



Seagrass Meadows

INTRODUCTION

The plant life that dominates the land are the flowering plants (class Magnoliophyta), however, the plant life that dominates the ocean are algae. The only true flowering plants that live in the ocean are the plants known as the seagrasses (families: Hydrocharitaceae, Posidoniaceae, Zosteraceae and Cymodoceaceae; many scientists classify all of these under Hydrocharitaceae). Despite their similarities and often being referred to as grasses (family Poaceae) they are not true grasses and are more closely related to lillies.

DESCRIPTION

Seagrass meadows can, over many decades, develop into expansive meadows spread by both seeds and root-like structures called rhizomes. These meadows often goes through a cycle of expanding, following storm damage, followed by a period of regeneration.

Seagrass meadows are highly diverse ecosystems and can be made up of one or more species of seagrass. There are 52 species world-wide with three of them regularly occurring in the Bahamas, these include the Turtle grass (*Thalassia testudinum*), Manatee grass (*Syringodium filiforme*) and Shoal grass (*Halodule beaudettei*).

Amongst the seagrass also grows many different species of algae including Neptune's shaving brush (*Penicillus sp.*), Mermaid's wine glass (*Acetabularia crenulata*), Laurencia (*Laurencia obtusa*), Green feather alga (*Caulerpa sertularioides*) as well as miro-algae like diatoms growing on the Seagrass leaf blades.

DISTRIBUTION

Seagrasses are found in coastal ecosystems worldwide except in the waters surrounding Antarctica. Because these plants must photosynthesise, they are limited to growing in shallow, sunlit water along sheltered coasts with sandy or muddy bottoms.

IMPORTANCE

Seagrass beds provide food and shelter for a host of organisms. Green Turtles and Manatees, once common in the Bahamas but are now endangered species, feed heavily on seagrass, lending the relevant species their names. Other animal life including sea urchins, crabs, sand dollars, starfish, fish and rays of many kinds, sea cucumbers, octopi, eels and many gastropods such as the commercially important Queen conch (*Strombus gigas*). The Juvenile stages of many species spend their early days in the relative safety of the meadows. Burrowing organisms such as worms and gastropods find protection below the interwoven net of roots and rhizomes from predators that might otherwise be able to dig them out. Even the decaying vegetation, which can be carried considerable distances by the current, is important as a food source for sea cucumbers and a variety of marine worms.

The thick seagrass beds help to stabilize the loose sandy or muddy sediment during times of heavy wave action. They also perform an important function, trapping waterborne sediment. The leaves reduce the water current permitting the sediment to drop out of the water column and collect between the plants effectively removing it from the water column.

Seagrass is very sensitive to high temperature, and the plants drop their leaves, as a response to the stress. These seagrass blades typically accumulate on the shoreline in late summer. This dead seagrass plays an important role of adding nutrients to the intertidal zone for coastal plants, and the decaying seagrass attracts flies and amphipods (small crustaceans) that are critical for migrating birds in the Autumn months.

STATUS AND THREATS

Globally, seagrasses are in serious decline with an estimated 30,000 square kilometres lost in recent years. The main reason for this decline is human disturbance.

Coastal development releases excess sediment into the water column which overwhelms the seagrass filtering capacity resulting in increased water turbidity (a common reason for the death of coral reefs) and even smothers the seagrass.

Eutrophication from a wide variety of pollutants such as sewage, agricultural chemicals, oils and household cleaning products causes excess algal growth that compete with the grasses.

Overfishing of certain species can upset the balance in nature that keeps these ecosystems healthy. In the Caribbean, the over harvesting of conch has reduced or eliminated this species ability to remove encrusting organisms from the seagrass. The build-up of these organisms block sunlight to the leaves and prevent photosynthesis.

Physical damage from boat propellers and anchors, can have significant impacts on seagrass meadows: slashing the rhizomes, fragmenting the meadows and making them susceptible to erosion.

INTERESTING FACTS

Unlike algae which originate from the sea, seagrasses originate from flowering plants that came from the land.

In the Bahamas, seagrass is often used as a fertilizer in sandy soil.