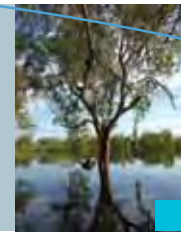
Annual Report of the Commonwealth Environmental Water Holder 2009–10



The *Water Act 2007* establishes the position of Commonwealth Environmental Water Holder (CEWH) to manage the Commonwealth's environmental water holdings so as to protect or restore environmental assets in the Murray-Darling Basin and in other areas where environmental water is held.

The Secretary of the Department of the Environment, Water, Heritage and the Arts appointed Mr Ian Robinson as the Commonwealth Environmental Water Holder in 2008. Mr Robinson also holds the position of First Assistant Secretary, Water Governance Division, in the department.

Activities of the Commonwealth Environmental Water Holder in 2009–10

Approach to environmental water use

The Commonwealth's approach to using its environmental water is aimed at achieving the best environmental outcomes across the Basin. It is based on the *Framework for determining Commonwealth environmental watering actions*, which was finalised and published in 2009–10, incorporating feedback from stakeholders provided through public consultation. The approach is described in the Commonwealth Environmental Water Holder 2009–10 Business Plan, made available to stakeholders early in the year.

For much of the Murray-Darling Basin the objectives for 2009–10 were those applying for an *extremely dry* period. These were: to avoid critical loss among threatened species; to avoid irretrievable damage or catastrophic events; and to provide drought refuges that will enable recolonisation as conditions improve.

Where wetter conditions prevailed, for example in some northern catchments over summer, the objectives were to support high-flow river and floodplain functional processes and to promote connectivity between the floodplain and river channel.

Potential watering options were identified in cooperation with Basin state governments and other environmental water managers, local groups (such as catchment management authorities, natural resource management boards and environmental water advisory groups), as well as land holders who put forward proposals for the Commonwealth's consideration.

The potential watering options were then assessed against agreed criteria: the ecological significance of the asset; the expected ecological outcomes from the proposed watering action;

the potential risks of the proposed watering action at the site and at connected locations; the long-term sustainability of the asset, including appropriate management arrangements; and the cost effectiveness and operational feasibility of undertaking the watering.

The assessment criteria were developed with input from stakeholders, including Basin state governments, and agreed by the Environmental Water Scientific Advisory Committee. This committee consisting of scientific experts was established in 2008 to advise the department and the Commonwealth Environmental Water Holder on environmental water issues. The decisions on 2009–10 environmental water use were informed by advice from the committee, which met six times during the year.

Environmental Water Scientific Advisory Committee

Advises the Commonwealth Environmental Water Holder and the department on the use of environmental water including:

- methods for determining relative priority of environmental assets
- areas that merit additional investigation, including additional research
- assessing the benefits of the use of environmental water.

The committee is chaired by Professor Barry Hart, and comprises eminent scientists and experts in fields such as hydrology, limnology, river operations management, river and floodplain ecology and the management of aquatic ecosystems.

Following decisions on use, the Commonwealth entered into arrangements with the relevant Basin state governments and other environmental water holders or catchment management authorities, to deliver the water. This delivery phase also involved coordination with river operators.

Cooperative arrangements for use of Commonwealth environmental water

Use of the Commonwealth's environmental water involves a high degree of cooperation with Basin state governments, other environmental water holders, the local community and others, particularly when identifying watering options and in the delivery and monitoring of outcomes. For example:

- The arrangements for the delivery of about seven billion litres of environmental water to Hattah Lakes in 2009–10 were typical of the Commonwealth's arrangements with delivery partners in Victoria.
- The identification of the watering action was undertaken in conjunction with the Mallee Catchment Management Authority (CMA), the Victorian Department of Sustainability and Environment, Parks Victoria and The Living Murray.
- The Mallee CMA delivered the Commonwealth's water into Hattah Lakes where it was coordinated with three billion litres from the Victorian Government, five billion litres from The Living Murray, and 400 million litres through the Australian Conservation Foundation. Monitoring is being undertaken by the Mallee CMA.

