

Fisheries: Wild versus Farmed

Lesson Overview

Students are introduced to aquaculture in British Columbia and are guided through an activity that allows them to conduct a simple evaluation of salmon aquaculture in B.C.

Grade Level

Grade 6 (middle school): Social Studies, can be adapted to grade 12 (secondary school): Geography 12

Time Required

One lesson; approximately 60-75 minutes

Curriculum Connection

British Columbia Social Studies Grade 6

Link to Canadian National Geography Standards

Essential Element #5 (Grades 6-8) - Environment and Society

- Effects of human modification of the physical environment
- Limits and opportunities of the physical environment for human activities

Essential Element #6 (Grades 6-8) - The Uses of Geography

- Role of multiple points of view in contemporary geographic policies and issues

Geographic Skill #1 (Grades 6-8) - Asking Geographic Questions

- Identify geographic issues, define geographic problems and pose geographic questions

Geographic Skill #2 (Grades 6-8) - Acquiring Geographic Information

- Use a variety of research skills to locate and collect geographic data
- Use maps to collect and/or compile geographic information

Geographic Skill #3 (Grades 6-8) - Organizing Geographic Information

- Prepare various forms of maps as a means of organizing geographic information

Geographic Skill #4 (Grades 6-8) - Analysing Geographic Information

- Interpret and synthesize information obtained from a variety of sources – graphs, charts, tables, diagrams, texts, photographs, documents and interviews

The Canadian Atlas Resources

Pages 20-21, Pacific and Western Mountains, focus on Fisheries: Wild Versus Farmed on Page 21.

Additional Resources, Materials and Equipment Required

- Student activity worksheet “Fisheries: Wild Versus Farmed”
- Outline map of British Columbia (download an outline map from http://atlas.gc.ca/rasterimages/english/maps/reference/outlineprov_terr/bc.pdf)
- Lesson extension requires access to the Internet and a number of websites

Main Objective

The primary goal of the lesson is to introduce students to the controversial topic of salmon aquaculture and enable students to examine the issue of wild versus farmed fish using The Canadian Atlas.

Learning Outcomes

By the end of the lesson, students will be able to:

- Identify and clarify the issue of wild salmon versus salmon aquaculture
- Research information using print and electronic sources
- Evaluate the credibility and reliability of various sources
- Organize information from a variety of sources using different means and methods to obtain, record and present the information such as maps, tables, graphs, reading comprehension and math
- Support an initial position on the issue of wild versus farmed salmon by considering competing reasons from various perspectives (this learning outcome will be further developed in the lesson extension)

The Lesson

| | Teacher Activity | Student Activity |
|---------------------------|--|---|
| Introduction | <ul style="list-style-type: none"> • Use a visual aid such as a can of salmon to introduce the topic of fisheries • Where does the salmon come from? • How was the salmon obtained? • Review what students know about salmon | <ul style="list-style-type: none"> • Students answer specific questions posed by the teacher about salmon and the salmon fisheries |
| Lesson Development | <ul style="list-style-type: none"> • Distribute student activity worksheets, outline maps of BC and atlas pages to students (or www.canadiangeographic.ca/atlas) • Assist students as and when needed | <ul style="list-style-type: none"> • Students systematically work through the activity worksheet, utilising the atlas pages (or www.canadiangeographic.ca/atlas) and outline maps of B.C. |
| Conclusion | <ul style="list-style-type: none"> • Collect and assess the student worksheets | <ul style="list-style-type: none"> • If time permits, students may share briefly one new fact they learned about salmon aquaculture from the activity |

Lesson Extension (Grade 12)

- Further investigation of the wild/farmed salmon controversy through a Web quest.
- Students investigate the wild salmon/farmed salmon debate further by exploring the following websites, which examine together both sides of the argument. Have students make their own well-informed opinion on salmon aquaculture and prepare a brief oral presentation to communicate their opinion of salmon aquaculture. Students must be sure to justify their position and include at least one new fact learned from this activity.

http://www.farmedanddangerous.org/farm_environment.htm

http://www.agf.gov.bc.ca/fisheries/bcsalmon_aqua.htm

<http://www.turtleisland.org/discussion/viewtopic.php?p=1901>

http://www-comm.pac.dfo-mpo.gc.ca/publications/factsheets/aquaculture/atlanticsalmon_e.htm

http://www.davidsuzuki.org/Salmon_Aquaculture/Benefits_and_Risks/

<http://www.flmnh.ufl.edu/fish/innews/fishfarmsuit2003.htm>

<http://www.georgiastrait.org/nbsalmon.php>

<http://www.salmonfarmers.org/industry/farming.html>

<http://www.salmonfarmers.org/virtual/index.html>

<http://www.davidsuzuki.org/files/aquabrochure.pdf>

Assessment of Student Learning

- Grade the completed student activity worksheets. Another option is to assess the brief thirty second student oral presentations on one aspect of salmon aquaculture learned as a result of the activity.

STUDENT ACTIVITY WORKSHEET

Fisheries: Wild Versus Farmed

Student Name: _____

Using the Table of Contents at the front of The Canadian Atlas, find the map entitled “Pacific and Mountains”.

Reading Comprehension

Read the information under the title “Fisheries: Wild Versus Farmed” and answer the following questions:

- Identify the two types of bodies of water where British Columbia’s commercial fisheries harvest many different kinds of fish.

- How many species of fish and other species are harvested?

- Name the fish species which is the most commercially valuable.

- Why has the Pacific fishery become more important since 1990?

- Name three Pacific groundfish species.

- Briefly explain three reasons why the fishery faces declining catches.

- The solution to declining catches has been to allow aquaculture to expand. Define aquaculture.

- Where are the fish farms located in BC? Indicate the location on the map of B.C. provided. (HINT: http://www.agf.gov.bc.ca/fisheries/images/marine_fishfarms.jpg)

- What is the major concern about aquaculture? Give an example.

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- What is a **moratorium**? (HINT: Use a dictionary to find out what this word means)

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- What happened when the seven year moratorium on fish farm expansion was lifted?
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Graphing Comprehension

In The Canadian Atlas, read the pie graph underneath the paragraph entitled “Fisheries: Wild versus Farmed” and complete the table and questions below.

- Value of B.C. Catches

| Fisheries Sector | Value in millions of dollars |
|---------------------------|------------------------------|
| Wild salmon | |
| Farmed salmon | |
| Wild and farmed shellfish | |
| Herring | |
| Groundfish | |
| Other | |
| TOTAL | |

- What is the total value in millions of dollars from salmon, both wild and farmed?
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- Look at the graph, read the highlighted sentence, and circle the correct fraction.

Together wild and farmed salmon make up approximately $\frac{1}{3}$ $\frac{1}{2}$ $\frac{3}{4}$ of the value of B.C. catches.

- If a moratorium on all fish farms was put in place, how much money would be lost from the BC economy?
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- If wild salmon are threatened by net cage aquaculture, what impact will aquaculture have on:
The economy (making money and providing jobs)?
-
-
-

The long-term future of wild salmon stocks?

The fisheries overall?

- If a different method of salmon aquaculture (i.e. closed containment) was used and did not threaten the environment, it might solve the problem of declining salmon stocks in BC as well as ensure protection of wild salmon stocks. This might make salmon aquaculture in B.C. sustainable. Define the term “sustainable”.
