

Hungry Marsh

Written by Cindy Lilly

Overview: This activity precedes the use of the poster and this will be where the children will be exposed to the organisms in the saltmarsh, feeding relationships, and the effects of disturbances on our natural resource, the salt marsh. They will be given a set of cards, a felt board, and yarn arrow and they will be instructed to show relationships of organisms in the marsh, show effects of disturbances, and review the different energy relationships.

Objectives:

- Students will use salt marsh organisms' cards, a felt board, and yarn arrow to show relationships among them.
- The students will explain why they grouped their organisms
- The students will add a disturbance into their salt marsh and see the implications of the disturbance.
- The students will discuss why conservation is important
- The students will view a PowerPoint that will discuss the different energy relationships among the marsh and take notes inside their journal.

Grade Level(s): 3rd and 7th

Time: 60 Minutes

Materials

- Poster size sheets of felt
- Foam filled poster board
- Velcro
- Organism cards
- Disturbance cards
- Arrows
- Yarn

Procedures:

Pre-Assessment

Students take a pre-activity quiz to assess what they know about food webs before the activity.

Setup

Arrows are to be cut out and fitted with a piece of Velcro. A hole punch is then put in each arrow and a 12 inch piece of yarn will be attached to each. Organism cards are cut out (triangle shape works nice) and fitted with a piece of Velcro. Poster boards are wrapped in felt and stapled on the back to create a rigid sticking surface for the cards.

Introduction and Procedure

Class will begin with a brief introduction about the activity. Students will break up into groups of 4. Each group will be given a stack of organism cards, arrows attached to yarn, and a large felt surface. They will then be instructed to place all of the organisms on the felt and use yarn arrows to connect the organisms to those who feed on them. After some time is given for students to complete this activity, groups will be asked to show the class and explain what they have created. Once this is finished, the teacher will come around and hand a disturbance card to the students. These cards will explain a change that has occurred and it is up to them to change their poster to illustrate the effect the disturbance has on the web. Some students may realize this disturbance reaches quite far in the web. Others may not realize this. This may prompt some questions from the teacher.

- If a food source disappears, how does that affect the organisms that feed on them?
- How does this in turn affect other food sources?

After some time the students will be given another chance to get up and share what disturbance they had. They will explain how their picture changed and how the disturbance affected the food web.

Wrap-Up: After the lab the teacher will show a PowerPoint explaining some important terms and relationships about food chains and food webs. Also to discuss how this calls for conservation concerns.

Follow-up The next day the students will be given the *Salt Marsh Posters* for review and as teams of two they would create an ad for the local News Channel (IMOVIE) of why we need to protect our salt marshes. They would use information gathered from Hungry Marsh and the *Salt Marsh Posters* to inform the public. Requirements would be a 3 minute video explaining the importance and implications of a community without the benefits of a salt marsh. For more advanced grades the *Salt Marsh Guide* could be incorporated into this project to be used as an additional resource.

Assessment: Pre-assessment, post-assessment, and lab

Standards Addressed

7-4 The student will demonstrate an understanding of how organisms interact with and respond to the biotic and abiotic components of their environment. (Earth Science, Life Science)

7-4.2 Illustrate energy flow in food chains, food webs, and energy pyramids.

3-2 The student will demonstrate an understanding of the structures, characteristics, and adaptations of organisms that allow them to function and survive within their habitats.

3-2.3 Recall the characteristics of an organism's habitat that allow the organism to survive there.

3-2.4 Explain how changes in the habitats of plants and animals affect their survival.

3-2.5 Summarize the organization of simple food chains (including the roles of producers, consumers, and decomposers).

Concepts

Food webs and effects of disturbance.

Mosquito



Feed on blood from animals.

Spartina alterniflora



Rely on photosynthesis for food.

Green algae



Rely on photosynthesis for food.

Glasswort



Rely on photosynthesis for food.

Blue crab



Feed on other creatures and decaying matter.

Eastern oyster



Feed on plankton and algae.

Copepod



Feed on phytoplankton.

White shrimp



Feed on almost anything
(including its own exoskeleton.)

Fiddler crabs



Feed on algae and detritus.

Marsh periwinkle



Feed on bacteria on *Spartina*.

Polychaete worm



Generally feed on bacteria and detritus.

Sheepshead



Feed on shrimp.

Ribbed mussel



Feed on bacterioplankton.

Spot



Feed on insects and smaller fish.

Mummichog



Feeds on mosquitoes.

Red drum



Feeds on crabs, shrimp, and sand dollars.

Osprey



Feeds on fish.

Great blue heron



Feeds on fish.

Black skimmer



Feeds on shrimp & other small crustaceans.

Cotton mouse



Feeds on plants and animals.

Bottlenose dolphin



Feeds on fish.

Common raccoon



Will eat anything.

Marsh rabbit



Feeds on plants.

Pluff Mud



This is dead decayed Spartina grass

Oyster Springtail



Feeds on oysters, clams, small fish.

