



Open Ocean

Concepts

What are some important commercial fisheries in Hawaii? What do we know about these fisheries? How could we help these fisheries be sustainable?

Standards

Addressed
HCPS 5.1, 5.2, & 5.3

Duration

Prep: 30 min
Activity: 7 periods
(45 minutes each)

Source Material

PRISM & MARE

Vocabulary

Fishery
Manage
Enforce
Exploited

Lesson 8: Fisheries Project

Summary

The final project for this unit is a research project designed to bring together all the lessons learned in this unit. The research project focuses on five different commercial fisheries based in Hawaii or the greater Pacific Ocean. Students are tasked with researching a particular fishery, identifying problem(s) with a fishery and suggesting a course of action aimed at alleviating the problem(s). Groups then write up their findings in poster form and present their research. This final project takes 7 class periods to complete.

Objectives

1. Describe an important Hawaiian or Pacific Ocean commercial fishery.
2. Identify a major problem with the fishery
3. Propose a solution to the identified problem.
4. Hypothesize how you (as a researcher) would know your solution was working.

Materials

Fishery Information Cards	Poster Materials
Fishery Card Worksheet	Grading Rubric
Webquest at questgarden.com/45/79/3/070129002849	
Fishery Solutions Document	Sample roles page
Fisheries Presentation Evaluation	
Fishery Project outline	

Making Connections

This project is the culmination of the entire unit and should incorporate lessons from every week into the final poster. Students should describe their fishery's biology, foodweb, adaptations, lifecycle, fishing technique, and major impacts.

Final Project Description

Students are broken into 5 groups to research 5 different fisheries including:

1. The Hawaiian Bottomfish Fishery
2. The Hawaiian Swordfish Fishery
3. The Pacific Tuna Fishery
4. The Pacific Whale Fishery
5. The Pacific Squid Fishery.



As the students are researching these fisheries they are further broken into different roles, which view the fishery from a different standpoint (see sample roles page): A marine scientist who studies the animals biology, a fisherman who makes his living by catching that animal, and a fishery manager who tries to balance the recommendations of the marine scientist and what is best for the fisherman. The instructor may also want to have a fisherman, marine scientist, or fishery manager visit the classroom to really bring these roles to life.

Students are given 5 main tasks: 1. Research and find a problem/issue with their Hawaiian or Pacific Ocean fishery. 2. Find sources that give background information on the fishery and issue. 3. Propose potential solutions. 4. Consider pros and cons of implementing the potential solutions (to industry, fish, and ocean). 5. Describe how the effectiveness of the solution will be measured.

A webquest, a student oriented webpage, also describes the final project and has all the appropriate documents linked to it (see the internet address in the materials section). If your classroom is linked to the internet it may be easier for students to use the webquest to document, research, and navigate the final project. There are many great internet links that help students research their fishery on the webquest.

In order to help students gain a basic understanding of their particular fishery they are given fishery information cards. These cards cover a variety of topics and may have information that is too advanced for some students, however students are not responsible for knowing everything. A fishery card worksheet helps the students to focus on answering particular questions about their fishery within their respective roles.

It's critical that students share information about their fishery within their group. Every student within the group should have a good understanding of the fishery as a whole. For example a marine scientist should know how the fish is caught (If he doesn't then tell him to ask the fisher).

Once students have a basic understanding of their fishery using the cards, they should be encouraged to learn more by using their library and the World Wide Web. When using the internet be sure to remind students that they must cite their sources and that they should not believe everything written on the internet. The internet may be particularly useful in researching some of the major problems the students find within each fishery.

Once students have identified the problem within their fishery they should propose a solution to that problem and consider the pros and cons of their solution. For example, if students shut down the fishery, then what will the fishermen do for money? There is a fishery solutions document that describes some commonly used solutions for many fisheries. The instructor may or may not want to use this document as students may be more creative without it. Students should also describe how they would know if their solution was working. Would they try to count all the fish, would they rely on fishermen to tell them, or would they tag fish? The internet and the webquest may also help student to answer this question.

Students are then expected to compile their findings in a group poster presentation and make an oral presentation. A fishery project outline details what may be expected of the poster/presentation. A grading rubric provides a guide for how those poster/presentations may be evaluated. Students should be encouraged to be creative with their posters but also document the information they have found **IN THEIR ORIGINAL WORDS**. Printing out pages from the internet and pasting them on their poster without re-typing the information into their own words or citing the source should result in a **VERY** low grade. Good luck and have fun!



Procedure

(Refer to Week 5, 6, & 7 for more instructions on those lessons)

1st Period (Week 5)

Students break into groups and roles and begin learning about their fisheries. Review final project (see final project folder) and break students into their respective roles

Students should use their fishery information cards and their fishery card worksheets to help them. Any information they cannot find should be researched on the internet or in the library. Teacher may want to assign students to find a resource in the library.

2nd Period (Week 6)

Students should share what they've learned in each role and should share within their group. Student should continue researching their fishery using the information cards, the library, and the internet. They should also identify the major problems within their fishery. Students should also be brainstorming on potential solutions for their problems.

3rd Period (Week 7)

Students should continue researching their fishery, defining the problem within their fishery and describing their potential solution. Students should also have begun working on their posters/presentations. The fishery outline will help students to design a complete poster.

4th & 5th Period (Week 8)

Students should continue to work on their posters during this time. Teacher should really push the students to finish their posters. Students may want to type out their original findings on the computer and print out their results. Students should also be talking with their groups about who is going to present particular portions of the poster. The instructor may also want to ensure that the students have written out (on note cards) what they will say beforehand. Also the instructor should review the grading rubric with the students.

6th & 7th Period (Week 9)

Student presentations. See assessment and rubric for what the students should be graded on. Remind students to introduce themselves and speak clearly. Presentations typically take about 10 minutes but may run longer. There is a fishery presentation evaluation form included in the folder for the students to evaluate each other's presentations.

Assessment

Students should be assessed on:

1. How well they worked within their Group.
2. Individual contribution to their Group's poster and accuracy of the information.
3. Overall poster's design and information (Does their poster present the information required in a visual stimulating way?)
4. Group Presentation (Do they cover all they assigned material?)
5. Individual Presentation (Do they look at the audience, speak clearly, and provide good information in conjunction with their poster?)



Key Concepts (what the students should know!)

1. Basic biology of their fishery. (Where is it, how big does their fish get, etc.)
2. What fishing technique does their fishery use?
3. How is their fishery being managed now?
4. What is the major problem with their fishery?
5. What is their proposed solution to that problem?

Links

See Webquest

Notes