

Threats to Sea Grass

- Natural disasters, geological and meteorological events like earthquakes, cyclones, tsunami etc harms the sea grass. While cyclones coincide with huge waves and strong currents over the seafloor, which uproots sea grasses and erode the sediment surfaces, earthquakes cause rise in shoreline and subsequent exposure of the sea grass.
- Change in land use pattern by human activities, sediment and nutrient load to the coastal water, organic inputs, toxic chemicals from industrial sources and oil spills are considered to be the anthropogenic reason for sea grass destruction by causing physiological impairment .
- Global warming and resultant sea level rise is expected to impact the sea grass eco-system
- Intensive netting, trawling, in the coastal zone also directly harm sea grass beds.

Sea grasses are a valuable marine resource capable of indicating change, providing a food source, and creating a safe habitat for life. As they occur widely in coastal zones throughout the world & play an important role in coastal eco system, discussion about coastal management therefore, often includes sea grasses. So, it's time to think and save sea grass meadows. The meadows can be saved by reducing pollution from chemicals, mechanical destruction, overfishing, all other human causes and also by creating marine protected areas

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SEA GRASS

THE HIDDEN TREASURE

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Sea grass

Sea grass is valuable but overlooked habitat representing small number of species in comparison to any other group of marine organisms. They play an important role in ecology and regulate the biogeochemical cycles of the coastal zone worldwide. Sea grasses are the only flowering plants with pollination taking place underwater. They grow in shallow, well lit water in coastal marine and estuarine environments and are often found associated with mangroves. Sea grasses change the flow of water, recycle the nutrients, impact the food chain of marine life systems and provide nurseries, shelter and food for a variety of underwater plants and animals specifically, to the dugongs and green turtles(a turtle eats around 2 kg of sea grass in a day-(Source:seagrasswatch.com). They provide a habitat for many, smaller marine animals, some of which, like prawns and fish, are having commercial importance. They also absorb nutrients from coastal run-off and stabilize sediment by both absorption to its surface and ambient conditions. Sea grass accelerates co-precipitation process to the surface mud flat and thus keeps the water clean.

Sea grasses have very dense root system comprising of rhizomes that not only help in effective nitrogen fixing but also help bind the sea sediment and prevent coastal erosion. The sea grass is very efficient in carbon absorption and binding. It is estimated that sea grasses per square meter are capable of binding about 1000 grams of carbon (they absorb 15% of total carbon stoarge of the sea) every year. Sea grasses are sometimes labeled as *ecosystem engineers*, because they partly create their own habitat.

Sea grasses, coral reefs and mangroves are all connected and depend on each other. All these systems exert a stabilizing effect on the environment, resulting in important physical and biological support for the other communities (Amesbury and Francis 1988).But sea grasses are 3 times more valuable than coral reefs due to the eco-system services they provide.

Ecosystem services Sea Grass provides

- Acts as nursery and spawning areas for commercially important species of animals and commercial & recreational fishes
- Confounds waves and currents & promote sediment dispositions
- It binds sediments, thereby protecting beaches from erosion which helps reduce some of the impacts of climate change on coasts,
- The roots and rhizomes of sea grass stabilizes the seabed
- Stabilizes sediments and produce large quantities of organic carbon
- They are an important food source for mega herbivores such as green sea turtles, dugongs, and manatees etc
- High primary productivity, supporting coastal marine food chains

There are 13 genera and 58 species available all over the world. Fourteen species of sea grasses belonging to seven genera are so far recorded in India., out of which three genera encompassing six species are recorded from Chilika lagoon (Pattnaik et.al. 2003).

As all the other natural resources, it has also become evident that sea grasses are a vulnerable coastal resource and subjected to various kinds of depletion all over the world, due to both natural and human-induced influences. They are very sensitive to some human impacts and are important indicators of the health of the marine environment. Sea Grass being the 3rd most valuable eco system - globally, plays an important role in maintenance and sustenance of aquatic life. Therefore, sea grass beds are included in the category of CRZ -I by the CRZ Notification 2011.

