

# 7 SALT MARSH

The previous two plates characterize marine habitats with hard, rocky substrates. While these habitats are very interesting because of the high diversity of organisms they support, the majority of intertidal habitats have soft substrata.

Along many coastlines are areas well protected from the direct onslaught of waves. These areas are designated coastal wetlands and include coastal lagoons and embayments, estuaries, and tidal sloughs. Many of these environments are supplied with fresh water from rivers or coastal streams. In the quiet waters of these wetland environments, fine sediments and organic detritus carried by rivers and tidal currents are deposited. A muddy substrate forms which, from mid-tide level and higher, harbors one of the most conspicuous and important habitats found in coastal wetlands—the salt marsh. Below the salt marsh, from mid-tide down, open tidal flats occur. These are treated in the following plate.

**Reserve a light green color for the cord grass, blue for the tidal channel, and brown for the mud flat. Begin by coloring the single cord grass plant in the center of the page, including the roots. Color the areas of cord grass in the picture of the salt marsh. At the top of the page, color the enlargement of the blade of cord grass showing salt discharge. Color the arrow indicating detritus falling into the tidal channel area. Next, color the channel and mud flat and each of its inhabitants as they are mentioned in the text. Except where noted, most of these animals are gray or mud colored. Finally, color the arrow for animal waste.**

Salt marshes stretch over millions of acres along the broad coastal plain of the southeastern coast of the United States and along the Gulf of Mexico. They also fringe the edges of the major estuaries on the northeast and west coasts of the United States. At the heart of the marsh, from the mid-tide to the high-tide lines, is a rugged flowering plant known as *cord grass*. Cord grass is one of the few flowering plants that can survive immersion in salt water: excess salt coming into the plant is accumulated and discharged through the leaves.

Cord grass sends its roots deep into the rich marsh mud, tapping the nutrients derived from decaying organic matter

and sending out underground stems from which new plants sprout. Cord grass can soon monopolize an area; the spreading plants trap more sediment and build up the substrate, expanding the marsh seaward. In the Georgia salt marshes, cord grass can produce an annual average mass of 200 tons per hectare (80 tons per acre), making it one of the most productive habitats in the world.

Only about 10 percent of the cord grass that grows is consumed directly by animals in the salt marsh. Most of it dies, breaks apart, and is carried into the *tidal channels* by the ebb and flow of the tides. Here the plant material is decomposed by bacteria and fungi and becomes *detritus*. This detritus forms the basis of the food chain that fuels many major fisheries of the east coast. Much of the detritus is transported directly out of the marsh with the ebb tide and finds its way into near-shore food chains.

Among the cord grass roots and along the tidal channels are *mussels*, which feed by filtering out the detritus and minute plants suspended in the water. Detritus is utilized by other filter feeders, such as *oysters* and *clams* inhabiting adjacent *mud flats*, as well as the young *menhaden* fish. The salt marsh forms the hatching ground and “nursery” for the first eight months of the menhaden’s life before it goes to sea to join the largest fishery on the east coast.

Small, green *grass shrimp* are abundant in the tidal channels and eat the detritus found there. These shrimp, in turn, fall prey to *flounder* and young *striped bass*, who follow the tide into the salt marsh to feed. The *blue crab* also lurks in the tidal channels waiting for prey.

When the tide recedes, the tidal channels and the lower mud flats are left exposed. Hordes of *fiddler crabs* emerge from their mud *burrows* to sift the rich mud for plant detritus. During the mating season, large male crabs stand by the entrances to their burrows and wave their oversized claws in an attempt to attract a female partner.

All marine animals in the channel and the salt marsh deposit their *wastes* on the marsh bottom, where they are decomposed by bacteria and recycled into the cord grass through its roots.

All around the salt marsh the sounds of shorebirds and migrating ducks and geese may be heard. The salt marsh serves a vital role in linking the land with the sea. The marsh’s productivity and its role as a nursery area figure importantly in the success or failure of near-shore fisheries.

Name/Period/Date

## Salt Marsh

1. What type of substrate do the majority of intertidal habitats have?
2. Where can salt marshes be found?
3. Describe the adaptations that cord grass has to living in the salt marsh.
4. List four organisms that can be found in the salt marsh.
5. Color!

# SALT MARSH

- CORD GRASS<sub>a</sub>
- TIDAL CHANNEL<sub>b</sub>
- MUSSEL<sub>c</sub>
- MENHADEN<sub>d</sub>
- GRASS SHRIMP<sub>e</sub>
- FLOUNDER<sub>f</sub>
- STRIPED BASS<sub>g</sub>
- BLUE CRAB<sub>h</sub>
- MUD FLAT<sub>i</sub>
- OYSTER<sub>j</sub>
- CLAM<sub>k</sub>
- FIDDLER CRAB<sub>l</sub>
- BURROW<sub>m</sub>
- DETRITUS<sub>a'</sub>
- ANIMAL WASTE<sub>b'</sub>

