



Office of
Environment
& Heritage

Murrumbidgee Water Resource Plan Area

**Statement of annual environmental watering
priorities 2015–16**

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Contents

1. Purpose of this statement.....	1
2. Murrumbidgee Water Resource Plan Area description.....	1
3. Consultation	1
4. Antecedent conditions: previous watering and condition of assets	1
5. Forecast available water	4
6. Resource availability scenario and management outcomes	5
7. Annual environmental watering priorities.....	5
8. Cooperative arrangements for water delivery	7
9. Further documentation	7
References	8
Appendix A	9

1. Purpose of this statement

This statement meets the New South Wales Government's obligations to outline the annual environmental watering priorities for the Murrumbidgee Water Resource Plan Area (WRP Area) as set out in Part 4, Division 4 of Chapter 8: Environmental watering plan of the Murray–Darling *Basin Plan* (MDBA 2012a).

The guidelines for the method to determine priorities for applying environmental water (MDBA 2012b) have been used to identify the environmental watering priorities for 2015–16 for the Murrumbidgee WRP Area.

The priorities reported here are derived from the *Murrumbidgee Valley Annual Environmental Watering Plan 2015–16*.

2. Murrumbidgee Water Resource Plan Area description

The Murrumbidgee WRP Area covers approximately 84 000 square kilometres, bounded by the Great Dividing Range to the east, the Lachlan WRP Area to the north and the Murray and Lower Darling WRP Area to the south, and extending to the South West Slopes and Riverine Plains in the west.

The areas of interest for environmental watering are located downstream of Burrinjuck and Blowering dams. Major environmental water targets within the Murrumbidgee WRP Area include the Lowbidgee Wetlands, the mid-Murrumbidgee Wetlands, the Junction Wetlands, Western Lakes and the Murrumbidgee River channel (Map 1).

Other wetland targets include the Ramsar-listed Fivebough and Tuckerbil wetlands, located in the Murrumbidgee Irrigation Area (MIA).

3. Consultation

In NSW, environmental water advisory groups are the primary vehicle for stakeholder consultation on environmental water planning for a particular WRP area. The Murrumbidgee Environmental Water Allowance Reference Group (EWARG) provides advice on the development of the Murrumbidgee Annual Environmental Watering Plan.

