

A Bed of Biodiversity [ME]

Adapted from Virginia Department of Environmental Quality

Grades: 6-8

Time: 45 minutes to 1 hour

Goals: To create models to distinguish between eelgrass beds and a forest floor.

Objectives:

Students will be able to: define key characteristics of two plant-dominated ecosystems; define biodiversity; create models to describe the two ecosystems; and understand the importance of eelgrass beds in relation to biodiversity.

Key Words:

Biodiversity	Ecosystem	Eelgrass beds
Submerged aquatic vegetation	Undergrowth	Fronds
Substrate	Terrestrial	Salt marsh
Densely populated		

Background Information:

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Similar to flowering, vascular plants on land, submerged aquatic vegetation (SAV) grow the same way, just underwater. Usually surviving best in shallow water conditions, they are an excellent source of oxygen as well as a habitat for juvenile species of fish and invertebrates (photos of these are found throughout the manual). Their presence in the water is also a great indicator of the general health of an estuarine ecosystem because they help improve water quality by filtering out pollutants from runoff. Because of this high biodiversity, they are often equated to a lowland forest.

While underwater, their stalks and roots assist in settling out sediments in the water column, similar to the way dune plants will capture and hold sand that is wind swept or pushed by storm surges. When there is an overabundance of nitrogen and phosphorus in the water, due to heavy runoff from fertilizers, their roots can withstand these nutrients so that the surrounding water does not become polluted. Without submerged vegetation, the influx of nutrients could lead to severe algal blooms and eutrophication.

In New Jersey, for example, there are eel grasses that create a very prolific ecosystem in the Barnegat and Delaware Bays. These eel grasses have unfortunately declined in number since the 1950s due to the increase in pollutants from development and runoff as well as more grasses being caught in the propeller blades of recreational boaters. These issues, as well as other competing vegetation, have become the topic of many debates in order to halt the decline of these vital submerged plants.

Directions: Using the space below and the pictures provided, compare and contrast an eelgrass community to a forest floor community. Describe the similarities in species by defining which species are producers, primary consumers, secondary consumers, and top predators.

