

Submission to the SA Royal Commission on the Murray Darling Basin Plan: April 2018.

The underlying reason for the decline in the health of the Murray Darling Basin is the competitive and antagonistic State water policies based on jurisdictional boundaries that has been pursued for the last century (boundaries both State and river valley). The States have been and are still hell bent on getting every possible scrape of water out of the river system in their respective economic zones and use it for agricultural purposes rather than see another State/region gain from the use of it.

This attitude remains largely unaddressed under the Basin Plan and is the primary reason for the slow progress of the Plan as some of the States try and subvert the Basin Plan to their individual economic goals based around agricultural pursuits.

There has been an excessive focus on the detrimental socio/ economic effects of the water buy back on irrigated agriculture. There is little recognition of the positive socio/ economic effects a healthy Basin riverine environment will have on the Basin economy and communities, particularly in regard to the tourism industry. An industry that does not have the same production/income limits per mega litre of water that restricts agriculture. This bias towards agriculture is indicative of the attitude of the State based agriculturally focused water bureaucrats. This narrow mindedness will fail to deliver the level of diversification possible and therefore the resilience that is possible in a less water dependant future.

The water savings projects, that have been put forward as an alternative to some of the water buy back, need to be very carefully assessed for actual effect. Unless these projects can be shown, by independent modelling, to increase the level of “end of system flows” in the respective valley that the project relates too or an increased level of wetland watering (wetlands associated with the river system) then it can be assumed that the State proponents are simply rebadging existing arrangements and it is designed to improve allocations levels and security of supply for some irrigation license holders.

The Commonwealth is reliant on fully cooperative and committed States to achieve the aims and objectives of the Basin Plan. Considering the Commonwealth is relying on the same State bureaucratic structures that caused the health decline in the Murray Darling system in the first instance it should be of no surprise that those bureaucratic structures are neither fully committed nor cooperative.

Addressing the health issues of the Murray Darling Basin requires a holistic and cooperative approach by all the stake holders and a healthy Basin has substantial economic value for the Australian economy.

Specifically in relation to areas of particular focus (I) environmental and ecological health of the Murray Darling Basin but with relevance to other T o R s;

Murrumbidgee Valley:

Upstream of Balranald there is a natural choke in the Murrumbidgee River with a river channel capacity of around 9,000 Mega litres of flow per day (called the Choke at Chaston's Cutting). This compares to Wagga's 80,000 MI/day, Hay 40,000 MI/day, Maude 20,000 MI/day Red Bank Weir 12,000 MI/day and downstream Balranald's 12,000 MI/day.

This choke is listed in the Constraints Management Strategy as 9,000 MI/day. The Commonwealth's desired outcome is to get 12,000 MI/day passed the choke to allow adequate flooding in the Junction Wetlands downstream of Balranald and other positive environmental effects further down in the Murray.

The removal of artificial block banks and levees along the Murrumbidgee River upstream and downstream of the choke would result in the river and floodplain operating naturally in this area and would allow the water required by the Commonwealth (the 3,000 MI/day above the chokes capacity) to flow around the choke by going out on the floodplain above the choke and back into the river below the choke.

These artificial levees and block banks are part of Water NSW's Lowbidgee Flood Control and Irrigation District infrastructure. This infrastructure was built in the 1940's to allow Red Bank Weir to inundate the forest floodplain on both sides of the river, from Red Bank to Balranald, without flows running back into the river through the many natural flood runners that connect the river and floodplain in this area. This infrastructure has broken the connectivity between the floodplain and Murrumbidgee River in this area, except in years of Valley wide major flooding events. It should be noted that Red Bank Weir was built (as result of the River Murray Act of 1919) as a compensating work for the loss of flooding in this area due to the construction of Burrinjuck Dam.

In August 2017 the Commonwealth and NSW Governments initiated an environmental flow of approximately 22,000 MI/day at Wagga which was targeting the Mid Murrumbidgee billabongs and lower level wetland areas of the River. The flow then progressed into the lower section of Murrumbidgee River. The size of the flow between Red Bank Weir and Balranald was reported to be 9,000 MI/day and remained at this level for approximately 10 days. The 9,000 MI/day flow caused a small amount of overbanking onto Red Bank South (Yanga National Park), there was little or no overbanking onto the Red Bank North floodplain.

The artificial block banks and levees held the water out. The river water level was between at 60 to 100 cm higher than the surrounding floodplain/wetlands. (Photographic evidence attached) If the block banks in the river levee were removed (and replaced with appropriate water infrastructure) the floodplain and river would operate in a natural manner. Allowing water to exit the river above the choke and flow out onto the flood plain, then flow passed the choke and then back into the river below the choke where the river increases in capacity again.

This would not only have provided a substantial flood event through the Red Bank system, but also would have substantially improved the flooding achieved in the Junction Wetlands.

The residual water of this environmental flow event was then diverted into Lake Victoria, which enabled NSW to use it to supply its' South Australian commitment under the River Murray Act. This enable NSW to use environmental water to improve the NSW general security allocation levels.