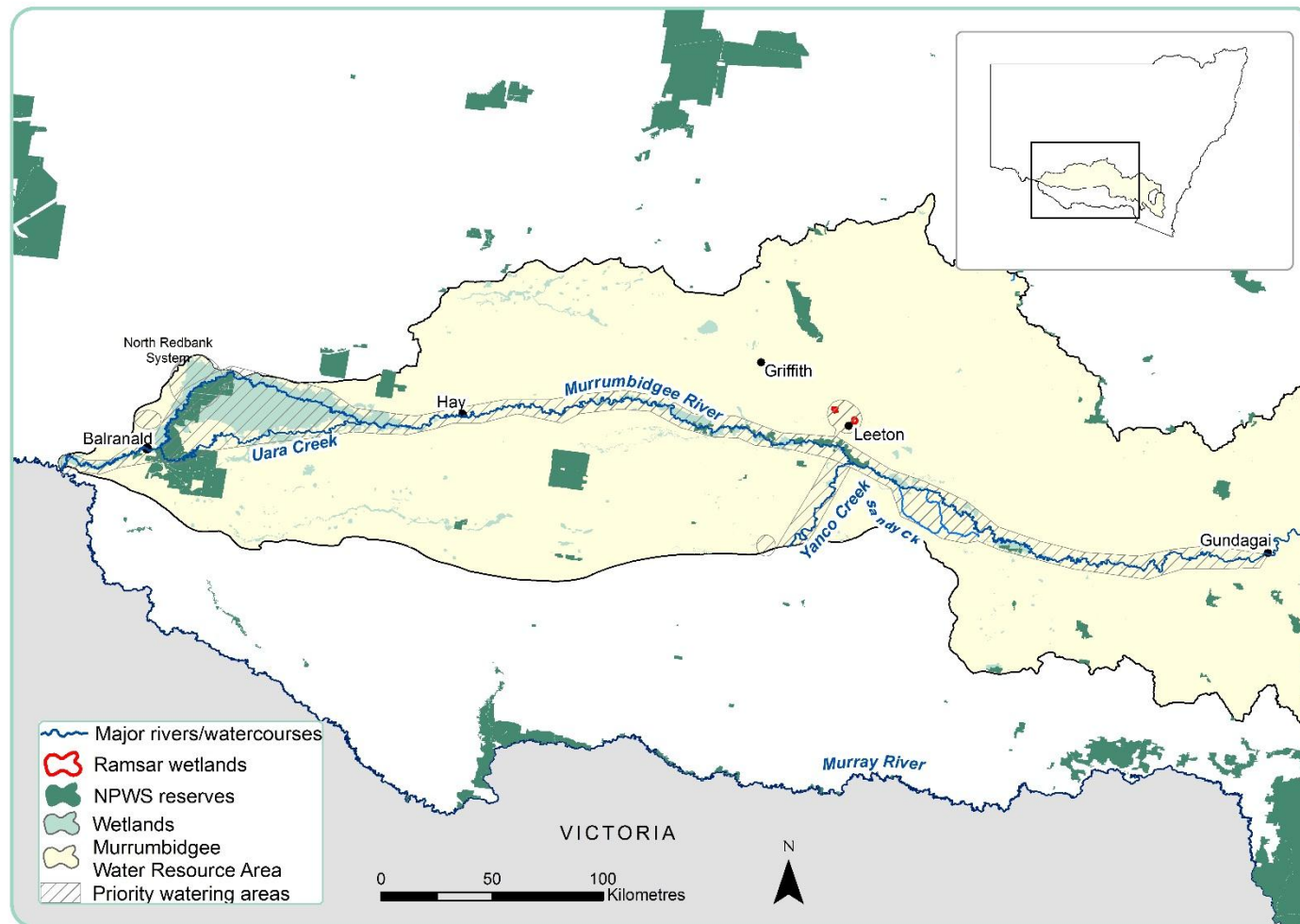
The Murrumbidgee EWARG has reviewed and endorsed the annual environmental watering priorities for the Murrumbidgee WRP Area. The Office of Environment and Heritage (OEH) website has details of the [objectives and membership of the Murrumbidgee EWARG](#).

Preparation of the statement also involved consultation with the Commonwealth Environmental Water Office (CEWO).

4. Antecedent conditions: previous watering and condition of assets

A combination of median starting allocations, available environmental water allowances (EWA) and expected neutral climate conditions meant that 2014–15 was best described as a moderate year.

Under these moderate conditions, OEH worked with CEWO to deliver environmental water to Nimmie-Caira, the North Redbank and Yanga National Park wetlands, all located on the Lower Murrumbidgee Floodplain. Smaller watering events focused on wetlands located in the mid-Murrumbidgee, including both Ramsar wetlands.



Map 1: Annual environmental watering priority areas, Murrumbidgee WRP Area – 2015–16

Environmental watering actions during 2014–15 resulted in good responses from wetland vegetation, waterbirds and frogs. Table 1 summarises major environmental water use and asset condition in 2014–15.

