



# **The Murray-Darling Basin Plan in Watershed Rehabilitation and River Restoration**

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A decorative graphic at the bottom of the slide consisting of several overlapping, wavy blue lines that create a sense of movement and flow.

# The Murray-Darling Basin



- area > 1 million km<sup>2</sup>
- 14% of Australia's total surface area
- Australia's 3 longest rivers
  - the Darling (2,740 km)
  - the Murray (2,530 km)
  - the Murrumbidgee (1,690 km)
- 4 Australian States
- rainfall < 500mm
- 50% of Australia's irrigated agriculture
- > 30 000 wetlands
- 16 Ramsar sites

# The Murray-Darling Basin

## Issues of the Basin:

- salinity
- erosion and sedimentation
- algal blooms
- loss of native waterbirds, fish and vegetation



# What is the Murray-Darling Basin Plan?

The Basin Plan is **legislative instrument**:

- November 2012,
- 7 year implementation phase
- **guide** governments, regional authorities and communities
- **sustainably manage** and use the Basin waters
- **review** and **revision** throughout the 7 year implementation phase

## Basin Plan

Balancing the Basin's water



<http://www.mdba.gov.au/basin-plan>

# What is the Murray-Darling Basin Plan?

The Aim:

- to ensure that water is **shared** between all stakeholders, including the environment, in a sustainable way
- managing the basin as **one** system
- this will enable the river systems to continue to support all water stakeholders in the **long term**
- **adapt** to changes, including a changing climate

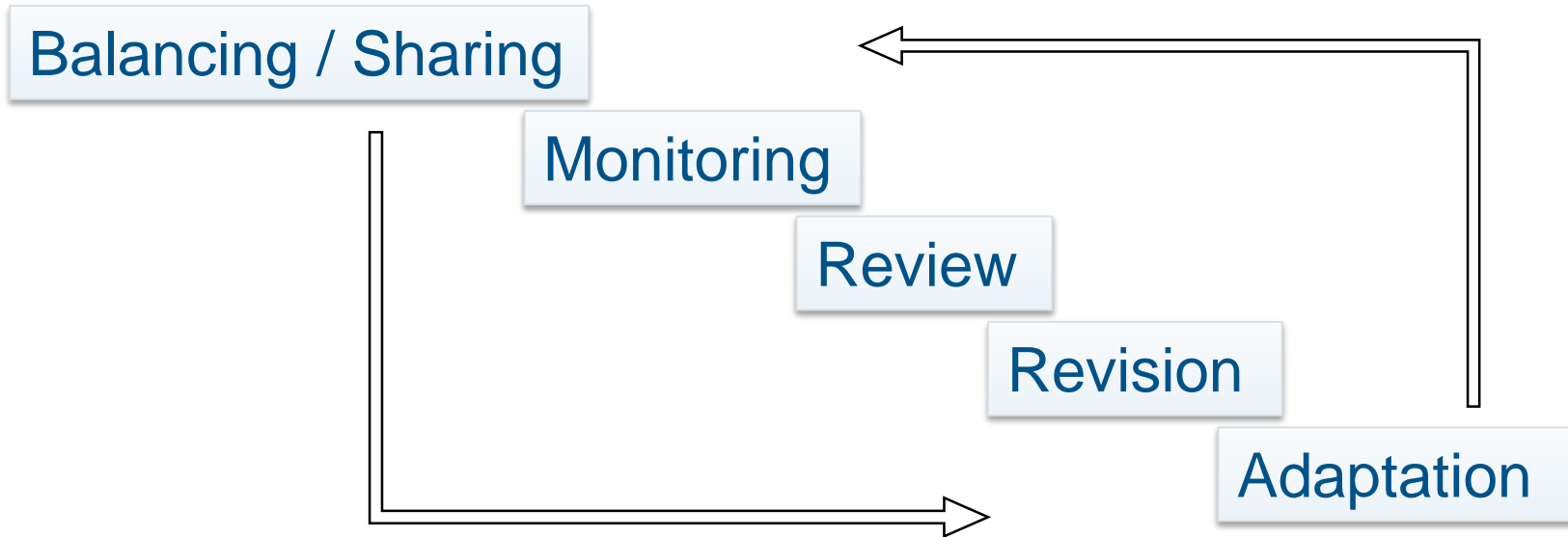
## Basin Plan

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# What is the Murray-Darling Basin Plan?



