



*Seagrass meadows are mesmerizing
Forming underwater prairies
Stretching for as far as the eye can see
Swaying in the waves and currents
Teeming with minute and often cryptic animals*

SEAGRASSES: PRAIRIES OF THE SEA

Thalassia testudinum in the Caribbean Sea off the coast of Panama. Photo by Tim Carruthers.

WHAT ARE SEAGRASSES?

Seagrasses are ancient plants that evolved from land plants when dinosaurs roamed the earth. They are not seaweeds (marine algae). Seagrasses are unique plants that flower underwater and have colonized all but the most polar seas. There are only 60 species of seagrass globally.

Seagrasses grow under sea ice as well as adjacent to coral reefs. They live in shallow water along exposed coasts and in sheltered lagoons and estuaries.



Posidonia oceanica in the Mediterranean Sea. Photo by Manu San Félix.

SEAGRASSES AND PEOPLE

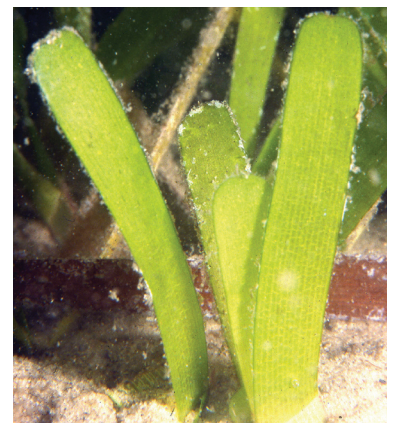
Over a billion people live within 30 miles (~50 km) of a seagrass meadow. Millions of people obtain their protein from animals that live in seagrasses.

Seagrasses have been used by humans for over 10,000 years. Seagrasses have been used to insulate houses, stuff furniture, thatch roofs, and even were used to stuff seats in early models of Volkswagens.

In Zanzibar, Africa, fishermen have gone to war and even killed one another over access to seagrass meadows for gathering food like fish and shellfish.

Seri Indians in Mexico collect seagrass seeds to make flour and the month of harvest is named for the local seagrass.

They are the first line of defense along much of the world's coastlines, intercepting pollution that would harm the ocean.



Cymodocea serrulata in Moreton Bay, Australia. Photo by Chris Roelfsema.

AN ACRE OF SEAGRASS

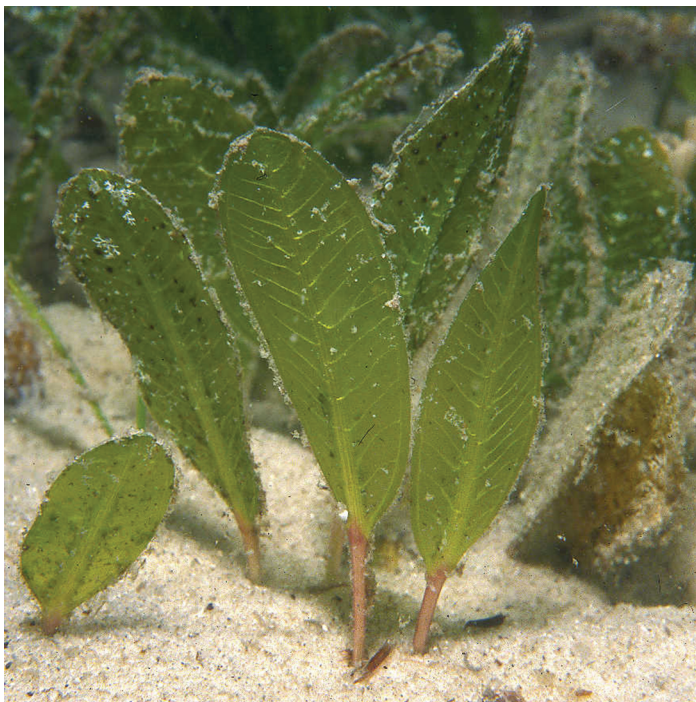
- Absorbs 6.4 pounds (2.9 kg) of nutrients per year, equivalent to the treated effluent from 490 people.
- Sequesters 7,401 pounds of carbon per year (83 g carbon per square meter per year), equivalent to the CO₂ emissions from an automobile traveling 3,860 miles (6,212 km).
- Provides ecosystem services worth US\$18,000 per year.

