



MOULTING LAGOON

*A report to
the community*

2014



*Moulted Lagoon is a wetland of international
significance, and one of four Ramsar sites
in Southern Tasmania.*

www.nrmsouth.org.au

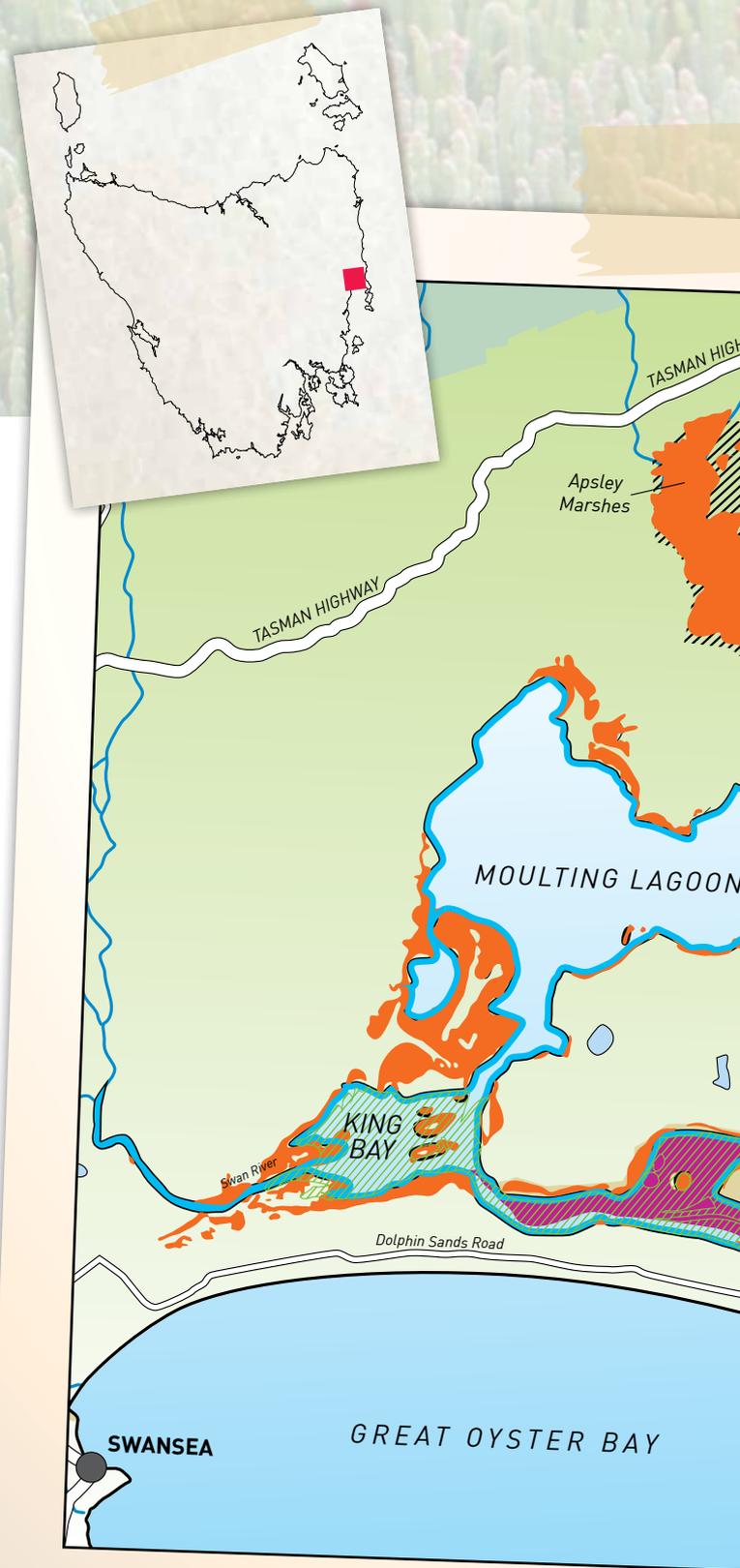
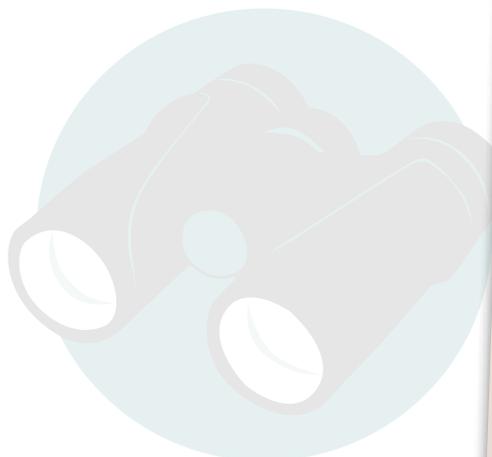
Located between Swansea and Coles Bay, Moulting Lagoon is a large wetland of extraordinary beauty at the northern end of Great Oyster Bay on Tasmania's east coast. It is one of the most complex and extensive wetland systems in Tasmania, and is home to many rare and significant plants and animals.