It is now apparent that the Commonwealth Water Holder can initiate an environmental flow that would provide substantial flooding in both the Red Bank and Junction wetlands, with the removal of block banks in the river levee in the Red Bank system and replacement with appropriate water infrastructure.

That the flow can be initiated in a year of low allocation levels (approximately 30% plus carry over) and can be done without impact on the constraints further upstream in the Murrumbidgee Valley. And this flow would have positive environmental effects in the Murray.

It follows from this that;

The continued failure of the NSW Minister for Water to direct the removal of these block banks (and replace with appropriate infrastructure) appears to place the Minister in breach of the NSW Water Act 2000 (and possibly other Acts), as it is the duty of the Minister to protect and where possible restore the River and its dependant ecosystems under the Water Act 2000.

The Murrumbidgee River, including the Lower Murrumbidgee Floodplain, is an endangered ecological community under the NSW Fisheries Management Act 1994.

The floodplain ecosystem is a dynamic integrated system which relies on connectivity between the river channel and the floodplain to drive essential ecosystem services and maintain biodiversity (Natural Resources Council 2009).

The installation and operation of in-stream structures and other mechanisms that alter natural flow regimes of rivers and streams has been listed as a key threatening process under the Fisheries Management Act.

The main impetus for the Nimmie-Ciara project was to allow the bypassing of this river choke via flows from Maude Weir. This has subsequently proved physically impossible to do when the Murrumbidgee River at the choke is full.

In the past it was an ambition of some NSW bureaucrats to use Yanga Lake as an on route storage to supply the NSW commitment to SA. The private landholders of that time in the Nimmie-Ciara and Yanga were strongly opposed, fearing they would be denied access to supplementary flows, because the State would capture this water to supply its' SA commitment and by so doing increase the general security allocation levels.

It is plausible that some NSW bureaucrats still have ambitions to use Yanga Lake as an on route storage; to capture environmental flows under the guise of fish refugee or similar, so that it can then be use it to supply the SA commitment to the same end effect. This would clearly be at the expense of the Murrumbidgee River and the Murray Darling system, as environmental flows would be diverted away from the intended purpose. And this would signal the continuation of the policies that lead to the decline in the health of the Murray Darling Basin in the first instance. If this proves true, then in effect, it could be said that the aid convoy sent out by the Howard Government for the

Murray Darling River system is being hijacked by the very entities that caused the need for the aid convoy in the first place.

The “water savings projects” need very close scrutiny to assess the real effect.

At stake is a more diverse and resilient Murray/Darling Basin economy, which is very much needed to face the impending effects of climate change.





Submission to the:

Yanga Draft Plan of Management

Comments as part of the public consultation process, April 2018:

Considering that Yanga NP was purchase to protect a significant area of River Red Gum forest, a wetland species, there seems insufficient emphasis on wetland management in the plan.

Pg 7. (2.3) Specific management directions. The NSW Government acted to acquire Yanga Station with the complementary aims of adding river red gum (Eucalyptus camaldulensis) communities to the reserve system and restoring the ecological health of river red gum ecosystems in decline in the Lowbidgee.

Pg 11. The Lowbidgee Floodplain is significant not only as the Murrumbidgee River's major wetland system but as some of the most important wetland habitat in New South Wales. The Lowbidgee wetlands: are among the three most important wetlands in Australia for wetland birds, based on long-term monitoring of wetland birds in eastern Australia (Kingsford 1999)

Specifically:

There is no hydrological studies provided in this document, (past, present or future) and therefore no means to assess any management objectives for the wetland areas. The generic mention of flooding frequencies for Red Gum of between 1 to 3 years is inadequate and inaccurate. This issue needs to be addressed.

The Red Bank system has a reported natural flooding frequency of at least 94 years in 100years (Cawley 2000 and CEWH. CSIRO and OEH modelling)

Considering the Murrumbidgee River and the Lower Murrumbidgee Flood Plain are an endangered ecological community under the Fisheries Management Act 1994 and that this includes Yanga NP, why are there no management actions to address the artificial block banks and levees along the Murrumbidgee River above and below the Choke in the Murrumbidgee River at Chaston's cutting? The artificial block banks and levees that are under the management and control of Water NSW.

Why is the Lower Murrumbidgee Flood Plain, as an endangered ecological community (which includes parts of Yanga NP), not addressed in the section covering threatened ecological communities on page 22.

Pg 32. The waterways flowing through the parks are part of an endangered ecological community listed under the Fisheries Management Act 1994: the Aquatic Ecological Community in the Natural Drainage System of the Lower Murray River Catchment (Wen, Saintilan & Ling 2011). This community includes the Murrumbidgee River downstream of Burrinjuck Dam and incorporates the Lowbidgee Floodplain. The community is threatened by modification of natural flows, introduced fish species

(see Section 4.1), cold water pollution from dams, degradation of riparian vegetation, agricultural practices and overfishing (DPI 2007).

