Arno Gasteiger - Coastal wetland Whakanewha Regional Park

Coastal wetlands, saltmarshes & estuaries

We can all be part of protecting, restoring and connecting Auckland's biodiversity.

Coastal wetlands, saltmarshes & estuaries

This factsheet provides a basic planting guide for coastal wetlands, estuaries and saltmarshes which are found in the dynamic saline zone between the land and the sea. It provides a coastal planting supplement to the Auckland Council's Riparian Zone Management Guidelines which focuses on freshwater and inland environments, and to the Wetland planting guide factsheet.

In the Auckland region, wetlands typically form on the edges of streams and lakes and in estuaries or damp, boggy places where water collects. Estuaries form where rivers and streams flow into the sea. They are partly enclosed by land and contain a mixture of fresh and salt water. Salt water moves in and out of estuaries with each tide.

Special places

The region's coastal wetlands, saltmarshes and estuaries are important and special places. These areas contain a diverse range of flora and fauna and offer significant habitat for many rare and threatened species. Wetlands and estuaries form a buffer zone between land and sea, protecting the land from erosion and also acting as a filter, by trapping sediment and pollutants from land run off, that would otherwise flow into coastal waters.

Coastal wetlands & estuaries in the Auckland region

Coastal wetland types in the Auckland region include:

Mangrove swamps – mangroves are found in the shallow areas of many of the region's estuaries and in coastal wetland areas.

Saltmarsh – dominated by sea rush, oioi and saltmarsh ribbon wood. Saltmarshes form on the edge of our estuaries and in areas where there is little wave action and sediment is deposited. These areas are regularly covered by seawater, are often nurseries for juvenile fish and provide important breeding and feeding areas for birds.

Salt meadows – areas of flat mat-forming plants such as glasswort, *Samolus repens* (sea primrose), *Selliera radicans* (remuremu) and *Cotula coronopifolia* (bachelors button).

Protect. Restore. Connect.

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Going, going...

Since many coastal environments are shifting and changing (due to erosion, sea level rise, subsidence, or human alteration) coastal wetlands, estuaries and salt marshes are very dynamic places with no two being exactly alike. Estuaries and coastal wetlands are highly productive ecosystems, with a range of habitat types found within and around them. The mix of plants and animals living in coastal wetland and estuaries varies with local conditions (e.g. climate, water flow, salinity, nutrient levels and substrate).

Coastal wetlands and estuarine areas are affected by land use practices in the surrounding catchments and activities in the coastal zone. Many of our coastal wetlands and estuaries have been modified by human impacts including roading causeways, rubbish dumping, pollution, reclamation, trampling by stock, urban and industrial development and recreational pressures. Reclamation has destroyed thousands of hectares of mangroves, saltmarshes and saltmeadows, which supported many native plant and animal species. Road causeways adversely affect these areas by cutting them off from the natural flushing action of the tides, particularly when adequate culverts are not provided. Invasive plant species and animal pests are also found in, and adversely affect, wetland and estuaries.

Restoring coastal wetlands and estuaries

Given the right conditions, coastal wetland and estuarine areas will often regenerate naturally. To assist this natural process, ensure the area is fenced from stock to prevent trampling and browsing of vegetation and pugging of the ground. Fencing will encourage plants to regenerate from natural seed sources. In addition, ensure that pest plants and animals are controlled. For more information on pest control, contact the Auckland Council biosecurity team on 09 301 0101.

If your aim is to restore natural wetland/estuarine systems, you will need to consider restoring natural water levels and flows. This may involve opening an area to tidal inundation by either removing or partially removing bunds, or opening floodgates on culvert drains. It is important that any major work, such as removing drains or artificial obstructions is done before any restoration planting is undertaken, so that new plants can establish and adapt to the changes in water levels and salinity. Please note that resource consent may be required for such activities and fish passage should be considered. Talk to Auckland Council before undertaking any works in a wetland, stream or coastal area.

Planning your coastal wetland planting

See Coastal planting guide 1 for detailed information on planning your coastal planting, site preparation and ecosourcing plants.

Spacing of plants will differ depending on their growth form. For example, rushes and sedges need to be planted 0.5m apart to encourage vegetation cover, while trees and shrubs will only need to be planted at 1.0-1.5m centres. Set plants out in groups and plant closely to each other to provide sheltered environments.

Planting list

This species list provides details for some of the plants that naturally occur in coastal wetland and estuarine areas. Once an area is fenced, water levels are right, and weeds and pests controlled, native wetland and estuarine plants should come back themselves. However some supplementary planting may be beneficial.

To stop the spread of invasive pests **please check all mulch, plants, their soil and containers** (before you move them to your planting site) for contaminants, eggs and live animals e.g. Rainbow skinks and Argentine ants. Please avoid using contaminated soil and plant material in your restoration planting.