Agreed arrangements for monitoring the ecological responses and reporting to the Commonwealth on the environmental outcomes achieved were put in place with delivery partners and community groups. The results from the monitoring activities are being used to refine an adaptive management approach where the lessons learned from watering actions are informing future actions.

Lake Little Hattah, Hattah Lakes, Victoria—Prior to environmental watering, April 2009 (left) and following environmental watering, December 2009 (right). (Mark Mohell)

Environmental water available in 2009–10

The volume of water available to the Commonwealth for environmental use in 2009–10 was 187 gigalitres; more than 12 times the amount available in the previous year. The large increase was due to a number of factors such as: growth in the holdings; higher allocation rates; and significant rainfall events, mostly in the northern part of the Murray-Darling Basin.

The holdings grew from 64 gigalitres at the end of 2008–09 to 738 gigalitres at the end of 2009–10 (Table 1).

In the southern basin allocations were higher than in the previous year, although still well below long-term averages in most catchments. Allocations in the New South Wales Murray (general security) and the Goulburn (high security), were 27 and 71 per cent in 2009–10, compared with 9 and 33 per cent respectively in the previous year. The long-term averages in these catchments are 81 and 95 per cent respectively.

Significant rainfall events in the Macquarie and Murrumbidgee catchments in late 2009 and early 2010 allowed the Commonwealth to access water from its supplementary titles for the first time. Flood events in early 2010 in the northern Murray-Darling Basin also yielded good returns on unregulated titles.

Table 1. Commonwealth environmental water holdings			
River System	**Security**	**Registered entitlements Gigalitres (GL)**	
		30 June 2009	**30 June 2010**
Queensland[1]			
Border Rivers	Medium		5.53
	Unsupplemented		1.00
Moonie	Unsupplemented		1.42
Nebine	Unsupplemented		5.92
Warrego	Unsupplemented		16.05
New South Wales			
Gwydir	General	11.66	88.52
	Supplementary		19.10
Lachlan	High	0.30	0.73
	General	14.17	81.99
Macquarie/Cudgegong	General	1.97	57.39
	Supplementary		1.89
Murray	High		0.32
	General	8.62	171.56
Murrumbidgee	General	13.74	64.36
	Supplementary	1.13	20.82
Namoi (upper)	General	0.10	0.11
Namoi (lower)	General	3.73	6.10
Victoria			
Broken	High		0.02
	Low		0.01
Campaspe	High	0.64	5.12
	Low		0.40
Goulburn	High	0.65	53.69
	Low	0.37	10.38
Loddon	High		1.18
	Low		0.53
Murray	High	5.30	74.93
	Low	0.35	9.78

Table 1. Commonwealth environmental water holdings			
River System	**Security**	**Registered entitlements Gigalitres (GL)**	
		30 June 2009	**30 June 2010**
Ovens	High	0.05	0.07
South Australia			
Murray	High	0.79	38.89
Total		**63.57**	**737.80**

1 Figures for the Queensland unsupplemented entitlements represent the volumetric limit, or maximum allowable take, for those entitlements. These are annual volumetric limits with the exception of the Border Rivers, where the maximum specified take is three gigalitres over any three-year period.

Use of Commonwealth environmental water

The significantly larger volume of water available in 2009–10 provided the opportunity to expand the scope of environmental watering to protect or restore a broader range of environmental assets.

Of the 187 gigalitres available, 153 gigalitres were used during the 2009–10 water year. Wetlands and floodplains in the Murray, Murrumbidgee and Macquarie catchments received 97 gigalitres. These watering events built on and consolidated environmental water use in 2008–09, in some cases with much larger volumes, such as at Hattah Lakes in Victoria. The increased volume of available water also allowed the CEWH to provide water to a larger number of sites at greater volume. For example, significant amounts of water were provided for the first time to the Lowbidgee Floodplain in New South Wales (48.70 gigalitres) and Lake Albert in South Australia (20 gigalitres).