Pg 11. The floodplain was formed by the restriction of the Murrumbidgee River at Chaston's Cutting (see Map 1), also known as the Chaston's or Murrumbidgee Choke, a natural bottleneck which is located roughly halfway between Redbank and Balranald weirs (Butler et al. 1973). The river channel capacity upstream of the parks at Hay is approximately 35,000 megalitres per day (ML/day). The capacity is reduced to 8500 ML/day at Chaston's Cutting and then increases to about 15,000 ML/day at Balranald Weir. During high river flows this restriction acts like the neck of a funnel, forcing water onto the floodplain via a complex system of interconnected creeks flowing east to west (Kingsford & Thomas 2004).

Pg 32. The installation and operation of in-stream structures and other mechanisms that alter natural flow regimes of rivers and streams has been listed as a key threatening process under the Fisheries Management Act (FSC 2002).

Pg 32. water management structures in floodways, creeks and channels prevent the movement of fish across the Lowbidgee Floodplain (Gilligan 2005, cited in Hardwicke & Maquire 2012).

Pg 73. Water management infrastructure: Water NSW owns several major water management structures in the parks including: Redbank Weir, 1AS (Redbank South) Regulator, 1ES (Waugorah) Regulator, Woolshed Creek Regulator on Tala Creek, Tala Escape Regulator and Talpee Creek Regulator on the north side of Tala Lake (see Map 2). NPWS operates these regulators under licence and works closely with Water NSW to coordinate water delivery to the parks from these entry points.

A series of banks which block return points to the river and retain water in the parks are also owned by Water NSW. These structures are currently maintained by Water NSW but there is no formal management agreement in place.

Considering that the preferred method of environmental flow delivery is via a "piggy back" event why is there no management actions regarding the artificial block banks and levees (under the management and control of Water NSW) above and below the Choke at Chaston's Cutting, as these structures severely reduce the effectiveness of a piggy back event to flood both the Red Bank wetlands/flood plain and the Junction wetlands/flood plain.

Pg 16. Where possible, an environmental water release will be planned as a 'piggyback' event. This is where environmental water is released from Burrinjuck and Blowering dams into the Murrumbidgee River at the same time that rainfall has provided a significant inflow in tributary streams downstream of the major water storages (OEH 2015a). This simulates, to some extent, a natural high flow event or 'fresh' which allows water to fill hundreds of lagoons, creeks and swamps as it makes its way down the river (OEH 2015a), including those which have remained dry for long periods. Although it is difficult to get the timing of a 'piggyback' event right, it can optimise the effect of a limited environmental water allocation and create a more effective watering event.

What is the process used to resolve the conflicting objectives of; the long term interventions that are needed to restore the flood-dependant ecosystems and the proposal for a series of water-saving and efficiency measures? What modelling has been done to evaluate the effects of the efficiency measures on the wetlands and who conducted the modelling? What are the impacts and ramifications of these water savings and efficiency measures on the ecology of the Park?

Pg 20. A series of water-saving and efficiency measures have been proposed for both the Yanga parks and Nimmie–Caira to assist in reducing the SDLs that will apply to the Murrumbidgee Water Resource. Water efficiency measures proposed include installation of new regulators, improvements to existing infrastructure and changes to the timing or volume of environmental water delivery. These measures are part of a basin-wide initiative to recover water for the basin which is being progressed by the Murray–Darling Basin Authority. Plans being developed under the Basin Plan will also influence water availability for the Yanga parks, including the environmental watering plan for the Basin and a long-term watering plan for the Murrumbidgee Water Resource.

*Pg 21. **Issues,** River regulation and diversion has altered the hydrology of the Lowbidgee Floodplain to such an extent that long-term management interventions are needed to restore its flood-dependent ecosystems.*

Pg 24. Regulation of river flows since the 1930s and changes to natural flooding patterns have also resulted in significant changes to the extent, structure and health of these forests. The condition of river red gum in the Riverina Bioregion is described as poor and in decline (NRC 2009) and climate change is expected to worsen this decline under an increasingly drier climate. This situation was a major motivation behind the creation of the Yanga parks.

Pg 5. A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to the Yanga parks. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

What is the reason for Yanga Lake not being included in Yanga NP or the conservation reserves?

Pg iv Map.

Is it the intention, either now or into the future, of the NSW Government to use Yanga Lake or any other Lake on the Lower Murrumbidgee flood plain as an on route storage to supply the NSW commitment to SA and by so doing increase the general security allocation levels in NSW?

Submission to the MDB RC

TOR, special interest d) water recovery to date.

The purchase of the Nimmie Ciara Lowbidgee License, Murrumbidgee by the Commonwealth Government.

Back ground.

