

Salmon Tales

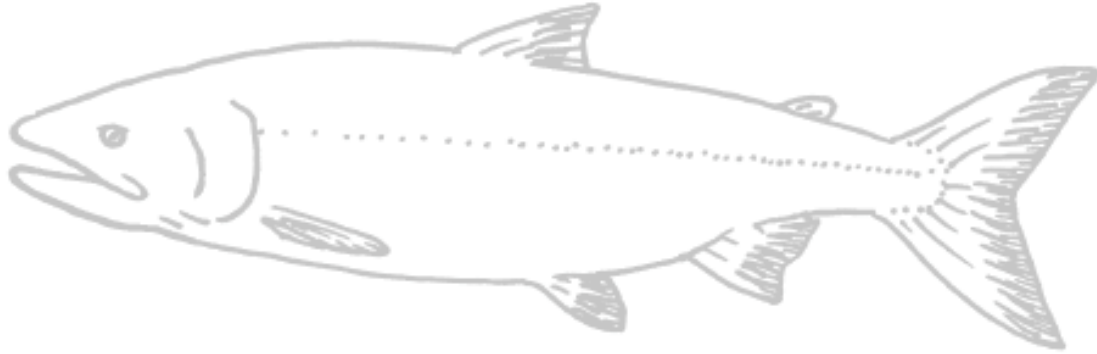
Activities for your Class

Pre-Visit Activities

These classroom activities will help prepare your students for the upcoming Aquarium visit.

1. Name tags

Help our volunteer educators get to know your students. Have your students create nametags for their visit to the Aquarium. Your class can colour and cut out these shapes and write their names on them in large print.



2. Salmon in the News

Have your class scan newspapers and listen to radio and television reports to see if they can learn anything about salmon. Have them start a clippings file. What are the issues? What aspects of salmon do people talk about?

3. What your class will see and do during their Aquarium visit

Talk about your upcoming visit to the Aquarium—what your class will do and what they might expect to see. Use the “About the Aquarium” section of this guide as a resource.

4. Visit the Salmon Tales Website

Explore this Web site to learn more about these amazing fish and what you can do to help ensure that salmon remain an integral part of Canadian heritage for generations to come. Visit the learning centre for lesson plans stories and salmon facts. Web address <http://www.vanaqua.org/salmontales/>

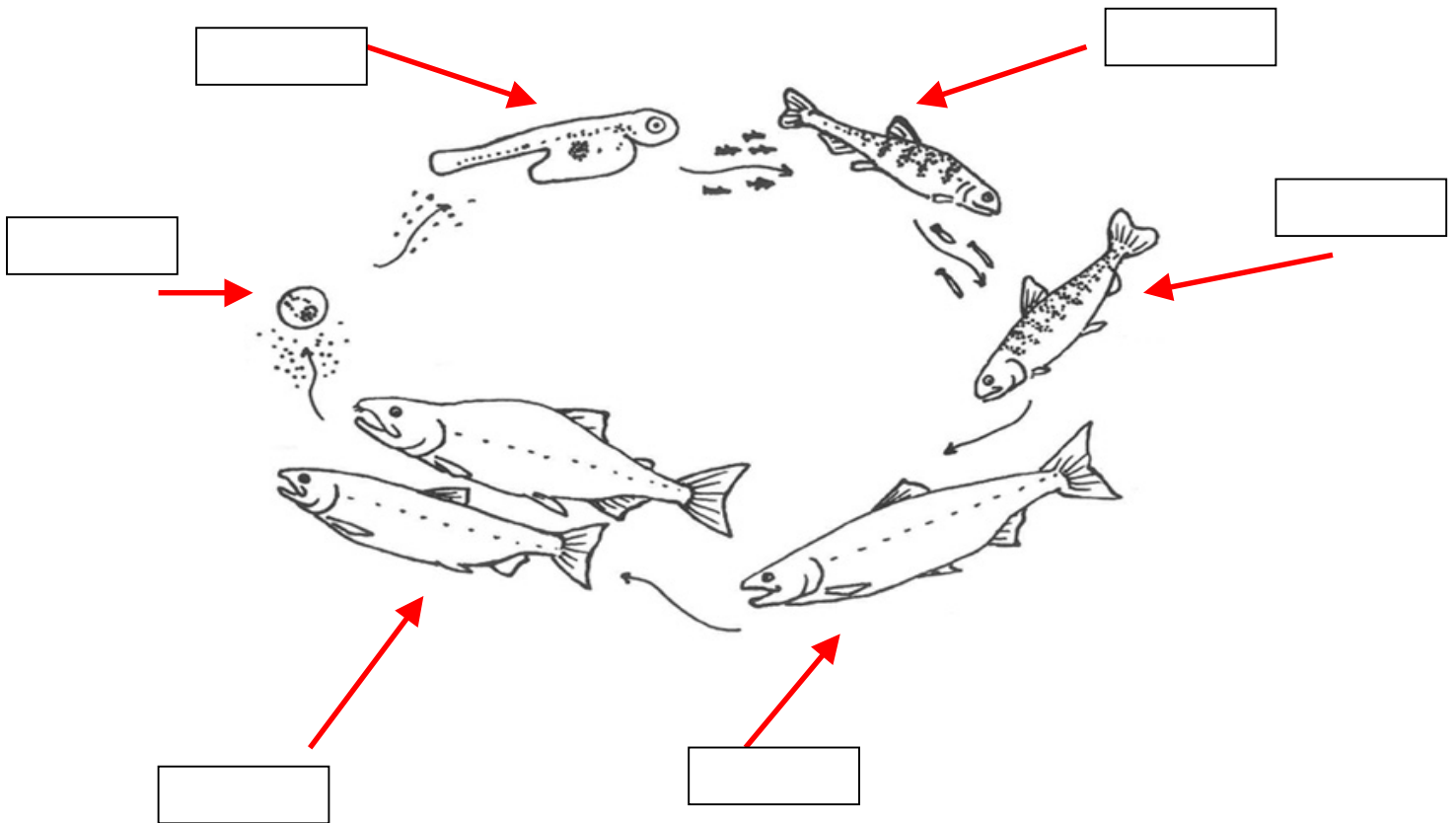
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5. Discuss the salmon life cycle