## Basin Plan

Balancing the Basin's water



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# Basin Plan Annual reporting

**Murray-Darling Basin Authority:**  
Basin Plan annual report 2015-16

01 About this report

02 Working together

03 Basin communities and industries

04 A healthy Basin environment

05 Looking ahead

More information

Australian Government

**DARLING**  
BASIN AUTHORITY

Basin Plan annual report  
2015-16

## Towards a healthy, working Murray-Darling Basin

*Many of the outcomes sought by the Basin Plan will take decades to achieve. Nonetheless, some of the early effects are being observed. Here are some of outcomes seen in 2015-16, and in the second half of 2016.*



# A Healthy Basin

- support a diverse range of bird, fish and plant species
- benefits for communities - water of a quality suitable for irrigation and domestic use

## Basin Plan

Balancing the Basin's water



<http://www.mdba.gov.au/basin-plan>



# A Healthy Basin

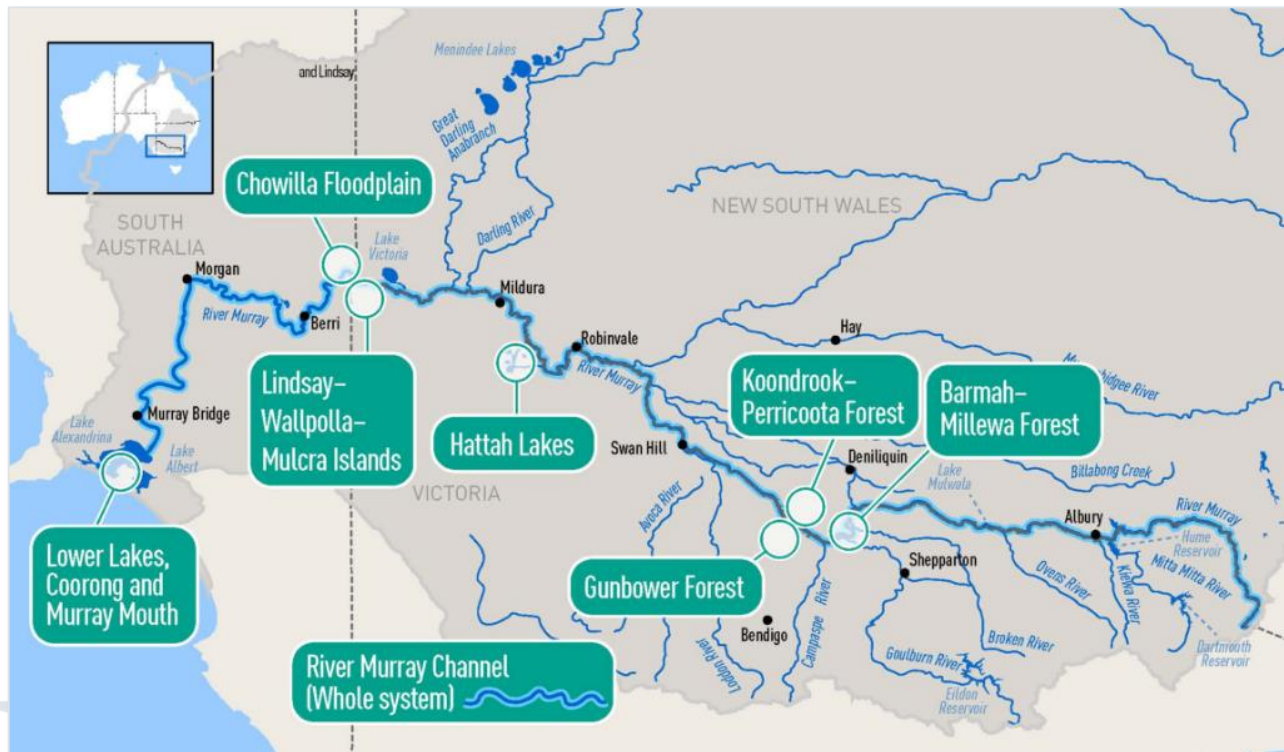
## Issues of the Basin:

