NSW GOVERNMENT Office of Environment & Heritage

Murray and Lower Darling Water Resource Plan Area

Statement of annual environmental watering priorities 2016–17

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Purpose of this statement

This statement meets the New South Wales Government's obligations to outline the annual environmental watering priorities for the Murray and Lower Darling 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 2012* (MDBA 2012a).

The guidelines for how to determine priorities for applying environmental water (MDBA 2012b) have been used to identify the environmental watering priorities for 2016–17 for the Murray and Lower Darling WRP area.

The priorities reported here are derived from the Murray and Lower Darling Valleys Annual Environmental Watering Plan 2016–17.

Environmental watering priorities may also be specified under The Living Murray program. The Living Murray icon sites in NSW include the Millewa Forest, Koondrook–Perricoota Forest, the eastern section of Chowilla Floodplain and the River Murray Channel. Watering of these sites is coordinated by the Murray–Darling Basin Authority (MDBA) and undertaken in conjunction with the relevant states. This document does not report in detail on The Living Murray water; further information is available on The Living Murray website.

Murray and Lower Darling Water Resource Plan Area description

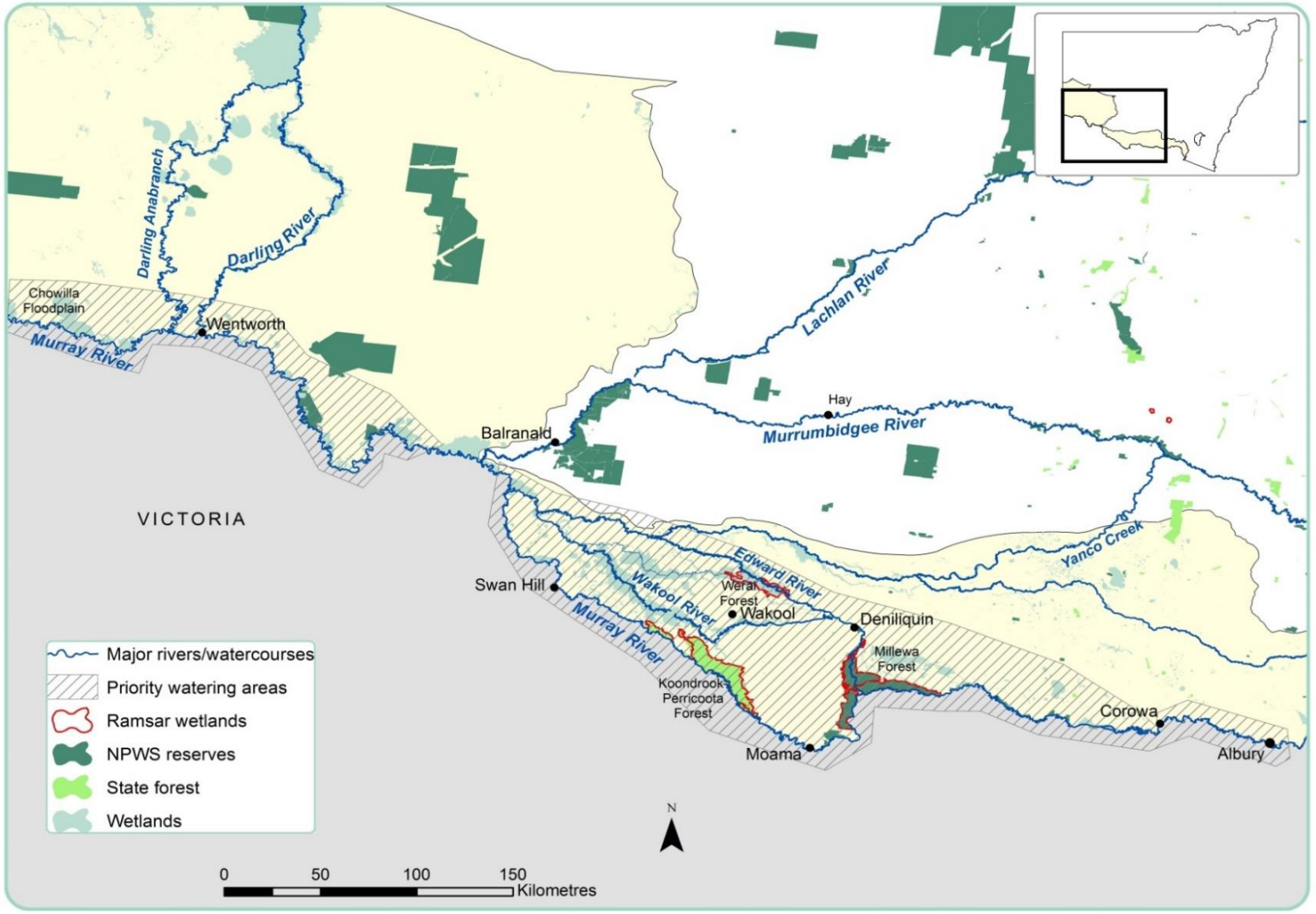
The Murray and Lower Darling WRP area is located in the south of the Murray–Darling Basin and supports hydrologically and ecologically complex freshwater habitats, as well as productive agricultural industries (Map 1). The WRP area contains important ecological assets, including floodplains, ephemeral creeks and a variety of wetlands and in-stream systems, some of which are internationally and nationally recognised and provide habitat for several threatened and vulnerable fauna and flora species.

