

PACIFIC SALMON FACT SHEET

CLASSIFICATION

There are five species of Pacific salmon that can be found in Canadian water bodies:

- sockeye salmon
- coho salmon
- pink salmon
- chinook salmon
- chum salmon

GEOGRAPHY

- Pacific salmon are found throughout the coastal regions of North America, from California in the south all the way to Alaska and even across the Alaskan Archipelago to Japan.
- In Canada, some of the largest Pacific salmon populations are found in the largest rivers in British Columbia and the Yukon - the Fraser River, Skeena River, and the Yukon River.

ECOLOGY

- In lakes and rivers, adult salmon are eaten by several predators including bears and eagles. In the ocean, adult salmon are eaten by sharks, seals, and orcas.
- Juvenile (young) salmon that live in lakes and rivers are eaten by predators including piscivorous (fish-eating) fish (e.g., bull trout) and birds (e.g., blue heron). In the ocean, juvenile salmon are eaten by older, larger salmon.

INTERESTING FACTS

- Salmon “smell” using special cells in their head. The cells are found in a structure called a rosette.
- In the ocean, salmon eat animals (e.g., shrimp, krill) that have carotenoids, the same pigment that makes carrots orange. The carotenoids make salmon eggs orange and salmon skin red.
- Adult male salmon fight each other for access to females. The male that wins the fight gets to fertilize the female’s eggs. Juvenile coho salmon fight each other for access to the best feeding areas in a river.
- Migrating fry and smolts swim in groups with other migrating salmon. This behaviour is known as schooling and provides safety against predators.
- In order to attract a female, a male salmon will swim alongside her and vibrate his body.



PACIFIC SALMON LIFE CYCLE



SPAWNING MIGRATION

Between late summer and late fall, full-grown adult salmon between 2-5 years old form large schools and migrate from the open ocean up rivers. During this migration, adult salmon stop eating and undergo a transformation. On the inside, the salmon's gills change so that they can live in fresh water. Their reproductive organs start maturing. In females, eggs develop and in males, testes get larger. On the outside, salmon change colour from bright, shiny silver to shades of red, green, and pink, depending on the species. Males develop a large kype - a longer, hooked upper jaw.

Adult salmon navigate from the open ocean to the coast using the Earth's electric field, and a sense they have called magnetoreception. This technique is also used by migrating birds. Once they are at the coast, salmon use their sense of smell, called olfaction, to locate and swim up the same river in which they hatched years ago.

SPAWNING

Once they reach suitable habitat, male salmon will begin to defend an area of the riverbed. The female salmon will use her tail to move the gravel and create a nest for the eggs called a redd. Redds make sure that the eggs are well protected and have lots of oxygenated water flowing over the eggs. The female salmon releases eggs into the redd and the male salmon fertilizes the eggs with sperm. The fertilized eggs remain under the gravel throughout winter, until they hatch in the spring.

Pacific salmon only reproduce once in their lives, because they are semelparous. This means that they die after they spawn.

The bodies from salmon that have spawned and died are an important part of forest ecosystems on the Pacific northwest coast, because they provide nutrients that plants and animals depend on.