Table 1: Murrumbidgee environmental water releases – 2014–15

Asset	Total volume ¹	Outcomes	Current condition
Uara Creek to South Yanga	21 757 ML	Improve native vegetation condition throughout Uara Creek and 'Fingerboards'. Improve the habitat for diving waterbirds and native fish within Yanga Lake.	Moderate to improving with appropriate wetting-drying cycle (OEH pers. obs. 2014).
North Redbank (whole of system)	90 000 ML	Frog habitat, woodland and aquatic vegetation maintained. Provided return flows to Murrumbidgee River.	Good: improving with appropriate wetting-drying cycle.
Nimmie–Caira Wetlands	45 317 ML	Water provided to a number of wetlands including Nap Nap, Waugorah and Eulimbah swamps to support wetland vegetation and provide southern bell frog habitat.	Moderate to improving as a result of frequent inundation since 2010.
Yanga National Park	99 862 ML	Flows provided to benefit river red gums, wetland-dependent vegetation, waterbirds and southern bell frogs.	Moderate: improving with appropriate wetting-drying cycle.
North Caira to South Yanga	13 778 ML	Flows delivered to provide return flows via Tala Lake and deliver water to South Yanga assets.	Poor to moderate: improving following flood events and environmental watering.
Murrumbidgee Irrigation Area wetlands (includes Ramsar sites – Fivebough and Tuckerbil swamps)	4 470 ML	Supported migratory wading birds and broilgas at Ramsar sites. Improve wetland vegetation, provide waterbird, native fish and turtle habitat.	Moderate
Yarradda Lagoon	1150 ML	Improve aquatic vegetation cover and provide waterbird habitat.	Moderate
Molleys Lagoon	245 ML	Protection of drought refuge for native fish, turtles and frogs.	Poor to moderate
Old Man Creek	840 ML	Risk mitigation to protect native fish from low flows and declining water quality.	Poor to Moderate
Sandy Creek	380 ML	Maintain and improve vegetation condition. Support significant waterbird and frog habitat.	Poor to Moderate

¹ These figures are interim until indicated otherwise.

5. Forecast available water

The 2015–16 water year will see a low volume of environmental water available for use early in the season (Table 2). The Bureau of Meteorology (BOM) has confirmed an El Niño that continues to strengthen in the tropical Pacific Ocean. Further warming of the tropical Pacific is therefore likely in the coming months during the southern winter. The climate outlook can be viewed at the [BOM website](#).

NSW Office of Water (NOW) has predicted starting allocations for high security will be 95 per cent and 8 per cent for general security in the Murrumbidgee WRP Area. Conveyance allocation will be commensurate to announced allocations, in accordance with the water sharing plan. Carryover for general security accounts is estimated to be 19 per cent.

Overall the surface water availability for 2015–16 can be summarised as low to median.

Table 2: Anticipated environmental water availability – Murrumbidgee WRP Area

Account	Registered entitlement	Volume expected to be available at 1 July 2015 ¹
Environmental water allowance (EWA)		
EWA1	50 000 ML ²	50 000 ML ³
EWA2	Related to inflows	17 000 ML
EWA3	Related to inflows	-
NSW environmental water holdings		
General security	28 508 ML ²	10 833 ML
Supplementary	5679 ML	Availability is event-based
NPWS general security	2916 ML	Generally not available
NPWS (South Redbank/Yanga) Lowbidgee supplementary access licence	155 000 ML	Availability is event-based
Commonwealth environmental water		
High security	4246 ML	4033 ML
General security	200 145 ML ²	44 031 ML
Supplementary	20 820 ML	Available 1 July 2015
Lowbidgee supplementary	381 000 ML	Availability is event-based
Conveyance	7656 ML	-

¹ 8% available water determination (AWD) forecast by NOW.

² EWA1 and general security volumes are linked to announced allocation levels. The first general security allocation for the 2015–16 year has been predicted to be 8%, but this is an estimate only and the actual starting allocation level will be confirmed on 1 July 2015.

³ Includes carryover of holdings from 2014–15.

The figures given in Table 2 have not been adjusted for possible future trade. OEH periodically trades water allocations to cover a proportion of water use charges associated with NSW environmental water holdings (EWH). The volume of environmental water traded in a WRP area is determined by the price in the local market and the targeted level of cost recovery. OEH manages the trade of NSW EWH based on basin-wide environmental water demand and trading opportunities, with consideration of equity between WRP areas over time.

6. Resource availability scenario and management outcomes

The resource availability scenario (RAS) is based on surface water availability and antecedent conditions (Appendix A: Table A1). The surface water availability is forecast as low to median and the antecedent conditions were median, so the RAS for 2015–16 is moderate. However, with possible drying conditions, a dry RAS may also need to be considered.

Following consideration of the condition of assets, water availability and climate forecasts, the Murrumbidgee EWARG has recommended that, under a moderate RAS, the management outcomes for this environmental watering year are to maintain ecological health and resilience (Appendix A: Table A2) by:

- enabling growth, reproduction and small-scale recruitment for a diverse range of flora and fauna
- promoting low-lying floodplain–river connectivity
- supporting medium-flow river and floodplain functions.