Consultation

In NSW, environmental water advisory groups are the primary vehicles for stakeholder consultation on environmental water planning for a particular WRP area. The Murray and Lower Darling Environmental Water Advisory Group (EWAG) provides advice on the development and implementation of the NSW Murray and Lower Darling Annual Environmental Watering Plan.

The Murray and Lower Darling EWAG has reviewed and endorsed the annual environmental watering priorities for the WRP area. The Office of Environment and Heritage (OEH) website has details of the objectives and membership of the Murray and Lower Darling EWAG.

Preparation of the statement has also involved consultation with the Commonwealth Environmental Water Office.



Map 1: Annual environmental watering priority areas, Murray and Lower Darling WRP area, 2016–17

Antecedent conditions: previous watering and condition of assets

In 2015–16, rainfall was average to below average for most parts of the Murray–Darling Basin. As of April 2016, combined water storages for the southern Basin were at 29%—below that of the previous year, which was 45% (MDBA 2016a). MDBA River Operations (MDBA 2016b) anticipates that transfers will be required from Dartmouth Dam to Hume Dam in order to meet demand in 2016–17.

The Bureau of Meteorology seasonal outlook in the region for May to June indicates that, for the majority of the Murray Valley and its upper catchment area, there is a 60% to 70% chance of the median rainfall being exceeded, with warmer than average days and a high likelihood of warmer nights. Across parts of the Darling catchment, including the Lower Murray Darling region, there is a 70% to 80% chance of exceeding median rainfall, with a 45% to 50% chance of exceeding average day temperatures, with warmer nights. The 2015–2016 El Nino is rapidly weakening and returning to neutral El Nino – Southern Oscillation conditions, which are responsible for the warm sea-surface temperatures surrounding much of Australia and a very warm Indian Ocean. This may result in extra moisture for rainfall but does not automatically mean wetter conditions. The climate outlook can be viewed at the Bureau of Meteorology website.

During 2015–16 about 203,246 megalitres of environmental water was delivered to a total of 34 wetlands/waterways in the Murray and Lower Darling WRP area (Table 1). In addition, environmental water was delivered to 16 private property wetlands within the Murray Irrigation system.

