



Australian Government

Commonwealth Environmental Water Office



Commonwealth Environmental Water Holder Update

Summer 2016-17



As 2016 draws to a close, it is a good time to thank the many people whose hard work and tireless dedication have contributed to efforts to improve the health of the Murray-Darling Basin's rich natural environments and support the region's unique wildlife.

In particular, I want to thank those people in the Basin who have shared their intimate knowledge of their rivers and wetlands with us so that we can make better decisions. And I want to acknowledge the professional and dedicated staff of the Commonwealth Environmental Water Office, as well as those of our partners, without whom this great task of environmental watering would not be possible.

It has been a challenging year, with the Basin living up to its reputation as a highly variable boom and bust environment. Our thoughts are with those people still recovering from drought and flooding.

The more recent persistent rain and flooding throughout the river system during spring has meant we have had to contend with water quality issues such as blackwater but I am pleased that we are ending the year on a high with very large waterbird and native fish breeding events. I am optimistic that with the strategic use of environmental flows over summer, this new life can be sustained particularly in those key wetlands, like the Booligal Wetlands north of Hay in New South Wales, which have benefited from natural floods on top of earlier managed environmental flows.

And this increase in wildlife will ensure the region's parks, lakes, rivers and wetlands will continue to be major drawcards for those locals and visitors who appreciate all that's on offer over the summer holiday season - bird watching, fishing, bush walking, water sports and camping.

So, on behalf of the Commonwealth Environmental Water Office team, I wish you all a happy and safe festive season and look forward to working with you in 2017.

David Papps, Commonwealth Environmental Water Holder

2016: in review

This year the Murray Darling Basin has lived up to its reputation as a highly variable natural environment, in which the elements have tested us all but particularly those people impacted by drought and flooding.

Signs of our local waterways under pressure are distressing and the regularity of these events is of concern. We are aware that some people have suggested environmental flows

HAVE A QUACKER CHRISTMAS!

Wishing you and your family a happy and safe festive season, from the Commonwealth Environmental Water Office.



Image Credit: Goulburn-Broken CMA

Regional Snapshots

We have produced brochures that provide a snapshot of the work of the CEWH in restoring and protecting rivers, wetlands and floodplains within the Murray-Darling Basin, valley by valley. The full collection is available at www.environment.gov.au/water/cewo/publications.

To request hard copies of the brochures, please send an email to ewater@environment.gov.au



Caption: All of the Regional Snapshots



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are responsible for these water quality issues. However, according to scientists who are continuously monitoring water quality and stream metabolism as part of our monitoring projects across the Basin, the common factors associated with dangerously low dissolved oxygen levels and blue green algal blooms are high water temperatures and extreme natural events such as flooding and drought.

Blue green algae and blackwater occur naturally in freshwater environments. However, as experienced this year, they can have far-reaching consequences for the environment and for the economy because they can be toxic, causing stress or death to aquatic animals and can interfere with the activities of other water users.

Environmental water cannot prevent these naturally occurring processes but we do have an interest in mitigating impacts, when possible, on the native fish and other freshwater animals we are trying to protect and restore.

Unfortunately, there is little anyone can do to stop or reduce blue-green algal blooms. The volumes of environmental water available are nowhere near the volumes needed to dilute an outbreak such as the one that occurred along the Murray this year. Blooms can persist for as long as the favourable conditions remain in place—so good rain, cooler weather or less sunshine will reduce blue-green algal blooms over time.

We recently contributed environmental flows to try to reduce the severity and duration of poor water quality including an extended hypoxic (low oxygen) blackwater event throughout the Murray River system, including the Edward-Wakool system and Billabong Creek, and blackwater outbreaks in parts of the Murrumbidgee and Lachlan Rivers. However, the timing and extent of our activity was constrained by the need to avoid exacerbating an already difficult time for those people affected by flooding.

These flows are focussed on providing local refuges of better quality water for native fish and other aquatic wildlife. They are ongoing over summer and are informed by low dissolved oxygen data supplied by our State partners and scientists working on our long-term intervention monitoring projects, along with reports from local anglers, landholders and others of dead fish and crustaceans leaving local waterways.

Early indications suggest environmental water has been able to limit the impact of what could have been disastrous for a number of aquatic species and their ecosystems and scientists on the ground have reported that fish are using the refuges created. They will continue to monitor the overall impact of environmental water on the system.

We are of course very interested in understanding more about cause and affect which is why we are investing in further research in the Edward-Wakool and the Murrumbidgee. I hope to be able to share the results of this work in 2017.

