

Restoring salt marsh for coastal protection and blue carbon

Climate resilience and adaptation



Coastlines are highly vulnerable to the impacts of climate change. More extreme and changing patterns of storms and floods, and underlying patterns of sea level rise, place our coastlines at risk of erosion and repeated inundation.

Tidal blue carbon ecosystems have the capacity to deliver both mitigation and adaptation for the impacts of climate change. Restoring these systems increases their carbon storage capacity, while protecting coastlines and delivering many benefits for local regions.

How does it work?

Tidal blue carbon ecosystems, including saltmarsh, are productive coastal ecosystems with capacity to store carbon within plants and in the sediment below.

Saltmarshes contribute to coastal resilience by providing protection from erosion during storms and flood events. They may act as a buffer under rising sea levels, attenuating inundation and reducing erosion.

They also filter nutrient runoff and sediments to maintain water quality and contribute organic materials to estuaries.

Restoring saltmarsh in Tasmania – NRM South

In 2022, NRM South in Tasmania was awarded one of the five demonstration projects under the Australian Government's Blue Carbon Ecosystem Restoration Grant. The project leverages an existing saltmarsh restoration project at the same site, which NRM South began in 2021 under the Australian Government's Fisheries Habitat Restoration Program.

The wetland is adjacent to the Ramsar-listed Pitt Water-Orielton Lagoon wetland and nature reserve.

The high carbon sequestration capacity of saltmarsh sediments is a key focus of the Blue Carbon project.

In addition, the project is anticipated to reduce the impacts of climate change through providing a buffer against coastal erosion and inundation, and deliver diverse environmental, social and economic benefits for the local region.

"The wetland is adjacent to a Ramsar-listed wetland and nature reserve. The restoration should have benefits for the ecology of the whole system.

It is also an area of significance to the Tasmanian Aboriginal Community, the palawa of lutruwita"

Jennifer Hemer,
Water Program Manager

What is being done?

At the project site, a 65 ha area of saltmarsh near Richmond, north-east of Hobart, decades of modification have seen saltmarsh stranded to allow stock grazing. The previous Fish Habitat Restoration project involved returning native vegetation and weed control of the hillslope surrounding the wetland, to improve microclimate and biodiversity, and nutrient in hillslope runoff.

It also protected and enhanced the saltmarsh ecological community through livestock exclusion.

The Blue Carbon Ecosystem Restoration project involves removal of a levee to restore the natural tidal flow to the saltmarsh wetland and expand on-ground works, including erosion control. Baseline flora, fauna and water quality monitoring was completed and post-intervention monitoring of broader biogeochemical and social parameters and over a longer timeframe will inform understanding of the diverse benefits of blue carbon ecosystem restoration.

In April 2024 the bund was removed, with water behind the bund now flushing freely, and there are early signs of saltmarsh vegetation growth.

The University of Tasmania has done the first round of fish monitoring and the restored site is being used as a fish nursery already.

"The site used to support a few sheep on fairly poor quality feed and now we have 65 hectares of flounder. So it's nice to see the early indications of flora and fauna returning to the site."

Program Manager Jennifer Hemer

The novel nature of the project means that navigating the various approval processes has yielded valuable lessons. NRM South will share learnings from the project with other regional NRM organisations across Tasmania, as well as a wide stakeholder network including land holders, First Nations people, and the scientific community.

"Ecological restoration of this scale involves complex and uncharted regulatory processes.

This project will realise significant ecological benefits, and NRM South has been supported by regulators as we work through these processes."

Jennifer Hemer,
Water Program Manager

NRM South works alongside a service provider engaged through open tender by the Australian Government, to measure the diverse benefits achieved through restoration and present this data in environmental economic accounts.

Multiple community and stakeholder field days and engagement activities are planned to showcase the project.

The project runs until March 2025.

What will this achieve?

The project area intends to be a demonstration site for the Tidal Restoration of Blue Carbon Ecosystems method - it shows how these methods can work in practice.

It will also deliver multiple benefits for climate adaptation, protecting the coastline against erosion, storms, floods, and inundation.

The project is anticipated to have benefits for the ecology of the whole system, including the neighbouring Ramsar-listed wetland and nature reserve.

It will support the Tasmanian Aboriginal Community, the palawa of lutruwita, to reconnect on Country, and is expected to improve the micro-climate on the farm.

Project partners

Project partners include the University of Tasmania, Blue Carbon Services, and the property owner.



*Saltmarsh restoration site at Richmond Park Estate.
Credit: Grace Isdale, NRM South*

Summary

The project will:

- Explore novel approaches for environmental restoration in coastal ecosystems.
- Improve the health of blue carbon ecosystems, thereby enhancing biodiversity, climate and livelihood benefits.
- Build capacity of NRM practitioners and landholders to understand the flow of ecosystem services and benefits of saltmarsh restoration, and the process to registering Blue Carbon projects with the Emissions Reduction Fund.
- Engage local Aboriginal communities and facilitate reconnection to Country.

MORE INFORMATION

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This project is delivered by NRM South through funding from the Australian Government's Blue Carbon Ecosystem Restoration Grant.