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LET'S PROTECT NATURE
YOUNG ZOOLOGISTS' ASSOCIATION
SRI LANKA
ESTD 1972
WORLD SEAGRASS DAY
2026

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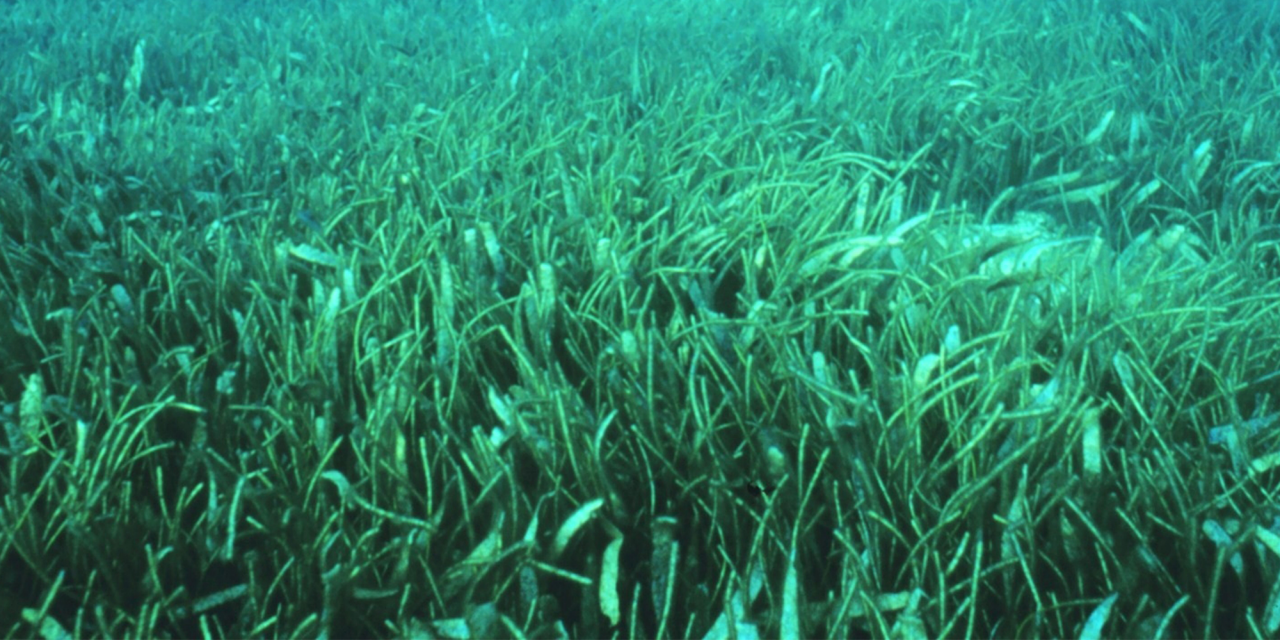
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WORLD SEAGRASS DAY

World Seagrass Day 2026 is observed on the 1st of March 2026 as an annual international day dedicated to raising awareness of the ecological, climatic, and socio-economic importance of seagrass ecosystems. The United Nations General Assembly proclaimed 1st March as World Seagrass Day through Resolution A/RES/76/265 in 2022, following a Sri Lanka-sponsored initiative to highlight the urgent need for global attention on seagrass conservation and sustainable management.

Images from the Internet

SEAGRASS

Kingdom: Plantae
Division: Angiospermae
Class: Monocotyledonae

Seagrasses are fully submerged marine angiosperms (flowering plants) belonging to the division class Monocotyledonae. They evolved from terrestrial monocot ancestors approximately 100 million years ago, returning to the marine environment through a process known as secondary marine adaptation. They are the only true vascular plants capable of completing their entire life cycle underwater in saline environments. There are approximately 72 recognized species of seagrasses recorded in the world.

Morphologically, seagrasses are composed of a root system that consists primarily of adventitious roots that arise from the nodes of the rhizome. These roots function in firm anchorage against hydrodynamic forces such as waves and currents. The roots also absorb dissolved inorganic nutrients, including ammonium, nitrate, and phosphate, directly from the sediment pore water. This extensive root network contributes significantly to sediment stabilization by binding sediment particles together, thereby reducing erosion, enhancing sediment accretion, and maintaining benthic habitat integrity. The leaves of seagrasses are typically elongated and may be ribbon-like, cylindrical, or occasionally oval in cross-section, depending on the species. The leaf blades contain well-developed chloroplasts within their mesophyll cells, enabling efficient photosynthesis under submerged conditions.

