

Teaching Notes

Pebbles of Gold or Salmon of Time: Pebble Mine and the Cultural and Environmental Economics of Alaska Natives

By
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Abstract

Alaska's Bristol Bay is home to the most productive salmon runs in the world. For over 9,000 years, the indigenous people of the region have survived because of the salmon. In 2005 the Pebble Mine Project was proposed by the Pebble Partnership (PLP). The project proposal is to extract massive deposits of copper, gold and other minerals from the mountains making up the headwaters of Bristol Bay. The proposal has polarized people within the Native communities of the region. This case explores the trade off that is often made when jobs and profit are pitted against environmental protection.

Learning Outcomes:

- 1) Students will understand the landscape of the Bristol Bay Region.
- 2) Students will understand the importance of the pristine landscape to the Bristol Bay economy and culture.
- 3) Students will learn about the Pebble Mine Project.
- 4) Students will be able to describe how the Pebble Mine Project may impact the Bristol Bay area
- 5) Students will learn about how environmental development actions can be assessed using different economic models.
- 6) Students will understand how ecosystems have economic value.
- 7) Students will think about how an ecosystem's worth can be used as a tool to protect it.

Additional Recent Information: Many obstacles have arisen in the last few years to block the Pebble Mine development. In 2010 several of the Native corporations disputed the Pebble Mine development using provisions of the Clean Water Act. The response from the U.S. Army Corps of Engineers was that the EPA would need to first issue its report. In 2011 Mitsubishi Corporation, one of the shareholders pulled out of the project. On September 16, 2013 Anglo American, one of the two companies investing in the project, announced it was withdrawing to pursue other lower risk opportunities. Northern Dynasty, the remaining minor partner, announced they would search for new partners. Their stock dropped 38 percent on the day of the announcement. Meanwhile the price of gold and copper has been declining (*High Country News*, Sept 26, 2013). On January 15, 2014 the Environmental Protection Agency issued its long awaited environmental assessment of the development of the Pebble Mine which confirmed substantial damage potential to the salmon runs (*High Country News*, January 25, 2014).

2020 Update: See addendum to case. “Pebble Zombie: Updating the Mining Proposal that Won’t Die.”

Key Concepts: Salmon, Economy, Mining, Culture, Economics, Environmental Policy, Salmon Ecology

Intended Audience: Appropriate for students at any level in college classes, including graduate students. Especially appropriate for classes in environmental studies, natural resource policy, economics, political science, sociology, anthropology, economics, public administration and American Indian/Alaska Native Studies.

Assessment: Student learning can be assessed in a variety of ways, often involving producing some written response to the case such as a reflective essay, position paper, etc. A short in class series of questions is one simple way to gather information on individual learning. In addition, it is often useful to ask them to do a written assessment of their group's work together on the case as well as the case itself. See the Enduring Legacies website for additional suggestions.

Discussion Questions:

Bristol Bay and the People

1. Describe the Bristol Bay landscape.
2. What are some of the geologic features of the area that make it a risky place for mining?
3. What is the relationship between Yup’ik culture and the environment?
4. What is important to the people of Bristol Bay? What was wealth in traditional times?
5. Discuss the polarized views of some of the Bristol Bay residents. Why are the jobs the mine would bring important?
6. Why might some watershed reasons be in favor of the mine, while others are opposed to it?
7. Why are some residents skeptical about the jobs being promised by the mine?
8. How many jobs does the mining company estimate would actually go to residents?
9. What are some of the cultural beliefs of the people in the region and how are they counter to potential impacts from the mine?
10. 2020 Update: What power do tribal communities of Bristol Bay have to fight the newest version of the proposed mine?
11. 2020 Update: How do the potential mining impacts extend beyond just the local Bristol Bay community?

The Salmon and the Mine

1. Who is the PLP?
2. Describe the type of mining that will take place.
3. Mining of this type creates waste. How is the waste managed and for how long?
4. Discuss the location of the mine and its relationship to salmon survival.
5. What is groundwater and what function does it play for salmon survival in Alaska?
6. Why are salmon so important to the Bristol Bay area?
7. The PLP claims the mine and the salmon can coexist. Is this possible?
8. What is the track record of other mines like the one proposed at Bristol Bay?
9. Based on past water quality predictions and the track record of previous mines, how often are water quality predictions accurate?
10. 2020 Update: The new proposed mine is smaller in scope how will this impact salmon?
11. 2020 Update: Native communities, commercial fishers, environmental groups, the Obama Administration, and the Trump Administration all place different values on the salmon and the Bristol Bay environment. Explore the differences.

The Value of the Environment

1. What are three types of economic models used to evaluate development of natural areas for resource use and extraction? What are the advantages and disadvantages of each model?
2. The case mentions water filtration as an ecosystem service that has congruent value in the cost of a water treatment plant. Name three additional ecosystem services provided by the Bristol Bay landscape whose value can be assessed in a similar manner.

Alternative Teaching Approach:

Divide the class up into three groups – Environmental Scientists, PLP Representatives, and members of the Bristol Bay Native Corporation (BBNC). Have each group make a case for or against the mine. Keep in mind that some Alaska Native members of the BBNC are for the mine but the organization has come out against the mine. It may be helpful to supply the students more detailed information from the Case references for this type of exploration of the Case.

Additional Resources:

<http://www.pbs.org/wgbh/pages/frontline/alaska-gold/>

http://www.mining-atlas.com/featureSection/The_Biggest_Mines_in_the_World_Introduction.php