

# Oyster Harvesting in Chesapeake Bay



VIRGINIA  
**AQUARIUM**  
& MARINE SCIENCE CENTER

*Students will understand how overfishing a popular salt marsh shellfish can strain a population.*

## Duration

Preparation: 15 minutes

Activity: 45-60 minutes

## Supplies

- Chopsticks (pencils or other long stick item will work)
- Small marshmallows
- Paper plates
- Napkins
- Student worksheet

## Background

Begin by researching information about oysters including their habitat, function in the ecosystem, and importance as a top commercial fishing industry in the Chesapeake Bay.

Recommended Websites:

[Chesapeake Bay Program](#)

[NOAA Fisheries](#)

[Chesapeake Bay Foundation](#)

## Instructions

1. Explain that the class has been given permission to commercially harvest oysters from the Chesapeake Bay. Each year they harvest, they must follow strict guidelines, or they will lose their license (will not be able to harvest in future seasons). They are only allowed to take a total of 10 oysters per season, so once they have reached their quota, they can no longer fish for that year. There will also be a limit to the duration of the season each year (30 seconds). If their fishing area has lost all their oysters, they may have permission to go to other areas in the Bay to harvest (save this option for last season).
2. Divide the class into groups of 3 students and pass out materials – one set of chopsticks per person, one paper plate per group, one napkin per person, and a bag of small marshmallows per group. Instruct the students that they are to use only their chopsticks to harvest oysters, not their hands, so they must tong their oysters with chopsticks to put them into their “boats” (napkins). If a marshmallow falls onto the table, it is not part of their catch and cannot be counted. (Teacher Note: If a student cannot use the chopsticks with one hand, you can allow them to use both hands. They cannot push or stab the marshmallow to transfer to their boat.)

3. For the first round, have the students count out 50 marshmallows and place them onto the plate between the three group members. The total number of oysters for the first year is the total for the entire bay (i.e. class of 30 students = 500 oysters). Remind them that they are only allowed to take 10 per person per year's catch, so if they go over that, they will have to sit out the next round. When you say go, they will have 30 seconds to tong as many oysters as they can and put them in their boats. When you call time, they must put their chopsticks down. Have them count out their catch for the year and record it on the data sheet.
4. For round two, reproduction has taken place. Have the students pair up the marshmallows and add one from the bag to every pair. As a class, record the total number of oysters for year two before fishing, taking each group's total and adding it together to get the total for the bay. Again, the students have 30 seconds to catch their oysters before you call time. Have them record their catch for the second year.
5. For round three, explain that pollution from runoff from the headwaters into the Chesapeake Bay has caused a contamination of oysters. Remove half of each group's remaining marshmallows from each plate and put them off to the side - they cannot be used, and they cannot be counted in the catch. If there are no marshmallows left on their plates, they must fish at another area of the bay. As a class, record the total number of oysters before beginning to fish. Have the students catch oysters for one minute, to give them time to move around and find oysters, and then call time. Have them record their catch for the third year.
6. For round four, the pollution in the bay caused the oysters to not be able to reproduce, so whatever is left in the bay is the only catch left. Record the total number for year four before beginning to fish. Again, if they run out of oysters in their area of the bay, they have permission to go to another area to reach their quota. Give them one minute and then call time. Have them record their catch data for year four.

**Follow-up discussion:** Whatever marshmallows are on the table they can eat (anything in the bag cannot be eaten). Ask the students how many groups ran out of oysters and had to move to other parts of the bay to fish? Have the students calculate their catch rate from one year to the next and compare the results with the entire class. Discuss how not only the demands of the fishery but the pollution caused a great decline in the oyster population. Explore ways on how to keep the population going and increase the population.

\*Activity Sourced and Adapted from "A Little Clam on a Big Decline" in Marine CSI: Coastal Science Investigations by Kimberly Belfer with Regina Borriello; Adapted from Blue World

## Student Oyster Harvesting Worksheet

Date: \_\_\_\_\_ Harvester: \_\_\_\_\_

### Reporting Your Catch Per Season

Catch Season	Number of Oysters Taken	Total Number of Oysters
Season 1		
Season 2		
Season 3		
Season 4		

1. What was your oyster harvesting rate for season one? How does this compare to the number of total oysters? Repeat question for season two through four.
  
2. How did your individual catch rate compare to the catch rates of the other fisherman in your area of the bay? How did it compare to the catch rates of the other fishermen in the entire bay?
  
3. How would you adjust the fishing guidelines to reduce fishing pressure on oysters? What other action in the Chesapeake Bay could support the oyster population?