

People and Communities Developing Partnerships through the Coastal 20 Wetlands Project

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Abstract

Australia's coastal wetlands are essential to a healthy and functioning environment that sustains communities and a diverse array of flora and fauna. They are high in biodiversity, play a significant role in removing pollutants and buffer against the impact of floods and climate change. Despite this, up to 90% of wetlands in highly populated areas along the coastline have been lost since European settlement. Our increasing population means our valuable coastal wetlands are under continual threat of loss or damage. WetlandCare Australia is drawing upon 20 years of experience to undertake their pivotal initiative, the Coastal 20 Wetland Project. This involves the protection, promotion and restoration of 20 iconic coastal wetlands. The project is unique and spans 1000 km across two states, Queensland and New South Wales, effectively addressing connectivity at a regional scale and building resilience in the face of climate change. WetlandCare Australia is working to harness the collective knowledge of landholders, Traditional Owners, community groups, natural resource managers, government and industry bodies. These collective expertise, established networks and synergies will be utilised to ensure a greater percentage of resources go to implementing strategic and sustainable, on-ground actions in line with best practice management. A key focus of the project is on improving awareness and building the capacity of coastal communities to become engaged in action-based partnerships through a range of innovative education and communication programs that have been specially designed. Through the combination of on-ground actions, education and community partnerships, the Coastal 20 Wetland Project will deliver significant environmental and community outcomes.

Introduction

Since colonisation, coastal wetlands have been largely under-valued in Australia, leading to significant loss and degradation. The environmental, social, cultural and economic values of coastal wetlands are only beginning to be fully appreciated. Our coasts, rivers, lakes, mangroves and other wetlands systems are a highly valuable resource. Not only do they contribute substantial income to regional economies, they are essential to a healthy and functioning environment which contributes to the wellbeing of communities. There is also growing consensus that coastal wetland ecosystems are more important as carbon stores than any other ecosystem. The importance of conserving coastal wetlands to prevent increases in greenhouse gas emissions and global temperatures can therefore not be underestimated.

Historic and current land-based human activities continue to seriously impact coastal wetlands (Edyvane 1999). In highly populated coastline areas up to 90 per cent of wetlands have been lost since European settlement (Finlayson 2000, Usback & James 1993). Australia's population is continuing to increase rapidly and the pressure on our coastal wetlands is immense. Coastal wetlands are under continual threat of loss or damage from expanding coastal development, pollution and conversion to agricultural land. This invariably has negative repercussions for their environmental, social, cultural and economic value including decline in water quality and food chain contamination.

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The Significance of Coastal Wetlands

Cultural value of wetlands

Aboriginal people conceptualize water sources and rivers, as with the land, as having been derived from the Dreaming (Jackson *et al.* 2005). Coastal wetlands have therefore always had significant cultural importance to Traditional Owners. They were highly valued as a source of food, medicine and tools and of considerable cultural importance. Coastal Indigenous communities often held ceremonies in these areas and many Aboriginal artefacts still remain despite wide-spread desecration of these areas. Coastal wetlands are also places of great spiritual significance as mythological sites and the centre piece of dreamtime stories. For these reasons, Traditional Owners carefully managed these wetlands to ensure their sustainability and to protect their cultural values. Today these coastal wetlands are still of significant cultural value to Traditional Owners who continue to maintain links to their country through stories, lineage, occupation and use, however their sustainability is under serious threat.

Environmental value of wetlands

Wetlands are widely recognised as providing important wildlife habitats and as being among the most biologically productive and diverse habitats on the earth. Australian coastal wetlands are sites of high biodiversity (Kingsford 2000). Australia has sixty four Ramsar listed wetlands recognized for their international significance as being representative, rare or unique wetlands, or important for conserving biological diversity. These ecosystems are a cornerstone to life and provide food, shelter and nursery areas for our native wildlife including micro-organisms, invertebrates, fish, birds, mammals and reptiles. Many of Australia's coastal wetlands provide important habitat for state, national and internationally listed threatened and endangered fauna species including migratory shorebirds which visit our coastlines each year. Wetlands function as a drought refuge in dry seasons. Some fauna species are so reliant on wetlands that evidence of their occupation can confirm the presence of a wetland.

