Cap credit for the Barwon-Upper Darling is 79 GL. For Cap auditing purposes however, the Barwon-Darling and Lower Darling valleys are treated as one valley. The combined annual Cap performances totalled from the 1997/98 water year show a cumulative Cap credit of 465 GL (Table 4).

The Cap management arrangements for 2012/13 initially reflected those of the previous year with water in accounts that was carried over from previous water years being suspended. However, with the commencement of a Water Sharing Plan for the Barwon-Darling in October 2012, access was granted to previously suspended carry over water. The commencement of the Water Sharing Plan also introduced a rule which limited annual water use to 300% of licensed entitlement.

#### **4.9 Lachlan**

The Lachlan valley general security water users commenced the 2012/13 water year with zero initial allocation. However general security carryover equated to 137% of entitlement in the Lachlan River and 55% in the Belubula River. No allocations were granted for general security licences during 2012/13.

Other high priority licences including those for Domestic and stock purposes, town water supplies and high security entitlements all benefited from the maximum 100% initial allocation.

A total of 328 GL was diverted from the Lachlan/ Belubula regulated river system during the 2012/13 water year. Diversions in the unregulated sections of the catchment are not currently monitored and, a volume of 15 GL, representing estimated average use, has been included as an estimate of unregulated diversions in the Lachlan Valley. This provided a total diversion of 343 GL for the Lachlan Valley (Table 2).

The Cap target for the year is estimated for the regulated system each year using the Lachlan Valley IQQM, which was the first model to be accredited for Cap purposes by the independent auditor. This target is the estimated diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. It is not currently possible to assess a 2012/13 Cap target for the unregulated sections of the valley, and

the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year. After adjustments for licences purchased for the environment are made, the overall Cap target for 2012/13 is 407 GL. Under the Murray-Darling Basin agreement, annual Cap performances are accumulated from the 1997/98 water year, and the Lachlan valley has accumulated a Cap credit of 285 GL (Table 4) over this period.

#### **4.10 Murrumbidgee**

Both Blowering and Burrinjuck Dams in the Murrumbidgee commenced the 2012/13 water year above 90% of capacity. Initial allocations at the start of the year for general security water users were 64%. Increases to allocations throughout the year saw general security water allocations rise 100% in December.

A total of 2,073 GL was diverted from the Murrumbidgee regulated river system during 2012/13 including supplementary access licence diversions of 155 GL. There were total diversions of 174 GL into the Lowbidgee area.

Diversions in the unregulated sections of the catchment are not currently monitored and, a volume of 42 GL, representing estimated average use, has been included as an estimate of unregulated diversions in the Murrumbidgee Valley. This provided a total diversion of 2283 GL for the Murrumbidgee Valley (Table 2). Net trade into the Murrumbidgee valley from other valleys in the southern Basin during 2012/13 was 7 GL.

The Cap target is estimated for the regulated system (including Lowbidgee) each year using the Murrumbidgee Valley IQQM, which has been accredited for Cap purposes by the Authority. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. It is not currently possible to assess a 2012/13 Cap target for the unregulated sections of the valley, and the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year.

After adjustments for inter-valley trade and licences purchased for the environment are made, the overall valley Cap target for 2012/13 is 2460 GL. Under the Murray-Darling Basin agreement, annual Cap performances are cumulated from the 1997/98 water year, and the Murrumbidgee Valley has accumulated a Cap credit of 1,256 GL (Table 4) over this period.

#### **4.11 Lower Darling**

All licence categories in the Lower Darling received an initial 100% allocation at the start of the 2012/13 water year. This included supplies for towns, stock and domestic users, as well as high and general security purposes. Net trade into the Lower Darling during 2012/13 was 47 GL.

A total of 95 GL was diverted from the Lower Darling regulated river system during the 2012/13 water year, with regulated river licences accounting for all of the diversions.

The Cap target is estimated for the regulated system each year using the Murray Simulation Model. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. After adjustments for inter-valley trade and licences purchased for the environment are made, the Cap target for 2012/13 is 128 GL. Under the Murray-Darling Basin agreement, annual Cap performances are cumulated from the 1997/98 water year, and the Lower Darling has accumulated a cumulative Cap credit of 385 GL over this period.

For Cap auditing purposes however, the Barwon-Darling and Lower Darling valleys are treated as one valley. The combined annual Cap performances totalled from the 1997/98 water year show a cumulative Cap credit of 465 GL.

#### **4.12 Murray**

Water availability for general security water users in the Murray commenced the water year with initial water allocations of 56%. All water users received full allocations of 100% on 16 July.

A total of 1,878 GL was diverted in NSW from the Murray regulated river system during the 2012/13 water year including supplementary access licence diversions of 134 GL. Diversions in the unregulated sections of the catchment are not currently monitored and, a volume of 28 GL, representing estimated average use, has been included as an estimate of unregulated diversions in the NSW Murray Valley. This provided a total diversion of 1,905 GL for the NSW Murray Valley (Table 2).

The Cap target is estimated for the regulated system each year using the Murray Monthly Simulation Model that has been accredited following the independent review of the model. This target is the diversion that would have occurred during 2012/13 with management rules and irrigation development at 1993/94 levels. It is not currently possible to assess a 2012/13 Cap target for the unregulated sections of the valley, and the estimated average annual unregulated diversion is also used to represent the unregulated Cap target each year. After adjustments for inter-valley trade and licences purchased for the environment are then made, the overall valley Cap target for 2012/13 is 2,045 GL. Under the Murray-Darling Basin Agreement, annual Cap performances are cumulated from the 1997/98 water year and the Murray has accumulated a cumulative Cap credit of 974 GL (Table 4) over this period.