



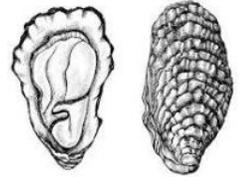
Links to Agriculture

Oysters and the Chesapeake Bay



What are oysters?

Oysters belong to a group of animals called **mollusks**. Mollusk means “soft bodied.” Two shells protect the oyster’s soft body. A powerful muscle connects the two shells. The oyster’s shells open and close like a book. When the oyster is hungry, it opens its shell. Gills pull water inside the shell. The oyster filters drifting food and dirt from the water.



Where do oysters live?

Oysters live in **brackish** water like that found in the Chesapeake Bay. Brackish water is salt water mixed with freshwater. **Salinity** is the amount of salt in the water. Oysters live stuck together on oyster reefs. The reef provides a habitat for many other animals in the Bay like crabs, worms, fish, snails, and shrimp. Notes from journals kept in the 1600’s state that oyster reefs in the Bay were so high that boats had trouble navigating around them.

Why do oysters need help?

Oysters are important to the Chesapeake Bay because they filter the water and get rid of dirt and excess nutrients in the water. One oyster can filter up to 60 gallons of water in a day. When it rains, freshwater runs off the land and enters the Bay. The **salinity** of the water around the reef can become less salty. The oysters can become sick when the salinity is too low.

In addition, rainwater carries dirt into the Bay. **Turbidity** is the amount of dirt in the water. Dirty water makes it hard for adult oysters to catch food, so the oysters do not grow fast. Before the quality of the Chesapeake Bay’s water declined, it took only three to six days for the oysters to clean **all** of the water in the Bay. Today, because there are so few oysters left, it takes a year or more to do the same job.

What can people do?

People can help oysters in the same way farmers do: by planting trees, grasses, and bushes to help slow down rainwater entering the Bay. This will help to keep the salinity of the water around the reefs at the right level for healthy oysters. The plants’ roots also help hold the soil on the land and soak up extra nutrients on the land.



When it rains, less dirt runs off into the Bay and the water around the oyster reef stays cleaner. The spat and adults find food easily and grow quickly. Although the oyster population has declined a great deal in the past years, there are now programs in place to help increase the number of oysters. More oysters in the Bay means a cleaner Bay.

How Well Did You Read?

1. Oysters belong to a group called **mollusks**. What are mollusks?

2. What environment do oysters live in?

3. How does low **salinity** affect the health of oysters?

4. How does high **turbidity** (dirty water) affect the health of oysters?

5. How does planting trees, bushes, and grass help to increase the oyster population?



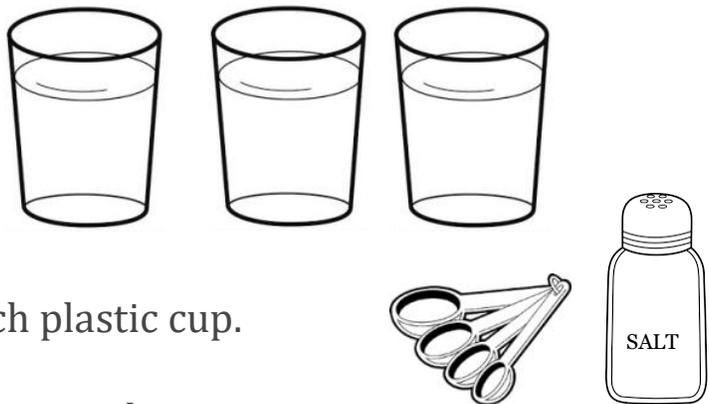
Experiment with Salinity



Will ocean water freeze the same as water from your faucet? In this experiment, discover whether or not the salinity (presence of salt) affects water's ability to freeze.

Materials

- 3 clear plastic cups
- water
- measuring cup
- salt
- measuring spoons
- stirring spoons
- clock
- pencil and paper



Procedures

1. Measure $\frac{1}{2}$ cup water into each plastic cup.
2. Add **no salt** to the first cup.
3. Add **1 teaspoon of salt** to the second cup.
4. Add **1 tablespoon of salt** to the third cup.
5. Stir each cup containing salt with a stirring spoon until all salt is dissolved.
6. Place each cup in the freezer.
7. After 20 minutes, check each cup to see if any of them have begun to freeze or ice over. Write down your observations.
8. Continue to check the cups every 20 minutes. Note how long it takes each cup of water to freeze. Which cup freezes first?

Explaining the Results

Adding salt to water makes the water denser and lowers the freezing point. The cup with the most salt will freeze the slowest. Heavier liquids have different freezing and boiling points than liquids without anything added to them.

Oyster Trivia

- The cavity within an oyster's shell is always filled with water. This allows oysters to survive for a long time without having to open their shells to feed.
- Historically, oysters were only eaten during months whose names contain an "R." This was because oysters would spoil without refrigeration during warm months – May, June, July and August. This rule is now no longer followed, and we can eat oysters year-round!
- The largest oysters can grow up to three feet long, but most oysters grow to be only a few inches long.
- Many different animals eat oysters, including sea birds, sand crabs, sea stars, sting rays, and humans.



Joke Time

1. What do you call an oyster that won't share?
2. What kind of picture does an oyster take?



Joke Answer:

1. Shellfish
2. A shell-fie

Did You Know...?

6. The amount of salt in water is called **salinity**. Scientists use a **salinometer** to measure salt in the water. Salinity is measured in parts per thousand (*ppt*). Water with salinity between 10 and 14 ppt is best for oysters.
- The amount of dirt and other materials suspended in water is called **turbidity**. Scientists measure turbidity using a **turbidimeter**.



For more agricultural education lessons and resources, visit:
www.maefonline.com