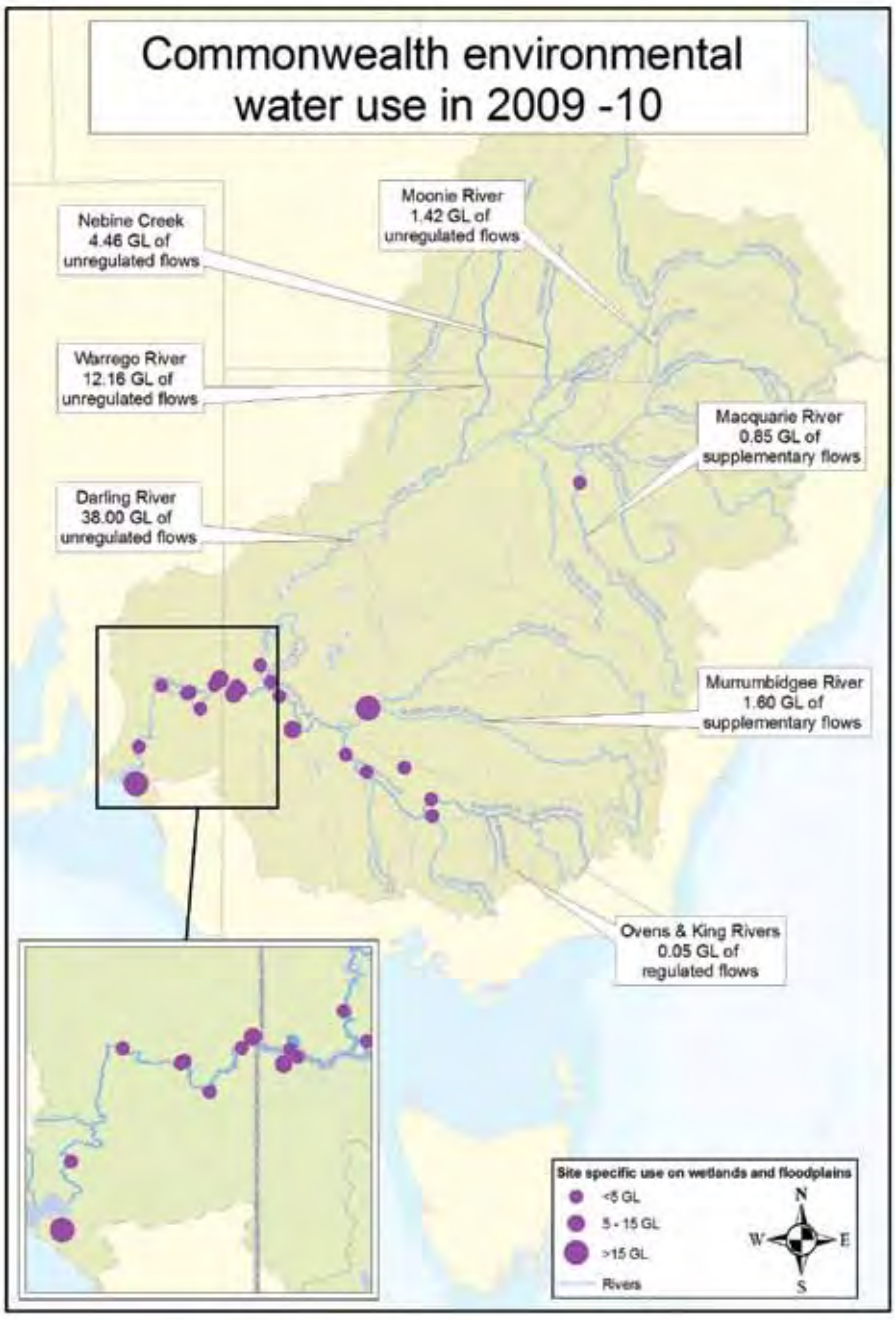
A further 56 gigalitres were directed as in-stream and overbank flows in the Warrego and Moonie rivers, Nebine Creek, and the Darling River and Ovens catchments. These flows represent a new and what will be an increasing feature of the Commonwealth's environmental watering activities in future years.