7. Annual environmental watering priorities

Under moderate conditions, the primary management outcome for the Murrumbidgee WRP Area is the maintenance of ecological health and resilience. To achieve this, NSW has identified five priority environmental watering actions for the 2015–16 water year (Table 3). The list in the table is not exhaustive and other sites may be targeted during the water year as the need arises.

Table 3: Murrumbidgee watering site priorities – 2015–16

Location	Sites (size)	Volume estimated	Justification	Timing and comments
Mid-Murrumbidgee wetlands	Gundagai to Junction Wetlands (variable)	Up to 200 000 ML	DIWA ¹ sites: in recovery phase following average 10-year dry spell.	Event timed and linked to rainfall event. Likely between July to November 2015.
Yanco Creek wetlands	Narrandera (Yanco Creek) (1000 ha)	Up to 25 000 ML	In good condition: requires rewetting to maintain wetland vegetation.	Timing: July to November 2015, linked to mid-Murrumbidgee event.

Junction Wetlands	End of system (variable)	Dependent on piggyback flow	Declining as a result of dry conditions during 2014-15.	Timing: July to November 2015, linked to mid-Murrumbidgee event.
Mid-Murrumbidgee wetlands – Infrastructure assisted deliveries	Variable	Up to 10 000 ML	DIWA ¹ sites: in recovery phase following average 10-year dry spell.	Timing of water delivery will be dependent on wetland needs.
Western Lakes	600 ha	Up to 8000 ML	Rehabilitation site. Recovery since 100 years without water, 3rd full watering.	Water delivery in spring to support revegetation.
Nimmie-Caira	Variable	Up to 30 000 ML	Support vegetation recovery and provide habitat for waterbirds and southern bell frogs.	Water to be delivered in late spring. Some watering will be reliant on the availability of supplementary events.

¹ DIWA: Directory of Important Wetlands Australia

The current conditions — low dam levels, drying catchment and forecast low to moderate allocations — mean that, while a reasonable volume of environmental water is available, some caution is needed to ensure that sufficient volume will be left for the following watering year if needed to maintain critical habitats.

If 2015–16 becomes very dry, environmental water managers will consider carrying over substantial volumes of environmental water allowances and NSW environmental water holdings into the 2016–17 water year. This decision will be made later in the water year and does not preclude watering in 2015–16. Ongoing discussion with the EWARG will be necessary under dry conditions to advise on water use objectives and the balance between use and carryover.

In 2015–16, OEH will work with CEWO to deliver water to low lying mid-Murrumbidgee wetlands by ‘piggybacking’ environmental water on naturally-occurring freshes from July to November 2015. It is also intended to use ‘piggybacking’ flows to deliver environmental water to Yanco Creek and associated wetlands and possibly the Junction Wetlands, if suitable high flow conditions simultaneously occur in the Murray River at Barmah.

A successful piggybacking event involves the release of environmental water from upper storages in conjunction with a rainfall-derived tributary flow. This is to simulate, to some extent, a natural high flow event or fresh which inundates hundreds of lagoons, creeks and swamps as it makes its way down the river. In an average year, many high-flow events are captured in the dams, reducing the frequency of wetlands filling significantly. Piggybacking can increase the height and/or duration of unregulated tributary flows, facilitating the inundation of low-lying floodplain wetlands. The peak irrigation season (November–April) would be avoided as a result of channel and resource constraints.

If natural high river events or floods fill the Murrumbidgee River wetlands, water set aside for piggybacking may be redirected to maximise return flows to the river, and provide appropriate flows to support native fish or other actions where an ecological need arises, such as a bird breeding event, drought refuge requirements or continued wetland vegetation recovery. It may also be necessary to deliver environmental water via existing infrastructure to other mid-Murrumbidgee wetlands that cannot be inundated by the 'piggyback' flow.

The Western Lakes and Nimmie-Caira will be a focus for environmental water in the Lowbidgee. The rehabilitation of the Western Lakes continues following 100 years of disconnection from the river. Revegetation efforts and fencing is facilitating the recovery of these wetlands. Environmental water will also be used to maintain and improve vegetation health, waterbird habitat and southern bell frog populations in the Nimmie-Caira.