The Nimmie Ciara is one of three components of the Lowbidgee Flood Control and Irrigation District, which came into operation in the 1940's under a predecessor of Water NSW. The Lowbidgee FC & ID represents a significant proportion of the Lower Murrumbidgee Flood Plain or "Lowbidgee". The District came into being as a result of the construction of Maude and Red Bank Weirs, which were constructed in the late 1930's under the River Murray Act of 1919, which allowed for the construction of 7 weirs and locks on the Lower Murrumbidgee River between Hay and the junction with the Murray as compensation works (for loss of flooding) because of the construction of Burrinjuck Dam.

The Lowbidgee FC & ID operated under section 7 of the NSW 1912 Water Act and under its own section in the Water Management Act of 2000.

Water diverted into the Lowbidgee District was done so at NSW Water Ministerial discretion. There was no license till 2012. There was a history of use which was recognised in the MDBC Cap on diversions as 300 GL. This figure of 300 GL represents the average annual use of the Lowbidgee District. What amounts were actually received in any given year could be very significantly greater or lesser than the 300 GL figure depending on climatic conditions at the time.

The split up of the 300 GL between the 3 areas in approximate terms is Red Bank North 86 GL, Red Bank South 67 GL and the Nimmie Ciara 147 GL.

The Sale

In the sale of the Nimmie Ciara License it was reported that NSW did the due diligence.

When the Lowbidgee FC & ID was issued with Licenses in 2012 it was done consistent with the issuing of all other water licenses. It was issued at the extraction limit or year of greatest use. In the case of the Nimmie Ciara this was a license of 381 GL or 381,000 ML.

However in the Murrumbidgee Water Sharing Plan of 2004 the entire Lowbidgee FC & ID was limited to a total use of 296 GL or 296,000 ML. What had been an average use prior to this date now became the extraction limit. This remains so under the Murrumbidgee Water Sharing Plan to this day.

If the average becomes the absolute that average can no longer be achieved.

In Commonwealth literature it is quoted that the registered entitlements for Lowbidgee Supplementary held by the Commonwealth is 381,000 ML (*Commonwealth Environmental Water Update to the Murrumbidgee Environmental Water Allowance Reference Group 26-*

27 April 2016 table 1 Attached) and the Long Term Average Annual Yield is 172,974 ML. Represents 54% security of supply.

Whereas Commonwealth held Murrumbidgee Supplementary is quoted as Registered Entitlements of 20,820 ML and Long Term Average Annual Yield of 2,915 ML. Represents 14% security of supply. *(Under the Current Murrumbidgee Water Sharing Plan rules Murrumbidgee Supplementary Licenses are given preferential access above Lowbidgee Supplementary).*

Clearly there is a large discrepancy between the **quoted** long term average annual yield and the **actual** long term average annual yield of Lowbidgee Supplementary Licensed water.

The environmental water holdings in the Murrumbidgee Valley is overstated.

The price received for the Nimmie Ciara Supplementary license on a ML basis was considerably less than the market value of Murrumbidgee Supplementary water at that time. A recent sale (2017) of Lowbidgee Supplementary Licensed water was also considerably less than the market value of Murrumbidgee Supplementary Licensed water.

Also what has happened to the “history of use “developed by the Lowbidgee FC & ID considering it is recognised in the MDB cap on diversions 1993?

It is noted that there is provision for Flood Plain Harvesting Licenses on the Lowbidgee Flood Plain in the Murrumbidgee Water Sharing Plan, although no such Licenses currently exist in the Murrumbidgee Valley.

It is also noted that the Murrumbidgee Supplementary Licenses were originally part of Murrumbidgee General Security Entitlements and in the licensing process (under the Water Management Act of 2000) in 2008 separate titles were created for this supplementary water without any of the conditions/restrictions that were attached to the General Security Entitlements. There are no pump size restrictions with Murrumbidgee Supplementary Licenses, as there are with General Security Licenses. And the rule stating supplementary use becomes assessable as part of the general security allocation when allocation levels reach a certain point no longer applied.

This may put these Murrumbidgee Supplementary Licenses, under the Murrumbidgee Water Sharing Plan rules, at odds with provisions of the Water Management Act 2000; where a lower order license is not to affect or receive treatment more advantageous than a higher order license. Murrumbidgee Supplementary Licenses are given access to flows before the intake capacity of Lake Victoria is fully meet. Lake Victoria is used to capture surplus flows and is then used to supply some of NSW commitment to S.A. This effects potential allocation levels for Murrumbidgee General Security Licenses.

Also under the Act there is supposed to be equal treatment of Licenses of the same category, which puts these licenses at odds with the treatment of Lowbidgee Supplementary Licenses, which cannot gain access to flows until after the intake capacity of Lake Victoria is fully meet.

It is plausible that there has been a transfer of entitlement away from the Lowbidgee Licenses to other Supplementary Licenses or it is intended to do so with the provision of Flood Plain Harvesting Licenses.

Two of the three Lowbidgee Licenses are now environmental Licenses. One which is held by NSW and is attached to Yanga NP, the other by the Commonwealth.