Table 1: Murray and Lower Darling environmental water releases, 2015–16

Asset	Total volume[1]	Outcomes	Current condition
Elimdale	200ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants.	Moderate
Cliffhouse	100ML	Southern bell frog habitat Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants.	Moderate
Hume (multisite)	50,000ML[2] 84,700ML[3]	Supported native fish movement and recruitment, creating connectivity and carbon exchange. Promoted native aquatic vegetation recruitment and improved fringing vegetation condition.	Moderate
The Pollack (Koondrook State Forest)	1500ML	Improved river red gum health and promoted re-establishment of ground-layer vegetation and aquatic plants. Managed river red gum regeneration.	Poor

Asset	Total volume[1]	Outcomes	Current condition
Colligen-Niemur Flow	30,189ML[3]	Supported native fish movement and recruitment, creating connectivity and carbon exchange. Promoted native aquatic vegetation recruitment and improved fringing vegetation condition.	Poor to moderate
Private Property Wetlands Watering Program	1960ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants. Managed risks from salinity. eWater was delivered to 16 sites within the Murray Irrigation area.	Poor to moderate because river regulation and floodplain development have disconnected these wetlands from the river systems
Murrain-Yarrein System	3836ML	Improved water quality and promoted native aquatic vegetation recruitment.	Poor to moderate
Tuppal Creek	2464ML 2000ML[3]	Improved water quality and promoted native aquatic vegetation recruitment.	Poor to moderate
Rilverside	300ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants.	Moderate
Grand Junction	1000ML	Maintained/improved condition of mature fringing river red gums. Provided waterbird foraging habitat.	Poor to moderate
Andruco Lagoon	180ML	Maintained/improved condition of mature fringing river red gums.	Poor to moderate
Jimaringle, Cockran and Gwynnes creeks	800ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants. Maintained southern bell frog habitat and promoted breeding. Managed risks from salinity and sulfidic sediment.	Poor to moderate because river regulation and floodplain development have disconnected these waterways from the river systems
	230ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants. Maintained southern bell frog habitat and promoted breeding.	Moderate
Woodleigh	100ML	Maintained/improved condition of mature fringing river red gums. Maintained habitat with potential for southern bell frog.	Poor to moderate
Fletchers Creek	200ML	Improved fringing vegetation condition and promoted re-	Poor to moderate

Asset	Total volume[1]	Outcomes	Current condition
		establishment of ground-layer vegetation and aquatic plants. Managed risks from salinity.	
Reed Beds Swamp (Millewa)	6065ML 4000ML[2] 8000ML[3]	Sustained bird breeding event.	Moderate to good
Lake Victoria	250ML	Maintained/improved condition of mature fringing river red gums. Maintained southern bell frog habitat and promoted breeding.	Moderate; trees are starting to exhibit signs of drought stress because of changed watering regimes due to river regulation
Nampoo	150ML	Maintained/improved condition of mature fringing river red gums. Maintained southern bell frog habitat and promoted breeding.	Moderate; trees are starting to exhibit signs of drought stress because of changed watering regimes due to river regulation
Barham Lake	115ML[3]	Maintained habitat for resident catfish population.	Moderate
Thegoa Lagoon	1800ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants. European carp exclusion.	Poor to moderate
Carrs and Cappits creeks	950ML[3]	Improved water quality and promoted native aquatic vegetation recruitment.	Moderate
Wee Wee Creek	2000ML	Maintained/improved condition of mature fringing river red gums and black box for dependant species, including the regent parrot Maintained habitat for small-bodied native fish.	Poor to moderate
Speewa Creek	1000ML	Improved fringing vegetation condition and promoted re-establishment of ground-layer vegetation and aquatic plants.	Moderate; trees are starting to exhibit signs of drought stress because of changed watering regimes due to river regulation and disconnection to the river

[1] These values are interim until indicated otherwise.

[2] The Living Murray water

[3] Commonwealth Environmental Water Office water

Forecast available water

MDBA active storages[1] are at 27% (2303 gigalitres); storage is more than 1250 gigalitres lower in the Dartmouth and Hume Reservoirs than at this time last year (May 2016). Average system inflows have been well below the long-term average and also below the average for the last 10 years, which includes the Millennium drought (DPI Water 2016).