Management responsibility



The majority of the land surrounding the lagoon is privately owned and used for grazing. There is also one large vineyard adjoining the lagoon, and the Tasmanian Land Conservancy owns two parcels of adjacent land. Under the *National Parks and Reserves Management Act 2002*, Tasmania Parks and Wildlife Service is the managing authority responsible for the reserve; they and Crown Land Services are responsible for managing the surrounding areas.

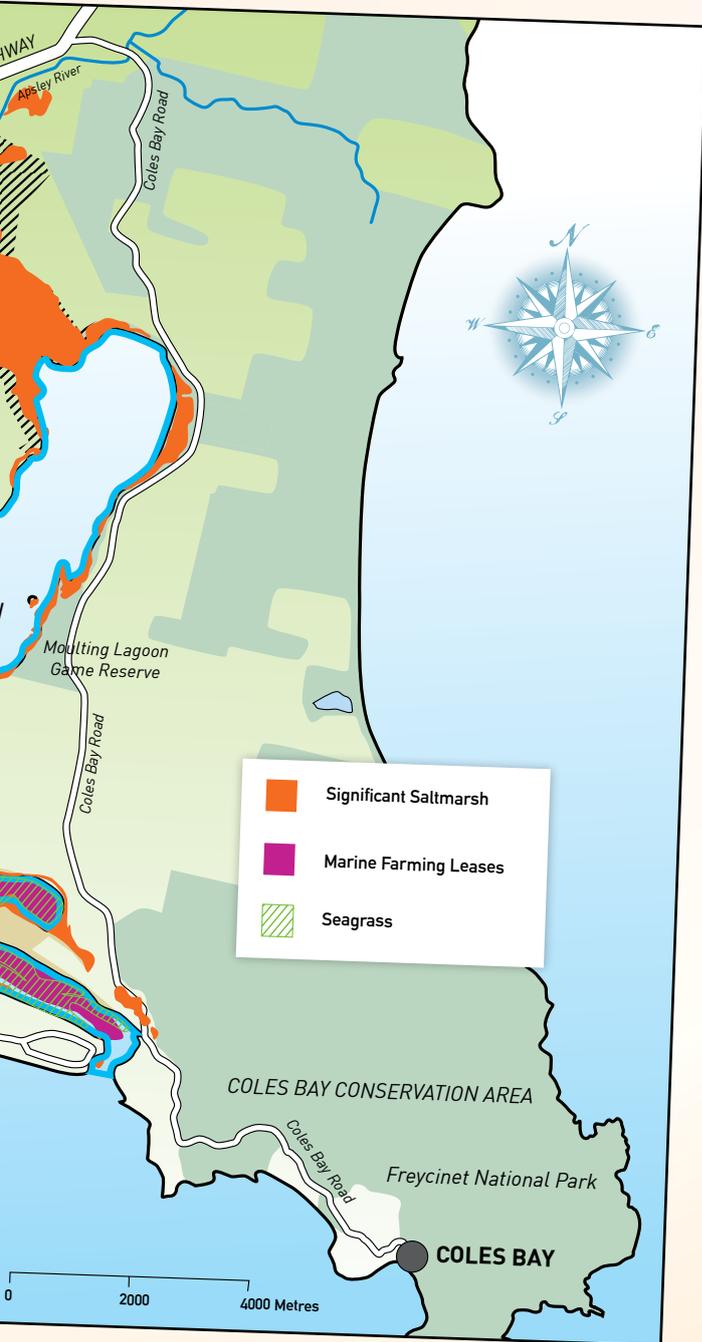
This report to the community tells us what is so important about Moulting Lagoon, what is being done and what needs to be done to ensure that it remains one of our state's greatest and most beautiful natural assets.