The third is still held by private landholders, the Red Bank North License. Since the creation of the License in 2012 almost all the water diverted under this License has gone onto one landholders cotton crops, whereas before 2012 and back to 1945 all the water went onto the Red Gum Forest of Red Bank North. Some License holders have not received water under this License since its creation, others only a small proportion of what they are entitled to receive. All have had to pay water charges approximately 2.5 times what was paid before 2012. Yet Water NSW has done nothing to correct the supply issues. The area now using most of the water was not included in the "benefited area" that generated the history of use that was the basis for creating the license. And no consultation with any affected parties was taken about its inclusion at any time prior to the creation of the License.

Matthews Report

I draw the Commissions attention to the NSW Governments consultation papers "Better Management of Environmental Water" and "Water Take Measures and Metering". Exerts from these papers are attached. I note under the Basin Plan one of the outcomes sought is "Protecting and restoring water dependant eco-systems and eco-system functions" yet in the consultation paper "Better Management of Environmental Flows" the outcomes sought do not extend to all water dependant eco-systems and eco-system functions, specifically I refer to flood plains and wetlands. Also under the "Water take and measurement and metering" consultation paper it specifically excludes flood plain harvesting from any metering proposals. I would question the commitment of NSW to the Basin Plan and any non-agricultural uses of NSW Basin water.



Australian Government

Commonwealth Environmental Water Office

Commonwealth Environmental Water Update

Murrumbidgee Environmental Water Allowance Reference Group

26-27 April 2016

Murrumbidgee regional update

Water use in 2015-16

The Commonwealth Environmental Water Holder approved the use of up to 190 GL of held environmental water (subject to allocation) in 2015-16 and the use of up to 401.8 GL of Commonwealth supplementary water (subject to announced access) each year through to the end of 2018-19.

Approximately 80 GL of held Commonwealth environmental water and 18.3 GL of supplementary water has been delivered to date. The priority action under this approval, a spring reconnection of the mid-Murrumbidgee wetlands, did not go ahead due to a combination of dam maintenance works and potential third party risks. Commonwealth environmental water was delivered to:

- Nimmie-Caira for critical habitat requirements of native fish and endangered southern bell frog
- Redbank core wetlands, including upper north Redbank through the Juanbung regulator, for water dependant vegetation and aquatic habitat
- Yanco Creek wetland inundation and native fish outcomes, particularly the known population of endangered trout cod
- a small number of individual wetlands and floodplain assets via pumping to support stressed or degraded water dependent vegetation and provide refuge habitat, including: Yarradda Lagoon in the mid-Murrumbidgee; Walclaira Lagoon in the Junction wetlands; and Toogimbie Indigenous Protected Area near Hay
- support waterbird breeding events in Yanga National Park and Nimmie-Caira.

In addition to this use, a total of 24 GL was transferred out of the Murrumbidgee via IVT into the NSW Murray system in November 2015 and February 2016. These transfers were made in order to manage the delivery of water across the southern-connected basin in 2015-16 and to prepare for use in 2016-17.

- An assessment of environmental water requirements and available allocations identified an opportunity to transfer some water while still meeting remaining high priority environmental needs.

Outcomes of environmental water

On ground monitoring under the Long Term Intervention Monitoring project is ongoing. Quarterly progress reports can be found at the [Charles Sturt University web page](#). The [2014-15 Evaluation Report for Long Term Intervention Monitoring in the Murrumbidgee Selected Area](#) has been finalised and published on the CEWO website.

Commonwealth environmental watering actions, in combination with NSW environmental water, are making significant contributions to ecological outcomes across the monitoring zones. Significant monitoring observations so far this water year include:

- the first detection of southern bell frogs (vulnerable under EPBC Act) (including tadpoles) at Yarradda Lagoon in the mid-Murrumbidgee since the 1970s
- very high number of southern bell frogs, and other frog species, observed in the Nimmie-Caira
- waterbird breeding event (including eastern great egrets (migratory under the EPBC Act)) supported by environment water in Yanga National Park
- spawning of eight species of native fish in the Murrumbidgee River including golden perch, silver perch (critically endangered under EPBC Act) and Murray Cod (vulnerable under EPBC Act), and capture of young of year Murray cod and golden perch.



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<http://www.environment.gov.au/aggregation/commonwealth-environmental-water-office>

Table 1: Commonwealth environmental water holdings in the Murrumbidgee catchment at 29 February 2016

Security	Registered entitlements (ML)	Long Term Average Annual Yield (ML)	Carryover from 2014-15 (ML)	New allocations in 2015-16 (ML) [#]	Available water transferred for delivery or delivered directly in 2015-16 (ML)	Estimated current C'wealth water account balance (ML)
High	7,849	7,456	54,626	103,998	134,731	23,893
General	238,922	152,910				
Conveyance	24,577	23,348				
Supplementary	20,820	2,915				
Supplementary (Lowbidgee)	381,000	172,974				
Unregulated	164	110	54,626	122,998	134,731	23,893
Groundwater	2,533	2,533				
Total	675,865	362,246	54,626	122,998	134,731	23,893

* Note: A further 24,000 ML has been transferred out to the NSW Murray catchment.

