

LESSON 6: WHAT ARE SUSTAINABLE FISHING PRACTICES?

Understanding Goals

- Sustainable fishing practices that reduce bycatch and leave fish for future generations are important.
 - Marine protected areas (MPAs) protect certain areas of the ocean from harmful human activity.
 - Rules and policies are important in protecting the interests of many people.
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National Science Standards *Personal and Social Perspectives*

K-4 Types of Resources

5-8 Populations, Resources and Environments

Thematic Strands in Social Studies

- People, Places and Environment
 - Production, Distribution and Consumption
 - Power, Authority and Governance
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Vocabulary: bycatch, sustainability/sustainable

Advance Preparation

Be ready to play WWF's video available at <http://www.youtube.com/watch?v=S6oVTz8OBgA> from about 4:52 onwards. The video shows how a special type of fish hook (C hook) prevents turtle bycatch.

Materials

- Several bags of M&Ms or jelly beans
 - 50-100 marbles
 - 5-6 small black trash bags (one trash bag per group of 3-4 students)
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Lesson Plan

Part 1a (5 min) If the previous lesson (Lesson 5) was not taught, skip to Part 1b.

Last time, we learned about the consequences of overfishing. Today, we will explore how people can reduce their impact on the population of fish.

Discuss homework questions from previous lesson.

Part 1b (5 min)

Explain that fishermen often catch not only the fish they are going to sell but also other unwanted marine organisms (like turtles) that eventually get dumped back into the ocean – this is called bycatch. For example, turtles get stuck on fish hooks. Show pictures like the ones below.

http://en.wikipedia.org/wiki/File:Shrimp_bycatch_Heist.jpg



http://upload.wikimedia.org/wikipedia/commons/0/07/Shrimp_bycatch.jpg



Then show WWF's video on reducing bycatch from the 4:52 time marker onwards, which shows how a special type of fish hook (C hook) prevents turtle bycatch.

Ask students: Why is reducing bycatch important?

Part 2: (20-25 min)

Divide students into 4-5 groups of 4 or 5. Give each group a black trash bag with some marbles and M&Ms or jelly beans. Explain that students will simulate fishing. Have them guess what the marbles and M&Ms/jelly beans represent. (M&Ms/jelly beans/individually wrapped candies – the fish that are commercially valuable; marbles – not commercially important species)

Explain that students need to “catch” (or grab by hand) some fish (M&Ms/jelly beans) in order to survive. They are not allowed to “fish out” the marbles; in other words, they have to grab whatever their hand grabs. (In conventional fishing, fishermen often catch both commercially important and unimportant species, the latter of which represents bycatch.) Also explain that after every student in the group grabs a handful of marbles and M&Ms/jelly beans, their bag will be refilled according to how many fish are left. Thus, if there are 4 marbles and 4 M&Ms/jelly beans left, 4 more of each will be added. This represents the birth rate of the fish.

After several rounds, one or more groups may run out of candies. At that point, tell those groups that they can migrate to other groups that still have candies left.

After playing several more rounds, tell students that there will be one last round. (Groups with candies still left might be tempted to get all the remaining candies out of the bag. If that happens, explain that they have to think about future generations – their children, grandchildren.)

Part 3 (10-15 min)

Then explain the concept of sustainable fishing: catching enough fish to make a living but also leaving enough fish for the future. Ask students:

- Based on the game today, what does it mean to be sustainable?
- Was your group sustainable? Why or why not?
- Why is sustainable fishing important?
- Have students brainstorm ways to have a sustainable fishery. What rules could be developed (e.g., limit the types of equipment allowed, limit the amount and type of fish, institute shorter seasons)?

Reflection / Homework Questions

1. What does sustainable fishing mean? Why is that important?
2. What does it take to fish sustainably? Is it easy or challenging? Why or why not?

Resources

- http://www.montereybayaquarium.org/cr/cr_seafoodwatch/sfw_bycatch.aspx
Explains the problem of bycatch. The Monterey Bay Aquarium website also explains the issue of overfishing and its efforts to promote sustainable fishing practices.
- For a similar lesson plan on sustainable fishing, refer to the lesson plan titled “Fishing for the Future,” created by Facing the Future, available from its website at <http://www.facingthefuture.org/Curriculum/DownloadFreeCurriculum/tabid/114/Default.aspx#Curriculum%20Unit> or at <http://www.pbs.org/emptyoceans/educators/activities/docs/Activity-Fishing.pdf>