The Menindee Lakes system is experiencing the lowest inflows on record, exceeding previous lows experienced during the Millennium drought. Consequently, storage volumes have declined to 3% (49 gigalitres in May 2016), and any remaining water is being managed adaptively. To reduce evaporative losses, pumping from Lake Tandure to Lake Wetherell has started. Because of the extreme dry conditions across the Menindee Lakes system, including Lake Cawndilla, it is highly unlikely that environmental water for the Darling Anabranch will be available in 2016–17.

Under very dry conditions or worse, an estimated 25% to 27% of the carryover in NSW Murray general security accounts will be deliverable on 1 July 2016. In the Lower Darling there is restricted access to average carryover because of the current critical water shortage in that valley.

The beginning of 2016–17 is likely to see the high-security allocations start at 80% in the NSW Murray and at 20% in the Lower Darling. General security allocations in both the Murray and the Lower Darling will start at 0% (Table 2). Conveyance in the Murray will see approximately 80,000 megalitres available as at 1 July 2016, and resource improvement will have to accrue to the target (165,000 megalitres) before allocations start for general security entitlements (DPI Water 2016).

The NSW Department of Primary Industries – Water (DPI Water) has forecast that full allocations can be expected for all town water and stock and domestic access licences in the NSW Murray, but that Lower Darling allocations will be 50% for town water and stock licences and 30% for domestic licences (DPI Water 2016).

[1] MDBA storages include Dartmouth Reservoir, Hume Reservoir, Lake Victoria and Menindee Lakes.

Table 2: Anticipated environmental water availability: Murray and Lower Darling WRP area (May 2016) (The Living Murray environmental water is not included in this table.)

Source	Maximum volume	Volume expected to be available at 1 July 2016
Planned environmental water allowances		
Barmah–Millewa Environmental Water Allowance (see The Living Murray Program)	700,000ML	358,000ML (170GL NSW; 188GL Victoria. NSW volume will continue to be borrowed by general security water users in 2016–17 until general security allocations increase to above 30%)
Murray Additional Environmental Water Allowance	29,702ML	0ML[1]
NSW licensed adaptive environmental water holdings		
Murray – conveyance	30,000ML	7500ML (25% conveyance allocation)[2]
Murray – high security	2027ML	1621ML (80% allocation)
Commonwealth licensed adaptive environmental water holdings[3]		
Murray – general security	327,705ML	Up to 104,000ML[4]
Murray – high security	15,537ML	Up to 14,672ML (97% allocation)
Lower Darling – general security	795ML	0 ML (0% allocation)
Lower Darling – high security	397ML	Up to 317ML (80% allocation)

1 The Minimum Additional Environmental Water Allowance is based on 198,011ML high-security Murray unit shares × 0.03ML (5940.3ML) and a maximum of 198,011ML high-security Murray unit shares x 0.15ML (27,701.6ML) from the Water Sharing Plan for the NSW Murray and Lower Darling Regulated Rivers Water Sources.

2 Volume based on a conveyance licence conversion scale, where 56% = 21.52GL.

3 This information was correct as at 5 May 2016, but it may change as other Commonwealth Environmental Water Office water holdings become available. These figures include only NSW Murray general security and conveyance entitlements.

4 Estimated Commonwealth Environmental Water Office carryover as of 31 May 2016.

A proportion of the environmental water holdings will be available for use in the Murray and Lower Darling valleys during 2016–17.

Under the Water Sharing Plan for the NSW Murray and Lower Darling Regulated Rivers Water Sources the following rules will apply:

- The NSW share of the Barmah–Millewa environmental water allowance may be borrowed to provide for general security allocations where general security is less than 30%. The NSW share of this allowance will continue to be borrowed in 2016–17 as required.
- Carryover of water in accounts is limited to a maximum of 50% of entitlement for general security licences only.
- Up to 7500 megalitres of NSW adaptive environmental water conveyance entitlements will be available as at 1 July.

- If NSW Murray high-security entitlements increase, so too will conveyance, until high security reaches 97%, at which stage conveyance will be 50% of entitlement.
- The Murray additional environmental water allocation is to be credited when high-security entitlements reach 97%. As at 1 July 2016 the Murray additional environmental allocation will be 0 megalitres.