The ability to deliver environmental water is limited by system constraints, including channel capacity, the use of irrigation infrastructure and potential third-party impacts, such as the restriction of access to land and/or stock by landholders. Flows will be adaptively managed to integrate with other demands in the system to avoid inconvenience for landholders where possible. Where inconvenience is a risk, consultation with potentially affected landholders will occur and agreements sought on acceptable event management.

8. Cooperative arrangements for water delivery

OEH is the leading environmental manager for NSW and coordinates environmental watering with advice from the relevant environmental water advisory group in each WRP area. OEH has negotiated cooperative arrangements with the Commonwealth Environmental Water Office and WaterNSW to maximise the benefits of environmental water use in NSW.

OEH has also developed strong partnerships with Local Land Services, irrigator groups and landholders to ensure the efficient and effective delivery of environmental water. In some circumstances, this may include the use of private infrastructure to water wetland targets and cooperative changes to land management to ensure desired ecological responses to watering are achieved.

In the Murrumbidgee WRP Area, OEH also receives water delivery assistance from private irrigation companies, such as Murrumbidgee Irrigation, Sandy Creek Water Users Association, Coleambally Irrigation and the Lowbidgee Landholders.

9. Further documentation

Reporting on water used throughout the 2015–16 watering season will be included in OEH's *Environmental Water Use in NSW: Outcomes 2015–16* and also in the Commonwealth's *Annual Report 2015–16: Commonwealth environmental water*, available in late 2016.

A number of [environmental water monitoring reports](#) funded by the Commonwealth are also available.

References

MDBA 2012a, *Basin Plan*, Murray–Darling Basin Authority, Canberra,
www.mdba.gov.au/what-we-do/basin-plan

MDBA 2012b, *Guidelines for the method to determine priorities for applying environmental water*: Murray–Darling Basin Authority, Canberra,
www.mdba.gov.au/sites/default/files/Basin-Plan/Statutory-Guideline-Nov-2012.pdf

Appendix A

Table A1: Determining the resource availability scenario

Surface water availability	Antecedent conditions				
	Very dry	Dry	Median	Wet	Very wet
Very low	Very dry	Very dry	Dry	Dry	n/a
Low	Very dry	Dry	Dry	Moderate	Wet
Median	Dry	Dry	Moderate	Wet	Wet
High	Dry	Moderate	Wet	Wet	Very wet
Very high	n/a	Moderate	Wet	Very wet	Very wet

Source: Modification of table in 'Guidelines for the method to determine priorities for applying environmental water' in the Murray–Darling *Basin Plan* (MDBA 2012b), using ranges for water availability and antecedent conditions rather than the percentile ranges (15 points in each band) used in the plan.

Table A2: Management outcomes for each resource availability scenario

	Resource availability scenario				
	Very dry	Dry	Moderate	Wet	Very wet
Management outcomes	Avoid irretrievable loss of, or damage to, environmental assets	Ensure environmental assets maintain their basic functions and resilience	Maintain ecological health and resilience	Improve the health and resilience of water-dependent ecosystems	Improve the health and resilience of water-dependent ecosystems
	Avoid critical loss of species, communities and ecosystems. Maintain critical refuges. Avoid irretrievable damage or catastrophic events. Allow drying to occur, where appropriate, but relieve severe unnaturally prolonged dry periods.	Support the survival and viability of threatened species and communities. Maintain environmental assets and ecosystem functions, including allowing drying to occur, consistent with natural wetting-drying cycles. Maintain refuges.	Enable growth, reproduction and small-scale recruitment for a diverse range of flora and fauna. Promote low-lying floodplain–river connectivity. Support medium-flow river and floodplain functions.	Enable growth, reproduction and large-scale recruitment for a diverse range of flora and fauna. Support high-flow river and floodplain functions. Promote higher floodplain–river connectivity.	Enable growth, reproduction and large-scale recruitment for a diverse range of flora and fauna. Support high-flow river and floodplain functions. Promote higher floodplain–river connectivity.

Source: Modification of table in 'Guidelines for the method to determine priorities for applying environmental water' in the Murray–Darling *Basin Plan* (MDBA 2012b)