

Potlatch Creek

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Summary

Students compare the characteristics of creeks to determine why one is more favorable for salmon migration.

Grade level

Second

Time required

Two hours

Materials

[Pictures of various salmon species](#)

[Photos of Potlatch Creek](#)

Stream tables

Gravel and dirt

Containers of water

[Satellite image of rivers and streams on the Nez Perce reservation](#)

[Nez Perce story, “How the Salmon Found that They Shouldn’t Go Up Potlatch Creek”](#)

Science journals

Goals

By completing this lesson, students will

- 1) become aware of the relationship between the salmon and its environment,
- 2) explore how gravel affects a water ecosystem,
- 3) learn about the cultural significance of salmon to the Nez Perce
- 4) learn about contemporary tribal efforts to manage salmon on the Nez Perce reservation,
- 5) develop abilities in the science process skills and
- 6) gain experience in interpreting satellite images.

Science standards addressed

National Science Standards

- Abilities necessary to do scientific inquiry
- Properties of Earth materials
- Organisms and environments

American Indian Science Standards

- Various forms of scientific and technological work currently engaged in by American Indian men and woman and in what ways their fields require the process of problem identification, design and solution
- Characteristics of various animals as exemplified in traditional American Indian stories, legends, songs and dances

Teacher tips

Be very familiar with the story of Potlatch Creek so that you will be able to tell it to your students rather than reading it. Also, teachers should be knowledgeable about the salmon's life cycle, especially their habitat requirements.

Background information

Salmon are a culturally significant species to the Nez Perce people. They made up a substantial part of the tribe's traditional diet, and dried fish were used as trade items. Coho Salmon, which have been non-existent on the Nez Perce Reservation for thirty-five years, have recently been reintroduced by tribal fisheries management efforts. Fall Chinook Salmon populations have also been established through reintroduction.

Salmon have specific habitat requirements, including cold, clear water with a high oxygen content, and gravel bottoms in which they build their redds (nests). Gravel serves many functions for the salmon. The male's milt sticks to the female's eggs and fertilizes them, and they are deposited in the gravel nests. Gravel provides protection for the eggs from predators and from being washed downstream. It also acts as a sieve, allowing silt to run off eggs as water runs through the gravel. Once hatched, the salmon fry remain in the protective gravel for the first part of their life. The gravel also helps increase water turbulence, increasing oxygen content as the running water hits the rocks and creates air bubbles.

Procedure

Engagement

- 1) Invite an elder to tell the Nez Perce story "How the Salmon Found that They Shouldn't Go Up Potlatch Creek" and discuss it with students. Discuss the cultural significance of salmon to the Nez Perce people.
- 2) Show pictures of various species of salmon indigenous to the northwestern United States. Show a Landsat image that includes the Clearwater River, Snake River and Potlatch Creek and locate them on the image. Show the photos of Potlatch Creek. Create a chart of the characteristics of each body of water, according to the story.
- 3) Discuss the migration of salmon and their life cycle, without divulging much specific information about their habitat.

Exploration

- 1) Tell students that they will be exploring the question "Why do salmon spawn in the Clearwater River and not Potlatch Creek?"

- 2) Ask students to make a prediction about salmon habitat preference, and write it in their journals.
- 3) Have students groups set up stream tables with various types of substrates – dirt, large boulders, gravel bottoms etc. Encourage them to briefly explore the characteristics of one type of substrate by running water over it.
- 4) Assist students in designing an observation data table in their journals for their experiment. Ask them to think of characteristics that they should include in the observation table (water clarity, bubbles, erosion, etc.). Model the table on the board, using student suggestions.
- 5) Encourage students to continue exploring each type of substrate and to record their observations in their data tables and with drawings.

Explanation

- 1) Ask students to report their observations to the class using their journal drawings and data tables. Record students' ideas on a chart. As a class, use student evidence to develop reasons why salmon require gravel bottom creeks with swift running, cold, clear water.
- 2) Ask students to write a hypothesis about why salmon prefer gravel bottom substrates in their journals.

Elaboration

Visit a hatchery or ask a tribal fisheries professional to come into the classroom and speak to the students about salmon management.

Evaluation

- 1) Review student journals for evidence of process skill development in making predictions, recording data and developing hypotheses.
- 2) Observe students as they perform their experiments for process skill development in designing and performing experiments, and working cooperatively.
- 3) Ask students to diagram the salmon's specific habitat requirements and how they benefit the salmon.

Follow up activities

- 1) Explore other tall tales such as Paul Bunyan. In the Potlatch Creek story, the salmon jumped a mountain to get to the Clearwater River from Potlatch Creek. When the salmon jumped, he left a large cavity carved in this mountain with his fin.
- 2) Take a fieldtrip to visit local waterways where salmon are known to migrate and spawn. Invite a geologist or rock specialist to discuss the rocks in local waterways.