



Government  
of South Australia



Australian Government



MURRAYFUTURES  
Lower Lakes & Coorong Recovery

# Shaping the future of the Coorong and Lower Lakes.



Securing tomorrow's water today



The wetlands of the Coorong,  
Lower Lakes and Murray Mouth  
have been internationally recognised  
for their diverse ecosystems.







# Planning for the future of the Coorong and Lower Lakes

The Murray-Darling Basin is experiencing the worst drought since records began in 1891.

Record low inflows to the River Murray through drought and over-allocation across the Murray-Darling Basin are having a significant social, cultural, economic and environmental impact on the Lower Lakes and Coorong region. Water levels are dropping, salinity levels are increasing and soils on the drying lakebeds and wetlands are acidifying. This situation is unprecedented.

Current predictions indicate that South Australia's climate will become more variable. As a result, we must plan for a future of reduced water availability as well as reducing our reliance on the River Murray.

There is no precedent in dealing with the environmental impacts on this scale. Therefore, careful research and planning must be carried out to secure a healthy and sustainable future for the region.

The South Australian Government is working with local communities and scientists, technical experts and engineers to address immediate drought response issues; plan for worst-case scenarios; and develop long-term sustainable solutions.

## What is at stake?

The wetlands of the Coorong, Lower Lakes and Murray Mouth have been internationally recognised for their diverse ecosystems.

They have been designated a Ramsar Wetland of International Importance because they contain a wide range of birds (including 30% of all migratory wading birds that spend summer in Australia), plants, fish and other animals, many of which are endangered or threatened.

Under the Ramsar Convention, Australia seeks to protect and manage the area in a sustainable way that maintains the natural character of the region for future generations to enjoy.

The area is of great significance to the Ngarrindjeri people, and for its recreational and economic values. It is also one of six 'Icon Sites' under the Murray-Darling Basin Authority's Living Murray initiative – a program to restore the river's environment.

Due to the impacts of prolonged drought and over-allocation of water supplies throughout the Murray-Darling Basin, these important wetlands are under stress. Urgent action needs to be taken to ensure they are able to recover when fresh water flows return to the river.

# Lower Lakes and Coorong Recovery

The South Australian Government has started work on developing a long-term plan for the Coorong, Lower Lakes and Murray Mouth region in partnership with the community, scientists and industry.

The plan will encompass the environmental, social, cultural and economic values that are important to the region.

The Australian Government will provide up to \$200 million to South Australia to support an enduring management response to the ecological problems facing the Lower Lakes and Coorong. This is part of the South Australian Government's \$610 million *Murray Futures* program, funded by the Australian Government's *Water for the Future* program.

The long-term plan will be developed in three stages over the course of the year. The final plan will be completed in October.

The first step in developing the long-term plan is the release of '*The Coorong, Lower Lakes and Murray Mouth: Directions for a healthy future*' (the 'Directions for a healthy future' document) for public comment.

The 'Directions for a healthy future' document includes current knowledge of the region and is a basis for ideas, suggestions and further studies to inform the development of the long-term plan.

The purpose of the 'Directions for a healthy future' document is to:

- provide a base level of information about the area and the challenges being faced
- share information about ways to manage these issues
- inspire discussion about the best future management options for the area.

It highlights:

- the management challenges and key issues
- what has already been done
- a preliminary evaluation of proposed solutions
- the core elements of a proposed future.

## Supporting the local community

Many of the local industries and communities in the region rely heavily on a healthy environment to prosper.

Our goal is to ensure the future for the Coorong, Lower Lakes and Murray Mouth as a healthy and productive wetland of international importance, able to adapt to changing climatic conditions. Achieving this will also directly support the local economy and communities.

While there are a number of feasibility studies, technical and environmental assessments still to be carried out, much work has already been done and local people are ready for action. A \$120,000 Community Eco-Action project, recently launched, builds on many existing community activities.





# The issues and possible solutions

There are six key issues that must be considered in planning for the future of the region.

## **Freshwater in-flows and levels**

Low river flows and unprecedented low lake water levels (below sea level) have been caused by over-allocation upstream, drought and high evaporation rates.

Over-allocation will take considerable time and money to resolve. Work has begun on basin planning by the Murray-Darling Basin Authority. Purchasing of water is being undertaken, but there are practical limitations as to how much can be secured in the short-term.

## **Acid sulfate soils**

Low water levels in the Lower Lakes and tributary rivers have uncovered large areas of previously waterlogged soils that, on exposure to air, are acidifying and producing acid sulfate soils. There are potential impacts on the environment, human and animal health, and the economy.

The best management approach is to saturate the soils with fresh water. Other ways to manage acid sulfate soils are currently being trialled, such as bioremediation and adding finely-ground limestone to affected areas. The use of a minimum amount of seawater is also being investigated as a last resort measure.

## **Salinity**

The salt content in the water in the Lower Lakes is increasing, and is higher than safe levels for humans or livestock to drink, or to irrigate crops. There is also the risk of poor quality water moving upstream and contaminating the State's fresh water supply.

The best method to reduce salinity is to flush the Lower Lakes and Coorong with freshwater. This requires substantially-increased inflows.

## **Biodiversity loss**

The combined impact of low flows and reduced water quality is affecting the range of plants and animals that can live in the area.

Unless the issues of water quantity and quality are addressed, it is expected that the region's ecological character will change dramatically.

