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Perspective

Brief Note on Seagrass Biology

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DESCRIPTION

Seagrasses belong to a group of plants called monocotyledons, which include grasses, lilies and palm trees. Chloroplasts in tissues use the energy of the sun to convert carbon dioxide and water into sugar and oxygen, which grow in the process of photosynthesis. Seagrass and algae are similar at first glance, but they are very different organisms. The veins carry small air pockets called lacunas that carry nutrients and water throughout the plant, keep the leaves buoyant, and help exchange oxygen and carbon dioxide throughout the plant. Like other flowering plants, their roots can absorb nutrients. However, unlike terrestrial flowering plants, there are no stomata, which are small holes in the leaves that open and close to control the exchange of water and gas. Instead, they have a thin cuticle layer that allows gas and nutrients to diffuse directly into the leaves and out of the water. Seaweed roots and rhizomes (thicker horizontal stems) extend to seabed sediments, store and absorb nutrients, and help fix plants. In contrast, algae (algae) are much simpler organisms. They have no flowers or veins, and their deposits simply attach to the ground and are generally not specialized in absorbing nutrients.

Seagrasses develop each vertically and horizontally their blades attain upwards and their roots down and sideways to seize daylight and vitamins from the water and sediment. They unfold with the aid of using methods: asexual clonal reproduction and sexual reproduction. Asexual Clonal Growth: Similar to grasses on land, seagrass shoots are linked underground with the aid of using a community of big root-like systems known as rhizomes. The rhizomes can unfold beneath the sediment and rise up new shoots. Sexual Reproduction: Seagrasses reproduce sexually like terrestrial grasses; however pollination for seagrasses is finished with the assist of water. Male seagrass flora launches pollen from systems known as stamens into the water. Seagrasses produce the longest pollen grains at the planet (as much as 5mm lengthy in comparison to beneath 0.1mm for land flora typically), and this pollen frequently collects into stringy clumps. The clumps are moved with the aid of using currents till they land at the pistil of a female flower and fertilization takes place. There is likewise proof that small invertebrates, together with amphipods (tiny shrimp-like crustaceans) and polychaetes (marine worms), feed at the pollen of 1 seagrass (Thalassia testudinum), that could assist to fertilize the flora in a manner just like how bugs pollinate flora on land. Self-pollination occurs in a few grass species that may reduce genetic variation. Individual seagrass flora keep away from this with the aid of using generating most effective male or lady flora, or with the aid of using generating the male and female flora at extraordinary times. Just like land grasses, fertilized seagrass flora increase seeds. Seagrass seeds are neutrally buoyant and might flow many miles earlier than they settle onto the tender seafloor and germinate to shape a brand new plant. A few seagrass species together with the surf grass Phylospadix can settle and stay on rocky shores. Animals that consume seagrass seeds-along with fish and turtles- may incidentally aid with their dispersal and germination if the seeds pass through their digestive tracks and remain viable.

Seagrass provides food, shelter, and important farms for invertebrates inhabiting commercial and recreational fishing industries, as well as seagrass communities. Some fish, such as seahorses and lizardfish, are found in seagrass all year round, while others stay on the seagrass bed at certain life stages. Some organisms, such as the endangered Florida manatees and green turtles, directly graze the leaves of seagrass, while others indirectly use seagrass to supply nutrients. Bottlenose dolphins often feed on seagrass dwelling organisms. Bacterial debris from dead seagrass plants feeds worms, sea cucumbers, crabs, and filter feeders such as anemones and sea squirts. When further decomposed, nutrients (nitrogen, phosphorus, etc.) are released, and when dissolved in water, they are reabsorbed by seaweed and phytoplankton. Seaweeds help capture fine deposits and particles floating in the water column and increase the transparency of water. In the absence of seagrass communities in the seafloor areas, sediments are more susceptible to wind and wave disturbances, reducing water transparency, affecting the behavior of marine life and generally reducing the quality of recreation in coastal areas. Seagrass also helps filter nutrients from terrestrial industrial and storm water spills before they are washed away by other sensitive habitats such as the sea and coral reefs.

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