

# Project Coorong

Healthy Coorong, Healthy Basin Action Plan



Government  
of South Australia

Department for  
Environment and Water

# Minister's foreword

## A healthy Murray-Darling Basin depends on a healthy Coorong.

During the Millennium Drought the Coorong, Lower Lakes and Murray Mouth region was teetering on the verge of complete environmental collapse.

While the majority of the site is slowly recovering well, the ecology of the Coorong South Lagoon in particular has remained in a degraded state.

Over the coming months, the government will engage with local communities and First Nations on this *Healthy Coorong, Healthy Basin Action Plan*, a key part of our Project Coorong initiative. Project Coorong is restoring the health, vitality and visitor experience of this precious place through environmental projects and initiatives to boost eco-tourism, focusing on the Coorong National Park.

This *Healthy Coorong, Healthy Basin Action Plan* outlines the short, medium and long-term on-ground works, scientific trials and investigations, management tools and infrastructure activities required under this investment to get the Coorong back on track for a healthy, resilient future for the Coorong, Murray Lower Lakes and Murray Mouth region and the communities that call it home.

As Minister for Environment and Water, I am committed to doing everything I reasonably can to accelerate the recovery and improve the health of this iconic site, in particular the Coorong South Lagoon.

When I became Minister I made it clear that we needed a much stronger understanding of the Coorong and its declining condition, which is why I commissioned the Goyder Institute for Water Research to produce the Coorong Expert Panel Report, and convened the Coorong Summit, to create a clear vision as to what was needed to restore this precious habitat.

In December 2018, in recognition of the importance of the Ramsar-listed Coorong to the health of the Murray-Darling Basin and to the success of the Basin Plan, as well as the declining condition of the Coorong South Lagoon, the Australian and South Australian Governments committed \$70 million to improve the long-term health of the Coorong.

This *Healthy Coorong, Healthy Basin Action Plan* presents a working vision to help restore the health of the Coorong, characterised by healthy vegetation and with abundant and diverse populations of waterbirds, fish and plants.

I encourage you to visit [www.projectcoorong.sa.gov.au](http://www.projectcoorong.sa.gov.au) to be a part of this process.



**David Speirs MP**  
Minister for Environment  
and Water

## Acknowledgement of Country

Aboriginal people are the First Peoples and Nations of South Australia. The Coorong, connected waters and surrounding lands have sustained unique First Nations cultures since time immemorial.

The *Healthy Coorong, Healthy Basin* program acknowledges the range of First Nations' rights, interests and obligations for the Coorong and connected waterways and the cultural connections that exist between First Nations peoples across the region and seeks to support their equitable engagement.

Aboriginal peoples' spiritual, social, cultural and economic practices come from their lands and waters, and they continue to maintain their cultural heritage, economies, languages and laws which are of ongoing importance.



# Healthy Coorong, Healthy Basin

*Healthy Coorong, Healthy Basin* will contribute to managing the Coorong for ecological health and, through this, support the Coorong, Lakes Alexandrina and Albert Wetland Ramsar site to be a healthy, productive and resilient wetland system that maintains its international significance.

This Action Plan outlines the short, medium and long-term on-ground works, scientific trials and investigations, management tools and infrastructure activities required from the \$70 million *Healthy Coorong, Healthy Basin* investment between 2019 to 2024 to get the Coorong back on track for a healthy future.

Restoring a healthy Coorong is critical for the environment, First Nations, local communities, the South Australian tourism industry, the overall health of the Murray-Darling Basin, and the overall success of the Murray-Darling Basin Plan.

That's why action is underway to restore the Coorong's health, bringing new life to the region.

## Purpose

Throughout 2019, local communities and First Nations will be involved in shaping, developing and implementing the actions outlined in this action plan.

The community will be invited to give their input on:

- the vision for maintaining the Coorong as a healthy, productive and resilient wetland system that maintains its international significance
- the on-ground works, trials and investigations, management tools and infrastructure options for managing the Coorong
- the benefits and impacts of possible actions on the environmental, social, economic and cultural values of the Coorong
- how communities could be involved in managing the Coorong into the future.



# The Coorong Partnership

Incorporating the experience and knowledge of the local community and First Nations is critical to successfully restoring the health of the Coorong.

As part of the broader Project Coorong initiative, a new Coorong Partnership will be established to provide local communities and groups with an unprecedented opportunity to help shape the work to be undertaken.