Monitoring and reporting

The Long Term Intervention Monitoring project will measure ecological responses to Commonwealth environmental watering actions at seven selected areas that are representative of Commonwealth environmental watering across the Murray-Darling Basin (including the Murrumbidgee Catchment).

A consortium led by Charles Sturt University (CSU) is undertaking monitoring activities in the Murrumbidgee with 12 wetland and three riverine zones monitored for nutrients, water quality, microinvertebrates, fish, frogs, waterbirds and vegetation.

Further information about the monitoring project can be found on the [Office's website](#).

Portfolio management

The Commonwealth Environmental Water Office has published its 2015-16 planning documents for the Murrumbidgee and other catchments. Integrated planning for the use, carryover and trade of Commonwealth environmental water: Murrumbidgee River Valley 2015-16 is available at <http://www.environment.gov.au/water/cewo/publications/integrated-planning-cew-murrumbidgee-2015-16>.

The Commonwealth Environmental Water Office is currently undertaking planning for water use options in the 2016-17 water year, including an assessment of any requirements to trade (dispose or acquire) water allocations during the April to June 2016 quarter so as to rebalance holdings in preparation of environmental use in the 2016-17 water year. Although the Commonwealth Environmental Water Holder currently has no plans to trade water allocations or permanent water entitlements, this intention may change in response to requirements identified as part of the 2016-17 planning process.

The \$9.7 million in proceeds from allocation sales to date have been set aside for allocation purchases that will improve environmental outcomes in the Murray-Darling Basin. Information about the outcomes of the trade is available at:

<http://www.environment.gov.au/water/cewo/trade/trading-outcomes>.

Due to prolonged dry conditions, there are a number of northern catchments where there is low water availability and high environmental demands (e.g. Macquarie Marshes and Narran Lakes) and supplementing supplies could assist in meeting these demands. However, there is currently limited market opportunity for allocation purchase and acquisition is unlikely to occur until water availability improves.

NSW WATER REFORM ACTION PLAN

Better management of environmental water

Consultation paper

Background

The Matthews Report and MDB Compliance Review highlighted some of the problems and complexities of managing environmental water. Both reports stated that there was a need for greater protection of environmental water, particularly in the unregulated river systems in the Northern Basin.

Matthews' identification of the unregulated Northern Basin system as an area requiring urgent attention was supported by community concern regarding the long-term deterioration of riverine water quality and associated ecosystems, especially during dry periods when all water consumers (the environment, community, industry, and business) have important needs.

The NSW Government has established an Interagency Working Group (IWG) to help identify solutions for improving the management of environmental water (see key actions and indicative timeline in Figure 1). The initial focus of this group is to present a package of interim measures, focused on unregulated rivers in the Northern Basin that could be implemented in the period before Water Resource Plans (WRPs) come into effect in July 2019. Consultation on this paper will inform the development of those interim options.

The Interagency Working Group

Formed in February 2018 to advise the NSW Government on ways to better manage environmental water, the IWG includes representatives from:

- NSW Department of Industry—Water Renewal Taskforce (Chair)
 - Commonwealth Environmental Water Office
 - Murray–Darling Basin Authority
 - NSW Department of Industry—Water
 - NSW Office of Environment and Heritage
 - NSW Department of Primary Industries—Fisheries
 - NSW Department of Primary Industries—Agriculture
 - NSW Natural Resources Commission
 - WaterNSW.
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This group is providing advice on an immediate response, interim solutions, legislative amendments and enduring measures as per the indicative timeline shown in Figure 1.

The IWG developed the following set of principles, which are being used to guide the assessment of the interim solutions package. :

- a) **Adverse impacts are mitigated**—impacts are identified and appropriate mitigation measures are put in place.
- b) **Unintended gains are avoided**—measures, where possible, should not contribute to an increase in water access reliability for downstream water users.
- c) **Evidence-based and outcomes focused**—measures that look to protect environmental water use best available information and deliver environmental outcomes with considerations of social and economic outcomes, where practical.
- d) **Feasible**—identify measures that are technically and operationally able to be implemented.
- e) **Value for money**—measures must present value for money and not be cost prohibitive.



Why is environmental water management challenging?

Environmental water management has evolved significantly over the past two decades through the establishment of water-sharing plans and investment in water for the environment. There has been significant investment in programs in NSW—for example, the NSW River Bank, the Rivers Environmental Restoration Program and NSW Wetland Recovery Program. In addition, in 2008, the Commonwealth Environmental Water Holder was formed to purchase and manage water for the environment in the Murray–Darling Basin (**Attachment A** shows the increase in this held environmental water from commencement of the water sharing plans to present day in the Northern Basin). More recently, the Basin Plan requires development of WRPs and Long Term Environmental Watering Plans (LTEWPs) to meet the requirements of the Murray–Darling Basin Plan.

