

Mangroves

Mangroves are coastal trees or shrubs (kingdom Plantae, division Magnoliophyta, class Magnoliopsida) that are adapted to the marine environment and inhabit the intertidal area between land and sea.



Lionfish in mangrove forest

Mangroves have adapted to life in a harsh, often anoxic (lacking oxygen) environment, where there is large amounts of silt and mud. One of the more noticeable mangrove adaptations is in root morphology, which varies according to the local environment. These can include prop roots that arch downward from tree trunks for support, and pneumatophores that are directed upwards into the air.

Mangroves survive in saltwater environments by either excreting the salt through special glands on the leaves, dropping their leaves, or blocking the uptake of salts through the roots. Mangrove seeds (propagules) germinate on the parent tree prior to their release, when

they drop into the mud or float away with the tide.

Mangroves provide important feeding and nursery areas for fish and crustaceans. The intricate complexity of mangrove roots make ideal hiding places from predators. The roots themselves display quite a variety of invertebrates, including hermit crabs, nudibranchs, barnacles and shrimp. Further up the tree, the trunks, branches and foliage are also home to other animals, such as bats and insects. The leaves shed by mangroves provide food for a number of organisms, including fiddler and ghost crabs. These crabs create burrows around mangroves, enabling a regular flushing of the mangrove roots by tidal water.



The seeds of the chili mangrove

The following nine species of mangrove can be found on Motupore Island, and represent approximately 33% of the total number of species thought to be present in Bootless Bay.



Avicenna eucalyptifolia – White mangrove
AVICENNIACEAE – 300 cm



Xylocarpus rumphii
MELIACEAE - 150 cm

Seagrasses

Seagrasses (kingdom Plantae, division Magnoliophyta, class Liliopsida) are a functional grouping of true flowering plants that have adapted to the marine environment. There are approximately 60 described species globally, the majority of which live totally submerged in seawater, in shallow environments where there is a high availability of light. Seagrasses are anchored by a system of below ground rhizomes and roots through which they obtain nutrients. Seagrasses actually help to stabilise coastal sediments and fight coastal erosion.

Being flowering plants, pollen is produced and dispersed by water currents. Their flowers are, however, rather dull compared with terrestrial flowers. Seagrasses also produce fruits and set seed.

Seagrass meadows provide habitats for many vertebrates and invertebrates, and are nursery grounds for commercially important fish and crustaceans. Seagrasses also act as nutrient sinks, filtering nutrient and chemical inputs to the marine environment.

Bootless Bay, more specifically the area surrounding Motupore Island, is the site for some of the earliest studies on seagrass ecology conducted in the Indo-West Pacific. Here we provide photographs of five of the Bay's ten species. There are thirteen reported species found in Papua New Guinea.



Halodule uninervis – Needle seagrass
CYMODOCEACEAE – 5 cm



Enhalus acoroides – Tape seagrass
HYDROCHARITACEAE – 70 cm



Halophila ovalis – Paddle grass
HYDROCHARITACEAE – 1.5 cm



Cymodocea rotundata – Ribbon seagrass
CYMODOCEACEAE – 7 cm



Thalassia hemprichii – Turtle grass
HYDROCHARITACEAE – 15 cm