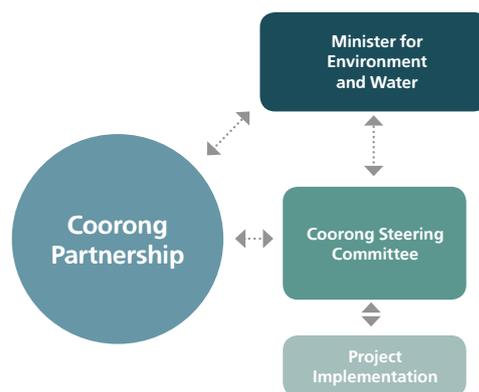
The Coorong Partnership will comprise a community chairperson and local members with a broad range of interests and expertise including, but not limited to, Aboriginal culture, conservation, recreation, science, agriculture, tourism, fishing and heritage.

The Partnership will provide community insight, ideas and perspectives to inform government decision making and ensure that management actions taken incorporate local knowledge and contribute to achieving community needs and aspirations.

The Coorong Partnership will transform the way that government partners with community in the management of the Coorong.

In recognition of the unique rights and interests of First Nations, they will be an integral part of the Coorong Partnership.

## Governance Structure



## How to get involved

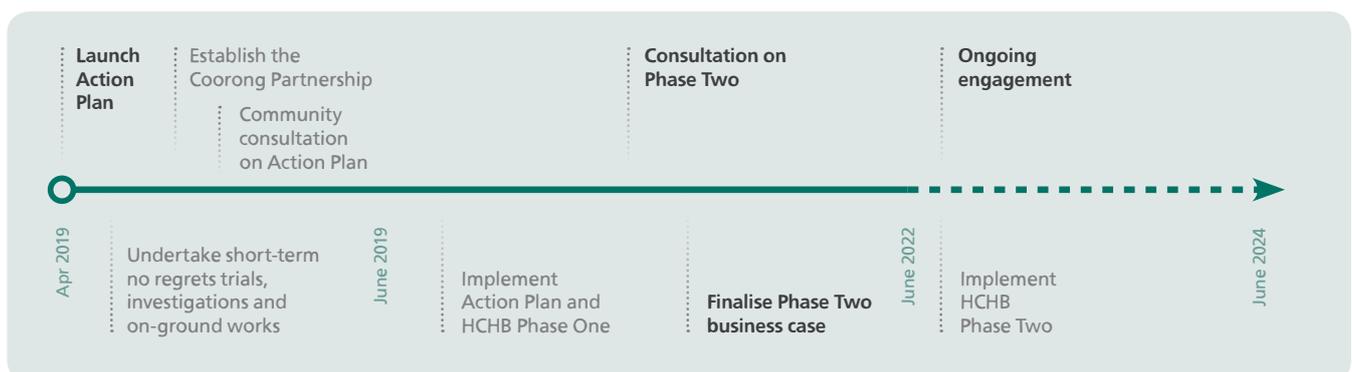
Visit [www.projectcoorong.sa.gov.au](http://www.projectcoorong.sa.gov.au) for more information about how you can get involved in improving the environment and supporting communities and industries in the Coorong.



## How we will support a healthy Coorong

- Undertake short-term, no-regrets trials, investigations and on-ground works.
- Address critical scientific knowledge gaps.
- Identify and investigate longer-term management options and implement those deemed feasible to provide the most benefit.
- Develop tools and systems to improve the transparency, efficiency and effectiveness of water delivery and management.
- Partnering with First Nations and local communities in on-ground action.

## Timeline



# Why the Coorong is so important

The Coorong is a national treasure and unique environment, widely regarded to be the most important waterbird wetland in the Murray-Darling Basin.

The wetland's significance is internationally recognised as part of the Coorong and Lakes Alexandrina and Albert Ramsar listed wetland, supporting endangered migratory birds from across the world, threatened wildlife and rare plants. Its importance is also recognised through international migratory bird agreements.

The Coorong is of enormous cultural significance to its First Nations. 'Kurangk' is the name given to the area by the Ngarrindjeri people, meaning long narrow neck. The southern part of the Coorong South Lagoon is also significant to the First Peoples of the South East and is part of their Traditional Country.