Forest Floor Biodiversity of Species

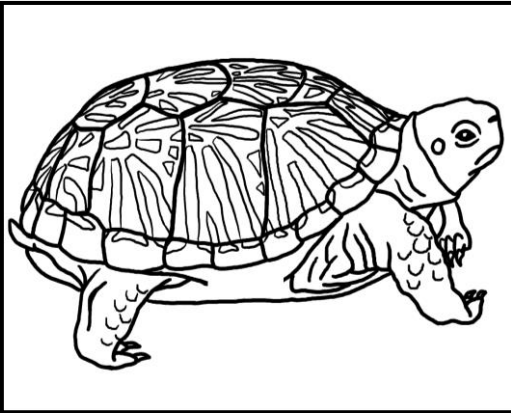
Timber Rattlesnake



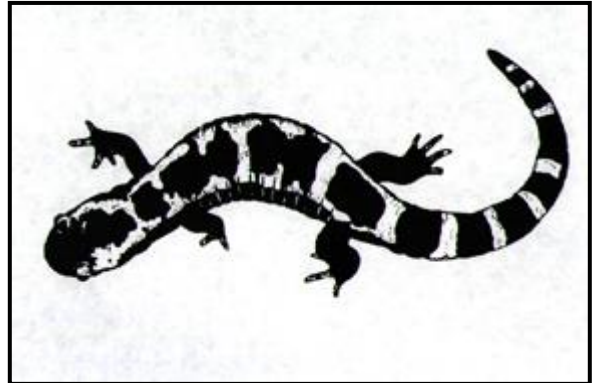
Treefrog



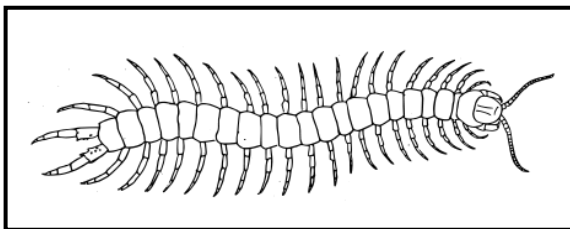
Box Turtle



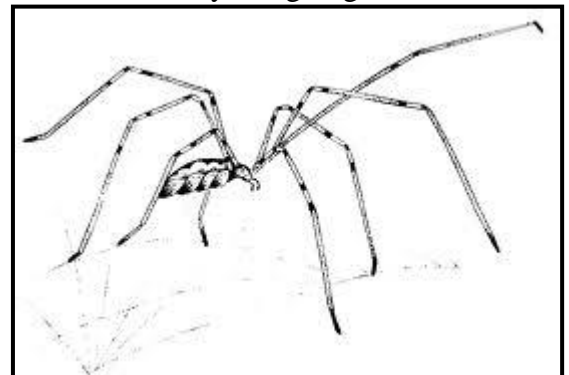
Marbled Salamander



Centipede