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

Resource availability scenario and management outcomes

The resource availability scenario is based on surface water availability and the antecedent conditions (Appendix A: Table A1). The antecedent conditions are considered to be dry, with a medium surface-water availability, so the resource availability scenario has been determined to be moderate to dry. This means that watering will be aimed at maintaining ecological health.

Planning has also incorporated the medium and wet resource availability scenario in the event that future rainfall events result in average to above-average levels.

After considering the condition of assets, as well as water availability and climate forecasts, the Murray and Lower Darling EWAG has recommended that the management outcomes for this environmental watering year should ensure that environmental assets maintain their basic functions and resilience. They should also build on the positive environmental outcomes of the recent environmental watering (Appendix A: Table A2). They will do this by:

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

Annual environmental watering priorities

Under a moderate to dry resource availability scenario, NSW has identified annual environmental watering priorities for the Murray and Lower Darling WRP area (Table 3). If the resource availability scenario were to change to wet, additional priorities would be considered.

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 or stock by landholders. Flows will be adaptively managed so that they can be integrated with other demands in the system to avoid inconvenience to landholders where possible. Where inconvenience is a risk, consultation with potentially affected landholders will occur and agreements will be sought on acceptable event management.

Individual watering events are approved and implemented via the current NSW environmental water planning and operational framework.

Table 3: Murray and Lower Darling watering site priorities under a moderate to dry resource availability scenario, 2016–17

Target area	Size	Estimated volume	Rationale and timing
Lower Murray Wetlands • Cliffhouse • Grand Junction • Andruco lagoon	46ha	1280ML	Maintain southern bell frog habitat. Poor vegetation health (river red gum, black box and lignum). Some outstanding examples of mature river red gum are present. Spring
Murrain-Yarrein Creek System* Mid-Murray	~150km	7000ML	Improve condition of fringing river red gum, black box and lignum, and promote re-establishment of ground-layer vegetation and tall macrophytes (e.g. cumbungi and common reed). Identify and manage risks arising from salinity and sulfidic sediment issues. Spring/summer and/or autumn
Toupna Creek* Murray Valley National Park (Millewa)	~20km	2000ML	Improve habitat conditions for small-bodied wetland specialists, including southern pygmy perch. Spring
Pollack Swamp Flora Reserve*	~160ha	1000ML	Improve condition of fringing river red gum and promote re-establishment of ground-layer vegetation and tall macrophytes (e.g. cumbungi and common reed). Spring
Private Property Wetlands in Murray Irrigation District Mid-Murray		1000ML	Maintain southern bell frog habitat and promote recruitment. Spring/summer
Brechin Mid-Murray: 25km east of Swan Hill on north side of Murray River	~26ha	300ML	Apply follow-up watering to maintain the condition of the riparian vegetation (especially river red gum). Promote southern bell frog recruitment. Spring/summer
Tuppal Creek* Mid-Murray: departs Murray River near Tocumwal and joins Edward River near Deniliquin	~60km	6000ML	Improve water quality and maintain vegetation health. Provide connectivity and carbon exchange with the Edward River. Spring/autumn
Thegoa Lagoon* Lower Murray: located downstream	80ha/km	1600ML to1800ML	Follow recommendations from the water management plan that the lagoon be filled 7