Seagrasses possess specialized adaptations, including:

- Salt tolerance through osmoregulation
- Submerged photosynthesis using dissolved carbon dioxide
- Hydrophilous pollination
- Aerenchyma tissue for oxygen transport

Images from the Internet

Seagrass as a Blue Carbon Ecosystem

Blue carbon refers to carbon stored in marine ecosystems, which includes seagrasses, mangroves, and salt marshes. Seagrass meadows function as highly efficient blue carbon ecosystems, actively sequestering carbon in their biomass and in associated sediments. Through photosynthesis, seagrasses capture carbon dioxide from the water column and convert it into organic carbon, which is then incorporated into plant tissues and rhizome structures. A significant portion of this carbon is trapped in the sediment beneath the meadows, where low oxygen conditions slow decomposition and allow long-term storage. This combination of biomass retention and sedimentary carbon burial makes seagrass meadows one of the most effective natural carbon sinks per unit area, often surpassing the carbon sequestration capacity of many terrestrial forests.

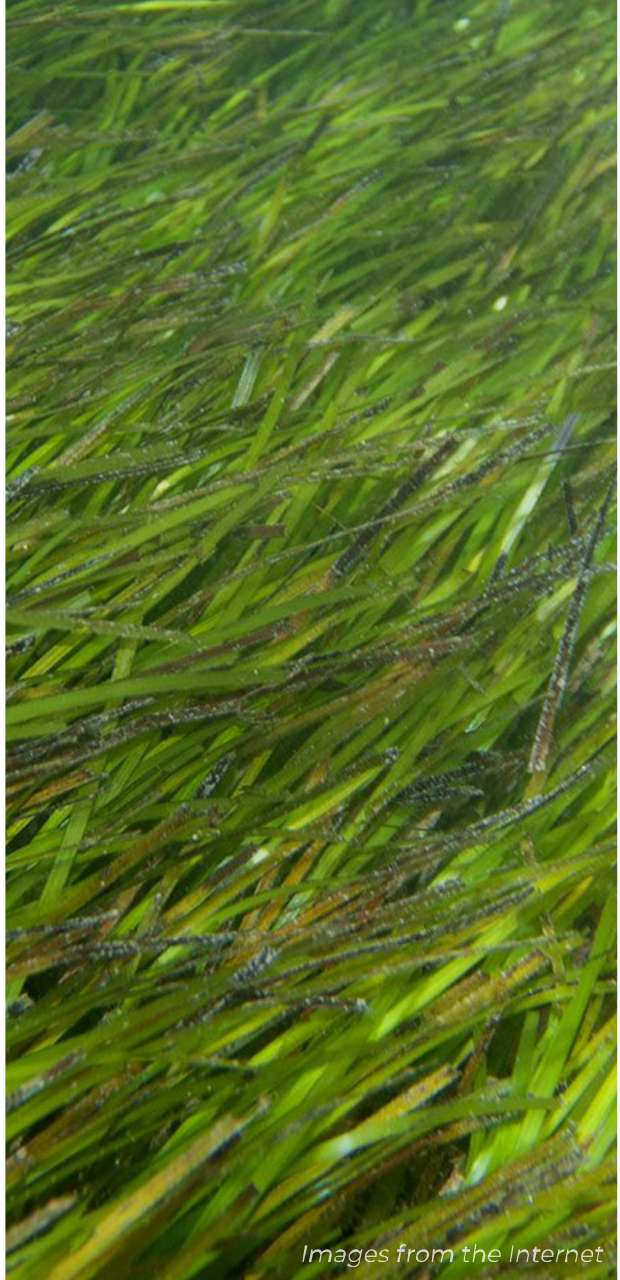


Images from the Internet

Distribution of Seagrass

They occur in tropical, temperate, and even Arctic regions, demonstrating ecological adaptability. Seagrass meadows are currently present in 159 countries.

Sri Lanka hosts extensive seagrass beds, particularly in its northwest and northeast coastal lagoons. Major locations include the Jaffna Lagoon, Mannar, the Puttalam Lagoon, Trincomalee, Batticaloa, Negombo, Galle, and Weligama, reflecting broad coastal coverage.