The Coorong National Park not only plays an important role in conserving this precious environment for First Nations and the public, it also offers a wide range of activities for visitors, from birdwatching and fishing to canoeing and four-wheel-driving, all the while camping in a beautiful wilderness.

At the heart of 'Storm Boy Country', featuring in the classic Australian movie, as well as the recent remake, the Coorong is also an important breeding area for the iconic Australian pelican.

With its natural beauty, abundant wildlife and unspoilt coastline, the Coorong is one of South Australia's most loved and most visited tourist destinations, making its health vitally important to the state and local economy.

The nearly 28,000 people who live in the Coorong, Lower Lakes and Murray Mouth region mainly work in agriculture, viticulture, fishing, manufacturing and tourism, with the majority of industries relying on a healthy wetland system to thrive. River systems die from the mouth up, which is why the Coorong's health is important to the entire Murray-Darling Basin system, which supports Australia's 'food bowl' and is home to more than two million people.

The South Australian government is committed to ensuring that the environmental features of the Coorong that make it internationally significant – its ecological character – are maintained.

It's vital that this important wetland and beautiful tourist destination is looked after for future generations to benefit plants and wildlife, First Nations culture, local communities, the state's economy and for the enjoyment of visitors from across the world.

That's why the South Australian government is taking action to restore its health and get the Coorong back on track for the future.



## The Basin Plan, Ramsar and the Coorong

The *Water Act 2007* sets out that the purpose of the Basin Plan is to provide for the integrated management of the Basin water resources giving effect to relevant international agreements.

The Basin Plan must:

- promote sustainable use of the Murray-Darling Basin's water resources to protect and restore its ecosystems, natural habitats and species, and to conserve biodiversity
- promote the wise use of all water resources in the Murray-Darling Basin
- promote the conservation of declared Ramsar wetlands in the Murray-Darling Basin.

A key objective of the Basin Plan is to ensure that Ramsar wetlands, such as the Coorong, maintain their ecological character.

The forthcoming Coorong, Lakes Alexandrina and Albert Wetland Ramsar Ecological Character Description (ECD) details how several critical components, processes and services that define the ecological character of the Coorong are at risk of exceeding their limits of acceptable change.

Although the key ecological features of the Coorong that make it a unique and valuable place are still present, the system is in a vulnerable state, with little capacity to absorb continued and cumulative environmental stress.

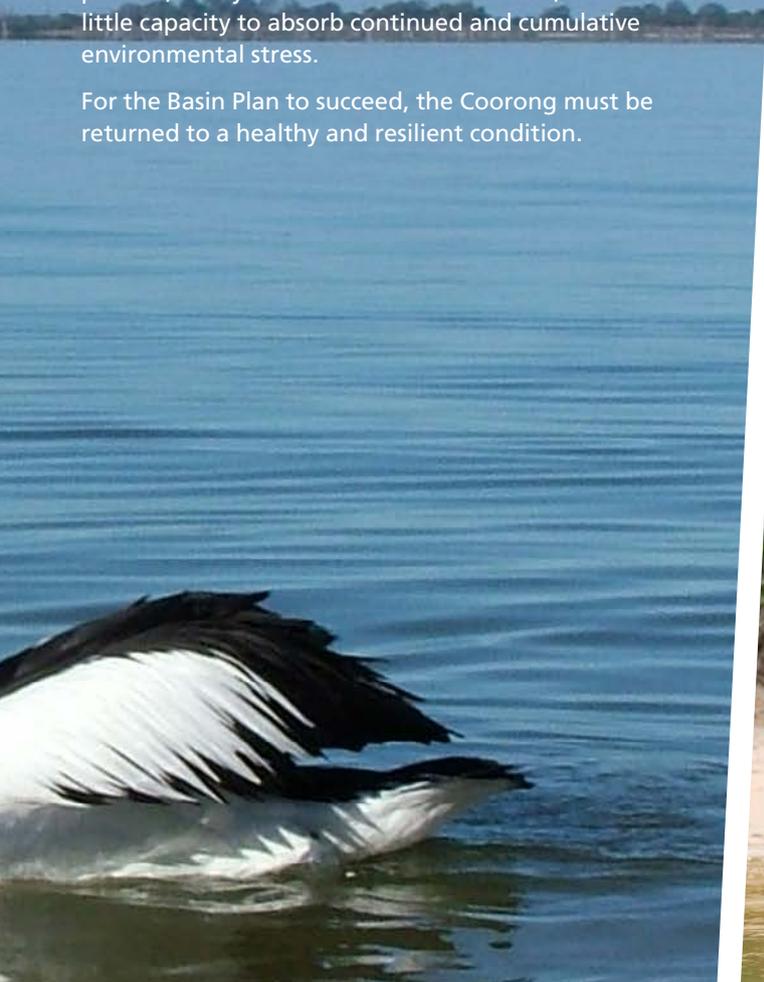
For the Basin Plan to succeed, the Coorong must be returned to a healthy and resilient condition.