Introduce the life cycle of the salmon. Discuss with students the different aspects of each life stage of a salmon; what part of the stream/estuary/ocean does each life stage inhabitant? What might be some of the different threats each of these stages experience? What might account for the reduction of numbers from the egg down to the spawner? What are the different predators and prey of the different life stages?

Have your students label the following diagram.



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6. SALMON STEAK: FISHY FACTS

Have you ever wondered how the salmon you ate for dinner reached your plate? Have your student's research how fishermen and other workers capture, process and deliver salmon to our local markets, providing us with delicious fish to eat.

Have your students become investigative reporters and trace the history of a particular fish at a local market or deli.

Objectives

- investigate the steps involved in providing a fish to local markets
- explore the importance of fisheries and aquaculture on a local and global scale
- discover the importance of maintaining viable fisheries for our future
- practice research and written skills

Materials

- paper
- transportation (to fish market by parent)—or
- telephone (to invite someone from a fish market to visit your class)

Steps

1. Call the manager or owner of a market that sells fish or a fish processing plant, if there is one in your area. Have students visit the market or invite the manger/owner to visit your class.
2. Have your students prepare for their interview. What questions do they want answered? Have them draw up a list of 10 to 15 questions.

These questions should be open-ended. Questions may include:

- Was the salmon caught or farmed?
- Where was the salmon caught (or farmed)?
- When was it caught?
- How was it caught?
- How was it delivered to your store?
- Who/what company did you get it from? Where did they get it?
- What did you do when you received it (refrigerate it)?
- Is salmon good for you?
- Which species tastes the best?

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Nutritional information per fish:

	Chinook	Sockeye	Coho	Pink	Chum	Atlantic
Protein	20g	21g	22g	20g	20g	20g
Fat	10g	9g	6g	3g	4g	6g
Calories	180	168	146	160	120	142

3. What parts of the fish do we eat? Good chefs understand the anatomy of the animals they prepare. Photocopy the outlines of the fish on the next page. Have your students label all the parts.
Answer key: A salmon with all its organs correctly labeled on the following pages.
4. Have your class dig a little deeper and find out if this species of fish is plentiful, or if it is threatened or endangered. Find out how many of this species is caught or farmed annually.
5. Bring in recipes. Compare your favourite fish-eating experiences. Design a menu. Have fun!
6. Have your students write and illustrate an article reporting their discoveries. Send copies to the manager or owner of the fish market as a thank-you.

