This lesson plan developed by:

THE **PEW** ENVIRONMENT GROUP

Deadliest Catch

Overview:
Students will engage in a hands-on fishing activity to learn about the effects of advancing technology on fishing stocks.

Ocean Literacy Principles:
5. The ocean supports a great diversity of life and ecosystems
6. The ocean and humans are inextricably interconnected
7. The ocean is largely unexplored

Key Concepts:
While many countries have laws regulating fisheries, there are no international governing bodies to enforce those laws. Too often the seas are viewed as a place ripe for the taking. The rate of exploitation of marine resources far exceeds the extraction of animal resources on land. This lesson provides a variety of activities that will help students understand the complexities of global fisheries.

Materials:
- peanut and plain m&m's (Smarties and Swedish fish for peanut allergies)
- straws, reusable if possible
- bowls
- spoons
- pen/pencil and handout for each student

Duration:
1 hour

Physical Activity:
Low

Activity:
Give each student a bowl with 20 plain and 10 peanut m&m's, and a drinking straw. Explain that the plain m&m's represent smaller less profitable fish and the peanut m&m's represent larger fish that bring in more money. They get 1 minute to fish as many fish as they can by sucking the fish out of the bowl with the straw.

Round 1: The students need to keep their hands behind their backs during the first round. This simulates low technology, smaller catch fishing practices. Students need to record their catch on the handout. The fish left in the bowl represent fish not caught that can live to reproduce. After the first round, double the number of plain and peanut m&m's in each student's bowl.

Round 2: Repeat, but this time students can hold the straw in their hands. During this round, the added assistance with the straws represents advancements in fishing technology and increased catch. Record numbers and double remaining population at the end of the round.

Round 3: Give a few students spoons. These spoons represent long lines or other technologies that allow for large exploitive fisheries. Let those students know that they can move on to other student's bowls once they've wiped out their own fisheries.

Processing Data: Once students have completed the 3 rounds, the students need to analyze the results. Have students record their answers on the worksheet and discuss the questions below.

Discussion:
1. What happened to the overall population of fish as the technology advanced?
2. Where there differences in how many plain and peanut m&m's were taken out?
3. What effect can this have on the overall ecosystem?
4. How would you devise a plan to allow people to fish and to do so sustainably?
5. Does this activity remind you of anything?

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As sailors and water-lovers, you are among the first to notice changes to our seas such as fewer marine animals, more pollution and damaged marine habitat. Through our Green Boating initiative, Sailors for the Sea Powered by Oceana provides opportunities for you and your community to address pressing ocean health issues. As a Green Boater, you will be provided with the information, resources and access to combat marine plastic pollution, prevent habitat destruction, source responsible seafood and protect marine animals. From demanding plastic-free alternatives to choosing sustainable seafood, your voice and actions are an important part of restoring the abundance of our oceans and protecting marine habitats. Join our growing Green Boating Community today.

Fishing Activity

Name_____ Date_____

Round	Number of plain m&m	Number peanut m&m	Ratio plain/peanut
Beginning	20	10	2:1
1			
2			
3			