

TEACHERS' GUIDE - "SAVE OUR SALMON" OSCA ECOSTUDIES PROGRAM



PROGRAM CONNECTIONS TO THE BC SCIENCE CURRICULUM

ECOSTudies environmental education programs have been offered since 2002. With BC's redesigned curriculum, a key feature of the science curriculum is to take on a "place based approach" to learning. Many of the goals under the redesigned curriculum align with the "Save Our Salmon" fieldtrip program for Grades K - 4.

Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
<p><b>Big Ideas:</b> Plants and animals have observable features; Daily and seasonal changes affect all living things.</p>	<p><b>Big Ideas:</b> Living things have features and behaviours that help them survive in their environment.</p>	<p><b>Big Ideas:</b> Living things have life cycles adapted to their environment; water is essential to all living things, and it cycles through the environment.</p>	<p><b>Big Ideas:</b> Living things are diverse, can be grouped and interact in their ecosystems.</p>	<p><b>Big Ideas:</b> All living things sense and respond to their environment.</p>
<p><b>Content:</b> Basic needs of plants and animals; adaptations of local plants and animals; local First Nations uses of plants and animals; seasonal cycles.</p>	<p><b>Content:</b> Names of local animals; structural features of living things in the local environment; behavioural adaptations of animals in the local environment; local First Peoples use of seasonal rounds.</p>	<p><b>Content:</b> Similarities and differences between offspring and parent; knowledge of life cycles; water conservation.</p>	<p><b>Content:</b> Biodiversity in the local environment; knowledge of local First Peoples of ecosystems.</p>	<p><b>Content:</b> Animals sensing and responding.</p>
<p><b>Program topics:</b> -The body parts of a fish - Stages in salmon life-cycle - What do salmon need to live? - Restoring the river to help salmon</p>	<p><b>Program topics:</b> - Body parts of a fish - How do salmon swim and find their way back to spawn? - Salmon species - Importance of salmon to First Nations</p>	<p><b>Program topics:</b> -Stages in salmon life-cycle - Salmon spawning behaviour - Water quality and how it affects salmon - Restoring the river to help salmon</p>	<p><b>Program topics:</b> - Food fish and fishing methods of local First People - Salmon restoration efforts by Okanagan Nation Alliance</p>	<p><b>Program topics:</b> - How do fish use their senses in migration? - What environmental conditions do salmon need to live at different life stages?</p>

## DIRECTIONS TO FIELDTRIP LOCATION

**Oliver River Restoration Site:** either park at the Oliver Visitors Centre Station Street, Oliver, then walk north 10 minutes along the river trail **or** park at Pacific Silica, 36867- 97th Street (Hwy 97) north of Oliver.

Driving from Penticton: after Gallagher Lake, continue on Hwy 97, Along the straight stretch north of Oliver pass Panorama Orchards Fruit stand (on left). Once past Pontes Place on left, you are very close to the left hand turn into Pacific Silica. On the hill to the right is a quarry and a sign for Mikes Automotive. The left turn into the driveway is just before the Pacific Silica sign. The driveway is blacktopped and wide. Your fieldtrip leader will meet you here and direct you to parking. The river restoration site is 5 minutes away via an easy trail.

**Okanagan River Channel, Penticton:** adjacent to Riverside Drive accessed off Eckhardt Avenue or Westminster Avenue West. Park near the yellow Coyote Cruises building where an OSCA fieldtrip leader will meet you. (Note: more spawning salmon are visible in Oliver.)

## PLANNING A FIELDTRIP



**Maximum group size:** 1 class at a time, or maximum of 36 students. Students will be divided into two groups.

**Total program time:** 1.5 hours

**Field trip leaders:** Two OSCA interpreters will lead the fieldtrip but teachers will maintain order. A parent volunteer is welcome.

**Bathrooms:** There are no washrooms. Emergency washrooms are at Pacific Silica or Oliver Tourism Centre.

**What to wear:** The program will go ahead rain or shine so dress accordingly.

- Closed toed shoes or boots
- Long pants
- Long-sleeved shirt, jacket or rain coat
- Hat (recommended for sunny days)

## “SAVE OUR SALMON” PROGRAM THEMES

*The program content is flexible and can be adapted to suit classes and schedules. “Save Our Salmon” can include the following activities and topics:*

### INTRODUCTION TO SALMON (20-30 MINUTE ACTIVITY)

This activity can occur in the field (sitting on a big tarp near the river) or in a classroom. OSCA’s portable felted display panels sit on top a table in front of the group. Laminated illustrations and photos are brought out and stuck to the display boards as topics are introduced. Program props are passed from hand-to-hand.