The NSW water-sharing plan framework was not designed with Basin-scale outcomes in mind, nor the large volumes of held environmental water that governments now hold. Traditionally, each water sharing plan area (WSPA) was managed separately, with the assumption that once water (including held or planned environmental water released from an upstream storage) moved from an upstream WSPA to a downstream WSPA, it again contributed to the pool of available water in that downstream water source. This means that if held environmental water is released from an upstream regulated river storage into a downstream unregulated river, it contributes to keeping the flow above the commence-to-pump level, rather than being left instream for its intended purpose.

The Northern Basin presents particular challenges as the major regulated rivers in the northern portion of the NSW Murray–Darling Basin are connected to the southern Murray–Darling Basin by the unregulated Barwon–Darling River.

Consultation question

- The measures in this paper are focused on the unregulated systems of the Northern Basin – do you agree that this should be the main focus for the interim solutions package?

No should apply to all of NSW

What outcomes are we seeking?

Improving the management of flows and extraction (the taking of water) within and between river systems will help to protect and improve aquatic ecosystems, while enhancing equitable cultural, social and economic outcomes from water. The frequency, timing and duration of flows are ecologically important for different reasons, but each is critical to achieving the objectives from improved management of environmental water, including:

- **breaking extended cease-to-flow periods**—cease-to-flow durations of 50 days at Bourke and 100 days at Wilcannia have been identified as critical ecological thresholds.
- **whole-of-river flow connectivity**—low flow connectivity is important for fish and invertebrate populations, and maintaining water quality.
- **flushing flows**—flow pulses up to approximately 2,000 megalitres per day (ML/d) are important for the spawning and migration of fish, nutrient cycling following the inundation of in-channel benches and in the movement of salt out of the system.
- **protection of held environmental water**—ensuring held environmental water is recognised and managed effectively to achieve identified ecological outcomes between river systems and within unregulated rivers, such as the Barwon–Darling.

Consultation question

- Do you agree with this mix of environmental outcomes? Are there others we should be considering?

Floodplain + river channel connectivity??



Australian Government

Commonwealth Environmental Water Office

Commonwealth Environmental Water Update

Murrumbidgee Environmental Water Allowance Reference Group

26-27 April 2016

Murrumbidgee regional update

Water use in 2015-16

The Commonwealth Environmental Water Holder approved the use of up to 190 GL of held environmental water (subject to allocation) in 2015-16 and the use of up to 401.8 GL of Commonwealth supplementary water (subject to announced access) each year through to the end of 2018-19.

Approximately 80 GL of held Commonwealth environmental water and 18.3 GL of supplementary water has been delivered to date. The priority action under this approval, a spring reconnection of the mid-Murrumbidgee wetlands, did not go ahead due to a combination of dam maintenance works and potential third party risks. Commonwealth environmental water was delivered to:

- Nimmie-Caira for critical habitat requirements of native fish and endangered southern bell frog
- Redbank core wetlands, including upper north Redbank through the Juanbung regulator, for water dependant vegetation and aquatic habitat
- Yanco Creek wetland inundation and native fish outcomes, particularly the known population of endangered trout cod
- a small number of individual wetlands and floodplain assets via pumping to support stressed or degraded water dependent vegetation and provide refuge habitat, including: Yarradda Lagoon in the mid-Murrumbidgee; Waldaira Lagoon in the Junction wetlands; and Toogimbie Indigenous Protected Area near Hay
- support waterbird breeding events in Yanga National Park and Nimmie-Caira.

In addition to this use, a total of 24 GL was transferred out of the Murrumbidgee via IVT into the NSW Murray system in November 2015 and February 2016. These transfers were made in order to manage the delivery of water across the southern-connected basin in 2015-16 and to prepare for use in 2016-17.

- An assessment of environmental water requirements and available allocations identified an opportunity to transfer some water while still meeting remaining high priority environmental needs.

Outcomes of environmental water

On ground monitoring under the Long Term Intervention Monitoring project is ongoing. Quarterly progress reports can be found at the [Charles Sturt University web page](#). The [2014-15 Evaluation Report for Long Term Intervention Monitoring in the Murrumbidgee Selected Area](#) has been finalised and published on the CEWO website.

Commonwealth environmental watering actions, in combination with NSW environmental water, are making significant contributions to ecological outcomes across the monitoring zones. Significant monitoring observations so far this water year include:

- the first detection of southern bell frogs (vulnerable under EPBC Act) (including tadpoles) at Yarradda Lagoon in the mid-Murrumbidgee since the 1970s
- very high number of southern bell frogs, and other frog species, observed in the Nimmie-Caira
- waterbird breeding event (including eastern great egrets (migratory under the EPBC Act)) supported by environment water in Yanga National Park
- spawning of eight species of native fish in the Murrumbidgee River including golden perch, silver perch (critically endangered under EPBC Act) and Murray Cod (vulnerable under EPBC Act), and capture of young of year Murray cod and golden perch.