Images from the Internet



Seagrass as Feeding Grounds

Seagrass meadows serve as essential feeding habitats for a range of endangered and vulnerable marine species, providing high-quality nutrition and supporting life processes. Among the most notable consumers is the Dugong (*Dugong dugon*), a marine mammal. Dugongs are strictly herbivorous, relying almost entirely on seagrass for sustenance. They primarily consume species such as Halophila ovalis, Thalassia hemprichii, and Cymodocea rotundata. Their dependence on seagrass renders them extremely sensitive to habitat degradation, and IUCN currently lists dugongs as Vulnerable (VU) globally. Endangered sea turtles, particularly the Green sea turtle (*Chelonia mydas*, IUCN: Endangered, EN), also rely on seagrass meadows for nutrition. Green turtles primarily feed on seagrass species such as Halophila ovalis and Thalassia hemprichii, which provide the protein-rich diet necessary for growth, reproduction, and overall health. In addition, several other endangered or vulnerable species utilize seagrass habitats, such as the Hawksbill turtle (*Eretmochelys imbricata*, IUCN: Critically Endangered, CR), which may feed on sponges but also depends on seagrass beds for foraging juveniles. The Smalltooth sawfish (*Pristis pectinata*, IUCN: Critically Endangered, CR) and seahorses (*Hippocampus spp.*) use seagrass meadows as nursery grounds and hunting territories.

Images from the Internet

Importance of Seagrass

1. Habitat for Marine Organisms

Seagrass meadows provide structurally complex habitats that support a rich diversity of marine life. The dense underwater foliage offers shelter and protection for fish, crustaceans, mollusks, and invertebrates from predators, while also serving as breeding and spawning grounds.

2. Nursery Grounds

Seagrass beds act as natural nurseries for juvenile fish, shrimps, and crabs, offering both food and refuge. They reduce predation risk, allowing young organisms to grow and disperse into adjacent habitats such as coral reefs and open coastal waters.

3. Oxygen Production

Through photosynthesis, seagrasses generate significant amounts of dissolved oxygen, which is essential for the respiration of aquatic organisms. This oxygenation helps maintain healthy water quality, supports aerobic microbial activity in sediments, and contributes to the overall balance of coastal marine ecosystems.

4. Nutrient Cycling

Seagrass supports nutrient cycling by absorbing excess nitrogen, phosphorus, and other nutrients from the water column. Their roots and associated microbial communities help transform these nutrients into forms accessible to other organisms, thereby maintaining water quality and preventing eutrophication. Decomposing seagrass detritus also provides a continuous source of organic matter for benthic organisms, further sustaining food webs.

5. Sediment Stabilization

The extensive root and rhizome systems of seagrasses anchor sediments, reducing erosion and stabilizing coastlines. This stabilization prevents the resuspension of sediments, which can smother nearby coral reefs or seagrass beds and reduce water clarity. By trapping sediments, seagrasses also facilitate the deposition of organic carbon, contributing to long-term carbon storage and mitigating the impacts of climate change.

Images from the Internet

Current Threats to Seagrass

Seagrass ecosystems face multiple anthropogenic and environmental threats that have led to their decline in recent decades. Coastal development, including land reclamation, port expansion, and urbanization, often destroys seagrass habitats or alters water flow, leading to habitat fragmentation. Pollution from industrial effluents, agricultural runoff, and domestic sewage introduces excess nutrients and toxins into coastal waters, which can cause eutrophication and reduce light penetration, impairing seagrass growth. Bottom trawling and other destructive fishing practices physically uproot seagrass beds and disturb sediment structure, directly reducing meadow coverage. Climate change also poses long-term threats through rising sea temperatures, ocean acidification, and increased frequency of extreme weather events, all of which can stress seagrass physiology. Additionally, sedimentation from river runoff, coastal construction, and deforestation increases turbidity and smothers seagrass leaves and rhizomes, limiting photosynthesis and nutrient uptake.





Seagrass Conservation

Conservation of seagrass ecosystems is critical for maintaining coastal biodiversity, supporting fisheries, and mitigating climate change through blue carbon sequestration. Effective conservation strategies include the establishment of marine protected areas (MPAs), which restrict destructive activities such as trawling and coastal development, allowing seagrass meadows to recover and thrive. Restoration programs, such as transplanting seagrass shoots or enhancing natural regeneration, are increasingly employed to rehabilitate degraded habitats. Pollution control measures, including proper wastewater management and reduction of agricultural runoff, help maintain the water quality necessary for seagrass growth. Additionally, awareness programs targeting local communities, fishermen, and policymakers promote the ecological and economic value of seagrasses.

Images from the Internet

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