

Solitary Islands Marine Park

FACTS

Estuaries



Where the river meets the sea

An estuary is a unique environment where flowing fresh water meets up with the salty seawater creating a brackish region of mixed water. Being so close to the sea, the estuary is also subjected to the daily fluctuations of the tide. The combination of the sheltered area, lack of wave energy and fine sediment creates a very special habitat that is important to many plants and animals.

Mangroves are one of these unique plants that generally live only in the estuarine area, as they have specially adapted to cope with the changing tides and salt levels. The Grey Mangrove (*Avicennia marina*) is the most widely spread mangrove in Australia.



The Grey Mangrove is possibly the easiest to recognise as it has long thin roots (pneumatophores) that stick up through the mud like pencils. These roots act like snorkels as the mud in the estuary is so thick that oxygen can't get much deeper than the first couple of centimetres. Therefore, to get to the oxygen the mangrove sends the roots up above the mud and breathes through little holes on the pneumatophores, which can then be stored in the plant during high tide.

Grey Mangrove (*Avicennia marina*)

The mangroves play an important role for many of the animals that live in estuaries. The pneumatophores, root systems and fallen branches create a nursery habitat for baby prawns and fishes such as bream, mullet, whiting and luderick. Approximately 70% of commercially important fish species in NSW rely on estuaries at some stage in their life cycle.

The trunks and roots also provide a home to oysters, barnacles, limpets and an array of algae and lichens for herbivorous (plant eating) animals to graze on. In the branches of the mangroves you can often find some beautiful birds such as the Mangrove Gerygone (a mangrove specialist), the carnivorous Sacred Kingfisher as well as honey eaters that come to enjoy the sweet mangrove blossoms.

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The muddy substrate is important for many burrowing animals such as mud crabs, sesarma crabs and yabbies who burrow to stay moist when the tide is low and to stay safe from predators.

The rotten egg gas that you can smell in the mangroves comes from the bacteria that live in the thick, airless mud. These bacteria are called anaerobes, which have the important job of breaking down rotting detrital (plant) matter. This process produces sulphur dioxide which gives the mangrove environment its unique scent.



Although saltmarsh is generally above the high tide line, it is still a very important part of an estuary. Only a few hardy plant species, grasses and succulents, grow in saltmarshes. These grasses provide a home for many marine animals similar to those that occur in the mangrove area, however, terrestrial animals begin to inhabit this area such as many insects, some frogs and even wallabies.

Seagrass beds are found in many SIMP estuaries and are also important habitat for a range of marine life. Small fish, prawns and swimmer crabs are often spotted hiding amongst the seagrass. Seagrass beds have been known to be a calving area for dolphins. Seagrass is also great for keeping sand in place, where it would otherwise be washed away with tides and floods.

The Solitary Islands Marine Park incorporate large estuaries, with some stretching more than 10 kilometres inland as well as very small creeks that are only intermittently open to the sea. Sections of estuaries in the Marine Park are fully protected in sanctuary zone. This provides protection to the many and varied plants and animals that rely on estuaries for food, shelter and breeding. In addition to zoning, the Marine Parks Authority works closely with other management agencies to prevent litter, chemicals and other harmful substances entering our waterways.

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