

Filtration Station [MC]

Adapted from PBS Kids

Grades: 3-5

Time: 45 minutes to 1 hour

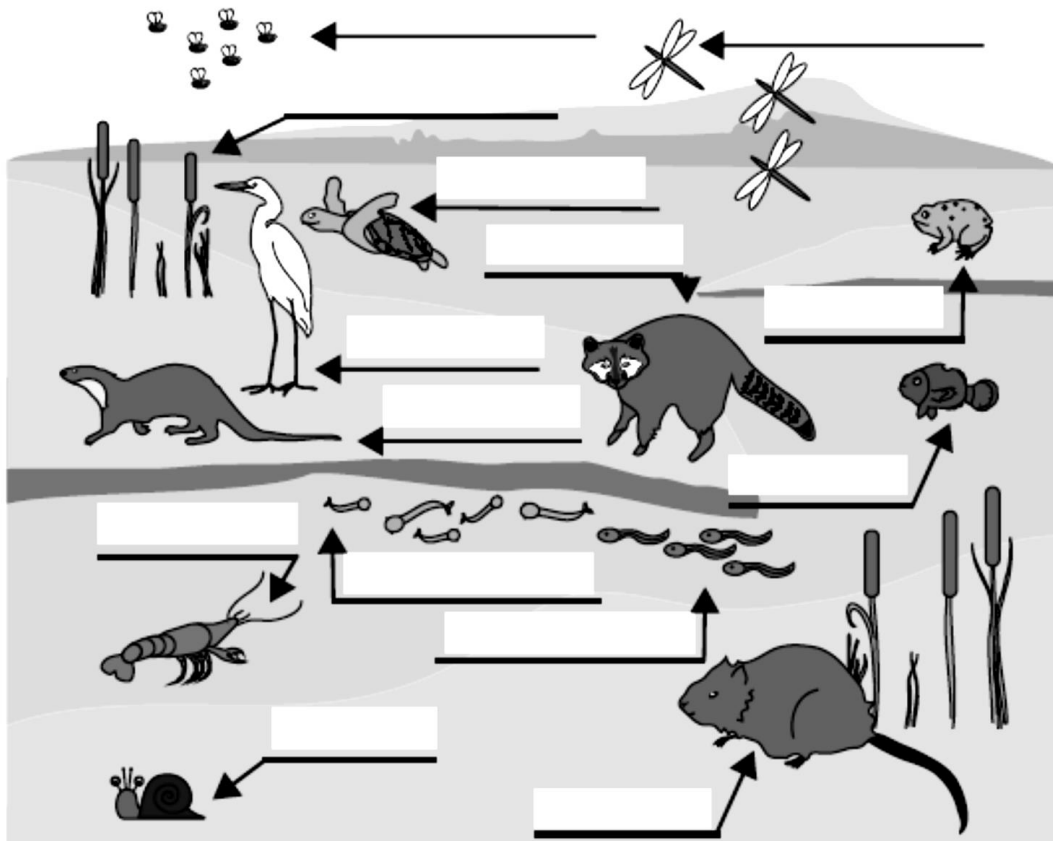
Goals: To understand the importance of a salt marsh in the filtration of nutrients and marine debris.

Objectives:

Students will be able to: define a salt marsh ecosystem; define point and non-point source pollution; understand water filtration in relation to drinking water; and describe the filtration characteristics of a salt marsh ecosystem.

Directions: Using the word bank, fill in the marsh ecosystem by identifying key species. Then shade in the areas that would filter out pollution best, before it enters the water.

muskrat	dragonflies	egret	marsh flies
turtle	frog	cattails	crayfish
snail	river otter	raccoon	fish
tadpoles	mosquito larvae		



Key Words:

Filtration

Barrier island

Nutrients

Saltmarsh

Ecosystem

Non-point source pollution

Maritime forest

Biodiversity

Point source pollution

Background Information:

Adapted from the U.S. Environmental Protection Agency

Saltmarsh ecology is the study of the interactions between estuarine species and the marsh ecosystem. Saltmarshes are tidally influenced and rely heavily on tides, currents, and rainstorms to provide nutrients for the plants and animals that inhabit it. It has often been said that estuaries not only offer protection from predators, but they act as a nursery for juvenile species to mature. Estuaries are extremely unique habitats, where saltwater from the oceans and freshwater from the rivers intermingle to form brackish water. Plants and animals that survive here are highly adapted to these conditions.

Saltmarshes also have a very important function for humans, in that they are strategically located between barrier islands and the main coastal areas. These areas are “hot spots” for travel, vacationing, and year-round living. Saltmarshes will absorb the impact of coastal storms after barrier islands, buffering the coastal mainland from the direct force of these storms.

The vegetation of the saltmarsh is highly specialized to filter out nutrients such as nitrogen and phosphorus during the photosynthesis process. This allows runoff from the mainland to filter through a saltmarsh before entering the estuary, creating a less polluted aquatic ecosystem. Unfortunately, when runoff nutrients overcome the filtration capacity of saltmarsh plants, an excess of nutrients will enter the estuary, driving the production of algal blooms and “dead zones,” areas such as those in the Gulf of Mexico where no species production can take place and oxygen levels are extremely low.