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# A Healthy Basin

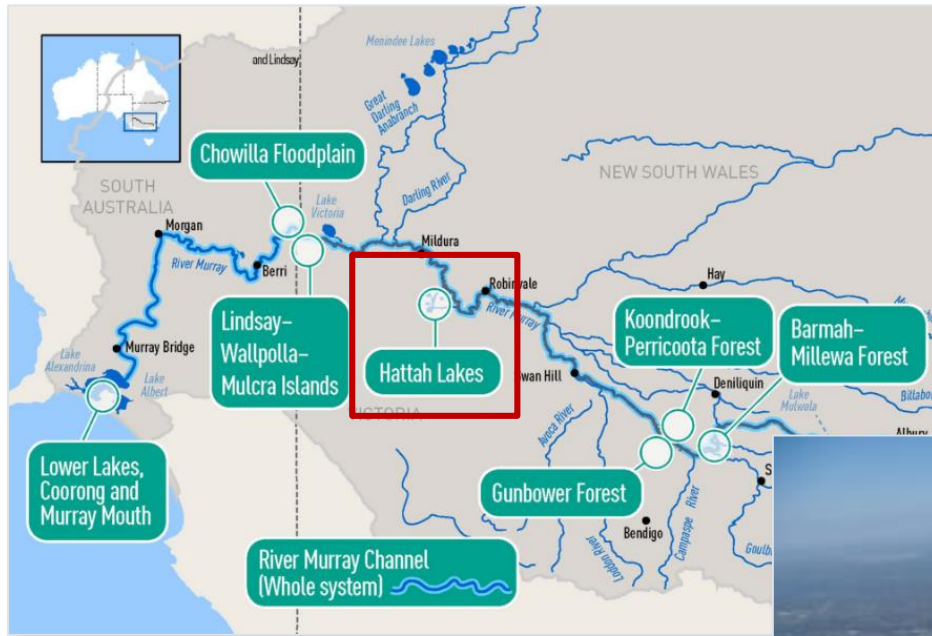
- > 30,000 wetlands in the Basin
- 16 internationally significant Ramsar sites
- 6 icon sites – ecological value and cultural significance



<http://www.mdba.gov.au/discover-basin/environment/significant-environmental-sites>

# A Healthy Basin

## Hattah Lakes ...



<http://www.mdba.gov.au/discover-basin/environment/significant-environmental-sites>



<http://econews.com.au/34131/hattah-lakes-program-takes-out-top-environment-award/>