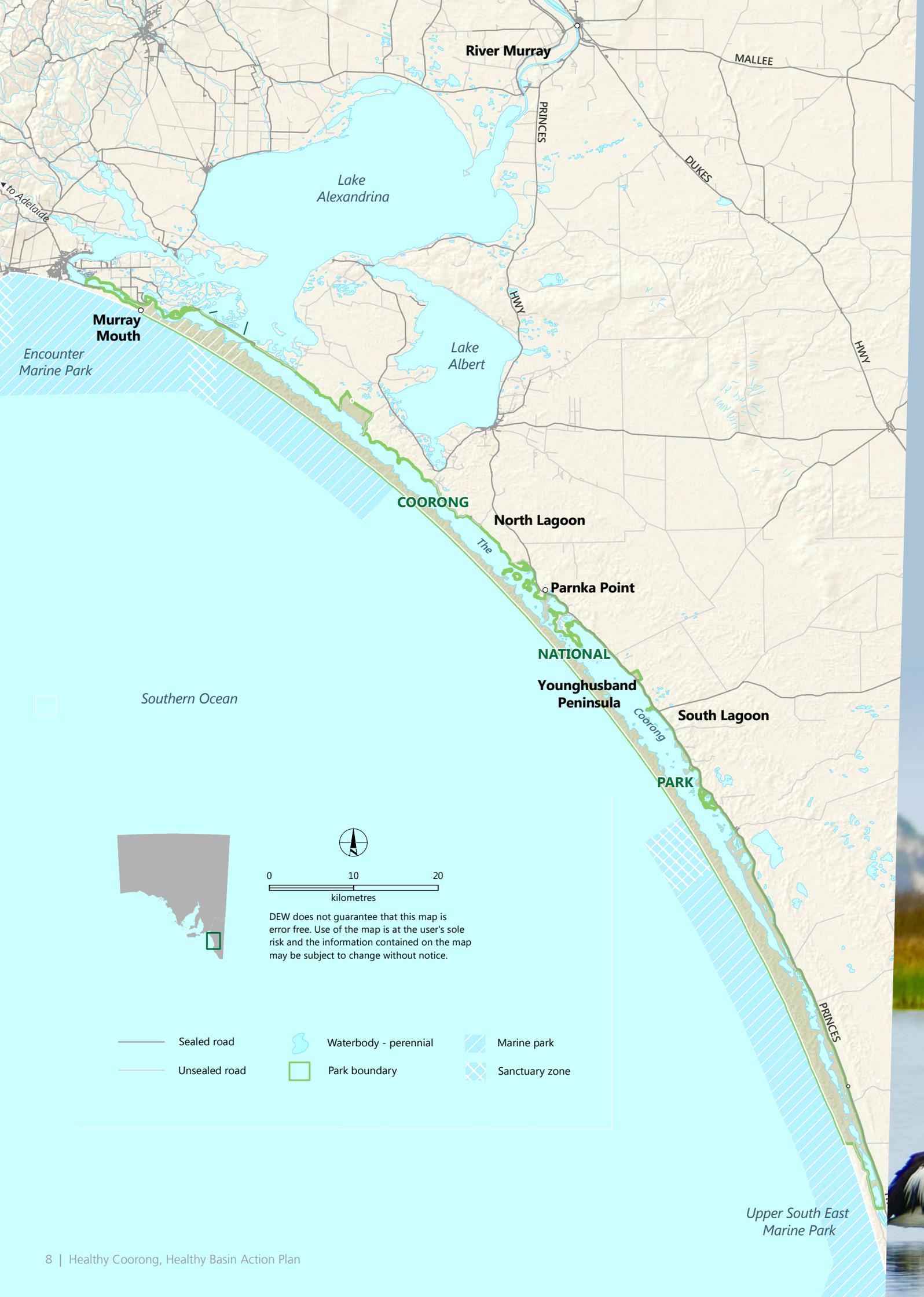
## About the Coorong

The Coorong is a 140 km long, shallow, brackish to hypersaline narrow coastal lagoon separated from the Southern Ocean by a coastal dune barrier. A restriction near Parnka Point, known as the Parnka Narrows, separates the Coorong into two zones, the Coorong North Lagoon and the Coorong South Lagoon.