## **Sea level rise**

Current predictions are for sea level to rise at least 0.3 metres by 2050 and 1 metre by 2100. This will eventually impact on biodiversity, peninsulas and the barrage system. At some point in the future, it is likely that the site will become more estuarine.

Possible options to manage this may be to fortify the coastline (including the barrages and low-lying islands) and to help the transition to a more estuarine environment when tidal conditions permit in the longer-term.

## **Socio-economic impacts**

The problems associated with less freshwater, acid sulfate soils, rising salinity and species loss are already impacting on the social fabric of the region. Many members of the community have expressed concerns over health issues, the future of local industries and associated effects on employment and their financial future.





FINNISS

1

1

2

WELLINGTON

1

8

CURRENCY CREEK

Lake Alexandrina

GOOLWA

CLAYTON

6

3

NARRLING

9

4

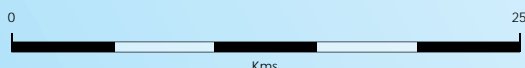
1

Lake Albert

5

MENINGIE

North Lagoon



Southern Ocean

**System Components**

- Lake Alexandrina (incl. Goolwa Channel)
- Lake Albert
- Tributary wetlands
- Murray Mouth and Estuary
- The Coorong
- Freshwater Inflows
- South East Drains
- Barrages

- The Response to Current Problems**
1. Potable water pipelines
  2. Irrigation water pipelines
  3. Pumping from Lake Alexandrina into Lake Albert to prevent acidification
  4. Keeping the Murray Mouth open
  5. Bioremediation and re-vegetation to neutralise Acid Sulfate Soils
  6. The ponding of freshwater within the Finnis River and Currency Creek to manage acidification
  7. Assessing options to reduce salinity in the South Lagoon
  8. Protecting South Australia's water supply below Lock 1
  9. Investigating the impact of sea water inundation



The Coorong

South Lagoon

# Adapting to a changing environment

Over the next 20 years, the long-term plan for the region will work towards freshwater in the Lower Lakes.

However the amount of rainfall and the impacts of sea level rise in the future are uncertain and plans to manage the wetlands must be able to adapt to a changing climate and the possibility that the current extremely dry conditions could occur again in the future.

Six core elements must be put in place to ensure a healthy future for the region. These are:

- a responsive management approach based on robust research, adequate monitoring and extensive community involvement
- engagement of the Traditional owners – the Ngarrindjeri
- freshwater provided to the Lower Lakes
- the Murray Mouth open and connecting the Coorong to the sea
- accepting variable lake levels, yet maintaining system connectivity
- managing localised threats, especially acidification and hypersalinity.

There are a number of ways to achieve each of these elements and there will need to be flexibility in the implementation of the long-term plan to accommodate the climatic conditions at the time.

Ensuring that all of the core elements are in place will put the region in the best position to adapt to future climate change and retain, to the greatest extent possible, the plants, animals and habitats that make it a wetland of international importance.

## What has been done so far?

The South Australian Government has taken a number of emergency actions in response to the current low water levels in the Murray River and Lower Lakes, and continues to plan for worst case scenarios.

Actions taken so far include:

- Dredging to keep the Murray Mouth open
- Sealing the barrages
- Investment in waste water recycling, storm water re-use and desalination
- Pumping water from Lake Alexandrina to Lake Albert to prevent acidification
- Preparing in case a temporary weir near Pomanda Island is needed to secure the State's water supply
- Constructing pipelines to deliver drinking and irrigation water supplies to Lower Lakes communities
- Revegetation and bioremediation trials to treat acid sulfate soils
- Preparing to pond fresh water in Finniss River and Currency Creek to manage acidification
- Investigating ways to reduce salinity in the Coorong's South Lagoon
- Investigating the ecological impacts of temporarily wetting the Lower Lakes with seawater as a last resort measure to stop acidification.

CURRENCY CREEK

Community input is vital to ensure that the best possible plan is developed and the community is invited to participate in the process.





# Have your say

Community input is vital to ensure that the best possible plan is developed and the community is invited to participate in the process.

'*The Coorong, Lower Lakes and Murray Mouth: Directions for a healthy future*' document outlines a possible direction for the future management of the Coorong, Lower Lakes and Murray Mouth. It was released in May 2009 following the collation and analysis of relevant information from policy documents, historic and scientific research and preliminary consultation with a number of local stakeholders.

The long-term plan for the Coorong, Lower Lakes and Murray Mouth region will be developed in three stages over the course of this year. The final plan will be completed in October.

While we have done our best to include existing information and the latest scientific research, we are keen to receive any information that improves our knowledge or corrects our understanding of the issues.



Visit the website at [www.murrayfutures.sa.gov.au](http://www.murrayfutures.sa.gov.au) to:

- Download a copy of '*The Coorong, Lower Lakes and Murray Mouth: Directions for a healthy future*' document or find out how to access a hard copy
- Find out how you can provide feedback in response to the '*Directions for a healthy future*' document
- Find out how you can be involved.

## What happens next?

Community feedback and the latest scientific developments will help inform the preliminary long-term plan, which is expected to be released in July 2009 for public comment.

The final plan will be completed in October 2009, based on further community feedback, science, research and modelling. It will include details on how each of the environmental issues affecting the region will be addressed.

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### Further information

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