

Coastal Ecosystems
American Spaces Activity Guide
By the Smithsonian Ocean Portal



At the border between land and sea, coastal ecosystems like salt marshes, mangroves and seagrass beds are where people and the ocean interact most. Along the coast, land plants evolved to survive salt water. With their fast growth rates, these plants are an important food source for the many adult and juvenile animals that live among them. Marsh and seagrass blades and mangrove roots provide structure and habitat for organisms to grow upon and hide behind, and for this reason they are important nurseries for fish we like to eat. And once they die, the plant matter is broken down and eaten by another set of organisms, many of them microscopic. These ecosystems also take carbon dioxide from the atmosphere, helping to reduce global warming and ocean acidification.

But many coastal ecosystems are under threat. As people develop coastal areas, nutrients from fertilizers are carried by runoff into these complex ecosystems. The nutrients stimulate the growth of microbes that cover the leaves and make the water cloudy, reducing the light that the seagrasses need to survive. Paved roads and poor construction practices allow more sediment and dirt from land to flow into the water, blocking sunlight the plants need to survive. In salt marshes, many of the plants are being replaced by aggressive invasive species from around of the world, which support fewer kinds of animal life. Many mangrove forests have been cut down to make way for aquaculture ponds or buildings. In many places, however, people are beginning to realize the need for regulations to protect these coastal ecosystems from destruction.

Objectives:

- Describe two kinds of coastal ecosystems.
- Explain how coastal ecosystems are important to ocean health.
- Describe two threats to coastal ecosystems.

Read about seagrasses and seagrass beds (<http://ocean.si.edu/seagrass-and-seagrass-beds>) (or use the PDF version). Write down answers individually or in small groups, and then go over the following questions as a group.

1. Where are seagrasses and seagrass beds found?

2. How do seagrasses reproduce?

3. Seagrass beds can support thousands of species. Briefly describe three ways that they support this diverse food web.

4. Why is seagrass known as the “lungs of the sea?”

5. What is the main culprit that has killed off 29 percent of the world’s seagrass beds in the past century?

6. What is one way to protect and restore seagrass beds?

7. Name two ways that mangrove forests and seagrass beds are similar, and one way that they are different.

VOCABULARY SCAVENGER HUNT:

1. Define “rhizome root system”

2. Define “blue carbon”

3. What is “killer algae?”

Additional Reading and Media

Mangrove Forest overview: <http://ocean.si.edu/mangroves>

Slideshow of Mangrove plants and animals: <http://ocean.si.edu/mangroves-photos-plants-and-animals>