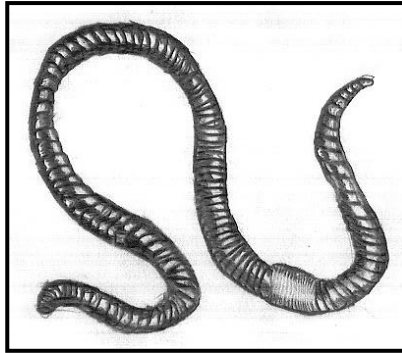
Daddy Long Legs



Pill Bug



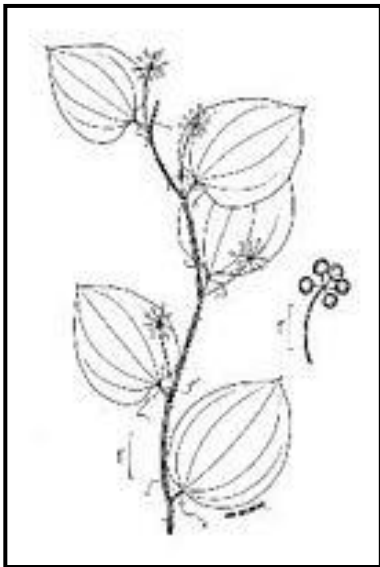
Earthworm



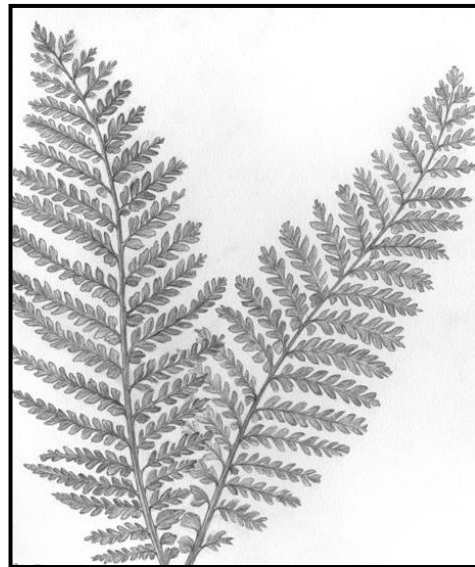
Wolf Spider



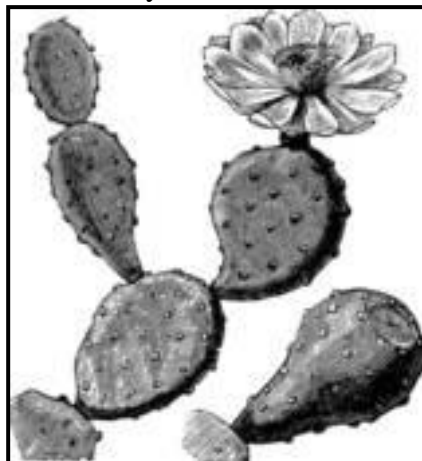
Catbriar



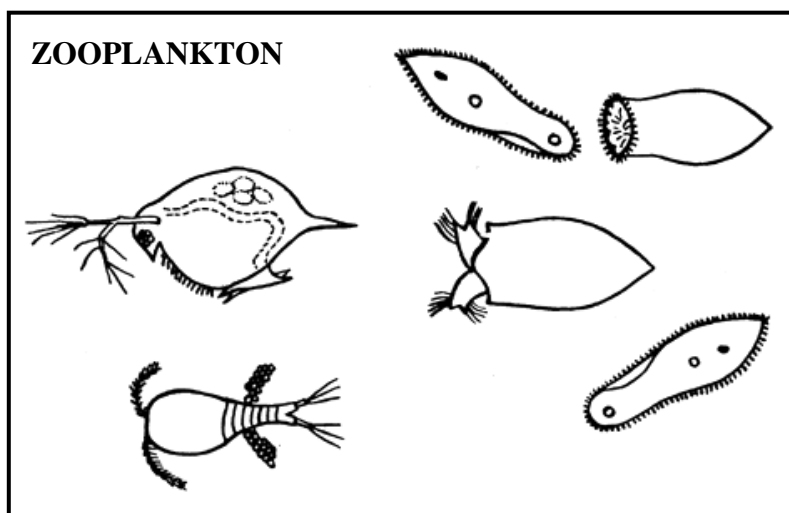
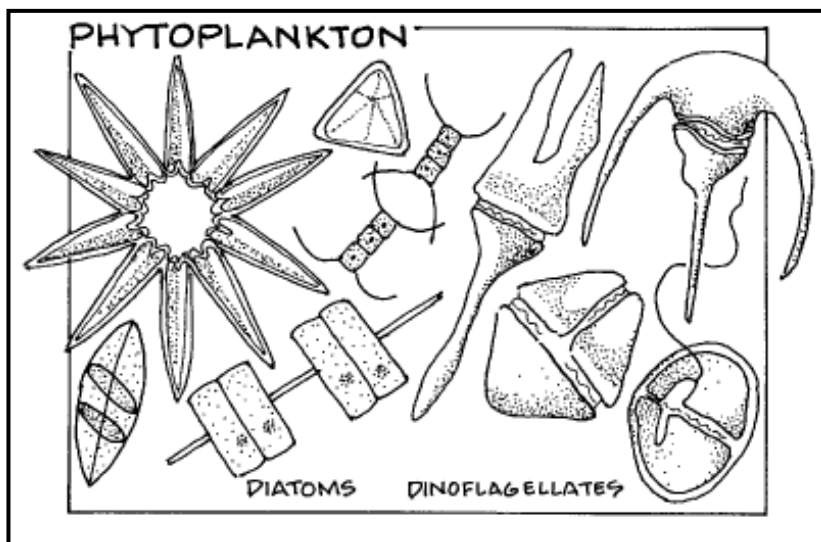
Ferns