MOULTING LAGOON



The character of the lagoon changes greatly from its salty mouth and tidal feeding grounds to the upper brackish waters and marshes.



Ramsar values



In 1982 Moulting Lagoon was listed as a wetland of international importance under the Ramsar Convention on Wetlands. It was recognised because it met a number of criteria, including that it supports vulnerable or endangered animal and plant communities and is crucial in maintaining biological diversity. It is also an important spawning ground and source of food for fish on which the food chain depends. Moulting Lagoon is one of only 10 Ramsar-listed sites in Tasmania, and of four in Southern Tasmania—Moulting, Apsley Marshes, Interlaken and Pitt Water-Orielton.

Apsley-Marshes Ramsar site is located to the north of Moulting Lagoon, located on privately owned land and protected by property owners with Glamorgan Spring Bay Council support.

DID YOU KNOW? The Ramsar Convention is an international treaty for the conservation and sustainable use of wetlands. It was named after the city of Ramsar in Iran, where the Convention was signed in 1971.

- RAMSAR site boundary
- National Parks and reserves

Wetlands and saltmarshes are a crucial link between land and sea. Because of their complexity, wetlands are extremely sensitive and susceptible to threats that arise from human activity and from climate change.

Sanctuary for Saltmarsh

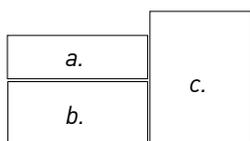
Moulting Lagoon is one of the most extensive areas of temperate coastal saltmarsh in Tasmania, a habitat type that was recently listed as 'vulnerable' under the federal *Environment Protection and Biodiversity Conservation Act 1999*.

DID YOU KNOW? The *Environment Protection and Biodiversity Conservation Act 1999* is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places.

Saltmarshes support highly-specialised plant species such as succulent shrubs, herbs, grasses, rushes and sedges, and provide crucial feeding, roosting and breeding habitat for birds. They also provide habitat to invertebrates such as molluscs and crustaceans that are an important food source for birds and fish.

The splash of deep red that can be seen across the shores of the lagoon is samphire, also known as beaded glasswort. European settlers used to eat samphire to ward off scurvy.

The plant and animal matter that saltmarshes produce go on to feed the coastal ecosystem, which improves the productivity of the larger area. Saltmarshes also intercept sediment in the water column which would otherwise make the coastal waters murky and less productive.



- a. Swan on lagoon near saltmarsh -V Prahalad
- b. Saltmarsh Moulting Lagoon
- c. Crustacean in Samphire- *Sarcocornia quinqueflora* -V Prahalad



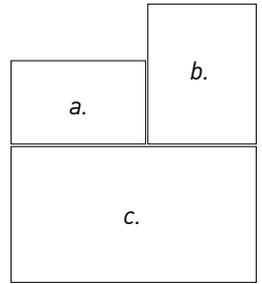
WETLAND VEGETATION

Some plants found at Moulting Lagoon, such as the propeller plant, are not found anywhere else in the world. The wetland is also host to 12 other wetland plants listed as threatened species.