INCUBATION

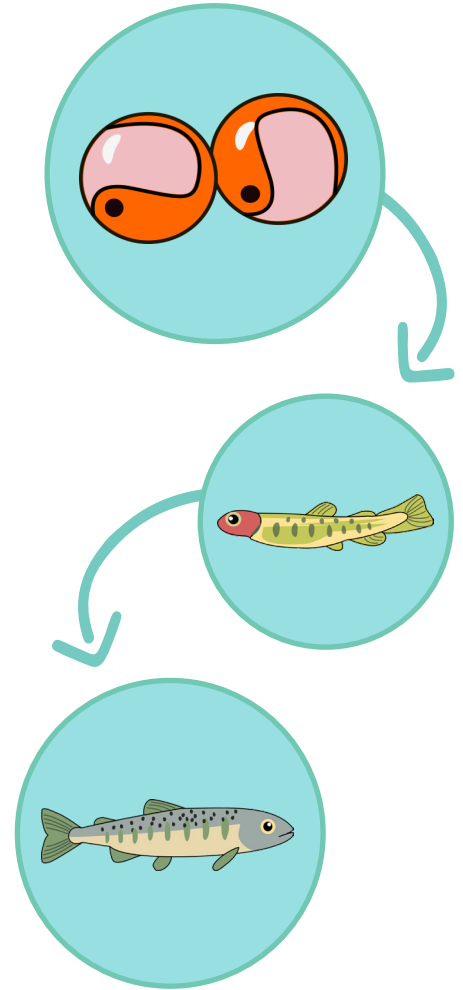
The fertilized eggs incubate over winter and hatch in the spring. When they first hatch, the baby salmon, called alevin, have a large yolk sac attached to them. The yolk sac contains proteins and fats that the alevin use to grow. When the heavy yolk sac is completely absorbed the salmon are called fry. Without the weight of the yolk, fry can swim up from the gravel and migrate to lakes.

FRESHWATER GROWTH

Fry spend 1-2 years in lakes where they grow larger, while feeding on small insects and plankton. Eventually the salmon's bodies start to change. On the inside, the salmon's gills change so that they can live in salt water. On the outside, the salmon's appearance changes. They lose their spots and stripes, and turn a silver colour, which will camouflage them better in the ocean.

SEAWARD MIGRATION

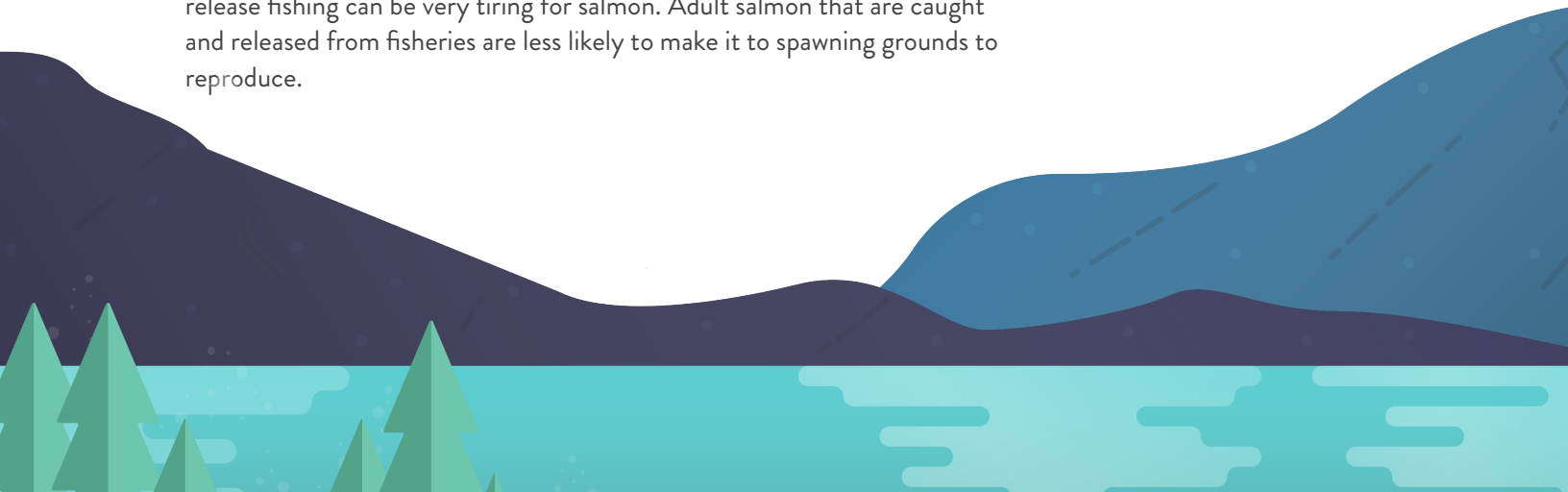
In the spring, the salmon start to migrate along the river, downstream to the ocean. The migrating salmon are called smolts. The young salmon eat and grow in the ocean for 2-3 years before the spawning process starts over again.