Wetlands are vital to sustaining healthy rivers, on which our communities depend for the many land uses that surround them. Wetland plant communities form the basis of healthy wetland ecosystems (Davis and Froend 1998). Coastal wetlands are home to some of Australia's most iconic and adaptive plant communities, including numerous threatened species and endangered ecological communities. Coastal wetland plant communities include marine vegetation such as mangroves, saltmarsh and seagrass that provide vital fish nurseries, buffer our coasts from storms, sequester carbon and support habitat for migratory birds. Freshwater wetland refuges are also located along the coast containing a vast array of flora including paperbark forests, aquatic macrophytes, floodplain communities, littoral rainforest and coastal vine thickets lining our streams and rivers. Maintaining the assemblages contained within these plant communities is paramount to halting the loss of species and conserving the biodiversity and ecological integrity of these ecosystems.

Social value of wetlands

The social costs of wetland degradation have been largely unrecognized due to a lack of awareness of the numerous benefits and services provided by healthy, functioning wetlands (Turner *et al.* 1998). Coastal wetlands provide numerous services that not only directly benefit coastal communities, but also have considerable importance for society as a whole. Collectively these benefits are known as ecosystem services and have been estimated to contribute trillions of US dollars' of value each year worldwide to human health and well-being (Costanza *et al.*

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1997). One of the principal reasons that coastal wetlands have been undervalued is that healthy coastal ecosystems provide us with all of these benefits absolutely free. It is essential that the true dollar value of these critical services is recognised by decision makers and the community to ensure these vital coastal ecosystems are fully appreciated and protected. The wide range of ecosystem services that coastal wetlands provide include:

- Food and medicine;
- Water storage and groundwater replenishment;
- Shoreline stabilisation and storm protection;
- Flood control;
- Underpin a robust rural economy;
- Habitat to animals that provide free services to farmers through insect predation and pollination;
- Sediment and nutrient retention and export;
- Water purification;
- Reservoirs of biodiversity;
- Nurseries for recreational and commercial fish species;
- Wetland products;
- Cultural values;
- Recreation and tourism; and
Climate change mitigation (carbon sequestration) and adaptation

Economic value of wetlands

A number of internationally peer reviewed studies have been conducted to quantify the economic value of wetlands. These studies have taken into account the numerous services that wetlands provide. Globally these services have been estimated to be as high as \$4.8 trillion per annum (Costanza *et al.* 1997). These services include 'direct use' of these wetlands such as fishing or recreation and other benefits to the surrounding communities including water purification, flood control, water storage, nutrient treatment and carbon storage (ACF 2010).

A briefing paper by the Australian Conservation Foundation on the economic benefits of Australian wetlands has found that the ecosystem services value equates to \$3,335 per hectare, per year. This does not take into consideration the value to recreational and commercial fisheries provided by coastal wetlands which would increase this figure significantly. The nature-based tourism industry alone contributes \$23 billion to the Australian economy every year and is the fastest growing sector of the tourism market (Tourism and Transport Forum 2011). Wetlands are an integral component of this tourism sector and provide visitors with unique aesthetic and recreational experiences. Wetlands are therefore intrinsically linked with tourism and the economic return that this market returns to regional economies.

The carbon sequestration capacity of coastal wetlands, in particular mangroves, saltmarsh and seagrass, has recently become a key focus of wetland research and management. A seminal report published in 2009 called *The Management of Natural Coastal Carbon Sinks* (Laffoley & Grimsditch 2009) highlighted that carbon sequestration rates of coastal wetlands are actually much higher than those of terrestrial systems. Conversely, the destruction of these wetlands is contributing a disproportionate amount of CO₂ into the atmosphere, and these emissions continue for years after their destruction. At an assumed price of \$30 per tonne, Australia's coastal saltmarsh, mangrove and seagrass wetlands sequester carbon with a combined economic value of \$271,018,500 per year. This is in addition to the \$450 billion worth of carbon currently stored within these coastal wetlands.

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The Coastal 20 Wetland Project

In WetlandCare Australia's 20th year of operation, Australia's leading wetland conservation organisation has embarked on an important initiative, the \$2.5 million Coastal 20 Wetland Project. This innovative project is funded under the Australian Government's Caring for our Country program and will see the restoration of 20 coastal wetlands that span 1000km of the northern New South Wales and south-east Queensland coastlines. These 20 iconic coastal sites have been strategically targeted for a range of on-ground, education and community engagement activities (Figure1).



