



Seagrass Meadows

For Prelims: [Seagrass](#), [Carbon Sequestration](#), [Greenhouse gas emission](#), [Global warming](#), [Ocean currents](#), [United Nations Environment Programme](#), [Ocean acidification](#), [Gulf of Mannar](#), [Baltic Nations](#)

For Mains: Significance of Seagrass and Concerns Related to it.

Source: IE

Why in News?

Scuba divers in Northern Germany are **extracting seagrass shoots to replant in barren areas**, aiming to **combat climate change** and **revive** these **ocean carbon sinks**.

What are Seagrass Meadows?

▪ About:

- Seagrass meadows are composed of **flowering plants that grow in shallow coastal waters**, forming dense underwater carpets that can cover large areas.
- They thrive in areas where sunlight can penetrate the water, allowing them to undergo [photosynthesis for growth](#).
 - Also, they typically grow in **sandy or muddy substrates**, where their roots can take hold and stabilize the plant.

▪ Significance:

- **Carbon Sequestration:** Though they cover **only 0.1% of the ocean floor**, these meadows are highly efficient carbon sinks, storing up to **18% of the world's oceanic carbon**.
 - This helps **reduce greenhouse gas emissions and slow down global warming**.
- **Water Quality Improvement:** They also **filter pollutants from the water**, trap sediments and prevent erosion, thereby improving **water clarity and quality**.
 - This benefits both marine life and human activities such as **fishing, tourism and recreation**.
- **Habitat and Biodiversity:** They are among the most productive and diverse ecosystems on Earth, providing habitats and food for many marine animals, including **fish, turtles, dugongs, crabs and seahorses**.
- **Coastal Protection:** Seagrass beds act as natural barriers, protecting coastlines from erosion caused by **waves and tidal currents**.

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▪ **Concern:**

- According to “**Out of the Blue: The Value of Seagrasses to the Environment and to People**” report of **United Nations Environment Programme (UNEP)**, an estimated **7% of seagrass habitat is being lost worldwide each year.**
 - Since the late 19th century, **almost 30% of seagrass area across the globe has been lost.**
- The main causes of seagrass loss are:
 - **Coastal Development:** Construction of **ports and marinas** can destroy seagrass habitats or reduce their light availability.
 - **Pollution: Runoff of nutrients, chemicals and sediments** from agriculture, industry and urban areas can cause eutrophication, algal blooms and turbidity, which can smother or shade out seagrass plants.
 - **Climate Change: Rising sea temperatures, sea level rise, ocean acidification** and extreme weather events can stress or damage seagrass plants and alter their distribution and growth.

▪ **Seagrasses in India:**

- In India, the major seagrass beds exist along the **coastline of Gulf of Mannar and Palk Bay regions on the east coast, Gulf of Kachchh region on the west coast, the lagoons of islands in Lakshadweep** in the Arabian Sea and **Andaman and Nicobar Islands** in the Bay of Bengal.

▪ **Restoration Efforts:**

- Seagrass restoration has been attempted in various regions, such as the **Baltic Sea in Germany, Chesapeake Bay in the USA** and the **Gulf of Mannar in India.**