

Improved outcomes for native fish, birds, frogs and habitat from environmental watering.

Environmental water is helping to restore the parts of the Basin’s natural hydrology that have been impacted by river regulation and infrastructure created for agriculture and other human needs.

Commonwealth water often supplements the environmental water delivered locally by state water holders and managers, and their local water delivery partners.

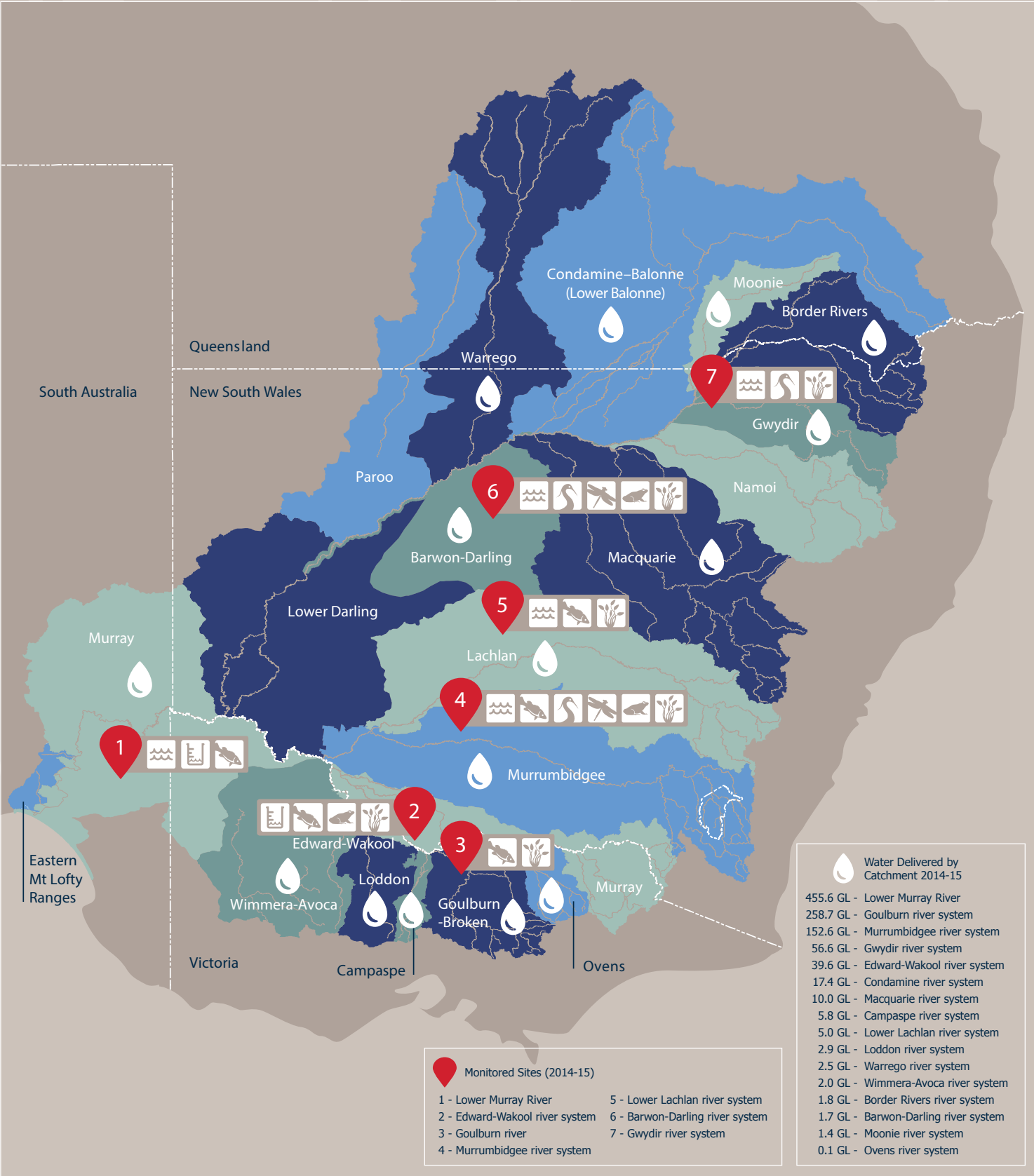
By restoring natural variability in flows, this water is reconnecting rivers and their wetlands and floodplains, and providing food, habitat and breeding opportunities for native fish, waterbirds and restoring vegetation. It is also reducing the risk of damage to the environment caused by poor water quality and salinity.

Commonwealth environmental water is contributing to priority outcomes and targets set out in the Basin annual environmental watering priorities, released by the Murray-Darling Basin Authority in 2013-14.

Full reports on all monitoring activity are available on the publications page of our web site:

www.environment.gov.au/water/cewh

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2014 - 15 OUTCOMES SNAPSHOT

1 Lower Murray River

Continuous flows in the Coorong have been critical to protecting estuarine vegetation and fish species from increasing salinity levels. Environmental water contributed significant proportions of the total amount of nutrients exported from the River Murray, Lower Lakes and Murray Mouth. According to modelling, it also helped to prevent the import of over 3,000,000 tonnes of salt through the Murray Mouth.

Commonwealth environmental water contributed 100 per cent of the flows over the barrages into the Coorong from November 2014 to June 2015. This water contributed to increased water velocity in the main river channel, increasing the occurrence of flowing water habitats, which is important for riverine fish such as Murray Cod.

2 Edward-Wakool

Positive outcomes for increased levels of dissolved oxygen in the water, coupled with aquatic vegetation growth, will contribute to the improvement of the system over the longer-term by providing habitat for invertebrates and small bodied fish, and potentially improving riverine productivity.

