



Saltmarsh in Hornsby Shire Council



Saltmarshes are intertidal plant communities dominated by herbs and low shrubs that can tolerate high soil salinity, high temperatures and occasional inundation from salt water.

Saltmarshes play a very important role in providing food for aquatic species and for recycling nutrients. They are home to a diverse range of resident and visiting animals, including fish such as mullet that come in with the tide to eat crab larvae and other prey.

Saltmarsh communities are classified by the type of plants that are dominant and include saltpans, saline grasslands and samphire (succulent) dominated saltmarsh. (http://www.dpi.qld.gov.au/28_9127.htm)

Elevation and hydrology affects species composition at particular locations – *Sarcocornia quinqueflora* dominates at lower, and hence more frequently inundated levels, whereas *Wilsonia backhousei* (not in HSC however) and *Juncus kraussii* prefer less frequent inundation.

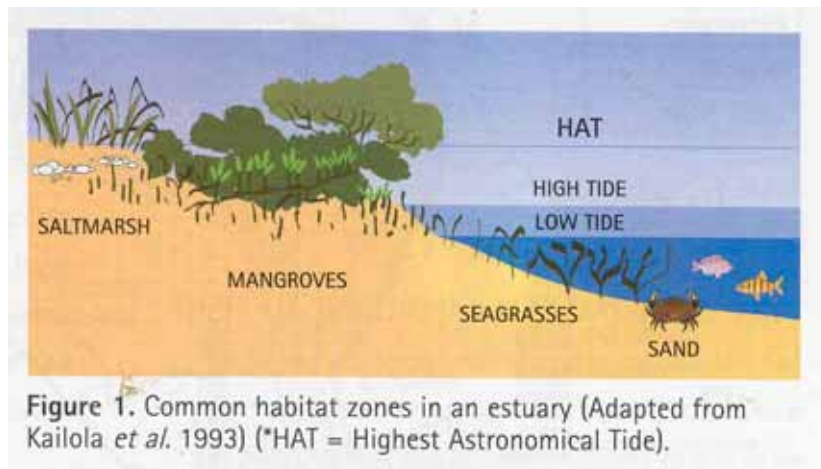


Figure 1. Common habitat zones in an estuary (Adapted from Kailola *et al.* 1993) (*HAT = Highest Astronomical Tide).

(NSW Fisheries- Fishnote NSW 1226 Dec 2003)

In the saltmarsh at high tide:

Fish use the saltmarsh for shelter from predators and food. In fact, especially during spring tides, there is intensive feeding of fish on crab larvae. Crab larvae feed on the particulate matter that has been derived from vegetation. In one of the relatively undisturbed creeks flowing into the Hawkesbury River near Spencer, research has found 12 species of fish using saltmarsh at high tide, including species of commercial importance such as the school prawn, flat tail mullet, and dusky flathead.

In the saltmarsh at low tide:

Insects living on the saltmarsh are a vital part of the food web for birds, bats, fish and spiders. At low tide the surface of saltmarsh has an organic film over it which is food for mud crabs. Saltmarsh grasses also provide grazing areas for swamp wallabies and kangaroos.

In the saltmarsh at night:

Migratory wader birds such as bitterns and curlews like saltmarsh as a night-time roost because the open vegetation and lack of trees provides safety from predators and the presence of pools makes ambush difficult. Small insectivorous bats forage above saltmarsh at night for insects.

(<http://www.hn.cma.nsw.gov.au/infopages/2866.html>)

River health in the Hawkesbury estuary is supported by maintaining good quality saltmarsh which:

- Improve water quality by filtering sediments and nutrients from run off
- Provide food, homes and/or shelter for a range of insects, birds, fish and animals.
- Provides a buffer between the water and the land
- Provide protection from people entering private property
- Are aesthetically attractive

Many significant Aboriginal cultural heritage items such as middens can also be found in and bordering saltmarsh.

Also numerous threatened species and migratory wading birds live in saltmarsh areas. Coastal wetlands and saltmarsh have been identified by DECCW as one of four priority fauna habitats in the Greater Southern Sydney Region because a range of threatened species are associated with these habitats. A large part of the Region is contained within the Hawkesbury Nepean Catchment Management Authority area. Threatened species associated with saltmarsh include:

- the Bush Stone Curlew,
- the Australasian Bittern,
- the Black Bittern, and
- the Green and Golden Bell frog.