# A Healthy Basin

## Hattah Lakes ...



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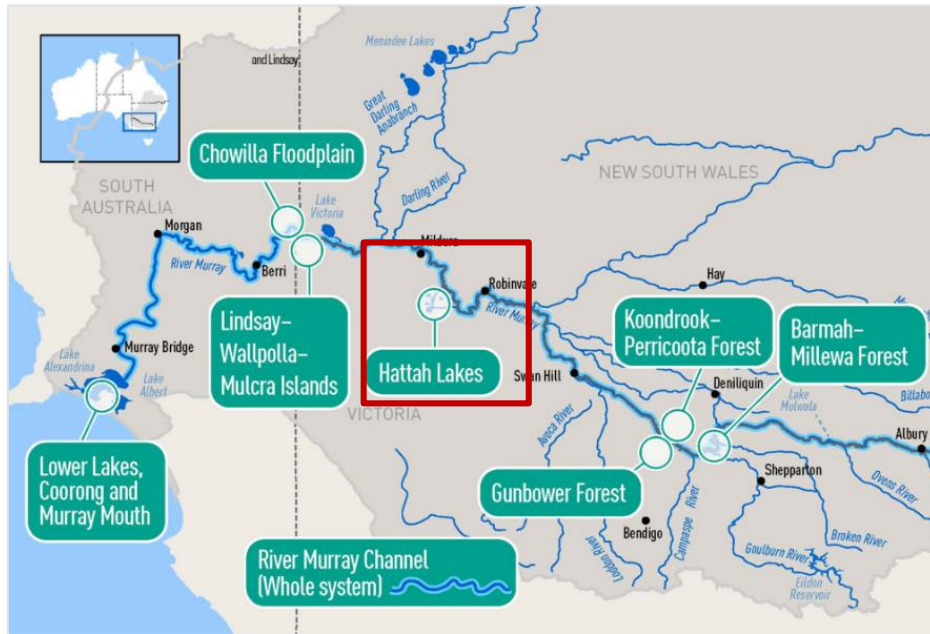
The lack of connectivity between the lakes and the River Murray and the complete drying of the lakes over the past decade has had detrimental effects on the Hattah Lakes ecosystem and its ability to act as a refuge during prolonged drought.

River red gum forests along the Victorian River Murray corridor have shown a substantial decline in tree condition over the past two decades

[http://www.mdba.gov.au/sites/default/files/pubs/HLEWMPSL\\_FA\\_screen.pdf](http://www.mdba.gov.au/sites/default/files/pubs/HLEWMPSL_FA_screen.pdf)

# A Healthy Basin

## Artificially watering the Hattah Lakes ...



After community consultation, government water purchases are **capped** at 1,500 GL

Alternative: infrastructure

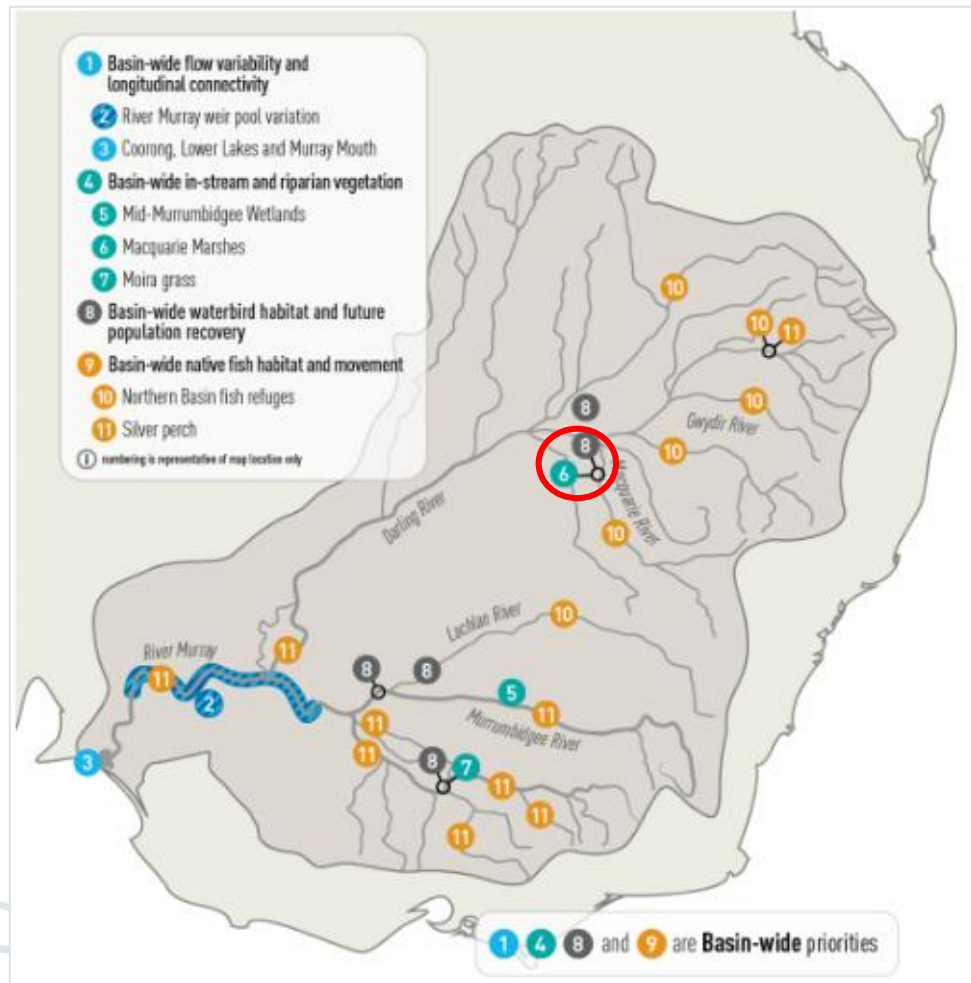
<http://www.mdba.gov.au/discover-basin/environment/significant-environmental-sites>