Figure 1: The Coastal 20 Wetland Project sites in northern NSW and south east Queensland
Streever (1997) highlights the importance of stating clearly defined management objectives prior to commencement of a project.

The objectives of the Coastal 20 project have been defined as:

- Clearly delineate priority wetlands needed for water quality and climate change management purposes;
- Generate a high level of community awareness of the values and functions that these areas provide including climate change mitigation and carbon storage;
- Provide landholders appropriate incentives to retreat from these often unproductive agricultural areas utilising stewardship funding;
- Assist local governments with integrating water sensitive urban designs into adjoining coastal wetland rehabilitation projects;
- Rehabilitate key degraded wetland areas e.g. livestock removal, infilling drains, revegetation, removal of water diversion schemes; and
- Develop wetland areas to provide appropriate recreational and educational pursuits in line with the aspirations of the local communities.

Public participation is now widely regarded as an essential component of planning, decision making and implementation of rehabilitation actions (Robertson and McGee 2003). The Coastal 20 project team is working closely with the community and key stakeholders to identify and prioritise major impacts occurring at the 20 coastal wetlands, and to develop innovative and sustainable solutions. WetlandCare Australia is utilising this local knowledge to empower local communities and increase the likelihood of management actions being supported.

Indigenous Australians hold a wealth of traditional ecological knowledge and land management understanding that is relevant to current coastal wetland management (Liedloff *et al.* 2009) Within the spectrum of community engagement on the Coastal 20 Wetlands Project, Traditional Owners have been actively engaged to provide valuable ecological knowledge and coastal wetland management expertise. During this process both scientific staff of WetlandCare Australia and Traditional Owners are developing a new understanding of the other's view of wetlands. WetlandCare Australia recognises that combining the latest science and practices with ancient ecological knowledge will result in a unified and positive approach to coastal wetland rehabilitation and protection.

Management actions identified through partnerships will bring about considerable environmental, cultural, social and economic benefits. Actions include:

- design and creation of constructed wetlands to improve water quality;
- riparian restoration and re-creation to improve connectivity, repair bank instability and reduce sedimentation;
- reinstate hydrology through drain infilling and in-drain structures to promote restoration of wetland vegetation, ameliorate impacts of acid sulfate soils and improve carbon sequestration capacity;
- increase the resilience of endangered ecological communities, threatened flora species and wetland vegetation by reducing threats including weed and feral animal invasion;
- reduce impacts to native vegetation from excessive human or vehicular access;
- protect and improve shorebird and migratory bird habitat through access restriction, rubbish removal and feral animal eradication;
- install vegetative filter strips to mitigate sedimentation impacts from agriculture; and
- plant native food trees to improve resources for targeted fauna species.

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The primary focus of the Coastal 20 Wetland Project is on-ground works aimed at coastal wetland rehabilitation and protection. Conserving these precious ecosystems and promoting their sustainable use as natural habitats, will improve wetland wellbeing for all communities. A range of complimentary community education and engagement activities have been designed to increase the effectiveness and sustainability of on-ground actions. WetlandCare Australia is working with a range of stakeholders including indigenous groups, schools, natural resource managers and the tourism industry to identify opportunities for education to contribute to the sustainability of our coastal wetland assets.

Take Home Message

Coastal wetlands are a highly valuable resource and have significant cultural, environmental, social and economic values. They are essential to the health and wellbeing of communities and also deliver a significant financial return for dependent industries including tourism and recreation providers. Given the historical and ongoing loss of Australian coastal wetlands, sustainable on-ground works to reverse this trend are essential if coastal wetlands are to survive and continue to function effectively. The Coastal 20 Wetland Project will help to protect these precious resources for the critical ecosystem services they provide and the wellbeing and enjoyment of future generations.

Through the Coastal 20 Wetland Project, WetlandCare Australia's team of qualified wetland experts is working closely with the community and key stakeholders. Major impacts occurring at the 20 coastal wetlands are being collaboratively identified and prioritised, and innovative and sustainable solutions are being developed. Community partnerships will see on-going, on-ground actions effectively delivered and monitored. The Coastal 20 Wetland Project will increase the community's participation in protecting and rehabilitating coastal environments and critical aquatic habitats.

For more information on the Coastal 20 Wetlands Project and how you can be involved please contact Adam Gosling at WetlandCare Australia, adamgosling@wetlandcare.com.au or visit www.wetlandcare.com.au

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