



Office of
Environment
& Heritage

Lachlan Water Resource Plan Area

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

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1. Purpose of this statement

This statement meets the New South Wales Government's obligations to outline the annual environmental watering priorities for the Lachlan 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 Lachlan WRP Area.

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

2. Lachlan Water Resource Plan Area description

The Lachlan WRP Area, located in central NSW, is 90 000 square kilometres in size (Map 1). Bordered by the Murrumbidgee WRP Area to the south and the Darling River and Macquarie–Cudgeong WRP Area to the north, the river travels approximately 1400 kilometres before terminating in Great Cumbung Swamp. The Lachlan WRP Area supports a variety of wetlands, many dominated by river red gum, black box and lignum.

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 Lachlan Riverine Working Group (LRWG) provides advice on the development of the Lachlan Annual Environmental Watering Plan.

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

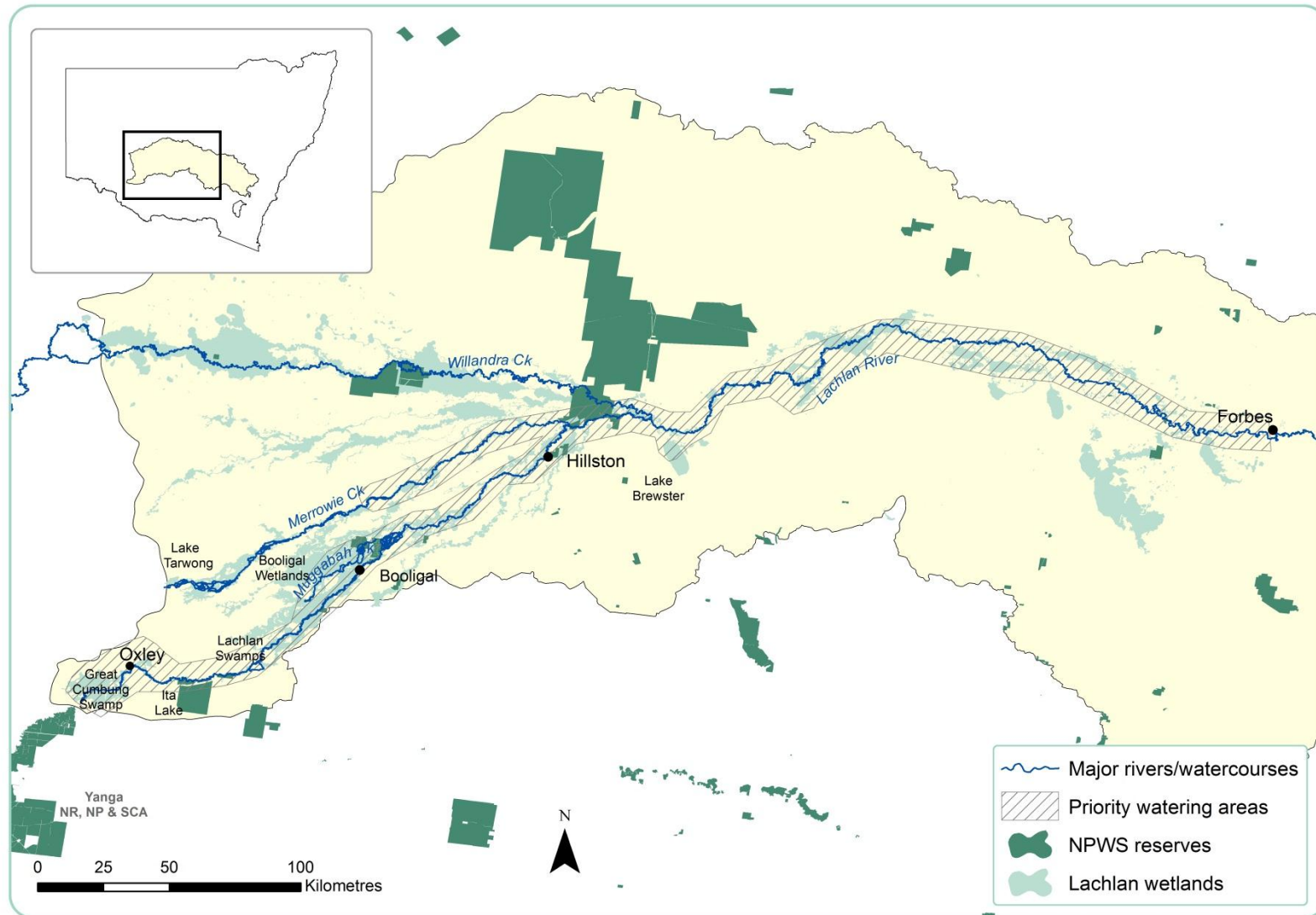
Preparation of the statement also involved consultation with the Commonwealth Environmental Water Office (CEWO).