The use of Commonwealth environmental water throughout the year is increasing canopy cover in river red gums and providing refuges for native flora and fauna during the drought. It is also contributing to successful bird breeding events and helping to reduce the risk of acidification of Lake Albert. The in-stream and overbank flows contributed to connected system benefits as floodwaters filled flood-runners and anabranches and breached riverbanks.

A total of 34 gigalitres was carried over for delivery in 2010–11. Of this, 11 gigalitres was committed for use at Hattah Lakes, Lake Wallawalla and Chowilla Floodplain early in the new water year. Carrying over water enables late winter and early spring environmental needs to be met, when seasonal water allocations are expected to be low. The Commonwealth environmental water holdings are subject to the same carryover arrangements as equivalent titles held by irrigators.

Carpark Lagoons in the Katarapko Floodplains South Australia—Prior to environmental watering, South Australia, March 2009 (top); following environmental watering, April 2009 (middle); and six months after environmental watering (above), November 2009. (Mark Mohell)

Map 1: Location of environmental assets watered in 2009–10



Data Sources: Drainage Division, States, © Commonwealth of Australia (Geoscience Australia). © Murray-Darling Basin Authority 2010. Sustainable Yields Reporting Regions © CSIRO Land and Water 2010.

All data are presumed to be correct as received from data providers. No responsibility is taken by the Commonwealth for errors or omissions. The Commonwealth does not accept responsibility in respect to any information or advice given in relation to, or as a consequence of, anything contained herein. Map produced by: ERIN, DEWHA, July 2010.

Murray and Ovens catchments, New South Wales, South Australia and Victoria

Almost 48 gigalitres of Commonwealth environmental water were made available for use in the Murray catchment during the year (Table 2). The water was provided through several discreet events to river red gum forests, floodplain wetlands, streams of the upper Murray system and to Lake Albert, part of the Coorong, Lakes Alexandrina and Albert Ramsar site.

Table 2. Commonwealth environmental water use in the Murray and Ovens catchments

Wetlands and Floodplains	Commonwealth water delivered (GL)
Lake Wallawalla, near Mildura, Vic	4.14[1]
Hattah Lakes, near Mildura, Vic	7.06[2]
Werai State Forest, near Deniliquin, NSW	4.50
Top-up flows for nine wetlands along the lower NSW Murray (Andruco Lagoon, Boeill Floodplain, Brechin, Cliffhouse 1 and 2, Grand Junction, Kennaugh, Nampoo, Wee Wee Creek)	1.75
Millewa State Forest, near Deniliquin, NSW	1.50
Chowilla Floodplain, near Renmark, SA & NSW	7.23[3]
Lake Albert, at the Murray Mouth, SA	20.00
Morgan Conservation Park, near Morgan, SA	0.32
Molo Flat, near Waikerie, SA	0.33
Wigley Reach, near Renmark, SA	0.25
Paiwalla Wetland, near Murray Bridge, SA	0.24
Weila, near Renmark, SA	0.22
Overland Corner Complex, near Kingston-on-Murray, SA	0.20
Katarapko Creek Wetlands, near Berri, SA	0.02
In-stream and overbank flows	
Ovens & King rivers, near Wangaratta, Vic	0.05
Total	**47.80**

1 A further 7.86 gigalitres was carried over for use in early 2010–11.

2 A further 2.04 gigalitres was carried over for use in early 2010–11.

3 A further 1.07 gigalitres was carried over for use in early 2010–11.

The watering in the Murray catchment was aimed at: protecting mature river red gum and black box communities; reducing the risk of acidification of Lake Albert; and providing refuge during the drought for native flora and fauna, particularly migratory birds and other riverine ecosystem-dependent and threatened species such as the Australian painted snipe, the regent parrot, and the southern bell frog.