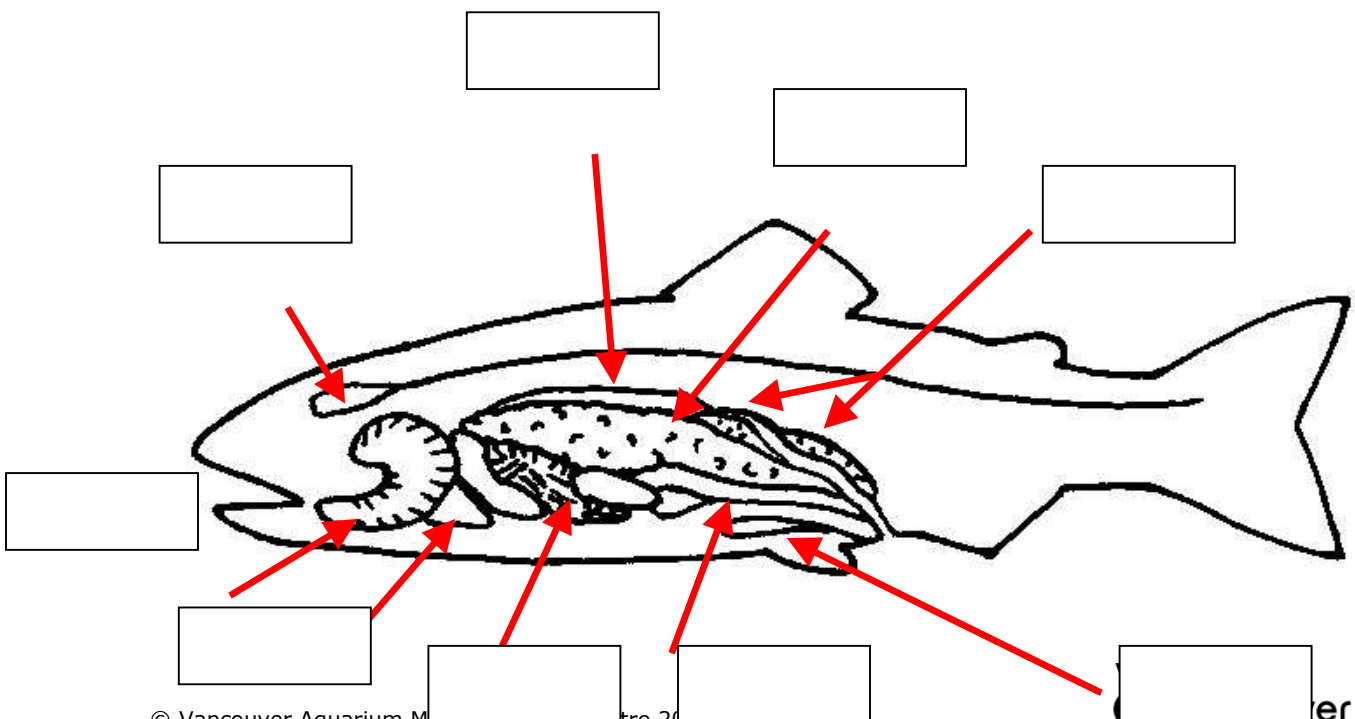
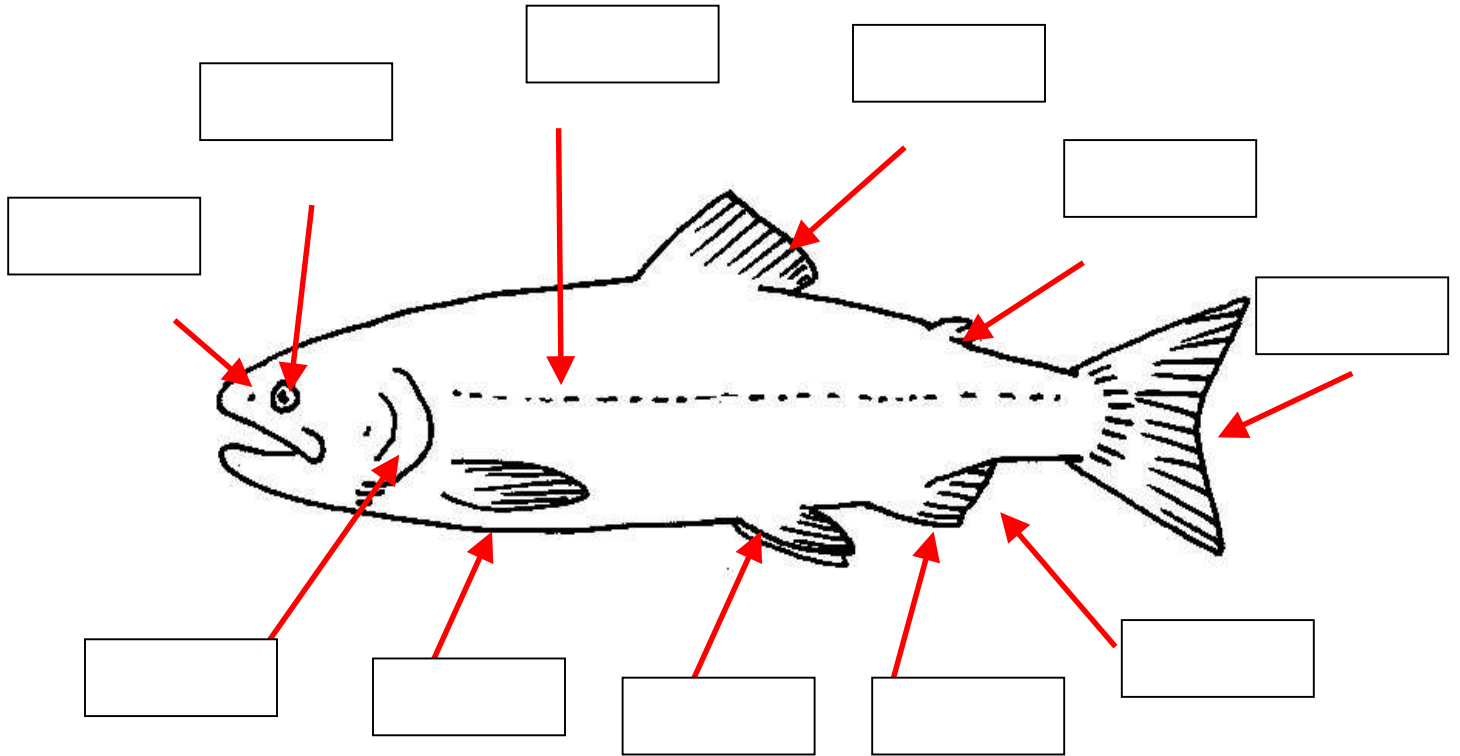
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7. Salmon: the Inside Story. Part 1