4. Antecedent conditions: previous watering and condition of assets

During most of 2014, below-average rainfall fell across the Lachlan WRP Area. The catchment experienced very low storage inflows and no significant natural freshes or full flows in the river or tributaries. Above average rainfall occurred across the mid and upper regions of the Lachlan WRP Area in December 2014 and January 2015 whilst drier conditions prevailed throughout the year in the lower Lachlan. The above average rainfall in December and January were not reflected in any significant inflows to the dams.

The condition of the Lachlan wetlands varies considerably across the WRP Area. Whilst the lower Lachlan floodplain in general has significantly improved in health from that experienced during the millennium drought, there are areas where floodplain vegetation is in the early stages of recovery and is beginning to show signs of stress.

Overall the antecedent conditions across all the environmental assets are considered to be dry. Table 1 summarises environmental water use in 2014–15.



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

Table 1: Lachlan environmental water releases – 2014–15

Asset	Total volume¹	Outcomes	Current condition
Lachlan River spring tributary fish flow	5821 ML	Flow pulse was projected for the 1200 km length of the river from just below Cowra down to the Great Cumbung Swamp.	Current condition varies significantly across the lower Lachlan River and floodplain.
Noonamah–Lake Bullogal southern bell frog flow	300 ML	34 ha of frog refugia habitat was replenished through the peak early summer to autumn period. Egg masses were observed at 2 of the 5 ground tanks. 10 species of waterbirds including straw necked ibis, glossy ibis, herons and egrets were observed foraging on the wetted areas.	Refuge sites in the vicinity of the recent southern bell frog recordings have improved in condition.
Burrawang West Lagoon	350 ML	The lagoon was replenished in late winter/spring followed by an extended draw-down phase over the summer. 6 frog species were recorded calling during the inundation and draw-down period.	Regeneration of fringing river red gums is continuing.

¹ Interim volumes until otherwise confirmed

5. Forecast available water

It is anticipated that up to 87 166 ML will be available for environmental purposes during 2015–16 (Table 2). This volume will be made up of NSW environmental water holdings, Commonwealth environmental water and Water Quality Allowance provided for by the water sharing plan. Apart from the Lake Brewster Adaptive Environmental Water Licence (AEWL) which currently holds 136 per cent of the 12 000 units, the volumes available in all NSW and Commonwealth environmental water general security accounts remain within the 100 per cent Take Limit, announced by NSW Office of Water (NOW) for general security water users for 2015–16.

It is anticipated that under the current dry conditions no general security allocations would be likely before the end of January 2016. Median rainfall conditions would see no new allocations to the end of June 2015, but allocations could reach 20 per cent by the end of January 2016. Under wet conditions, general security allocations could reach 70 per cent by the end of January 2016.

The Bureau of Meteorology's (BOM) seasonal outlook indicates it is likely to be warmer than normal in the western parts of south-east Australia.

The major climate influence for the season ahead is the warmer than normal sea surface temperatures in the Indian Ocean and that surrounding much of the Australian coastline. In the tropical Pacific, further warming is expected, with the BOM's climate outlook indicating an El Niño is continuing to strengthen. The climate outlook can be viewed at the [BOM website](#).

Based on the above information in combination with the current low dam levels, forecast water availability for the Lachlan is considered to be low.

Table 2: Anticipated environmental water availability – Lachlan WRP Area

Account	Maximum volume	Volume expected to be available at 1 July 2015
Planned environmental water allowances		
Environmental contingency allowance	10 000 ML	0 ML <i>(WSP requires General Security accounts to hold >50% for ECA to be allocated)</i>
Water quality allowance	20 000 ML	20 000 ML
Lake Brewster environmental contingency allowance	10 000 ML	0 ML <i>(WSP requires General Security accounts to hold >50% for ECA to be allocated)</i>
Translucent releases	350 000 ML	Dependent on inflow triggers being reached
Account	Share component	Volume available at 1 July 2015 ¹
NSW environmental water holdings		
High security	1795 ML	1795 ML
General security	24 569 ML	14 438 ML
Lake Brewster AEWL	12 000 ML	12 000 ML
Unregulated	184 ML	-
Commonwealth environmental water		
High security	933 ML	933 ML
General security	87 856 ML	38 000 ML

¹ Assuming no commencing available water determination for general security

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

EWI 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 antecedent conditions are considered to be dry and surface water availability low, with reduced inflows and the possibility of drying conditions, so the RAS has been determined to be dry.