Seagrass is also an extremely important feature of the wetland. In 2008 over 2200 hectares of seagrass were recorded. The current distribution is not known, but this underwater meadow is extremely important for marine animals such as prawns and fish, and also acts as a stabiliser to run-off by absorbing excess nutrients.



- a. A diversity of vegetation on the edge and within the Lagoon -V Prahalad
- b. *Mimulus repens* is a saltmarsh plant found at Moulting Lagoon -V Prahalad
- c. Red-necked stint feeding on crustacea and small fish in drying ponds between saltmarsh vegetation -L Wilson



A HAVEN FOR BIRDS



Moulting Lagoon was named after the piles of feathers that can be seen on the shoreline when swans undergo their annual moult (the lagoon is home to around 80 per cent of Tasmania's Black Swan population – numbers can swell to 18,000 on the lagoon at one time!)

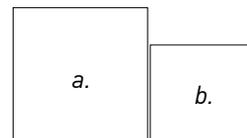
The lagoon is a wetland of national and international significance for waterfowl, shorebirds and seabirds and provides critical feeding and roosting habitat for migratory shorebirds.

Bird surveys have been conducted on Moulting Lagoon twice per year – in summer and winter – since 1992. Originally the area was regarded as year-round habitat for waterbirds such as the Black Swan and Australian Shelduck, which was one of the reasons for its Ramsar listing. As the surveys continued it became apparent that Moulting Lagoon wasn't only an important habitat for waterfowl, but that it was just as crucial to resident shorebirds such as the Pied Oystercatcher and Pacific Gull and seabirds. These two species now join the Black Swan in qualifying the lagoon for its status as a site of international significance, as it supports more than one per cent of the world's estimated population of these birds.



There are many variables that influence bird numbers on the lagoon. For instance, Black Swans are known to follow good water supply, and so will typically migrate from the mainland to Moulting Lagoon in large numbers in the event of a drought, only to return as conditions improve again. For them the lagoon is a refuge in difficult times. Some migratory birds, such as the Eastern Curlew and Golden Plover are regular annual migrants and come from as far away as the Arctic on a 25,000 kilometre journey (one-way), over our warmer months of the year, followed by a return journey.

The continuing surveys have underscored the importance of the Moulting Lagoon wetland system for birdlife, sustained by the high productivity of area's ecosystems.



a. Common greenshank -E Woehler
b. Shorebird surveys conducted in 2014 with NRM South and BirdLife Tasmania -V Ruoppolo



The Paredarerme (“Par-it-a-rami”), also known as the Oyster Bay Nation, have occupied the broader area for tens of thousands of years. There are numerous Aboriginal heritage sites recorded around Moulting Lagoon. This area continues to be significant to the Aboriginal community today.

A game reserve

Duck hunting has been a popular pastime at Moulting Lagoon ever since European settlement, and the area is still a popular venue for hunters.

A strict licensing and quota system ensures that only a sustainable harvest of ducks is taken each year, and the open season between March and June is extremely well regulated. Part of the Lagoon remains a Sanctuary for ducks forming a ‘no take’ zone.

A holiday destination

In the warmer months, nearby Coles Bay is alive with campers, fishers and boating enthusiasts. Visitors can take a kayak trip around the lagoon, watch the amazing birdlife or simply enjoy the view the lagoon has to offer. Marine farm tours provide an opportunity to explore the lagoon and taste the produce.

A source of food

The land surrounding the lagoon supports grazing, irrigated perennial horticulture (including vineyards) and irrigated cropping. Marine farming leases are also located in the mouth of the lagoon. The lagoon is a popular destination for recreational fishing

A home for native animals

Land-based residents of the area include bandicoots, echidnas, brush-tailed possums, pademelons, wombats, tiger snakes, blue-tongued lizards and skinks. Among the less-obvious wildlife are the invertebrates – native bees, flies, butterflies, beetles and bugs, and aquatic invertebrates, which are equally important parts of the local ecology.