Students will fill in the boxes, correctly labeling the internal and external anatomy of the salmon.

External



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7. Salmon: the Inside Story. Part 2

Fill in the blanks.

Salmon use _____ to breathe. By opening and closing their mouths they swish water over the gills and absorb oxygen from the water. The gills, protected by a hard plate known as the _____, are red because they contain lots of oxygen rich blood.

Salmon have large, highly developed _____. Salmon will occasionally use sight to detect predators. When the water isn't clear however, they will use their _____ to sense vibrations caused by moving predators. These help the salmon recognize what is happening in the water around them.

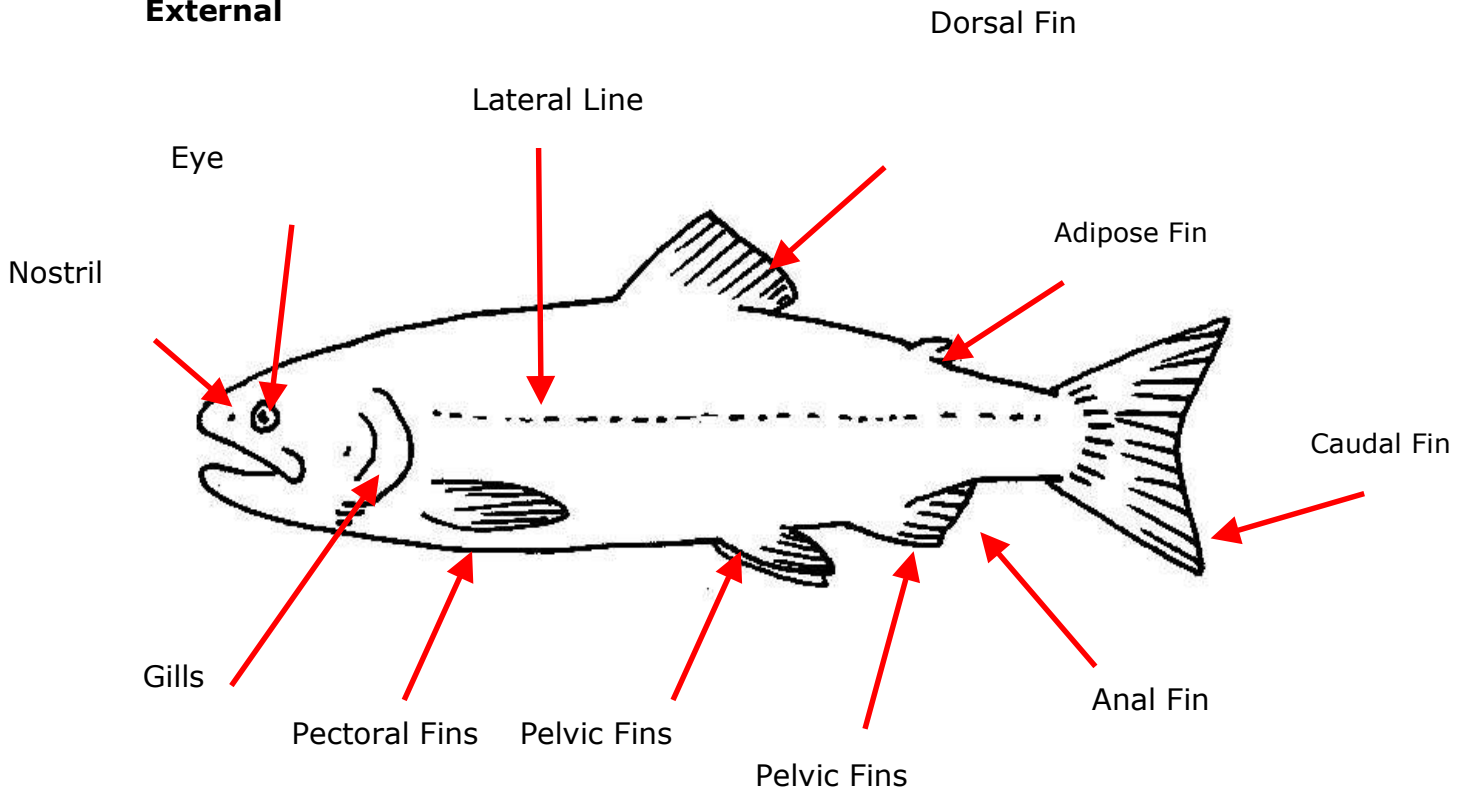
Salmon have 8 fins that they use for swimming. The _____ fins are used to steer the fish up or down and to help it stop quickly. The _____ fin is used to help keep the fish upright and working with the _____ fin keeps it swimming in a straight line. The _____ fin is the largest fin and is used to generate power. By moving it from side to side the fish can swim forward quickly to escape from predators.

Answers in order of use: gills; gill plate; eyes; lateral line; pectoral; dorsal; anal; caudal.

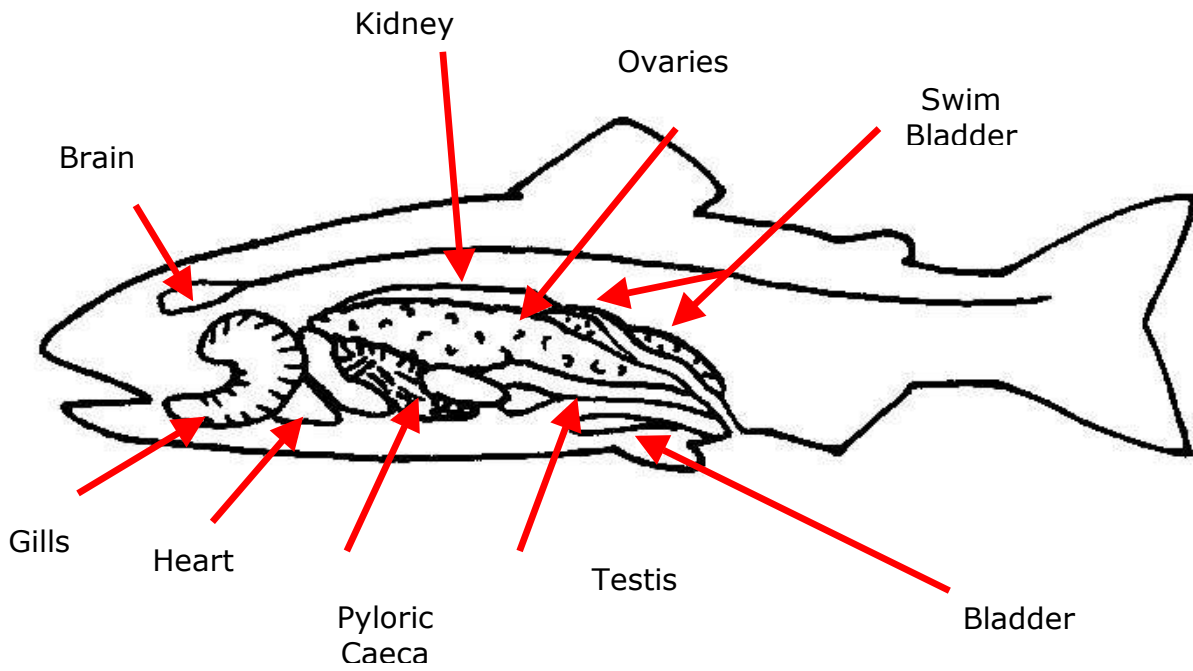
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Salmon: the Inside Story. Answer Key External