An example of one of the larger watering events occurred at the Ramsar-listed Hattah-Kulkyne Lakes in North-western Victoria, where Commonwealth water was provided to consolidate benefits from previous environmental watering events. In autumn 2009 one of the Commonwealth's first watering events, provided Hattah Lakes with 2.12 gigalitres in conjunction with Victorian and Living Murray water. Positive outcomes included the sighting of 29 species of waterbird (with over 3,200 individuals recorded) on the lakes, as well as a vigorous response from the river red gums fringing the lakes and along Chalka Creek. There were also reports of the regent parrot (listed as a vulnerable species under the *Environment Protection and Biodiversity Conservation Act 1999*) benefiting from improved river red gum habitat.

To build on this success and extend the ecological benefits, further environmental watering was undertaken in 2009–10. The Commonwealth delivered an additional 7.1 gigalitres to maintain the health of stressed river red gums and provide important drought refuges for waterbirds and other wetland-dependent species. This additional water allowed more of the 18 lakes to be filled and was undertaken in conjunction with The Living Murray program, which provided 5 gigalitres of water. The Victorian Government provided 3.1 gigalitres, and public donations provided 400 megalitres through the Australian Conservation Foundation.

The 20 gigalitres allocated to Lake Albert in early 2010 built on 170 gigalitres of water provided to the Lower Lakes from South Australia's environmental water reserve, 48.3 gigalitres from The Living Murray program and 100 gigalitres from the Darling River floodwaters to the Lower Lakes. This water has reduced the risk of acidification of Lake Albert, helped to reduce salinity levels below what they would otherwise have been, and maintained the lake as a refuge for significant populations of waterbird and other water-dependent species during the drought.

Murrumbidgee catchment, New South Wales

The Murrumbidgee catchment received nearly 49 gigalitres of Commonwealth environmental water during the year, provided in three separate events (Table 3).

Table 3. Commonwealth environmental water use in the Murrumbidgee catchment

Wetlands and Floodplains	Commonwealth water delivered (GL)
Lowbidgee Floodplain, near Balranald, NSW	
- watering event over spring and summer 2009–10	7.10
- supplementary event in March 2010	1.60
- watering event in autumn 2010	40.00
Total	**48.70**

Figures have been rounded.

In spring 2009, 4.90 gigalitres of environmental water was made available for Mercedes Swamp and the Twin Bridges Wetland complex on the Lowbidgee Floodplain. The watering initiated a breeding event of egrets and cormorants, which was sustained through the summer with an additional 2.19 gigalitres from the Commonwealth and approximately 3.40 gigalitres from the New South Wales Government.

In March 2010 good autumn rainfall resulted in a supplementary water event in which the Commonwealth released a further 1.60 gigalitres and the New South Wales Government 400 megalitres, to lower North Redbank. The water was provided to maintain wetland vegetation, including river red gum communities.

Following these two successful events, in late autumn a further 40 gigalitres of Commonwealth environmental water was provided to Yanga National Park. It was used in conjunction with over 30 gigalitres from the New South Wales Government, to inundate 13,000 hectares of national park including some areas that had not been flooded for 10 years. The mosaic of habitats watered, including open water and emergent aquatic vegetation, is rejuvenating important wetland systems that support a diverse range of plants and animals. It is also providing a refuge for waterbirds and native fish during the drought, particularly in the expanse of deep water in Tala Lake.

Egret at Twin Bridges, Yanga National Park, New South Wales, November 2009—Following environmental watering. (James Maguire, New South Wales Department of Environment, Climate Change and Water)

Macquarie-Castlereagh catchment, New South Wales

The Macquarie-Castlereagh catchment received 933 megalitres of Commonwealth environmental water during the year, provided in two separate events (Table 4).