- | | |
|----|----|
| a. | b. |
| | c. |
- a. *Land adjacent to the lagoon is highly productive and supports a range of agricultural activities*
-K Allen
 - b. *Recreational fishing on Moulting Lagoon* - V Prahalad
 - c. *Education maintains awareness of the values of the lagoon*



A NURSERY FOR FISH

Moulting Lagoon supports a fairly typical freshwater fish community, a mixture of native and introduced species. The upper reaches of the lagoon are home to freshwater fish such as the endangered Australian grayling, but also to brown trout and tench, which were introduced in the 1880s for fishing. There are also some redfin perch in nearby dams, which pose a threat to native fish in the lagoon as they compete strongly for the same environmental niche.

Estuaries and coastal wetlands are essential nursery areas for a great number of marine species. Saltmarsh and seagrass wetlands regulate the water quality and supply food resources on which native fish and birds rely for survival. Bream and flounder are plentiful on Moulting Lagoon, and the estuary supports thriving Pacific oyster farms.

Water quality

Water quality varies across the wetland and also changes from season to season depending on inflow from rivers, which in turn are affected by climate and seasonal changes. In some parts of Moulting Lagoon the water is 'fresh' while in other areas it is nearly as salty as sea water.

A significant risk to the lagoon wetland is sedimentation. Excessive sediments create turbidity, degrading the lagoon's ability to support aquatic animals such as flounder and shrimp. Turbidity levels across the lagoon have been low to moderate in recent years, although erosion caused by agriculture has the potential to increase sedimentation rates. It is therefore vital that these activities in the catchment, including the Swan and Apsley river systems, are managed effectively.

- a. *Moulting Lagoon meets Great Oyster Bay - N Middleton*
- b. *Fingerlings caught in a drying mud flat - L Wilson*
- c. *Filamentous algae can result with high nutrients and poor tidal flow - V Prahalad*

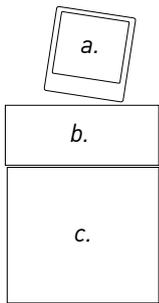
a.	b.
	c.



Working together to improve the land

Weed control

Gorse and African Boxthorn have been major weeds of concern at Moulting Lagoon. In recent years Gorse control has been a priority for the area and in some parts the weed is under effective control. Gorse is tough to eliminate completely, and more effort is needed over the coming years to ensure the density of Gorse remains in check. Glamorgan Spring Bay Council, Tasmanian Land Conservancy and Tasmanian Parks and Wildlife Service have been working to reduce weed growth, and encourage native regrowth.



- a. *Gorse treatment on edge of saltmarsh- browning off following spray treatment*
- b. *Gorse treatment on Moulting Lagoon - A Brooks*
- c. *Tas Land Conservancy revegetation following Gorse control*



DID YOU KNOW? An interesting problem with Gorse control is that a staged approach is needed, as many native animals have come to rely on it for habitat. Efforts are being made to encourage native plants back to areas previously infested by Gorse. A little ground preparation – scattering leaf and tree litter for example – helps to create the right conditions for native plants.



STAGED APPROACH for Gorse infestations

Reducing stock and vehicle impacts

Wandering cattle and sheep, off-road vehicles and even misplaced footsteps can harm a sensitive environment like a wetland. The vegetation, waterways, and bird roosting and breeding habitat are all susceptible to physical damage from stock and human activity.

Fences and barriers have been erected to prevent sensitive areas from damage and new interpretation signage is planned so that visitors can learn about the values and threats and do the right thing.

Responsible pet ownership and feral control

Unregulated pets and feral cats have been a cause of concern for many years – the birds who nest around Moulting Lagoon stand little chance against these cunning predators. Awareness of the issue is increasing, however, with more people confining and de-sexing their pets. There is also the Glamorgan Spring Bay Council Dog Management Policy in place, which details the rules for canines in sensitive locations such as these.



