

Sample Answers to Specific Questions: Salmon

The videos focussing on the Credit River salmon represent the first major themed-set of videos in this series. Many of the questions posed here are answered in the support material available on line or in the video.

- How many types of salmon are there in North America? **6 Species: Atlantic salmon, Chum, Sockeye, Chinook, Pink, Coho**
- How can these species be grouped? **Atlantic species that do not die upon spawning for the first time (Atlantic salmon) and Pacific salmon all of which die after their first spawning run (Chum, Sockeye, Chinook, Pink, Coho). Note: the Salmon Family (*Salmonidae*) also includes various species of whitefish, trout (including lake trout), Arctic char and graylings. All are freshwater breeders. Other members of this family found in the upper reaches if the Credit include brown trout and brook trout. Lake trout are found in the lake. Atlantic salmon are more closely related to lake trout than they are to the Pacific salmon. The rainbow (or steelhead) trout is related to the Pacific salmon.**
- What is the major difference between Atlantic and Pacific salmon? **See above**
- What is the salmon migration? **The migration begins when the salmon hatch. The eggs take about 3 months to hatch. The hatchlings called *alevin* feed off of their yolk sacks for several weeks. Between 5 to 10 weeks the *fry* are swimming. *Parr* spend several months in the river. *Smolt* enter the ocean when they are 1 to 3 years old depending on the species. *Adults* spend 1 to 8 years in the ocean (or lake). Pacific *Spawning adults* die after spawning. This is the full migration but we see only the spawning run and refer to it as the salmon migration.**
- When does it occur? **If you want to see the spawning run of the Chinook salmon in the Credit River it occurs sometime between late August and December. The exact timing depends on when a heavy rainfall occurs. The flooding river washes the scent of the river into the lake and this smell is something the fish remember. They then head up river to spawn.**
- What is spawning? **The female selects a male to mate with. She uses her tail to clear out mud and silt from a gravel bed and then releases her eggs. Milt? Milt is male sperm. He releases it into the water and the sperm and eggs meet to fertilize the eggs. Redd? The clean gravel bed where the eggs will hatch.**
- When were Chinook salmon introduced into the Great Lakes? **1950's in Lake Michigan**
- Why were Chinook salmon introduced into the Great Lakes? **To provide a viable sport fishing industry.**
- What other salmon were introduced into the Great Lakes? **Coho, Pink**
- How did people think they could manage them? **The fish were stocked from fish hatcheries. Biologists thought if they just stopped releasing more fish the introduced fish would die off because the rivers were too polluted. Did this prove to be the case? No. Why? Why not? The fish were able to breed in some streams.**
- What happened to the Ontario salmon? **It was a land-locked race of Atlantic salmon that entered Lake Ontario at the end of the last ice age. As the water receded it was stuck here. When the settlers dammed up the streams (the Credit had 16 dams) the fishes spawning habitat was destroyed. They became extirpated in the late 1800's.**
- What are the problems with reintroducing them? **The smell of dead salmon along the river certainly got many complaints however the main issue was the impact of the introduced salmon on the native species. Since Atlantic salmon do not die after spawning the hope was that they would replace the introduced salmon species. However another fish from the Atlantic entered Lake Ontario via the Erie Canal/ Hudson River waterway. The alewife is a small fish but when**

Atlantic salmon fed on these fish there was an unexpected side-effect. Chemicals in the alewife's body caused the Atlantic salmon to be unable to deposit fertile eggs.

- Can these salmon be consumed? Yes but only the smaller fish, not large ones and even these should not be eaten by women who are planning to have children. The fish carry pollutants that they picked up while feeding on Lake Ontario. Check the fishing regulations for more specific guidelines.
- What effect do they have on the river's ecosystem? The salmon of all species provide recreational activities for the public; fishing, fish viewing. They are an important source of food for wildlife ranging from insects, crayfish, other fish, birds and mammals. They provided needed nutrients for the river and for both aquatic and terrestrial plants. They help control lamprey eel populations. On the negative side the dead fish are smelly. The living fish compete with native species and they are an invasive species.
- What are the fishing regulations around salmon? Please visit the two sites below for up to date regulations as these may change.

www.ontario.ca/document/2015-ontario-fishing-regulations-summary

<http://www.creditvalleyca.ca/enjoy-the-outdoors/activities/fishing/fishing-regulations/>



Questions on Brown Bear/Red Salmon and Credit River Salmon

- When the salmon return to their native streams and rivers on the west coast to spawn what predators do they meet on their journey? In the ocean? Along the river?
Ocean: Orca, Sea lions, Seals, Bald Eagles, Sharks, Commercial and Sport Fisheries
River: Brown (Grizzly) Bears, Gray Wolves, Bald Eagles, Sport Fishing
- What physical barriers do the west coast salmon face as they journey up stream?
Water falls, shallow water, blocked access to spawning beds (dams, fallen logs)
- When the salmon return to their native streams and rivers that feed Lake Ontario to spawn what predators do they meet on their journey?
Coyote, Raccoon, Osprey, Sport Fishing
- What physical barriers do the Lake Ontario salmon face as they journey up stream?
Dams, shallow water, small waterfalls
- What would a food chain look like for west coast salmon's ecosystem?
Krill>small fish>salmon>sharks>sea lion>orca (Ocean)
Salmon>Bald Eagle>Wolf>Bears (Rivers)
- What would a food chain look like for Lake Ontario salmon's ecosystem?
Algae>small fish>salmon (Lake)
Salmon>Osprey>Coyote (River)
- Why are salmon important to their ecosystems?
Salmon are a source of food for many animals, their bodies provide nutrients for both water and land ecosystems, they enrich the soil for the forests
- Why are healthy salmon runs important to people?
Historically an important food source for indigenous and later, settlers. Now: Commercial fisheries and Sport Fishing, They are part of a healthy environment
- How would the Lake Ontario's salmon ecosystem have looked 200 years ago?
- Deeper and clearer rivers and streams, huge runs of Ontario (Atlantic) salmon, predators would include indigenous peoples who relied on the seasonal runs, black bears, wolves, and large numbers of Bald Eagles. Large intact stretches of forests/