#### TOPICS:

##### 1. The salmon life cycle:

- Egg, alevin, fry, smolt, adult, and spawner
- Where do salmon live at each life stage
- Sockeye migration: the six thousand kilometer journey home to the Okanagan

##### 2. Salmon senses

- How does a fish move, what muscles does it use?
- Does a salmon smell and taste?
- How does a salmon know how to turn around and swim home to spawn (magnetite in brain, finding the natal stream)

##### 3. Salmon species in the Okanagan:

- Chinook, Sockeye, Kokanee
- Salmonid cousins: steelhead, Rainbow trout

##### 4. Salmon are an important food fish for Sylix First Nations and many other interior and coastal aboriginal communities

- The traditional fishing station at Okanagan Falls is the location of the annual Salmon Feast
- Smoked and dried fish provided winter food
- Chinook salmon is considered the chief of all fish in the Sylix chaptik story
- Okanagan Nation Alliance salmon restoration activities

5. **What do salmon need to live?** (food, clean water, oxygen and spawning habitat)

6. **Threats to salmon:**

- Flood control structures and hydro-electric dams
- Pollution (chemicals, sediments)
- Climate warming (increased water temperature in rivers and lakes, less riparian vegetation for shade, fewer prey species to eat)
- Loss of spawning and living habitat
- Invasive fish predators on eggs and young salmon; introduced shrimp *Mysis relicta*
- Over-fishing in coastal waters and estuaries
- Disease and lower immunity due to stress

7. **What can we do to help salmon?**

- Control invasive species such as carp and bass
- Control pollution going into streams from storm water and agriculture
- Restore spawning habitat
- Maintain and restore plants and trees along river-banks
- install fish ladders and renovate flood control structures (dams and weirs) to allow salmon to safely swim up the river
- Reduce energy use and be mindful of the causes of climate warming

**OBSERVING SALMON IN THE RIVER (10-15 MINUTE ACTIVITY)**

TOPICS

- Body colour and physical changes in spawning adults
- Are other fish visible? Why do carp follow the salmon?
- Does the Okanagan River look like a healthy habitat?
- What natural features in the river make this a good spawning habitat (large rocks, size of gravel, riffles showing speed of river providing oxygen to eggs)?
- What fish behaviours can you observe (resting, jumping, digging)?

## IMPROVING SALMON HABITAT (20-30 MINUTE ACTIVITY)

Pictorial displays are used to discuss changes made to the Okanagan River to improve salmon spawning habitat. The group then views the spawning restoration area.

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### TOPICS

1. The Okanagan River: changes to the river in the 1900s
2. Enhancing spawning habitat
  - reconnecting old oxbows to the river
  - enhancing spawning beds
  - planting trees and shrubs to create a healthy river habitat
3. The Okanagan River Restoration project has helped other animals too.
4. How do people study salmon in the Okanagan River?
5. Future plans for bringing back aboriginal food fish

## CLASSROOM ACTIVITIES

### Art

Make Gyo-tako fish prints while studying fish anatomy

<http://www.youtube.com/watch?v=lnpLfs4rasw>

### Study salmon anatomy

Link to [lesson plan](#) on salmon anatomy.

### Books

“Salmon Forest” by David Suzuki and Sara Ellis, 2003 Greystone Books.

### Web sites

Fisheries and Oceans Canada [“Stream to Sea”](#) web page has complete lessons plans and classroom activities for each grade level. Link to [“Salmonids in the Classroom”](#) page.

### Further resources for Okanagan First Nations Studies

The Syilx Indigenous Land-Based Learning Project for K-12

<http://www.enowkincentre.ca/ecommunity.html>

Syilx perspectives on ecology and local animal species

<http://www.okanaganfirstpeoples.ca/index.cfm>

“Kou-Skelowh / We Are The People: A Trilogy of Okanagan Legends”, Theytus Books 2012.

“How Food Was Given” describes the care and sacrifice made by the four Chiefs of plant and animal life for the new people.

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