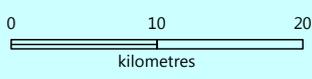
Located at the end of the Murray-Darling Basin, the Coorong forms part of the 140,000 hectare Coorong and Lakes Alexandrina and Albert Ramsar listed wetland. The site is the only pathway for fish that move between freshwater and marine habitats, and is the only natural pathway to export salt from the Murray-Darling Basin.

This internationally important wetland is used for many purposes, including conservation, recreation, water extraction, grazing and cropping, and urban and residential development.





Southern Ocean



DEW does not guarantee that this map is error free. Use of the map is at the user's sole risk and the information contained on the map may be subject to change without notice.

- Sealed road
- Unsealed road
- Waterbody - perennial
- Park boundary
- Marine park
- Sanctuary zone

# Why we need to take action

The impacts of water over-allocation across the Murray-Darling Basin, exacerbated by the Millennium Drought, have degraded the system to the point where it is at risk of losing some of the elements that make it an iconic wetland of local, national and international importance.

Since the Millennium Drought, initiatives including the Coorong, Lower Lakes and Murray Mouth Recovery Project, the Living Murray Initiative and environmental water recovery and delivery under the Murray-Darling Basin Plan reforms have improved water management and outcomes for the Coorong, increased environmental flows to the Coorong and addressed some critical knowledge gaps for the region.

These initiatives, along with the return of regular flows of freshwater, have resulted in the region showing some signs of recovery, however several characteristics of the Coorong South Lagoon in particular, have continued to experience substantial and sustained decline. Most notably this has included large reductions in the abundance of some waterbirds, particularly fairy terns and migratory shorebirds. These declines are associated with a reduced availability of food resources, resulting from an inability to maintain water quality and quantity in the Coorong South Lagoon. The presence of algal blooms in summer has further stressed the system by preventing reproduction of

aquatic plants and degrading the quality of mudflats on which migratory shorebirds forage.

The ecological character of the Coorong, which gives it its international significance, must be maintained as part of the Australian government's commitments under the Ramsar Convention. It is widely recognised by government, First Nations, community and scientists that further action is now required to restore the ecological character of the Coorong.

Water managers currently have a number of tools available to manipulate water levels and salinity. These include River Murray environmental flow provisions, barrage operations, Murray Mouth dredging and flows from the South East. However, site managers have little capacity to confidently forecast the ecological responses. There are some critical knowledge gaps that need to be addressed to provide this confidence.

*Healthy Coorong, Healthy Basin* aims to support the long-term health of the Coorong by providing evidence-based solutions to both immediate threats and future conditions anticipated under a changing climate. Targeted scientific investigations will inform more efficient and effective use of water available to protect the ecological character of the Coorong and, in partnership with local communities and First Nations, inform the development of long-term management solutions. These will be complemented by a suite of low-risk on-ground works to mitigate immediate threats and reduce the risk of further declines before long-term solutions are developed.





# What we have heard so far

It is important that work to restore a healthy Coorong is based on the best science, as well as the experience and knowledge of First Nations and the local community.

Recognising this, in 2018 the Minister for Environment and Water, David Speirs MP:

- commissioned the Goyder Institute for Water Research to assemble an expert panel to report on the status of the ecological character of the Coorong South Lagoon and recommended actions to restore the wetland's health
- convened the Coorong Summit to develop a working vision and collective solutions for the Coorong South Lagoon.

The *Goyder Institute for Water Research Expert Panel Report* and the *Coorong Summit Summary Report* were published in November 2018. These reports include recommendations and outline a vision for the Coorong.

## The Goyder Institute for Water Research Expert Panel

The Goyder Institute for Water Research Expert Panel reviewed the current condition of the Coorong South Lagoon and determined that the key ecological features that make this system unique and valuable are still in place, including the north-south salinity gradient, the large areas of mudflat habitat, and the species of plants, invertebrates, fish and birds.