A native Obscure Galaxias was detected in the river system for the first time in five years of monitoring.

Opportunities for frog reproduction were increased by inundating sedges and grasses along the riverbank and backwaters, especially in Yallakool Creek and the mid-Wakool River. This water created shallow vegetated habitat, allowing frogs to spawn and tadpoles to thrive.

A strong response by aquatic and semi-aquatic plant species was observed in-stream and in wetlands that received environmental water during spring 2014.

3 Goulburn

Spring flows resulted in strong golden perch spawning, with eggs and larvae collected in numbers not seen since the 2010 floods. The critically endangered silver perch also spawned following increased flows.

Environmental flows also promoted movement with golden perch moving down the river to spawning areas.

Flows delivered during spring 2015 helped to maintain and improve on the vegetation abundance and diversity in the regions previously inundated during 2014. The resulting growth improved the condition and cover of the native plant species Lesser Joyweed and Creeping Knotweed, both of which prefer wetter habitats.

4 Murrumbidgee

Environmental Water was the primary mechanism by which the Murrumbidgee wetlands and floodplains received water during 2014-15. This resulted in improvements in water quality and a reduction in dissolved nutrients (carbon and phosphate) on the floodplain. Return flows in the Lowbidgee Floodplain also contributed to improved water quality across the river red gum wetlands.

Repeat golden perch and critically endangered silver perch spawning events were detected along the river channel between November and December 2014.

Other native fish species such as Murray cod and Australian smelt spawned in the Murrumbidgee River. Results also indicated good larval numbers while invasive species were low in abundance.

There was a boom in native bird breeding following environmental water delivery to the Yanga National Park in early 2015, with hundreds of nankeen night heron, cormorant and darter nests, and 150 Eastern great egret nests recorded, including the first breeding of the internationally recognised Eastern great egrets in the Park since 2011.

Evidence of highly productive microinvertebrate communities (important food for larval fish and filter-feeding waterbirds) were recorded.

Opportunities for frog reproduction were increased with evidence of successful breeding of the vulnerable southern bell frog and the inland banjo frog (the first recorded breeding in the Mid-Murrumbidgee wetlands since 2010).

Wetland-dependent vegetation in Yarradda Lagoon was maintained and improved with significant increases in the coverage of spiny mud-grass – an important aquatic species known to dominate this wetland in the 1990s.

Diverse aquatic vegetation communities were established throughout the Lowbidgee Floodplain.

5 Lower Lachlan

Approximately 80 per cent of the fresh delivered to the Lachlan River during early September 2014 was Commonwealth environmental water, with water levels rising by up to 1.5 metres between Willandra Weir and Booligal. The fresh was sourced from natural tributary inflows which provide flow variability and changes in hydraulic character, which are known to be beneficial to fish.

Larval fish monitoring in the lower Lachlan River indicated that native fish (Murray cod, flat-headed gudgeon, eel-tailed catfish, Australian smelt and carp gudgeon) successfully spawned in the system in spring 2014. With the exception of eel-tailed catfish, these species were also recorded as small individuals, indicating that subsequent conditions supported recruitment of native fish.

The environmental water delivered in spring 2014 reached the central reed beds of Great Cumbung Swamp, a wetland listed in the Directory of Important Wetlands in Australia.

6 Junction of the Warrego and Darling

The connection between the Warrego River and Western Floodplain was increased, providing additional habitat for aquatic animals and allowing for the exchange of organic matter and nutrients.

Environmental water contributed to flows in the Warrego and Darling rivers, breaking periods of low flow and inundating habitats that are important for nutrient cycling within the river channel.

The internationally protected Eastern great egret, black fronted dotterel, grey teal, pink eared duck, herons, brolga, and Australian grebe benefited from the inundation of the Western Floodplain.

Inundation of the Western Floodplain persisted for over eight months and supported a diverse and unique range of microinvertebrates including copepod crustaceans, seed shrimps and round worms.

Barking frog, spotted marsh frog, Peron's tree frog and desert tree frog also benefited.

Inundation of 37 hectares of key communities on the Western Floodplain, positively influenced plant diversity and cover, supporting the growth of native herb species such as River mint and Slender knotweed.

7 Gwydir

Environmental water inundated 6,342 hectares of the Gingham and Gwydir wetlands.

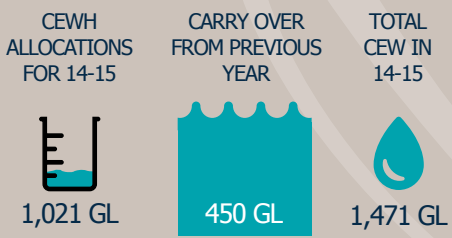
Water delivered down the Mehi River and Carole Creek produced a defined flow pulse that reached the Barwon River, influencing river levels as far downstream as Bourke. This helped to maintain water quality, facilitate the transport of nutrients, organic matter and aquatic plants and micro-organisms between sites.

Significant increases in waterbird species diversity and total abundance were observed at sites that received water. This included seven species listed under international agreements such as Latham's snipe, Sharp-tailed sandpiper, Brolgas and Magpie geese. Several species including the plumed whistling-duck and Australasian darter were recorded breeding at a number of sites.

A diverse range of vegetation communities were inundated with increased coverage of native species such as water couch out-competing weed species such as Lippia.

WATER SUPPLY

The Commonwealth Environmental Water Holder may deliver water to key assets within the Basin over the course of the watering year, carry over for use in future years, or trade.



WATER USE

Commonwealth Environmental Water used in Basin catchments in 2014-15.



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