Species planting abundance (**+**) has been indicated in the table, showing the approximate proportion that should be used within the planting. By following these recommendations the planting will replicate natural species abundance and groupings. Those species with a higher abundance rating are more hardy plant species, they establish easily and should be used in greater abundance. Some coastal wetland species do not need to be planted e.g. bachelors button, glasswort, mangrove, raupo and *Selliera radicans* as these species will establish naturally once water levels are restored and stock and weeds are removed. It is important to remember that plants are adapted to living with different water levels and saline tolerances and should be planted accordingly.

Coastal wetland, Awhitu Regional Park

Maori name/ common name	Botanical name	Lifeform	Height	Abundance	Comment
				(+++ use plentifully, ++ use commonly, + use sparingly)	
wīwī/knobby clubrush	*Ficinia nodosa*	rush	0.7m	++	Fine rush with creeping root mass. Needs full sun. Plant at rear of high tide beach at base of clay bank.
giant umbrella sedge	*Cyperus ustulatus*	sedge	0.8m	++	Forms large dense clumps. Good in open spaces. Lowland and coastal swamps, backdune wetlands.
oioi/jointed wire rush	*Apodasmia similis*	rush	1m	++	Distinctive grey-green, orange, purple or rainbow colouring. Plant in areas bordering salt marshes and estuaries, or dune hollows and in seepage areas.
kukaraho/pūrua/ marsh clubrush	*Bolboschoenus fluviatilis*	sedge	1-2m	++	Margins of streams, swamps. Brackish water. Fast growing. Stems die back over winter.
harakeke/flax	*Phormium tenax*	herb	2-3m	++	Upright in habitat with tall red flower heads which attract birds. Grows in a range of conditions. Tolerant of salt exposure. Excellent shelter.
toetoe	*Austroderia splendens*	large grass	3m	++	Tall dense creamy gold flowering plumes. Can grow on dry disturbed sites. Tolerates drought and salt wind. Dry edges only. Not to be confused with the invasive pampas grass from South America this is late flowering.
mānuka	*Leptospermum scoparium*	small tree	8m	++	A widespread shrub, dry to wet, often fringing lakes, in swamps and bogs. An important colonizer in many plant successions. White flowers. Avoid disturbing roots when planting.
sea rush	*Juncus kraussii var australiensis*	rush	0.5m	+	Fine dark green leaves. Grows in damp sand, saltmarsh and estuary margins.
Machaerina juncea	*Machaerina juncea*	sedge	1m	+	Found in lowland coastal swamps and saltmarsh areas.
needle grass	*Austrostipa stipoides*	Grass	1m	+	Sharp-tipped tussock. Found on rocks, mudflats and sandspits.
kāpūngāwhā/ lake clubrush	*Schoenoplectus tabernaemontani*	tall rush	1-2m	+	Grows at the interface between saltmarsh and fresh water.
taupata	*Coprosma repens*	shrub or small tree	2-4m	+	Large shrub or small tree with dark green, glossy, rounded leaves. Very hardy, excellent wind and seaspray shelter. Orange berries attract birds.
mākaka/ saltmarsh ribbonwood	*Plagianthus divaricatus*	shrub	3m	+	Can be grown in salt marshes and along estuaries. Also grows in dune hollows and coastal gravels. Bushy form.
coastal tree daisy	*Olearia solandri*	shrub	3-4m	+	Erect shrub with tiny leaves. Quick growing. Does well on estuarine edges. Abundant fragrant flowers (autumn).
tī kōuka/cabbage tree	*Cordyline australis*	tree	17m	+	Erect tree with crown of narrow leaves tufted at the end of branches, white flowers in spring. Requires some protection when young. Moderate tolerance to salt and wind. Plant back from the estuarine edge and in damp dune hollows. Fruit attracts birds.

Whatipu wetland, Waitakere Ranges – Arno Gasteiger

Typical estuarine and wetland vegetation sequence


Saltmarsh, Awhitu Peninsula

Need more information?

The Auckland Council's biodiversity team can provide further information on ecological restoration, please contact biodiversity@aucklandcouncil.govt.nz or 09 301 0101. Many of the native plants listed in the coastal planting guidelines are on display at the Auckland Botanic Gardens in Manurewa. Please feel free to visit the gardens to familiarise yourself with these plants.

For further information on coastal planting, pest control, funding opportunities, coastal management and ecological restoration please contact Auckland Council on 09 301 0101 or check out our website www.aucklandcouncil.govt.nz

Other factsheets in this series:

01 Coastal planting guide

02 Dunes

03 Coastal forests

04 Coastal cliff tops

06 Coastal clay banks

References

Cranwell, L.M. (1981). The Botany of Auckland. Auckland War Memorial Museum

Johnson, P. & Brooke, P. (1989). Wetland Plants in New Zealand. Wellington, DSIR Publishing.

Auckland Council, Riparian Zone Management Guidelines, Technical Publication 148.

Auckland Council Wetland Facts 2. Wetland Planting and Restoration Guide