Further information

- [Fact sheet from the Institute for Land, Water and Society, Charles Sturt University](#)
- [Interview with NSW DPI Fisheries – Blackwater](#)
- [Blackwater explanation 7 December 2016](#)



Figure 1: Blackswan with Algae

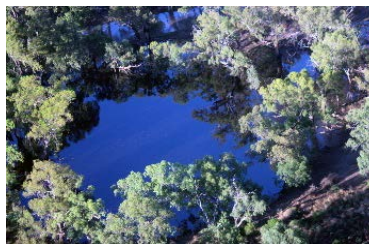


Figure 2: Blackwater

Local Engagement Officers

Localism relies on local knowledge and experience. The Commonwealth Environmental Water Office has six local engagement officers providing outreach to local communities throughout the Basin. You can contact your Local Engagement Officer [here](#).



Caption: Local Engagement Officers Erin Lenon, Adrian Clements, Linda Duffy, Rosemary Millward, Richard Mintern and Michelle Campbell, July 2016

Carryover and trade outlook

Carryover volumes will be determined after summer and autumn water delivery is complete, and any trading actions undertaken during the remainder of the 2016-17 water year.

Trade intentions for the first quarter of 2017 will be published shortly. Please refer to the [Trade actions page on our website](#).



Caption: Trade Factsheet



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Who manages water quality issues?

Water quality issues are managed at the local level because of the varying circumstances in each case. Local councils and state water authorities are best placed to investigate suspected outbreaks and alert the public. Each state government has comprehensive plans and extensive monitoring arrangements in place to detect and measure activity. They draw on a range of agencies, including state government water and health agencies, river operators, irrigation authorities, local governments and natural resource management agencies.

The role of the Commonwealth Environmental Water Holder

The Commonwealth Environmental Water Holder works closely with local waterway managers to ascertain whether providing environmental flows are likely to have a significant effect—the volumes and flows required to disperse blooms or dilute hypoxic blackwater events are often beyond what the Commonwealth Environmental Water Holder holds or what can be delivered in regulated systems. Where possible, environmental water is used to create refuges in an effort to improve the quality of the water to protect native fish populations, particularly if a blackwater event (that is low levels of dissolved oxygen in the waterway) occurs or once the algal bloom begins to decay. This can however be complicated if the sources of additional water (e.g. the storage from which environmental water is released) is also affected or if local waterways are flooded and the threat of third party impacts is great.

For more information please read the media releases outlining our work in the [Edward-Wakool](#) and the [Murrumbidgee and Lachlan Rivers](#), as well as our partners at [NSW Office of Environment and Heritage](#).

To learn more about environmental water, check out our approach to water quality issues:

- [Hypoxic blackwater factsheet](#).
- [Blue green algae](#)
- [Commonwealth environmental water use in the Murray-Darling Basin during wet conditions](#)

Bird Breeding Bonanza



We have recently [released this drone footage](#) of birds breeding at the Booligal Wetlands in the lower Lachlan.

Floods can often be disastrous – but for some, they provide a great opportunity and can set off a spectacular chain of environmental events, resulting in new life destined for the skies...

 [@theCEWH](#)

W: www.environment.gov.au/water/cewo



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When floodwater spills out of rivers and into nearby wetlands and swamps, soils become nourished and rich with micro-invertebrates. This nutrient-dense habitat brings fish and frogs to feast on the invertebrates, becoming a productive breeding ground for huge waterbird colonies, such as egrets and ibis.

The 2016 floods in central and western NSW provided the perfect conditions for mass waterbird breeding events in various wetlands, attracting migratory birds from northern Australia and Asia.

One of the most popular destinations for the birds to nest following the 2016 floods was the Macquarie Marshes, 200 kilometres north-west of Dubbo NSW. The internationally significant Macquarie Marshes site is a Wetland of International Importance (Ramsar wetland), and has significant cultural values to the Aboriginal Traditional Owners. For the first time in four years, the Macquarie Marshes became home to over 40,000 ibis nests and 4,000 egret nests. The Marshes are still abuzz with activity while the waterbirds and their hatchlings stay in the area during this critical phase of their lifecycle.

Further south in the Riverina, more waterbird colonies nest and breed at the Booligal Wetlands, around 80 kilometres west of Hay, NSW. In September 2016, the Booligal Wetlands experienced the biggest breeding event seen in 20 years, attracting over 200,000 waterbirds, mainly ibis, to the area. Identified as one of the most important waterbird breeding sites in Australia, the Booligal Wetlands are known for the large numbers of waterbirds that congregate to breed and forage in the area during and following floods, and is listed on the Directory of Important Wetlands.