However, the concentration, abundance and distribution of many parameters and species have dramatically altered. The expert panel determined that the system is now in a vulnerable state, with little capacity to absorb continued and cumulative environmental stress.

The panel recommended that to restore the South Lagoon of the Coorong, management is required to sequentially:

1. **avoid** the permanent loss of ecological values of the Coorong South Lagoon
2. **restore** the ecological values of the Coorong South Lagoon
3. **create** an ecosystem that maintains the ecological values under climate change.

In addition to environmental water recovery and the successful implementation of the Murray-Darling Basin Plan, which have been well documented as critical for condition of the site, the panel recommended:

- creating nurseries for aquatic plants within the Coorong South Lagoon and increasing habitat and food resources in the broader landscape
- undertaking trials to shift the system from algal dominated to aquatic plant dominated
- improving knowledge on nutrient cycling and how to maximise nutrient turnover into productive elements such as plants, invertebrates, fish and birds and incorporate knowledge into a response strategy
- undertaking a climate change vulnerability assessment of the Coorong and implementing climate adaptation activities for the region.

## The Coorong Summit

On 5 June 2018 the Coorong Summit brought together a broad range of community, scientific, First Nations and industry perspectives and interests to consolidate current understanding of the site and the key processes driving its ecological condition.

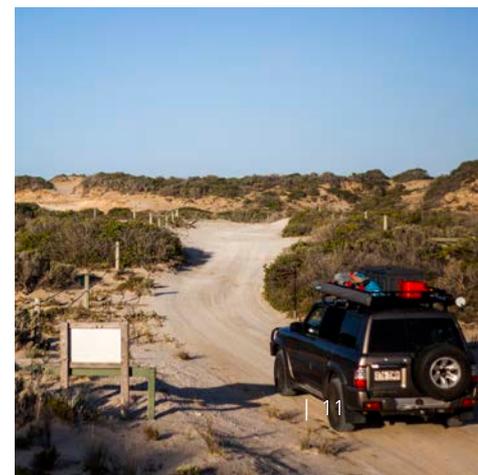
This included investigating the current drivers for water quality, including nutrification, hyper-salinity and the processes driving the ecological condition of iconic species such as *Ruppia*, benthic macroinvertebrates and migratory bird species.

The summit was also an opportunity to scope a vision for the site's potential future, develop objectives and targets for future management, as well as identify challenges to achieving this vision.

State and Commonwealth government department representatives also attended to listen to the summit attendees' perspectives.

### The Summit's vision for the site's future was:

*We want the Coorong to return to being a beautiful landscape teeming with abundant and diverse populations of waterbirds, fish and plants. We want the Coorong to support the values of the Traditional Owners and be an icon for South Australia and its visitors through supporting a strong tourism industry. We want management of the Coorong to not be rigid and must allow for variability in environmental and river operations conditions. It must also be managed at an ecosystem scale including the Murray Mouth, Lower Lakes and surrounding wetlands and more broadly and importantly within the Murray-Darling Basin.*



# The Action Plan

The *Healthy Coorong, Healthy Basin Action Plan* will be delivered through a series of inter-related projects. These projects will deliver immediate actions that have been identified as clear opportunities to improve the ecology, knowledge and management of the Coorong, as well as investigating longer term actions, which require further trials, investigations and feasibility assessments before a decision regarding action can be made.

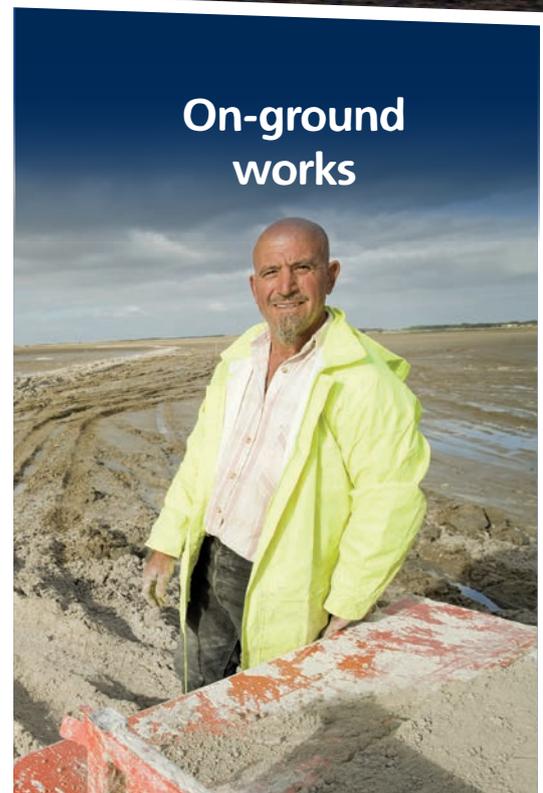
*Healthy Coorong, Healthy Basin* activities will focus on delivering outcomes for the Coorong. This could include activities outside of the Coorong that demonstrate a contribution to the health of the Coorong.