(<http://www.hn.cma.nsw.gov.au/infopages/2497.html>)

Saltmarsh diversity in the Hawkesbury estuary



Saltmarsh with fringing vegetation of mangroves and Swamp Oak forest at Crosslands Reserve

Saltmarsh occurs in the lower parts of the Hawkesbury River estuary, downstream of Wiseman's Ferry as far as Pittwater.

More than 200 flowering plant species occur in saltmarshes between the mid-north coast and the south coast of NSW, but at any one site there may only be 6-8 species growing together. Saltmarshes are typically made up of mosaics of plant communities including sedges, grasses, herbs and occasionally shrubs.

The species composition varies in each patch of saltmarsh depending on numbers of factors including salinity levels, elevations in the marsh (from low marsh to high marsh), variation in tidal inundation and adjacent landscape characteristics including soils and vegetation.

In Hornsby Shire characteristic plants include: the herbs, *Sarcocornia quinqueflora*, *Suaeda australis*; and the grasses *Juncus kraussii* and *Sporobolus virginicus*.

(<http://www.hn.cma.nsw.gov.au/infopages/2498.html>)

Saltmarsh can be seen in a number of public reserves in the Hawkesbury estuary within Hornsby Council Reserves:

- Crosslands Reserve on Berowra Creek
- Brooklyn Park Boardwalk, Brooklyn



Leafless herb to 30cm tall. Seed dispersed by tides, vegetative reproduction too. The stems are edible raw.
Family- Chenopodiaceae

Sarcocornia quinqueflora **Samphire**

http://www.nzpcn.org.nz/vascular_plants/show_image.asp?ParentID=2305&PlantImageID=1308



A low dense spreading herb to 40cm. Older leaves often reddish in colour. Young leaves are edible either raw or steamed.
Family- Chenopodiaceae

Suaeda australis **Austral Seablite**

<http://www.cooloolacoastcare.org.au/Photoshop%20assets/plants3.jpg>



A herb with creeping lower stems and upright upper stems to 30cm tall. White starry flowers in warmer months.
Family- Primulaceae

Samolus repens **Creeping Brookweed**

http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&photo=28&file=44/883/Samolus_repens.jpg



A small creeping herb upto 40cm long. Cosmopolitan distribution. Reaches its southern limit below Sydney. Used as a laxative and diuretic in India. Family- Scrophulariaceae

Bacopa monnieri **Bacopa**

<http://nmpb.nic.in/WriteReadData/photogallery/6537566647Bacopa%20monnieri-1.jpg>



A tall tussock-forming, strongly rhizomatous perennial coarse rush to 1m sometimes 2m tall. Often occurs in pure stands. Foliage grey - green in colour. Fruiting capsule golden brown to red-brown to blackish.

Family- Juncaceae

Juncus kraussii **Sea Rush** **NATIVE**

http://www.lhcrems.nsw.gov.au/CPR/CPR/plant_profiles/images/j.kraussii_seedhd.jpg



Introduced weed from Mediterranean region of Europe/ SW Asia. Acutely sharp points to each leaf. 50 – 150cm tall. Fruiting capsule yellow-brown to chestnut-brown.
Family- Juncaceae



Juncus acutus (lighter green plants in the foreground) are a major invasive weed in saltmarsh that is dominated by *Juncus kraussii* (grey-green native pant of saltmarsh, in the middle ground) - note that the native *Juncus* is generally taller in height.

Juncus acutus **Sharp Rush** **WEED**

<http://www.legambientearcipelagotoscano.it/biodiversita/flora/habitat/zoneumide/juncus%20acutus%20giunco%20pungente.JPG>



A cosmopolitan grass with creeping stems either rhizomatous or stoloniferous. Foliage is greyish in colour upto 50cm in height.
Family- Poaceae

Sporobolus virginicus **Sand Couch**

<http://florabase.calm.wa.gov.au/science/timage/635ic1.jpg>