Internal



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POST VISIT ACTIVITIES

These classroom activities will help reinforce themes introduced during your Aquarium visit.

1. A BIOGRAPHY OF A MIGRATING FISH

After maturing in the ocean, each salmon stock migrates home to the rivers where they hatched. Some salmon like chum, spawn close to river mouths; others, like chinook, migrate very long distances upriver to spawning sites.

Have each student choose a species of salmon and map out its life cycle.

Objectives

- discover the differences between salmon species and the diversity of migration patterns of B.C. salmon
- learn the location of several salmon-bearing rivers
- use mapping skills, such as the use of a key
- develop oral presentation skills

Materials

- a detailed map of British Columbia rivers and the Pacific Ocean
- photocopier
- pens/coloured markers

Steps

1. Have your students choose a salmon species and research its life history. Ask them to mark its ocean and freshwater travels on the map provided, or to make a map of their own.
2. If your students have family or friends who have lived in the area for a long time, ask them to conduct interviews. What were salmon runs like in your salmon river in the past? How have they changed? Did they fish? What did they catch? Do they have any photos of the big one that didn't get away?
3. Divide your students into "species" groups. Assign each "species" of student to different groups of five to six students and have them compare their findings with each other. What was the same about each species of salmon? What was different?
4. Create a big salmon map (you could use the one on the next page) for the entire class using a road map of the province. Trace the migratory path of each stock of salmon on this map. How do salmon find the rivers of their birth?

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2. Salmon Stakeholders (grades 5-7)

There are several groups of stakeholders which have an interest in salmon in BC. Each group has a certain number of salmon it needs to harvest in each harvesting season. The allocation of salmon is determined by the government. All of the stakeholders claim an amount of fish per season, and their welfare depends on the health of the salmon population. (The different groups are described below).

Objectives

- students will gain further understanding of the different groups interested in BC salmon
- explore the importance of salmon to one specific stakeholder (user group) through research
- contact a stakeholder for an interview and/or presentation
- present information in a creative way

Materials

- library resources
- internet access
- materials for presentation (computer, power point, poster paper, marker pens, glue, scissors)

The Government

Act to allocate the catch based upon availability of salmon in a population, the Government (in this instance Fisheries and Oceans Canada) must try to arrange the catch so that all of the stakeholders are happy, the natural predators have enough food, and some salmon can still return to spawn.

The allocation process will follow this process every year:

1. The first priority is escapement meaning the number of fish left to spawn. There needs to be a certain number of salmon that are left to spawn naturally. This helps ensure that we have returning salmon in future years.
2. The second priority is the First Nations fishers. Since the First Nations fishers wait upstream, we must carefully regulate the amount of salmon taken by the commercial and sport fishers, who intercept the salmon BEFORE they make it to the First Nations fishing areas.
3. The next priority is the number of fish taken by predators or fish that die of natural causes. This is fixed to be 23 fish and will not change throughout the game.
4. The US fishermen have a fixed amount of fish based on the Pacific Salmon Treaty
5. Finally, all of you have needs for the salmon and we will do our best to divide the catch fairly.