Table 4. Commonwealth environmental water use in the Macquarie-Castlereagh catchment

Wetlands and Floodplains	Commonwealth water delivered (GL)
Macquarie Marshes, near Dubbo, NSW	
- watering event in spring 2009	0.09
- supplementary events in summer 2009–10	0.85
Total	**0.93**

In conjunction with the New South Wales Government, a spring watering event directed 19.28 gigalitres, including 87.2 megalitres of Commonwealth environmental water, to Buckiinguy Swamp, Mole Marsh, Monkeygar Swamp and the southern part of the North Macquarie Marshes Nature Reserve. Good rain in the catchment in December 2009 and February 2010 resulted in two supplementary water events where the Commonwealth Environmental Water Holder accessed 845.6 megalitres, which with the contribution of the New South Wales Government provided a total of 1.5 gigalitres of environmental water to the Marshes along Gum Cowal.

The water provided in 2009–10 achieved biodiversity outcomes by improving tree health and providing drought refuge to frogs and birds including great egrets and cormorants. The successful breeding of approximately 800–1,000 pairs of egrets was assisted by summer rains, tributary inflows and environmental flows that all played a role in providing a secure food source for breeding adults and juvenile birds. Several thousand waterbirds were also counted foraging in the south marsh areas in spring. Water couch, common reed and spike rush communities had significant growth and set seed, which is important for resilience. Eight species of frogs were recorded.

Macquarie Marshes, New South Wales, October 2009—Following environmental watering. (Professor Richard Kingsford)

Darling catchment, New South Wales

As a result of the major rainfall events in the northern part of the Murray-Darling Basin in late 2009 and early 2010, 38 gigalitres of water accrued against the Toorale Station water titles for environmental use at the direction of the Commonwealth (Table 5).

This water provided benefits to in-stream habitats along the Darling River and to riparian ecosystems.

Table 5. Environmental water use in the Darling catchment (Toorale titles)

In-stream flows	Water delivered (GL)
Darling River, NSW	38.00
Total	**38.00**

Warrego, Moonie and Nebine catchments, Queensland

The Commonwealth's unregulated water entitlements in the Warrego and Moonie Rivers and Nebine Creek provided environmental water as part of the floods from January to April this year. In total, 18 gigalitres of the in-stream flow in these rivers was attributed to the Commonwealth's entitlements (Table 6).

Table 6. Commonwealth environmental water use in the Warrego, Moonie and Nebine catchments

In-stream and overbank flows	Commonwealth water delivered (GL)
Warrego River, Qld (approximately 400 km of river)	12.16
Moonie River, Qld (approximately 230 km of river)	1.42
Nebine Creek, Qld (approximately 70 km of river)	4.46
Total	**18.03**

While the Commonwealth's environmental water was a small component of the total flows in the Queensland rivers, it contributed to the benefits from those floods, including filling of waterholes in the main river channels and distributaries, and the inundation of floodplains and associated wetlands. In the Warrego system, where in-stream flows of 12.16 gigalitres were recorded against Commonwealth entitlements, floodwaters filled the vast Cuttaburra Basin in North-western New South Wales. This area includes the nationally significant Yantabulla Swamp, an important regional drought refuge and a breeding area for ducks and colonial waterbirds.

Outcomes from use of the Commonwealth's environmental water

Monitoring and reporting on outcomes is being undertaken to determine the ecological impacts of the Commonwealth's environmental watering program and to refine an adaptive management approach to use of the Commonwealth's environmental water holdings. The approach involves working closely with state government agencies and local organisations,

including catchment management authorities, who undertake monitoring and provide the information to the department.

Although the watering program is at an early stage, monitoring of environmental responses detected encouraging changes including improving tree growth, decreased salinity, and benefits to a range of plants and animals. An inaugural report on the preliminary outcomes from the first use of Commonwealth environmental water in 2008–09 was published in March 2010. It is available on the department's website at www.environment.gov.au/water/publications/action/cewh-outcomes-report-2008-09.html. Ecological outcomes can take time to materialise and further benefits will be reported over time. Outcomes from the use of water in 2009–10 will be reported in early 2011.

With input from the Environmental Water Scientific Advisory Committee, the department is developing a longer-term monitoring and evaluation framework that will align with the requirements of the Murray-Darling Basin Plan being developed by the Murray-Darling Basin Authority (MDBA). Once the Basin Plan is operational, annual reports of the Commonwealth Environmental Water Holder will report achievements against the objectives of the MDBA's environmental watering plan.