**Community partnerships**



**First Nations partnerships**



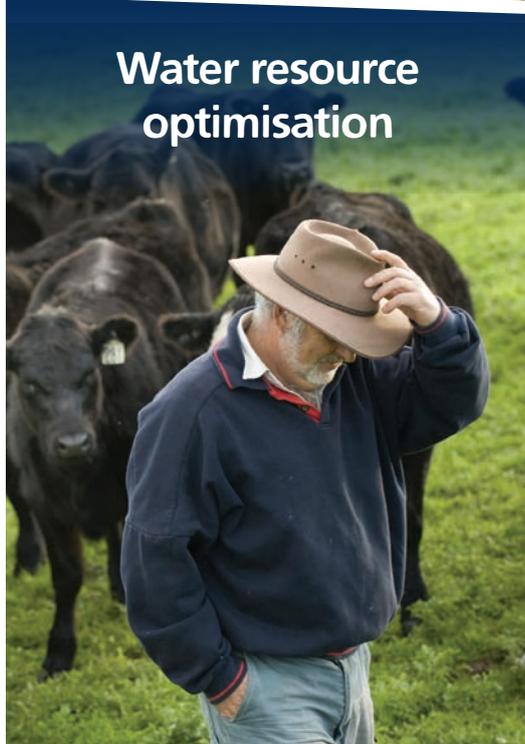
**On-ground works**



**Scientific trials and investigations**



**Water resource optimisation**



**Investigation of long-term infrastructure options**



### Community partnerships and capacity building

Community involvement in shaping, developing and implementing the *Healthy Coorong, Healthy Basin Action Plan* is critical to its success.

The Coorong, Lower Lakes and Murray Mouth community, as well as the wider community, have valuable knowledge and experience in environmental issues facing the region and ideas on how to tackle those issues. It is critical that this information is considered in the decision-making process.

As well as considering the latest science and research, the government is only able to make the best possible decisions to restore a healthy Coorong through gaining community trust, support, cooperation and input into planning, designing and implementing the *Healthy Coorong, Healthy Basin Action Plan*.

Best practice community engagement will help achieve better environmental outcomes for the Coorong through:

- building awareness and support in the community for the action plan
- drawing on a broad range of knowledge and experience within the community to underpin decision making
- enabling the community to deliver actions such as citizen science and on-ground works
- supporting local advocates and caretakers for this precious environment.

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### First Nations partnerships and economic development

The health of the Coorong and connected waters are central to the culture and beliefs of the First Nations – the Ngarrindjeri and the First Nations of the South East.

*Healthy Coorong, Healthy Basin* will partner with First Nations through existing agreements, and according to their respective Native Title recognition, to:

- partner in natural resource and water management
- protect and promote Traditional Owner culture, heritage and unique relationship with and responsibilities for their Country

- improve ecological outcomes through the respectful application of knowledge to site decision-making
- facilitate First Nations economic development through employment opportunities to look after the health of Country.







## On-ground works

Recognising the need to avoid the permanent loss of ecological values, the government will work with scientists, First Nations and local community to implement a series of 'no regrets' on-ground actions that address immediate threats to the Coorong.

Actions, which aim to improve the availability and quality of waterbird habitat while the longer-term rehabilitation of the Coorong is undertaken, will include:

- restoration of priority aquatic plants that provide habitat and a food source for fish and waterbirds
- physical removal of filamentous algae

- enhanced management and/or restoration of wetland habitat within the Coorong and Lower Lakes region, and potentially the South East, to provide an immediate refuge for Coorong waterbird species

In addition, modifications to irrigation system offtakes between Lock 1 and the barrages that enhance operational flexibility for the delivery of environmental water to the Coorong will be pursued.