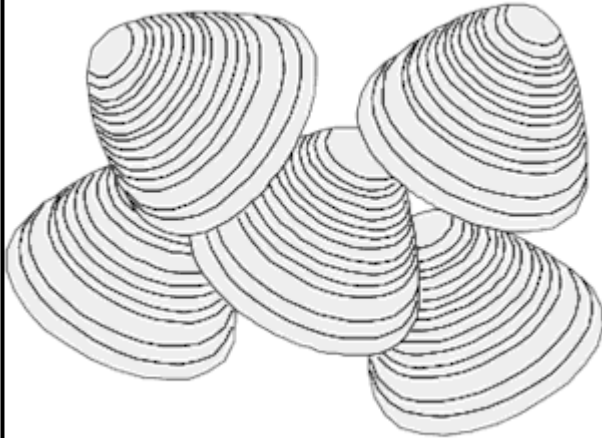
Prickly Pear Cactus



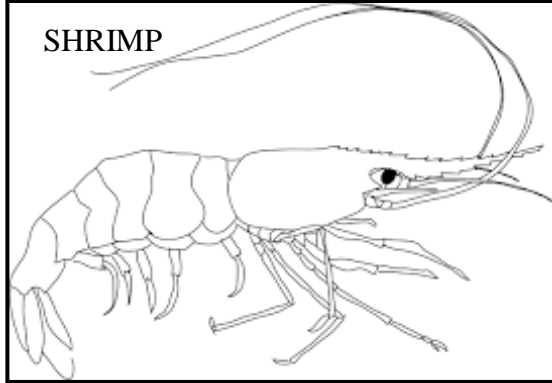
Common Estuarine Species



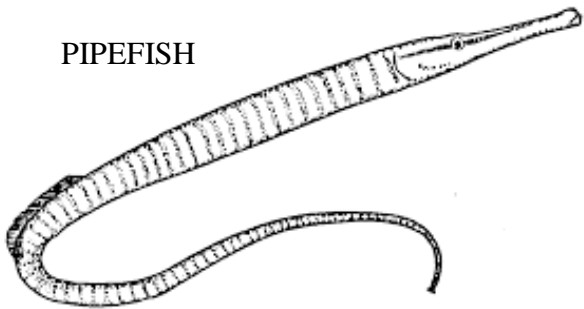
CLAMS



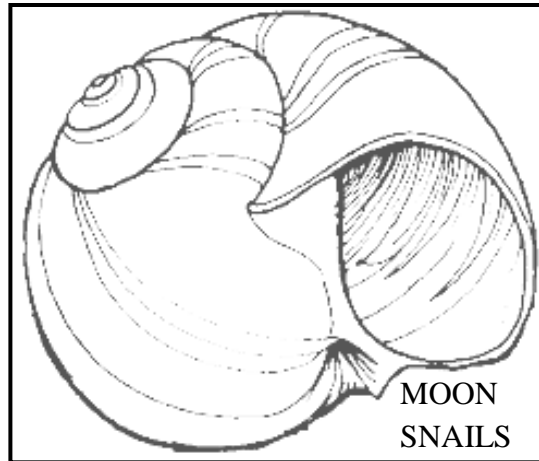
SHRIMP



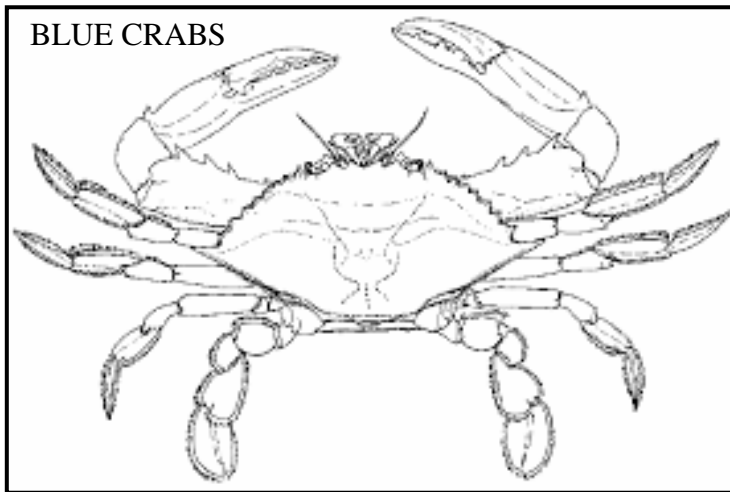
PIPEFISH



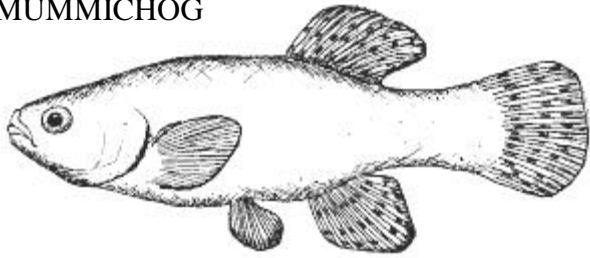
MOON
SNAILS