Target area	Size	Estimated volume	Rationale and timing
of the Murray and Darling junction, west of Wentworth			years out of every 10. Drying over summer–autumn is important for vegetation, soils and water quality and will help control carp (MPTL, 2003). Autumn–winter
Werai Forest (Reed Beds Creek)* Mid-Murray ~20km south-east of Moulamein	Indigenous Protected Area: 137km	1000ML	Maintain/improve fringing river red gum condition. Manage recruitment of river red gum saplings in channel. Maintain condition of river red gum and common reed beds downstream of Reed Beds Creek Lagoon. Spring–autumn
Werai Forest (Tumudgery Creek)* Mid-Murray ~20 km south-east of Moulamein	Indigenous Protected Area: 135km	4000ML	Maintain/improve condition of fringing river red gum. Manage recruitment of river red gum saplings in channel. Spring–autumn
Moira Lake, Gulpa Creek Wetlands, including Reed Beds Swamp and Duck Lagoon (1200ha), Pinchgut Lagoon (5ha) and Horseshoe Lagoon (15 ha)* Murray Valley National and Regional parks (Millewa)	1220ha	Moira Lake 3000 ML Gulpa Creek wetlands Up to 20,000 ML Pinchgut and Horseshoe lagoons, 1000ML	Maintain the level of Moira Lake >1 metre deep for up to two years to maintain refuge for juvenile Golden perch and will allow them to mature upon release into the river system. River Murray flows >10,000ML/day below Yarrawonga Weir will require flows in the Gulpa Creek to be managed to achieve overbanking into the Gulpa Creek wetlands. Prolonged inundation is likely to encourage colonial nesting waterbirds and Australasian bitterns to breed. Pinchgut and Horseshoe lagoons: improve habitat conditions for small-bodied wetland specialists, including southern pygmy perch. Spring–autumn
Woodleigh Mid-Murray 25km north-east of Barham	10ha	80ML	Maintain vegetation health (especially river red gum and aquatic vegetation). Potential habitat for southern bell frog. Spring
Mid-Murray near Berrigan		200ML	Maintain vegetation health (especially river red gum and lignum). Potential habitat for Sloane's froglet and brolga. Spring

Target area	Size	Estimated volume	Rationale and timing
Boomanoomana Swamp* Murray Valley Regional Park (east of Barooga)	70ha	400ML	Apply follow-up watering to improve vegetation condition. Spring
Lake Victoria Wetland Lower Murray ~8km west of Lake Victoria and next to South Australian border	20ha	300ML	Maintain vegetation health (especially river red gum and lignum). Potential southern bell frog habitat. Spring
Nampoo Lower Murray near South Australian border		200ML	Maintain vegetation health (especially river red gum and lignum). Maintain southern bell frog habitat and promote breeding. Spring–summer
Jimaringle, Cockran and Gwynnes creeks* Mid-Murray 30km west of Deniliquin in the Wakool Irrigation district	~80km	6000ML	Improve condition of fringing river red gum, black box and lignum, and promote re-establishment of ground-layer vegetation and tall macrophytes (e.g. cumbungi and common reed). Potentially maintain southern bell frog habitat and promote breeding. Identify and manage risks arising from salinity and sulfidic sediment issues. Spring–summer
Private Property Wetlands Watering Project (Murray Irrigation Area) Mid-Murray: incorporates shires of Deniliquin, Wakool, Berrigan and Murray		1000ML	Maintain/improve condition of various wetland communities, including river red gum, black box eucalypt woodlands, lignum shrublands and cane grass. Spring–autumn
Carrs, Cappits and Bunberoo creeks and wetlands* Lower Murray between Frenchmans Creek and Murray River within Lock 8 weirpool	~60km	Guided by OEH and Murray Darling Wetlands Working Group ~900ML	Improve the condition and resilience of vegetation communities and connectivity to the Murray River. Spring
Backwater Lagoon associated with Carrs and Cappits creeks Lower Murray between Frenchmans		1000ML	Improve the condition and resilience of vegetation communities and connectivity to the Murray River.