SEAGRASSES AND ECOSYSTEMS

Seagrass meadows are visible from space—astronauts can see seagrasses. There is a vast, nearly continuous seagrass meadow stretching 770 miles (1,239 km) along the west and south coasts of Australia (equivalent to New York City to Jacksonville, Florida). There is a vast seagrass meadow south of the Florida Everglades that is 5,380 square miles (13,934 square kilometers), equivalent in size to the state of Connecticut.

Seagrasses are key to healthy coral reefs. In the Florida Keys National Marine Sanctuary, the seafloor is 95% seagrass and less than 5% corals. In the Great Barrier Reef Marine Park, the seafloor is 13% seagrass and 6% coral.

Although only a few feet high, dense seagrass meadows have as much leaf area as towering rainforests, which have the highest leaf areas on the planet. The leaf area index of seagrasses, tropical rainforests and temperate rainforests can reach 20 square feet (1.8 m²) of leaf area per one square foot (0.09 m²) of ground area.



Halophila ovalis in Moreton Bay, Australia. Photo by Chris Roelfsema.

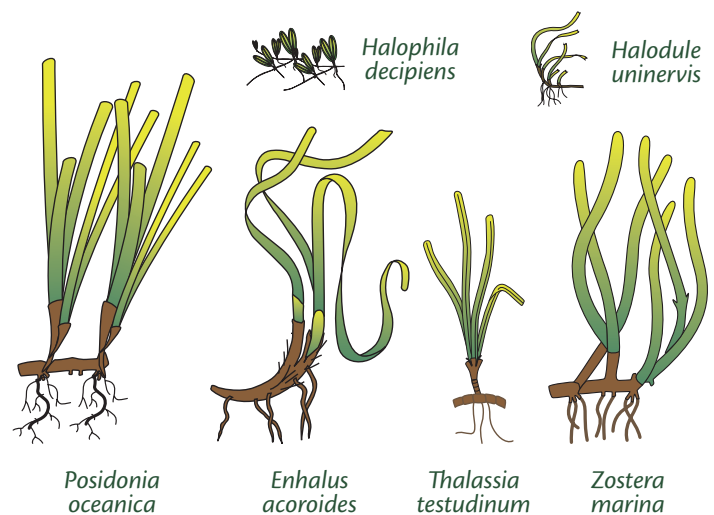
Seagrass meadows are more productive than fertilized corn fields. A productive seagrass meadow will fizz with oxygen bubbles, looking like champagne.

Seagrasses provide a nursery for juvenile fish and a habitat to lobsters, crabs, and food for juvenile salmon and other fish. They are also home to many species of seahorses. There are 10 to 100 times more animals in seagrass meadows compared with adjacent sandy bottom.

Seagrasses are the primary food source for the world's largest marine herbivores (manatees and dugong) and are a major food source for green sea turtles. Ducks, geese, and swans eat seagrass. Seagrasses enhance the productivity of coral reef fisheries.

Seagrasses occupy only 0.1% of the seafloor, yet are responsible for 11% of the organic carbon buried in the ocean, which helps reduce greenhouse gases.

Seagrasses protect the coast by trapping and stabilizing marine sediments, raising the seafloor at rates of 0.04 inch (1 mm) per year. They dissipate wave energy and shelter the coast from storms.



FUN FACTS ABOUT SEAGRASSES

- The only endangered marine plant is a species of seagrass (*Halophila johnsonii* in Florida).
- There is a single clone of seagrass that is over 6,000 years old (*Posidonia oceanica* in the Mediterranean Sea).
- The deepest growing seagrass, 190 feet (58 meters), is in the Great Barrier Reef in Australia (*Halophila decipiens*).
- The longest seagrass, 11 feet (3.35 meters), is in Japan (*Zostera caulescens*).
- Seagrass produces the longest pollen grains on the planet.