All on-ground works will be designed and delivered to have low impact on the surrounding locations and foster partnerships with First Nations and the community.

## Scientific trials and investigations

Through years of monitoring and research, we have built a good understanding of the Coorong and its role in supporting a unique diversity of fish, plants and waterbirds.

However some elements of the Coorong have now undergone a number of long-term changes and a number of new threats to the system present novel management challenges for which we need to find solutions.

It is important that work to restore a healthy Coorong is based on the latest science and all further research is focused on ensuring informed decisions and actions to restore a healthy Coorong.

Trials and investigations will be designed to fill key knowledge gaps and provide the scientific evidence-base to inform what management actions might be required to:

- reduce nutrient loads and algae abundance in the Coorong
- switch the South Lagoon back to an aquatic plant dominated system rather than an algal dominated system
- provide the food resources that are required to support waterbirds and fish populations
- increase the abundance and distribution of waterbird populations at local and regional scales within the Coorong
- identify the adaptation pathways that are required to ensure that the ecological values of the Coorong are maintained into the future under a changing climate
- incorporate cultural knowledge and values of the First Nations into decision-making.

## Water resource optimisation

Providing water to the Coorong is vital for restoring its ecological values.

To improve certainty that the delivery of water to the Coorong will achieve its intended purpose, sophisticated forecasting and modelling tools are necessary.

These tools allow site operators to effectively plan and manage the use of water for environmental purposes and ensure that the water available is used in an efficient manner.

*Healthy Coorong, Healthy Basin* proposes developing:

- a hydrological forecasting model to enable short and long-range scenario testing
- a Management Action Database to coordinate the storage and retrieval of vital water management information.

For these tools to be accurate and empower water managers to use water effectively and efficiently, they need to be informed by targeted monitoring.

Targeted monitoring, which will also help evaluate on-ground actions, will include:

- extensive water quality sampling
- improvements to existing Coorong monitoring stations
- Coorong flow gauging and bathymetry assessments.

### Investigation of long-term infrastructure options

The hydrology of the Coorong, Lower Lakes and Murray Mouth system has been dramatically altered.

Maintaining the long-term ecological health and resilience of the Coorong may not be achievable through improved knowledge and water resource optimisation alone.

Operators have very few tools to manage flows efficiently and effectively within the Coorong and in particular the Coorong South Lagoon. The current tools available to manipulate flows and water levels in the south lagoon include:

- River Murray environmental flow provisions
- barrage operations
- Murray Mouth dredging
- flows from the South East.

Additional management options may be required, particularly in the face of climate change.

A number of potential major infrastructure and management options have been identified over the years to potentially improve water delivery to, and enhance the ecological health of, the Coorong.

Noting the close engagement with First Nations and community that will need to occur, *Healthy Coorong*, *Healthy Basin* will assess the technical feasibility and the environmental, social and cultural benefits and impacts of long-term management solutions to improve flows to the Coorong.

Options to be consulted on, and potentially investigated to feasibility assessment, could include:

- a connecting pipe or channel between Lake Albert and the Coorong to improve environmental water delivery to the Coorong
- improvements to connectivity between the North and South Lagoons and the Lower Lakes
- options to maintain an open Murray Mouth, mitigate the need for dredging and provide greater seawater exchange with the Coorong
- augmenting the South East Flows Restoration Project with additional water from the South East that currently flows out to sea
- options to regulate and maintain water levels in the Coorong South Lagoon.

In addition, consideration will be given to ‘up-scaling’ management options from the scientific trials and investigations and ‘no regrets’ on-ground works.

For those long-term operational infrastructure options deemed feasible, business cases will be developed to support their implementation under the *Healthy Coorong*, *Healthy Basin* investment, or future funding.





## What will success look like?

- The Coorong is a healthy, productive and resilient wetland system that maintains its international significance.
- Filamentous green algae is reduced to manageable levels, allowing for expanded distribution and improved health of aquatic plant meadows.
- Fish and bird communities are healthy and thriving.
- Water quality and environmental outcomes improve as a result of optimised water delivery to the Coorong.
- First Nations and local communities are empowered and engaged in managing the Coorong.



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