Shepherding environmental water

The Commonwealth is working with Basin states to put in place water shepherding arrangements across the Murray-Darling Basin. The focus is on priority unregulated river systems such as the Barwon-Darling system in New South Wales and the Lower Balonne system in Queensland. In addition, the department is working with other state and Commonwealth agencies to ensure that the Basin Plan and the Murray-Darling Basin Agreement provide for shepherding of water for the environment.

These shepherding arrangements will: protect the Commonwealth's environmental water from diversion by others; allow it to be directed by the Commonwealth so as to achieve the best environmental outcomes; and provide for accurate accounting of the environmental water. In implementing these arrangements, the rights of other entitlement holders will not be diminished.

Environmental Water Holdings Special Account

The Environmental Water Holdings Special Account is established under section 111 of the *Water Act 2007* to facilitate the payment of costs, expenses and other obligations incurred in managing the environmental water holdings.

At the start of 2009–10 the special account balance was $3.89 million. Funding of $2.23 million was credited to the account during the financial year, and $1.099 million was expended on annual water entitlement fees, allocation trading and delivery costs. As at 30 June 2010, the special account balance was $5.027 million.

Further information on the special account is included in the department's 2009–10 financial statements.

Directions given to the Commonwealth Environmental Water Holder

There were no directions given to the Commonwealth Environmental Water Holder by the Secretary of the Department of the Environment, Water, Heritage and Arts or the Minister for Climate Change, Energy Efficiency and Water during 2009–10.

Keeping the community informed

The Commonwealth's approach to managing and using its environmental water is set out in the Commonwealth Environmental Water Holder Business Plan, which is updated at the start of each water year. The 2008–09 Annual Report of the Commonwealth Environmental Water Holder and the Commonwealth Environmental Water 2008–09 Outcomes Report were also made available during 2009–10.

Details of the Commonwealth's environmental water holdings have been available throughout the year and are updated monthly on the website at www.environment.gov.au/water/policy-programs/cewh/index.html. The website has also been updated to provide information on decisions on usage as they have been made.

In 2009–10, the Commonwealth Environmental Water Holder and representatives from the department made more than 30 visits to environmental assets and catchments in all jurisdictions across the Murray-Darling Basin and participated in 23 community information sessions on *Water for the Future*. These visits and other meetings provided the opportunity for discussions with irrigation, environmental and other representative organisations, and members of the community.

Future outlook

To date Commonwealth environmental water use has for the most part focused on achieving objectives for extremely dry conditions with relatively small volumes of environmental water available.

Over 2009–10 the holdings grew considerably in size and growth is expected to continue in 2010–11. As at 30 June 2010, in addition to the 737.80 gigalitres of registered entitlements in the holdings, the department had exchanged contracts for a further 150.43 gigalitres. The contracts will be settled and registered, and the allocations against these entitlements will become available from 2010–11. It is also expected that further water entitlements will be acquired in 2010–11 and allocations against those entitlements will begin to be available during the year.

The outlook for the southern Murray-Darling Basin remains dry but even if water allocations remain low, the much larger holdings mean that larger volumes of water will be available for active environmental management than has previously been the case.

An increasingly large water portfolio will make the tasks of managing the holdings, identifying watering options, deciding on the best use of the available water, and managing the delivery, as well as monitoring and reporting on outcomes, more challenging over the coming year.

At the same time, these larger volumes will provide the CEWH with the opportunity to expand the scope of the environmental watering activities that can be undertaken. It is likely that in-stream flows in rivers and streams, in addition to larger floodplain inundation events, will become an increasingly important part of the program. The larger volumes will also enable the CEWH to achieve more for the environment. Monitoring of the Commonwealth's environmental water use to date provides early indications of the types of benefits that can be expected in the future.

Twin Bridges, Yanga National Park, New South Wales, November 2009— Following environmental watering. (James Maguire, New South Wales Department of Environment, Climate Change and Water)