Vehicle damage on vegetation causing erosion and compaction -L Wilson

Research and assessment

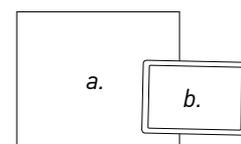
NRM South, Glamorgan Spring Bay Council and Tasmanian Parks and Wildlife Service recently conducted surveys around the wetland for resident and migratory shorebirds. This data, as well as Tasmanian Parks and Wildlife Service annual Waterfowl Counts in the Game Reserve will support actions to further protect species in this wetland.

The Catchments to Coast team at Glamorgan Spring Bay Council have also mapped the extent of Gorse around the wetland, to support ongoing progress of it's treatment over time.

More studies are needed to complete the picture on the health and management strategies for this area.



FENCE & protect



a. Fencing can reduce stock trampling of saltmarsh vegetation -L Wilson

b. Stock freely accessing foreshore -E Woehler



MORE ACTION IS NEEDED

One of the biggest threats facing Moulting Lagoon is climate change and resulting sea level rise (human impacts are much higher in the short-medium term). It will not take a large change to dramatically affect the low-lying areas of the lagoon; projected changes in sea level are expected to inundate the lower reaches, 'forcing' the saltmarsh to higher ground.

But there are a number of other threats to the lagoon that need to be managed in the short term.

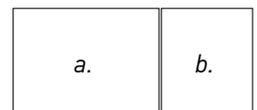
- **Manage irrigation** and other water uses to minimise diversion of surface water flows from the estuary
- **Maintain or install boundary fencing** to reduce stock access into the saltmarsh to reduce saltmarsh damage, reduce disturbance to shorebirds and minimise erosion
- **Minimise vehicle access** around the edge of the saltmarsh, especially in wet periods, to reduce loss of vegetation and erosion impacts
- **Improve pasture management** and control of application of fertiliser to reduce nutrients and sediment flowing into the estuary

- **Regeneration** of native buffer vegetation immediately around the wetland margins
- **Allow for natural movement of saltmarsh** on the landward edges in response to sea level rise
- **Control and monitor weeds** such as Gorse, Boxthorn and Blackberry
- **Reduce speed by boats** in and around seagrass patches (to reduce damage)
- **Bird watch** from a safe distance that minimises disturbance (at least 100m)
- **De-sex cats** and keep them in at night
- **Record and report algal blooms**

PLEASE HELP US to protect this remarkable wetland. Follow the rules, watch out for the wildlife when you're walking, driving or boating, and respect the other visitors to the area. We want to ensure that Moulting Lagoon remains one of Tasmania's greatest natural assets.



a. Continued efforts to maintain lagoon foreshore vegetation
b. Dilapidated fencing requiring repair -N Middleton



FOR MORE INFORMATION & VOLUNTEERING OPPORTUNITIES CONTACT

- NRM South – www.nrmsouth.org.au
- Glamorgan Spring Bay Council – www.gsbc.tas.gov.au
- BirdLife Tasmania – www.birdlife.org.au/tasmania
- Tasmania Parks and Wildlife Service – www.parks.tas.gov.au

FURTHER READING

- *Moulting Lagoon Game Reserve (Ramsar Site) Management Plan 2003* Tasmania Parks & Wildlife Service
- *Moulting Lagoon Ramsar Site Ecological Character Description*, Australian Government Department of Sustainability, Environment, Water, Population and Communities
- *Resident and migratory shorebirds of the Moulting Lagoon Game Reserve Ramsar Site*, Eric J Woehler and Valeria Ruoppolo, BirdLife Tasmania, for NRM South and Tasmanian Parks and Wildlife Service

- *Southern Tasmanian Coastal Saltmarsh Futures – A Preliminary Strategic Assessment*, Vishnu Prahalad and Jill Pearson, NRM South

ACKNOWLEDGMENTS

This report was prepared by NRM South with support from the Australian Government, Glamorgan Spring Bay Council, Tasmanian Parks and Wildlife Service and BirdLife Tasmania.



Australian Government