PACIFIC SALMON ENVIRONMENTAL IMPACTS

There are many human-related factors that affect the lives of salmon:

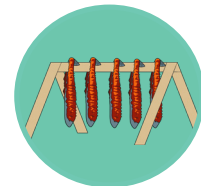
- Hydroelectric dams on rivers block migrating adult salmon from moving upstream to spawn. Dams also block smolts from moving downstream to reach the ocean to feed.
- Chemical pollution of rivers and oceans can reduce the quality of water for salmon.
- Climate change creates warmer water temperatures in rivers, which makes it less likely that adult salmon will make it to spawning grounds to reproduce. Warmer water temperatures can make infections and disease spread more easily.
- Climate change affects animal movement. Pacific salmon are being found more often in northern regions of Canada, where they have never been seen before.
- Climate change can also cause changes in the ocean that can impact the food supply for migrating smolts.
- Habitat destruction means that some salmon have no place to go to reproduce.
- Deforestation (cutting down many trees in an area) can have an impact on salmon. Fewer trees means fewer insects for the salmon to eat, because the insects live in the trees. Sticks and bark that fall from trees into lakes also provide places for young salmon to hide.
- Sediment (small particles of soil) can settle on top of redds (nests) and prevent the eggs from getting enough oxygen. Sediment can come from roadways, stormwater drains, and fall naturally off of river banks. Deforestation removes tree roots and shrubs that filter sediment out of rain water, and prevent sediment from reaching the river.
- Fishing nets and hooks can injure salmon. If not done properly, catch-and-release fishing can be very tiring for salmon. Adult salmon that are caught and released from fisheries are less likely to make it to spawning grounds to reproduce.



PACIFIC SALMON CULTURAL CONNECTIONS

First Nations

- Pacific salmon are a major part of the culture and existence of First Nations peoples on the west coast of Canada.
- Salmon have been an important part of First Nations diets for tens of thousands of years. Traditionally, salmon were preserved to last through the winter months with drying and smoking. Today they are also preserved with canning and freezing.
- First Nations communities have harvested salmon for tens of thousands of years using traditional nets, spears, and weirs (a type of fish trap). Historically, the community decided how and where salmon were fished with guidance from the community elders. Communities would often move depending on where and when the salmon were migrating.
- Salmon are often seen in First Nations art, ceremonial practices, and storytelling. For instance, many First Nations practice a “first salmon” ceremony which honours the return of the salmon.
- Some First Nations communities believe having twins is a blessing from the salmon, and only twins are allowed to perform the ceremonial “salmon dance”.
- There are unique names across First Nation languages for each species of Pacific salmon.
- Sockeye: thought to be derived from the Coast Salish name “sukkai”. Many communities are named after this important species. For instance, Coquitlam is a name derived from Salish which can be translated to “small red salmon”.
- Qualicum Beach and Qualicum River mean “where the dog [chum] salmon run” in the Comox language.



Inuit

- Many Inuit communities have never seen salmon in the wild. As the climate warms, more and more salmon are making their way in to Arctic waters, so Inuit are now seeing them in the wild for the first time.



Pacific salmon are part of three fisheries in Canada: commercial, recreational, and Indigenous.

- Salmon caught in commercial fisheries are sold by fishers to food producers. The salmon can be purchased in grocery stores and restaurants.
- Recreational fisheries include fishing for fun or for competition. These salmon are kept by the fishers to eat or are released back into the water.
- Salmon caught in Indigenous fisheries are kept by the fishers to eat and use in ceremonies.

For more visit:

- <https://www.squidtoons.com/sockeye-salmon-life-cycle-from-red-eggs-to-redd-eggs.html> <http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos-eng.html>
- <http://www.pbs.org/wnet/nature/salmon-running-the-gauntlet-salmon-fact-sheet/6558/>
- <https://www.psf.ca/learn/salmon-facts>
- <https://www.canadiangeographic.ca/article/animal-facts-salmon>

