

Seagrass Meadows & their inhabitants



EDMUNDS BAY



What are seagrasses?

Seagrasses are flowering plants (angiosperms) that have adapted to living totally submerged in marine and estuarine habitats. Seagrasses grow like backyard grasses, with roots, leaves and rhizomes (horizontal underground stems that form extensive networks below the surface), but are not true grasses and are more closely related to water lilies. Seagrasses also produce flowers and seeds.



Seagrass beds develop best in sheltered, shallow water along the coast. They are commonly found in estuaries and in association with mangrove forests. Different species of seagrass vary in maximum depth, but all are limited by the penetration of light through the water column.

Threats to seagrass

Human pressures on seagrass meadows, include:

- eutrophication (an increase in nutrients in the water column)
- heavy metals and toxins
- change in hydrology
- sediment runoff
- mining and dredging
- boat moorings and boat propellers
- introduced species

Natural pressures on seagrass meadows, include:

- cyclones or storms
- dieback from disease or untimely exposure to hot weather at extreme low tide
- climate change

Seagrass Protection

Seagrass is a protected species under the NSW Fisheries Management Act 1994. It is an offence under this Act to remove or damage live seagrass in the water. Wrack that is floating in the water should also be left there. However, you may legally remove up to 20 kilograms per day of wrack washed up onto the shoreline of your property. That's the equivalent of about 2 large garbage bags full of wet seagrass fronds.

Any dredging or reclamation work must have the consent of Department of Primary Industries and/or other relevant authorities.

Importance of Seagrass

Seagrasses are productive, widespread and ecologically significant features of the nearshore environment. In Lake Macquarie, the seagrass meadows provide the main diet and habitat for many marine animals, some of which, like prawns and fish, are commercially important. Look closely among the seagrass fronds in Edmunds Bay and you might be rewarded by seeing a seahorse, recently listed as a "Protected Species" by the NSW Department of Primary Industries. Seagrasses are also important in the diet of birds such as swans, ducks and geese.

The roots and rhizomes of seagrasses help stabilise sediments in the beds of coastal lakes and embankments, as well as trapping and recycling nutrients. Their leaves provide shelter, food and protection to many organisms, as well as an additional source of detritus. Seagrass leaves also act as a filter, slowing overlying water and thus allowing any sediment that is suspended in the water to fall out into the seagrass meadow. This in turn improves water clarity.



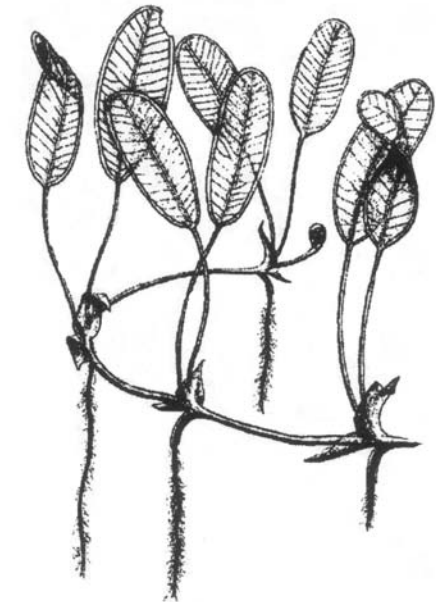
Zostera sp.
exposed at
low tide

What are seagrasses? (cont.)

Australia's 32,000 km coastline contains the largest, most diverse seagrass assemblages in the world. Of some 60 seagrass species found worldwide, 30 species are found in Australia. There are four species of seagrass found within the Lake Macquarie estuary: *Halophila ovalis* (Paddle Weed); *Ruppia megacarpa* (Sea Tassels); *Zostera capricorni* (Eel Grass) and *Posidonia australis* (Strap Weed). Of these four species, two (*Zostera capricorni* and *Halophila ovalis*) are found within Edmunds Bay.



Posidonia sp.



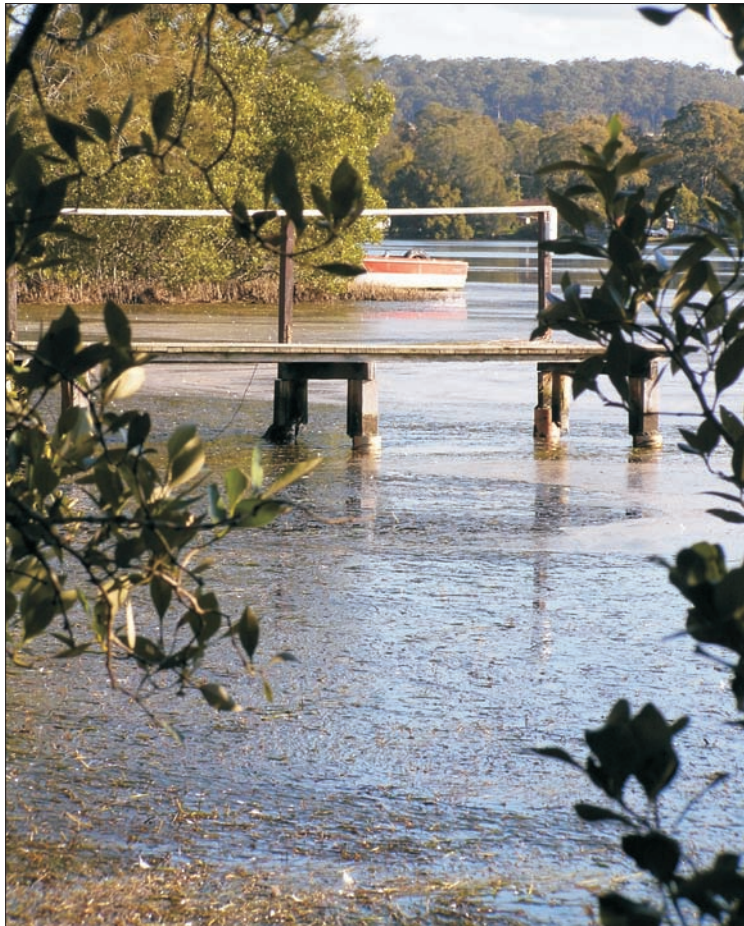
Halophila sp.

As you may have noticed, seagrass meadows in Edmunds Bay have expanded or recovered over the last 15 years or so. This recovery may be attributed in part to the fact that sewage effluent is no longer discharged to Mud Creek. In turn water clarity has improved and the occurrence of algal blooms has decreased.

What is seagrass wrack?

Seagrasses, like trees, shed some of their leaves annually. Seagrass wrack refers to the shed or detached leaf material of seagrass plants.

Seasonal growth of seagrasses plays a major role in the production of wrack within estuaries. Summer is the main growth period for seagrasses whilst in winter growth is reduced. The majority of wrack is produced during the winter die-back period as the leaves are shed. The leaf blades are initially buoyant, then sink and accumulate in drifts on the bed of the estuary. Water currents, wind and wave activity mobilise the detached leaf blades moving the material onto the shore. This process is entirely natural.



Seagrass meadows and floating wrack partially exposed at low tide

The seagrass *Zostera capricorni* is the primary species within Edmunds Bay and Lake Macquarie that is responsible for production of wrack.

Seagrass wrack contributes to the food web dynamics, supporting microbial and invertebrate fauna and supplying nutrients to the system. Wrack also offers habitat to many bird species, some of high conservation status.

Seagrass wrack is harvested for a variety of uses throughout Australia and overseas including use as a soil improver and/or garden mulch.



Seagrass wrack washed up on shore at Blackalls Park