

About Saltmarsh ecology in Moreton Bay

What are saltmarshes?

Saltmarshes are vital intertidal ecosystems typically found between mangrove forests and dry land. These areas experience tidal flooding during king and spring tides and consist of a diverse array of vegetation, including grasses and sedges, low shrubs, succulents, algae, and salt flats.

The intermittent tidal flooding and insufficient water movement lead to high salinity levels and low oxygen content in the soil. These conditions are home to halophytic plants that thrive in saline environments. Additionally, various invertebrates such as crustaceans, insects, spiders, worms, and molluscs inhabit these zones.

Despite their challenging environment, saltmarshes are highly productive ecosystems that play a crucial role in the estuarine food web. In addition to primary production from plants and algae, they contribute significantly to detrital production. During king and spring tides, resident crabs and gastropods release larvae, which serve as food for the numerous juvenile fish found in nearby waters. High tides also bring many fish species and juvenile prawns into saltmarshes for feeding.

Moreover, saltmarshes offer various environmental benefits, such as filtering land-based runoff, eliminating excess nutrients and pollutants, and mitigating erosion in upper tidal areas. They are also effective in carbon sequestration, often referred to as blue carbon. Saltmarshes serve as essential foraging and resting areas for wading birds.



Saltmarsh is exposed to intermittent tidal flooding.



Tidal inundation around samphires, algal mats and marine couch.

Conservation Status

The Federal Government designated Subtropical and Temperate Coastal Saltmarsh as a Vulnerable Ecological Community in 2013. This ecological community is located along Southeast Queensland, including Moreton Bay with notable sites near the Redcliffe Peninsula, Deception Bay, and Pumicestone Passage.

Since 1955, saltmarshes have declined by up to 64%, leaving about 3100 hectares by 2012. In contrast, mangroves have increased slightly to over 15000 hectares. Alterations in hydrology and increased tidal inundation have led to the encroachment and establishment of mangroves in areas that were previously occupied by saltmarsh.

Saltmarsh: Snippets on the flora and fauna



The water mouse is listed as vulnerable under the EPBC act. Photo: Qld Museum

Saltmarsh areas serve as habitats for several species of conservational significance, including migratory waders and the water mouse (*Xeromys myoides*), also known as the false water rat. Currently, the water mouse is rarely observed in Southeast Queensland. This small native rodent establishes nests in saltmarsh and forages on invertebrates found in nearby mangroves.



The Haswell's Shore Crab inhabits saltmarsh

Crabs are vital ecosystem engineers, modifying sediments through bioturbation. The nocturnal Haswell's Shore crab burrows into saltmarsh sediment during the day, allowing water and oxygen to penetrate. These burrows often attract other invertebrates seeking moisture and shelter from sunlight.

Algal mats, often found in saltmarshes, are composed of red, brown, and green algae, along with cyanobacteria, diatoms, and dinoflagellates. These mats provide nourishment for various invertebrates, such as crabs and molluscs, and play a crucial role in maintaining moist sediment, anchoring it, and minimizing erosion.



Algal mats are an important component maintaining saltmarsh ecosystems

Halophytic plants have evolved to thrive in saline environments and exhibit heat resistance. Saltmarsh vegetation tends to be shorter in stature, typically not surpassing half a metre in height. This results in limited shade and elevated ground temperatures. Bead weed (*Sarcocornia quinqueflora*) is a succulent that creates low mats and is commonly found in the wetter regions of the saltmarsh.



Bead weed is a common halophyte in the saltmarshes of Moreton Bay