Following its consideration of the condition of assets, water availability and climate forecasts, the LWRG has recommended that the management outcomes for this environmental watering year should ensure environmental assets maintain their basic functions and resilience (Appendix A: Table A2) by:

- support for the survival and viability of threatened species and communities
- maintenance of environmental assets and ecosystem functions, including by allowing drying to occur consistent with natural wetting-drying cycles
- maintaining refuges.

7. Annual environmental watering priorities

With a primary management outcome to ensure environmental assets maintain their basic functions and resilience, NSW has identified the priority environmental watering actions for the 2015–16 water year shown in Table 3.

The current conditions — dropping dam levels, dry catchment and forecast nil to low allocations — mean that, while a significant volume of adaptive environmental water (AEW) is available, caution is needed to ensure sufficient environmental water will be available the following watering year. This will ensure that, if drying conditions continue, water will be available to maintain critical habitats. It also provides an opportunity to supplement natural pulses or planned environmental water flows with remaining AEW.

Table 3: Lachlan watering site priorities – 2015–16

Location/ target	Sites (size)	Volume estimated	Rationale, timing and duration
Lower Lachlan River spring priming flow for fish and terminal wetland inundation	<p>Lachlan River: 360 km of river channel, approx. 1800 ha riparian habitat</p> <p>Cumbung Swamp: core reed beds – 3500 ha, open water bodies – 600 ha, red gum, lignum, chenopod and limited areas of black box – 5000 to 6000 ha.</p>	20 000 ML	<p>Spring flow ordered to Booligal to generate extended duration fresh in river – moves biofilms, inundates benches, snags etc., enhances opportunities for fish to breed and move.</p> <p>Maintains condition and recovery of aquatic and fringing riparian vegetation.</p> <p>End of system flow provides seasonally appropriate inundation of the core of the Great Cumbung Swamp. Reeds respond best to spring inundation.</p> <p>Consideration could be given to scope for directing part of the 'delivery' of the flow through Lake Cargelligo and back into the river, with concomitant adjustment for transmission losses.</p>

Location/ target	Sites (size)	Volume estimated	Rationale, timing and duration
In-channel targets for fish breeding or passage	River channel from Forbes to below Booligal (1000 km of river channel)	Combined tributary event of greater than 5000 ML up to 15 000 ML protected from extraction and allowed to pass through the system to Booligal.	Protect significant spring/early summer tributary inflows to support fish breeding and movement. Target flows between October and February. Flows contribute to end of system flows into the terminal wetland system.
Southern bell frog at Lake Bullogal	Lake Bullogal–Noonamah (35 ha)	300 ML	Southern bell frog was recently rediscovered at Lake Bullogal and nearby. Spring/summer flows to support maintenance and continued recovery of suitable frog habitat, in vicinity of the recent records.
Burrawang West Lagoon	Goobang Creek (100 ha)	350 ML	Current management now allows the lagoon to undergo draw-down/drying over the summer. Replenishment of lagoon in spring will support frog, fish and bird populations and helps support recovery of riparian vegetation. Flows to occur in late winter/early spring.
Murrumbidgee Swamp	Merrimajeel Creek (110 ha)	2000 ML	Murrumbidgee Swamp vegetation is in early stages of recovery. Some river red gums are beginning to show renewed signs of stress. Piggyback on replenishment flow if the flow concludes during cooler months.
Lake Brewster wetlands	Lake Brewster inflow wetland (300 ha)	Up to 5000 ML	Provide appropriate wetting and drying regimes to support continued establishment and growth of wetland plants in the constructed inflow wetland. Feasibility of action is dependent on timing of completion of Brewster works. Requires generally stable water levels for >4 months over late spring–summer.

Location/ target	Sites (size)	Volume estimated	Rationale, timing and duration
Contingency			
Booligal Swamp ibis colony	Merrimajeel Creek (~200 ha)	2500–5000 ML	Support colonial bird breeding if other flows are insufficient to maintain water levels – only if breeding event commences. Likely timing October–February.
Cuba Dam ibis colony	Merrowie Creek (~50–150 ha)	5000– 15 000 ML	Support colonial bird breeding if other flows are insufficient to maintain water levels – only if breeding event commences. Likely timing October–February.
In-channel targets under dry to very dry conditions	Booligal to Oxley (300 km of river channel)	Up to 3000 ML	Maintain visible flow in river to prevent fragmentation and stratification of pools. 50 ML/day at Booligal for up to 60 days.

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.

Individual watering events are approved and implemented via the current [NSW environmental water planning and operational framework](#).

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 Lachlan WRP Area, OEH also works with:

- Lachlan Customer Service Committee
- Lachlan Valley Water Users
- Merrowie Creek District Trust
- Muggabah/Merrimajeel and Torrigan Creek Water Trust

- Willandra Creek Water Trust
- Booberoi Water Users.

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.

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 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 Murray–Darling *Basin Plan* (MDBA 2012b).