Target area	Size	Estimated volume	Rationale and timing
Creek and Murray River within Lock 8 weirpool			Spring
Wee Wee Creek Lower Murray west of Kyalite at the Murray–Edward junction		2000ML	Apply follow-up watering to exclude mature carp, maintain small native fish populations and improve vegetation condition. Spring
Rosenhoe Swamp Lower Murray near Wee Wee Creek		200ML	Facilitate connectivity with Wee Wee Creek. Improve vegetation health. Potential waterbird breeding site. Provide southern bell frog refuge habitat. Spring
Edward Wakool Flows* Mid-Murray		~60,000ML	Build on previous outcomes from the use of environmental flows (particularly the maintenance of in-stream native aquatic vegetation and habitat for native fish). A Commonwealth Environmental Water Office Long Term Intervention Monitoring site. Spring–autumn
Locks 7,8, 9 and 15 weirpool manipulations* Lower Murray west of Wentworth near Lake Victoria		4000ML	Implement small-scale manipulations to measure possible benefits to aquatic and riparian communities within weir pools. Winter/spring raising Spring/autumn lowering
Bengallow Wetlands* Lower Murray between Euston and Buronga	110ha	500ML	Retain permanent pools that support native fish communities such as golden perch. Spring
Bottle Bend Reserve* Lower Murray – Paringi ~25km from Mildura	450ha	2500ML	Improve the condition and resilience of vegetation communities (primarily drought-stressed black box eucalypt woodland and lignum shrubland). Winter

Target area	Size	Estimated volume	Rationale and timing
Merrain Creek Mid-Murray (water delivered from Little Murray with flows >8000ML/day below Torrumbarry Weir)	To be confirmed	To be confirmed	
Bullockhide Creek Mid-Murray north-west of Barham		3000ML	Re-establish a wetting and drying cycle. Improve health of fringing and aquatic vegetation (river red gum, cumbungi and lignum. Timing to be confirmed
Speewa Creek Lower Murray east of Tooleybuc		100ML	Improve health of fringing and aquatic vegetation (river red gum, cumbungi and lignum). Late autumn/winter
Bingerra Creek Lower Murray 4km north of Tooleybuc	~45km	300ML	Retain permanent pools that support native fish communities such as golden perch. Follow up on past events to maintain and maximise vegetation health (river red gum and lignum). Manage channel river red gum regeneration. Promote aquatic vegetation recruitment and frog and waterbird refuge. Spring–autumn
Lake Gol Gol		2500ML	Maintain and improve condition of fringing river red gum and black box. Provide habitat for waterbirds. Timing to be confirmed
Perricoota–Koondrook State Forest		50,000ML to 65,000ML	Deliver water via the Koondrook–Perricoota Forest Flood Enhancement Scheme. Spring

*Potential contribution from the Commonwealth Environmental Water Holder

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 private landholders, DPI Water and Fisheries, Local Land Services, independent research organisations and not-for-profit organisations 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, as well as cooperative changes to land management to ensure that the desired ecological responses to watering are achieved.

In the Murray and Lower Darling WRP area, OEH also works with MDBA River Operations and private irrigation companies and districts such as Murray Irrigation Ltd and Moira Private Irrigation District.

Further documentation

Details of the potential use of Commonwealth environmental water entitlements in the Murray and Lower Darling WRA area can be found in *Portfolio Management Planning Approach to planning for the use, carryover and trade of Commonwealth environmental water 2016-17*; *Portfolio Management Plan, Mid-Murray Region 2016–17*; and *Portfolio Management Plan, Lower Murray-Darling 2016–17*.

Reporting on water used throughout the 2016–17 watering season will be included in OEH's *Environmental Water Use in NSW: Outcomes 2016–17* in late 2017. A number of environmental water ecological response monitoring reports funded by the Commonwealth are also available.

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Appendix A

Table A1: Determining the resource availability scenario

Surface water availability	Antecedent conditions				
	Very dry	Dry	Medium	Wet	Very wet
Very low	Very dry	Very dry	Dry	Dry	n/a
Low	Very dry	Dry	Dry	Moderate	Wet
Medium	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 outcome	**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 connectivity of low-lying floodplains and rivers. Support medium-flow river and floodplain functions.	Enable growth, reproduction and large-scale recruitment of a diverse range of flora and fauna. Support high-flow river and floodplain functions.	Enable growth, reproduction and large-scale recruitment of a diverse range of flora and fauna. Support high-flow river and floodplain functions.

Source: Modification of table in 'Guidelines for the method to determine priorities for applying environmental water' in the Murray–Darling *Basin Plan* (MDBA 2012b), with the objective 'Promote higher floodplain–river connectivity' removed from the wet and very wet scenarios