Diamondback terrapin



Feed on mollusks, fish, insects, crustaceans.

Laughing Gull



Feeds on fish, rodents and shelled animals.

Wood stork



Feeds on small fish.

Painted bunting



Feeds on grass seeds, snails, and insects.

Isopods



Feeds on dead or decaying plants and animals.

Square-back marsh crab



Feeds on decaying plant material.

Amphipod



Feeds on bacteria

Mud Fiddler Crab



Feeds on decaying plant and animal material in mud.

Mud Crab



Feeds on shellfish and crustaceans.

China-Back Fiddler Crab



Feeds on decaying plants and animals.

Striped Hermit Crab



Feeds on seaweed and algae.

Mud snail



Feeds on bacteria and microorganisms.

Cross-barred Venus clam



Feeds on plankton.

Quahog clam



Feeds on plankton.

Oyster drill snail



Feed on oysters.

Green porcelain crab



Feeds on plankton.

Banded tulip snail



Feeds on clams.

Boring sponge



Feeds on oysters.

Knobbed whelk



Feeds on oysters and clams.

Channeled whelk



Feeds on oysters and clams.

Acorn barnacles



Feeds on plankton.

Bacteria



Breaks down dead and dying organisms

Marine Algae and Plankton



Gets its energy from the sun

Pesticides



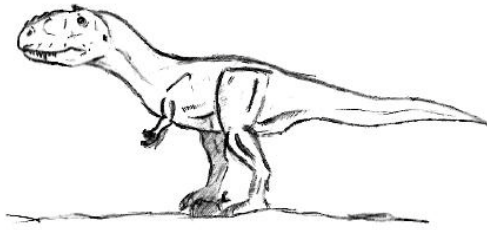
People spray pesticides, runoff enters marsh. This kills all of the insects!

Over Fishing



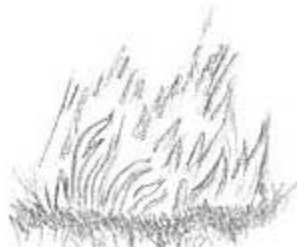
No restrictions on fishing have caused all the large fish to be overfished

Invasive Species



A new species is introduced into this area called the Lillasaurus! It is hungry and feeds on large birds and raccoons.

Wild Fire



A wildfire breaks out and burns all *Spartina alterniflora* (cord grass) and Glasswort in the area!

Disease



A terrible disease breaks out that kills birds quickly!

Hunters



Bird hunters come to kill all the birds!

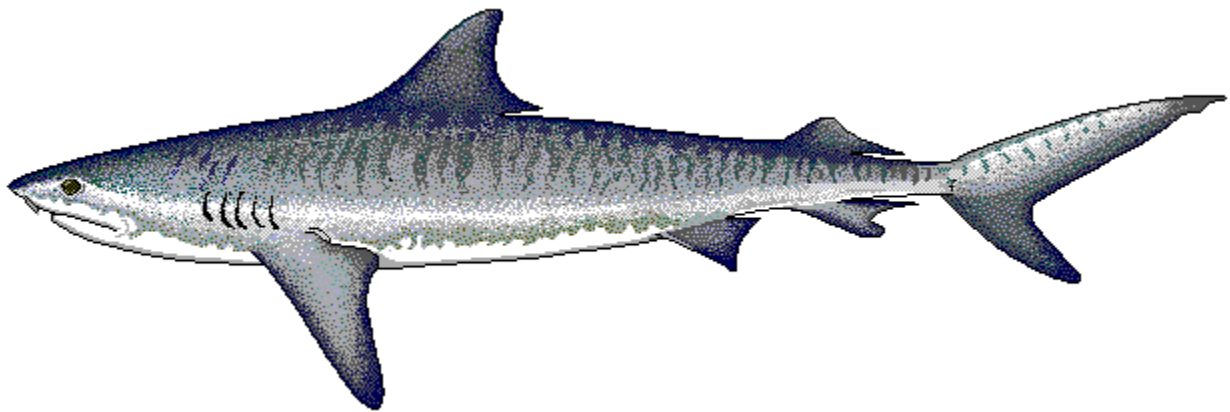


POISON

A mercury dump has contaminated all the shellfish (Crabs, shrimp, oysters, and clams)

Name: _____

Pre-Assessment



There is an area of the ocean that is very diverse in its plant and animal life. Each animal has many different options for food it can eat. Sharks live here and they feed on seals and large fish.

1) If all of the seals are wiped out by a disease, would this affect the sharks? If so, how?

2) If all of the seaweed dies instead, would this affect the sharks? If so, how?

Name: _____

Post-Assessment



There is a wetland area on the bays of coastal South Carolina that is very diverse in its animal life. Each animal has many different options for food it can eat. The Great White Egrets, very majestic birds, live here and they feed on large fish.

1) If all of the large fish are wiped out by a disease, would this affect the Egrets? If so, how?

2) If all of the *Spartina alterniflora* grass dies instead, would this affect the Egrets? If so, how?