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<http://www.environment.gov.au/aggregation/commonwealth-environmental-water-office>

Table 1: Commonwealth environmental water holdings in the Murrumbidgee catchment at 29 February 2016

Security	Registered entitlements (ML)	Long Term Average Annual Yield (ML)	Carryover from 2014-15 (ML)	New allocations in 2015-16 (ML) [#]	Available water transferred for delivery or delivered directly in 2015-16 (ML)	Estimated current C'wealth water account balance (ML)
High	7,849	7,456	54,626	103,998	134,731	23,893
General	238,922	152,910				
Conveyance	24,577	23,348				
Supplementary	20,820	2,915				
Supplementary (Lowbidgee)	381,000	172,974				
Unregulated	164	110				
Groundwater	2,533	2,533				
Total	675,865	362,246	54,626	122,998	134,731	23,893

* Note: A further 24,000 ML has been transferred out to the NSW Murray catchment.

Monitoring and reporting

The Long Term Intervention Monitoring project will measure ecological responses to Commonwealth environmental watering actions at seven selected areas that are representative of Commonwealth environmental watering across the Murray-Darling Basin (including the Murrumbidgee Catchment).

A consortium led by Charles Sturt University (CSU) is undertaking monitoring activities in the Murrumbidgee with 12 wetland and three riverine zones monitored for nutrients, water quality, microinvertebrates, fish, frogs, waterbirds and vegetation.

Further information about the monitoring project can be found on the [Office's website](#).

Portfolio management

The Commonwealth Environmental Water Office has published its 2015-16 planning documents for the Murrumbidgee and other catchments. Integrated planning for the use, carryover and trade of Commonwealth environmental water: Murrumbidgee River Valley 2015-16 is available at <http://www.environment.gov.au/water/cewo/publications/integrated-planning-cew-murrumbidgee-2015-16>.

The Commonwealth Environmental Water Office is currently undertaking planning for water use options in the 2016-17 water year, including an assessment of any requirements to trade (dispose or acquire) water allocations during the April to June 2016 quarter so as to rebalance holdings in preparation of environmental use in the 2016-17 water year. Although the Commonwealth Environmental Water Holder currently has no plans to trade water allocations or permanent water entitlements, this intention may change in response to requirements identified as part of the 2016-17 planning process.

The \$9.7 million in proceeds from allocation sales to date have been set aside for allocation purchases that will improve environmental outcomes in the Murray-Darling Basin. Information about the outcomes of the trade is available at:

<http://www.environment.gov.au/water/cewo/trade/trading-outcomes>.

Due to prolonged dry conditions, there are a number of northern catchments where there is low water availability and high environmental demands (e.g. Macquarie Marshes and Narran Lakes) and supplementing supplies could assist in meeting these demands. However, there is currently limited market opportunity for allocation purchase and acquisition is unlikely to occur until water availability improves.

NSW WATER REFORM ACTION PLAN

Water take measurement and metering

Consultation paper

Consultation questions:

- Are the proposed metering requirements practical and effective?
- Should existing non-pattern approved meters be replaced with pattern approved meters?
- Are there any barriers to entry into the pattern approved meter market?
- Is telemetry practical in all situations? If not, please provide details of any constraints.
- Are there any other complementary measures that if implemented would encourage compliance with the metering requirements?

Self-reporting

Log books will be phased out

In NSW, if a licence holder does not currently have a meter or their meter is not connected to a data logger, any water taken from a water source must be estimated and recorded through a log book. There is limited scope for logbooks to be audited and the Matthews Report recommended that all scope for self-reporting be removed.

The NSW Government supports this position in principle and proposes to phase out log books. However, self-reporting may need to continue in limited circumstances. Any self-reporting will need to:

- be recorded at the same time (or within a reasonable timeframe) as the water take
- specify the purpose the water is taken for.

One option may be to require self-reporting through a digital online portal.

Consultation questions

- What is a reasonable time frame for self-reporting?
- Are there any additional criteria that should be applied to self-reporting?

When will self-reporting be permitted?

It is proposed that self-reporting is only permitted in certain circumstances:

1. Where the water user is not required to have a meter

Water users who are not required to have a meter will be able to self-report. This will include water users that fall below the metering thresholds or water users not captured by this paper. This would include water taken under:

- basic landholder rights
- ✱ • floodplain harvesting.

2. When a water meter is not working

Currently, Section 91I of the *Water Management Act 2000* allows for a licence holder to take water when the meter is not operating properly, if they are authorised in writing to take water. There are concerns that this authorisation can take a significant amount of time to process and cannot be issued outside usual business hours.

To address this, it is proposed that water users can take water for a defined period, subject to the following conditions:

- The licence holder notifies the authority within 24 hours of becoming aware the meter is faulty and provides details of why the meter may be faulty
- The water user complies with any written direction requiring alternative water measurement methods to be used