Environmental water has been used over the last several years to keep these wetlands healthy in the dry years between flooding events. In doing so, the environment has been able to respond quickly to large inflows of water and natural flooding.

In the event the system begins to dry out too soon, follow up environmental watering may be provided to support the birds that remain in the area to reach maturity. In this respect, environmental water will provide a form of insurance – to help ensure the completion of the multiple breeding cycles taking place.

For more information go to:

- [NSW Office of Environment and Heritage media release - Thousands of waterbirds return to Macquarie Marshes](#)
- [Conditions are right for getting environmental water in to the Lower Darling for the benefit of local native fish and the longer-term health of the river system](#)

Managing environmental water

Environmental water is often used to supplement other water in the system. Depending on river operating rules, flow constraints, and climatic conditions, the Commonwealth Environmental Water Holder can choose to:



Use the water to deliver mandated environmental outcomes. For more information on use and managing water, [please click here](#).



Hold on to the water and carry it over for use in the next water year ('carryover'). For more information on carryover, [please click here](#).

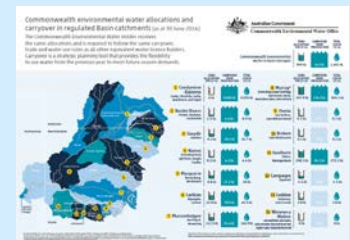


Trade (sell or buy water) for equal or greater environmental benefit. For more information on the Trading framework [please click here](#)

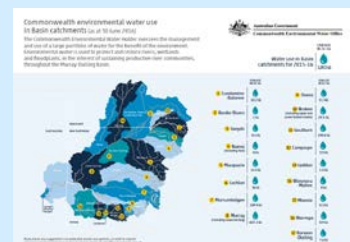
Water Storages, Use, Allocations & Carryover

Commonwealth environmental water can only be delivered if there is water available, the same as other water entitlement holders. We plan for a range of scenarios – from drought to wet – adjusting environmental water deliveries according to conditions.

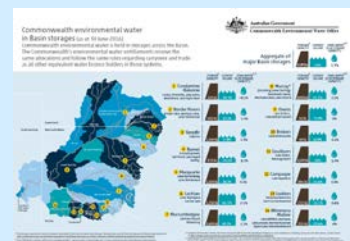
Allocations & Carryover



Water Use



Water Storages



For information about the water holdings please click [here](#).



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Water delivery to occur during summer 2016-17

LOCATION	ACTION
Mid-Lachlan	Continuing flows from Wyangala Dam to mitigate the impacts of low dissolved oxygen levels, and provide refuges for large bodied native fish that are susceptible to the impact of poor water quality (eg Murray Cod).
Murrumbidgee	Continuing flows to mitigate blackwater returns from the floodplain in the Lowbidgee to support native fish and other aquatic fauna. Water is also being provided to support bird breeding in Nimmie-Caira and in Wanganella Swamp, and to support waterbirds, native fish and vegetation objectives in the Western Lakes.
Edward-Wakool	Transitioning from blackwater mitigation using Murray Irrigation Limited's infrastructure to instream flows originating from Steven's Weir to support native fish spawning.
Mid-Murray	Environmental water has been delivered through Barmah-Millewa Forest to benefit Moira grass, native fish and waterbird breeding. Flows are reducing in late December, with environmental water continuing to support native fish and waterbirds from January onwards. Water has come from the Barmah-Millewa Environmental Water Account, The Living Murray (TLM), the Victorian Environmental Water Holder and Commonwealth environmental water.
Lower Darling	Environmental water (CEWH and TLM) has been delivered since September to provide habitat and food for recently-spawned Murray cod and other native fish. If increased operational releases commence, the delivery of environmental water in the Lower Darling will be postponed.
Lower Murray	Releases of environmental water (CEW and TLM) from Lake Victoria are providing refuge habitat from blackwater, with return flows contributing to outcomes in the Coorong.
Northern Victoria	Flows into the Lower Broken Creek are supporting native fish and improving dissolved oxygen levels.
Macquarie	Commonwealth environmental water will be delivered to support wetland vegetation, fish and waterbird colonies in the Macquarie Marshes, if required.
Border Rivers	Commonwealth environmental water will be delivered to provide a stable fish flow, if required.
Gwydir	Deliveries of Commonwealth environmental water commencing late Dec / Early Jan into the Mallowa Wetlands and Gingham and Lower Gwydir Wetlands to support wetland vegetation, fish and waterbirds.