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Aboriginal Fishery

These peoples have depended on salmon for thousands of years. Salmon are an integral part of their lives. Salmon are celebrated in ceremonies using songs, dances, art, and legends. First Nations began fishing and hunting before Canada was formed. They have always done so, and believe it is their right. The decision was made in 1990 by the Supreme Court of Canada that Aboriginal nations could continue fishing for nutritional, ceremonial, and societal reasons. As a group, they are entitled to catch fish to use for themselves, not to sell.

Commercial Fishery

The commercial salmon fishery has been around for more than a century. Commercial fishers must buy a license to fish commercially and a license to fish personally. Salmon are important to this group because they need to sell the fish to make a living. The more salmon they can sell, the more money they can make.

Sport Fishery

This activity, also known as angling, involves people catching fish for fun or for recreation purposes. Though the sports fishery is very small compared to commercial fishery, it contributes more money to BC's economy. This is because sports fishermen come from many places to fish here, which aids our economy.

Natural Predators

Many animals depend upon salmon for food, such as killer whales, seals, eagles, and bears. Without salmon, many of these creatures would not survive. WE must remember that although the natural predators cannot represent themselves, they still need to be allocated a certain amount of salmon.

Salmon play many different roles in British Columbia. Students will explore one of the groups in greater depth to try to understand the importance of salmon for that particular group, using the following guidelines:

Steps

- 1.** Students will explore one of the stakeholders in greater depth through research. There are six different stakeholders to choose from, and students should work in groups.
- 2.** Access to the library and internet should be granted.
- 3.** Students could also connect with a person they know that represents one of the user groups, or could contact a stakeholder through Fisheries and Oceans Canada.
- 4.** Students can either interview this person or they can invite them into the classroom to talk about why salmon are important to them.
- 5.** If students choose not to bring a stakeholder into the classroom, then each group should prepare a presentation for the class from the information they have gathered. They may choose to present the

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information in the form of a poster, a presentation, a handout, or any other form of creative presentation.

6. Students should answer the following questions during their research:
 - Who makes up the group you are studying?
 - What do the individuals in the group do with salmon?
 - How much salmon do they require per season?
 - Where do members get their salmon from?
 - How do members of this group get their salmon?
 - Are members of this group concerned about conservation?
 - How will this group suffer if salmon numbers decline?
 - Is there room for negotiation for the amount of salmon they receive? Can more salmon be conserved without hurting the welfare of this group? Explain.
 - Create an argument for why it is more important for this group to receive their required amount of salmon than any other group. This argument should be written and handed in to accompany the choice of presentation. **This could also coincide with a class debate between stakeholder groups.**

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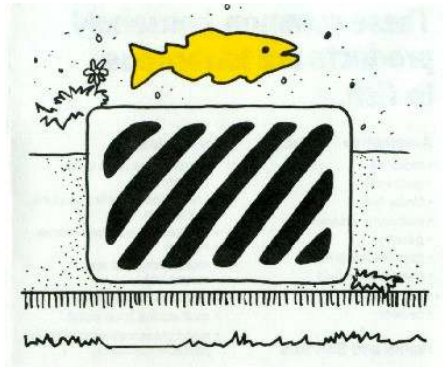
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3. Storm Drain Marking Program

Carried out in urban areas under sponsorship of Fisheries and Oceans Canada this program gives children an active role in protecting their environment by marking storm drains with bright yellow fish and circulating information to advise residents that these drains empty into local creeks. A video (for children) and manual (for teachers or leaders) are available. This activity is suitable for children working in small groups and supervision is mandatory.

For information on storm drain marking in your neighbourhood, contact your local Community Advisor or Education Coordinator. You can also e-mail Joanne Day, Information Coordinator, at dayj@pac.dfo-mpo.gc.ca, or phone (604) 666-6614.

Source:



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4. Watching my Waste-Line

In this activity, students will record how much daily waste is produced in the classroom and work towards reducing their impact on the environment.