<http://www.mdba.gov.au/report/basin-plan-annual-report-2015-16/healthy-basin-environment/delivering-water-priorities>

# A Healthy Basin

## Priorities for 2015–16



## Macquarie Marshes

- Ramsar wetland since 1986
- 200 000 ha
- historically: cultural site and food source

<http://www.mdba.gov.au/report/basin-plan-annual-report-2015-16/healthy-basin-environment/basin-wide-environmental-watering>

<https://www.nationalparks.nsw.gov.au/visit-a-park/parks/macquarie-marshes-nature-reserve>

# A Healthy Basin

## Priorities for 2015–16



Annual environmental watering priorities:

- guide the planning of environmental watering across the Basin each year
- achieve the required long-term environmental outcomes

# A Healthy Basin

## Priorities for 2013–14



### Macquarie Marshes

- Improve ecosystem resilience amongst wetland vegetation communities in the Macquarie Marshes

Aerial view over the Macquarie Marshes Nature Reserve, New South Wales © Allan Fox and DSEWPaC

Large areas of reed beds, water couch, and river red gum forests and woodlands, which provide important breeding habitat for many species of colonial-nesting waterbirds.



# A Healthy Basin

## Macquarie Marshes

- altered river flows
- exotic plants and animals
- erosion and sedimentation
- fire



[macquariemarshes.org.au](http://macquariemarshes.org.au)

# A Healthy Basin

## Macquarie Marshes

During 2015–16, environmental water was used to assist the recovery of several reed bed areas that were burnt during the very dry years of 2014, 2015 and 2016.

Since the return to wetter conditions during the winter and spring of 2016, several waterbird colonies have been observed with birds nesting, including within the previously burnt areas.



# A Healthy Basin

## Macquarie Marshes

### Monitoring:

- remote sensing, wetland inundation
- field monitoring of wetland vegetation and water birds
- collecting flow data
- university and government research



[macquariemarshes.com](http://macquariemarshes.com)

# A Healthy Basin

2015-16:

- ~ 2,250 GL of environmental water to annual watering priorities
- ~ 86% of environmental water delivered in coordinated watering events so that water was re-used to benefit multiple priorities



(Photo by Denise Fowler, MDBA)

# A Healthy Basin

Having a Basin Management Plan made it possible to deliver water to maintain the condition of wetlands during the dry times, ready for when wet conditions return.

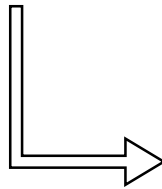


(<https://www.google.com.mm/search?q=birds+of+the+murray+darling+basin>)

# A Healthy Basin



[macquariemarshes.org.au](http://macquariemarshes.org.au)



Macquarie Marshes, New South Wales © DSEWPacNSW