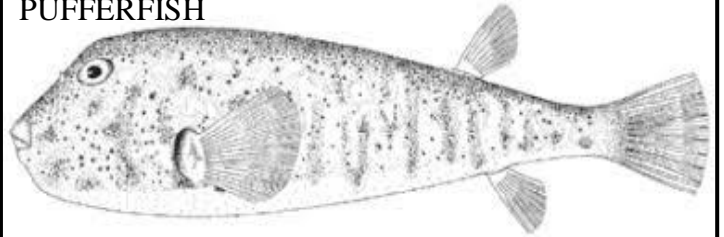
BLUE CRABS



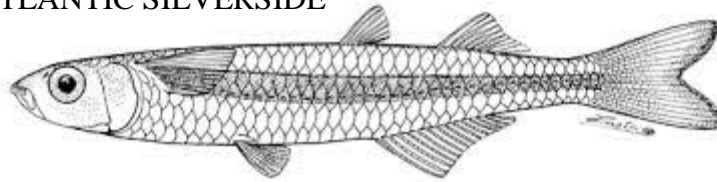
MUMMICHOG



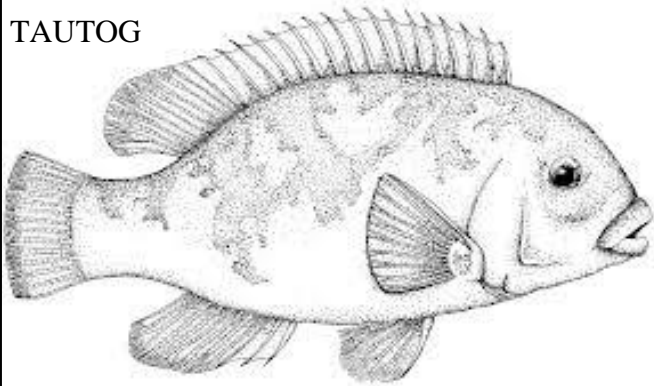
PUFFERFISH



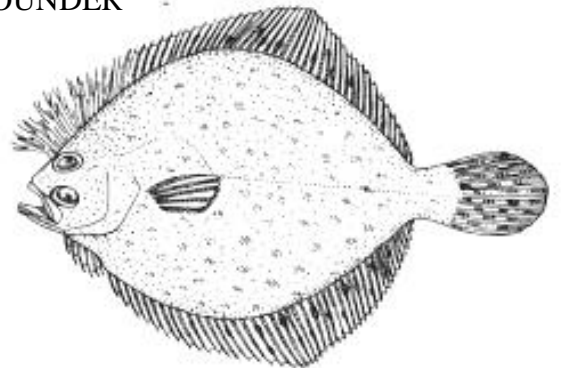
ATLANTIC SILVERSIDE



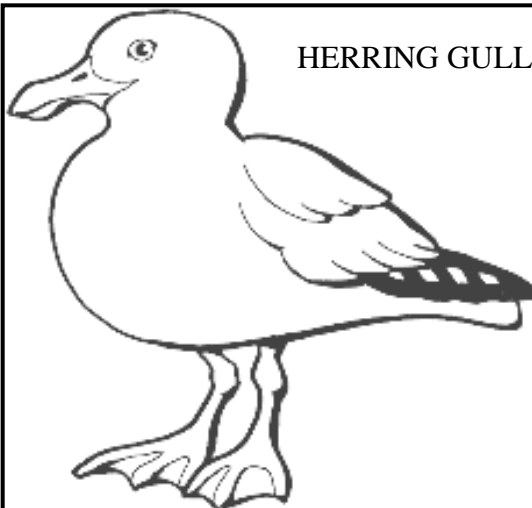
TAUTOG

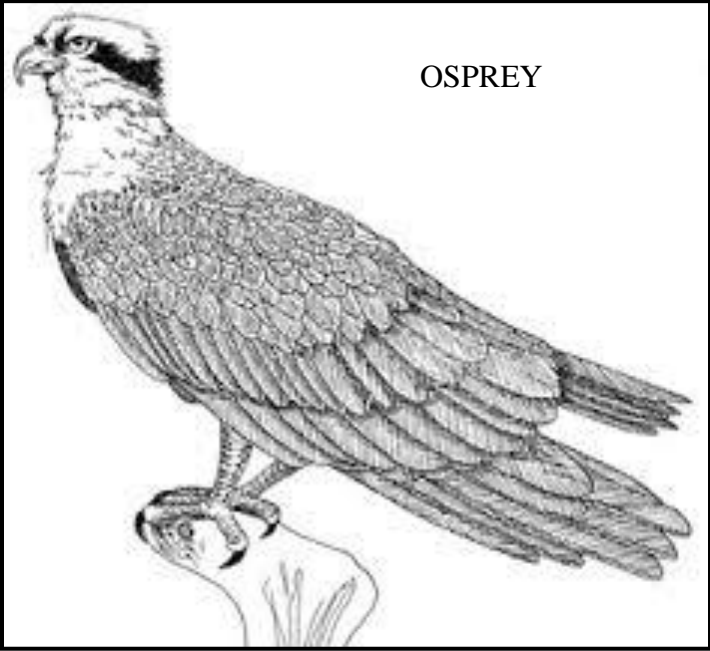


FLOUNDER



HERRING GULL





OSPREY



GREAT BLUE HERON