Overview of Activity:

1. After lunch, empty the garbage can in the classroom, and make a list of the types of garbage (e.g. plastics, juice box, paper, food, etc.) and the amounts of each type of garbage. Chart and total this amount.
2. Discuss where the garbage will go (to the dump? to a landfill?) and how garbage can affect the environment. Ideas that should come up include:
 - Animals eat it and get sick
 - Animals get caught in it and die
 - Chemicals get into the environment
 - It takes up space and habitat
3. Look at your immediate area, too. Are there enough garbage bins in the schoolyard? How does the garbage get removed? Is the movement of the garbage a source of pollution that needs attention? Does schoolyard garbage get into local streams?
4. Discuss how we can reduce the waste we produce. Ideas might include:
 - Recycle material
 - Reuse plastic bags (or use cloth bags)
 - Buy items with less packaging
 - Use reusable containers
5. Take out any recyclable material (paper, cans, juice boxes, etc.) and arrange to have them recycled. Total the remaining amount of waste. Compare this to the original amount. How much waste could have been reduced?
6. Challenge the class (or the entire school) to reduce their waste by having a Litterless Lunch (see following lesson plan). Check every week and chart their progress. Make a sign that shows the amount of waste that has been reduced. For example, "Since September 6th, we've reduced our waste by 42%!!"
7. As an extension, consider looking at the community as a whole and methods to reduce waste as a community. How can students encourage the community to reduce waste, reuse and recycle?

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5. Litterless Lunch

Parents often pack lunches with disposable plastic bags, aluminum foil, or wax paper, or they purchase single-serving items, such as fruit cups or juice boxes. Much of the trash we generate comes from food packaging, and lunch foods are no exception.

In fact, it is estimated that on average a school-age child using a disposable lunch generates 67 pounds of waste per school year (www.wastefreelunches.org). An old-fashioned "brown bagger" can conceivably dispose of over 14, 000 paper lunch bags in their lifetime (www.saveonfoods.com).

A litter-less lunch is one where nothing needs to be thrown away. For example, a student could pack a lunch in a reusable lunch box or cloth bag with re-usable plastic containers.

Procedure

1. Eat lunch in the classroom on a rainy day, and ask students to measure the amount of waste.
2. Discuss what it means to create a lunch with no waste. Why is it important?
3. Brainstorm with the class what a litterless lunch looks like?

Avoid:

- × Brown paper bags
- × Plastic sandwich bags
- × Disposable single servings
- × Styrofoam cups
- × Individually packaged snacks

Instead choose:

- ✓ Reusable lunch kits or bags
- ✓ Reusable plastic containers: Divide a larger batch of snacks or a large container of yogurt into your own single servings.
- ✓ Reusable drink bottles: Buy larger sizes or concentrated forms of beverages and dispense them into your own refillable thermos or drink container.
- ✓ Snacks in minimal wrapping
- ✓ Recycling: Return your deposit container at a redemption centre. Place your clean metal, rigid plastic, plastic bags, paper, and cardboard in the blue bins at Recycling Depots around the region.
- ✓ Pack a cloth napkin instead of a paper napkin.
- ✓ Pack stainless-steel utensils instead of using disposable plastics.
- ✓ Compost your fruit and vegetable scraps. Take them home or consider setting up a worm composting bin at school.

4. Select a day to have a litterless lunch in the classroom. Send a letter home informing parents about the day and possible lunch alternatives.

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5. Measure the waste, and compare it to the lunch waste before the class discussed the importance of a litterless lunch.

Follow up activities:

- Ask students to create a collage of things that create a litterless lunch.
- Have the students set a personal goal regarding their lunches, and create a chart so they can track it for a period of time.
- Compose a litterless lunch song or story about how they can make a difference.
- Write about how students can help reduce the litter in their lunches at home.

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6. Dear Aquarium Volunteer

Have your students write letters, with pictures, to the Aquarium Volunteer Educators who teach the Salmon Tales School Program. Your students can tell the Volunteers what they like most about what they saw, touched or heard during their program. Aquarium Volunteers love to receive mail.

Objectives:

- Practice general language arts written skills
- Learn about the physical characteristics and behaviour of a variety of animals
- Teach the value of direct observations
- Reinforce what the students learned during their Aquarium program

Materials:

- Story books
- Pencils, crayons
- Paper
- Large envelope for all the letters and pictures
- Postage

Steps:

1. Discuss your students' visit to the Vancouver Aquarium. What did your students learn? What did they learn that they didn't know before? What surprised them the most? What animal inspired them to learn more about?
2. Have the class read about the ocean.
3. Ask your students to write letters and/or draw pictures to the Volunteers. What did the students like most? What did they learn?

Address:

Volunteer Educators
Vancouver Aquarium
PO Box 3232
Vancouver BC
Canada
V6B 3X8