

FROM POLLUTION TO SOLUTION

Background Information on the Fraser River

The Fraser River starts as a trickle of melted snow at the top of Mount Robson which is in the Rocky Mountains, sitting on the border of British Columbia and Alberta. The river travels 1,375 kilometers through BC and empties into the Pacific Ocean. There are many tributaries (a river or stream that flows into a larger river or lake) that add water to the Fraser as it travels through BC. The Fraser River is longest river in BC, and one of the largest in all of Canada.

The landscapes of the Fraser River change from the beginning of its journey to its end. As you exit the headwaters on Mount Robson the water is crystal clear, shallow, and extremely cold. The middle portion of the river is called the Fraser Canyon, where the river is squeezed between mountain ranges, increasing the speed, and creating many impressive rapids. The point at which the fresh water of the Fraser River meets the salty water of the Pacific Ocean is called the estuary. Because estuaries have access to both riparian (river) and marine nutrients, they are home to an incredible diversity of life. The lower mainland is located in the estuary portion of the Fraser River.

Indigenous people have been living in what we now call Canada for time immemorial, meaning that Indigenous communities have no stories of arriving here. They have always been here. There are many different First Nations along the River; each group is unique, with their own language or dialect, specific traditions, particular relationships with the landscape, stories, etc. The river has been used by Indigenous communities for thousands of years and they have specialized technologies, traditions and celebrations related to the river, nature, and biodiversity. Hul'q'umi'num', Halq'eméylem, and hənq̓əminəm' are Indigenous language dialects spoken in the lower portion of the Fraser River. In Halq'eméylem, the language dialect spoken in the upper portion of the lower Fraser, the word for river is Stolo. In hənq̓əminəm', a language dialect spoken in the lower portion of the lower Fraser, the word for river is stalə w'. Indigenous communities throughout BC speak other languages and dialects and will have other names for the river. The Fraser River Discovery Centre is located on the traditional and unceded territory of the hənq̓əminəm' and Halq'eméylem speaking peoples. Territory acknowledgement is one small part of Reconciliation. We ask you take a moment to think of other ways you can participate in Reconciliation with Indigenous communities.

The River is also now known as the Fraser River, named after Simon Fraser, a European fur trader and explorer who led an expedition in 1808 along the river, establishing trade routes for what is now called the Hudson Bay Company. The Fraser River Basin is an extremely biodiverse region, with hundreds of species of plants, animals, and fungi. The major habitat types along the Fraser River include brackish and freshwater marshes, salt marshes, tidal flats, sloughs, and flood-plain forests among others.

The Fraser River watershed is also home to 60% of BC's population, approximately 3 million people. A watershed is an area of land that drains all the water into one main river. You could imagine this as the watershed being a sink, and the Fraser River the drain; anything poured along the sides of the sink will end up in the drain, just like all the rivers and streams around the watershed end up in the Fraser River.

Program Overview

In this program, students learn through play about pollution in the Fraser River Basin, and about how we can help. A short presentation introduces students to key concepts, then the class breaks into smaller groups to play two games exploring how plastic pollution impacts birds, and about Fin Donnelly's marathon swim of the Fraser River to raise awareness about pollution.

The 90-minute program begins outside along the river where students can observe their surroundings and everything that is happening along the river. They will then be given a brief introductory presentation before being split into two groups and rotating through the following stations:

- Swim Like Fin
- *Plastic in the Fraser*
- *Journey of the Blob* (As a class)

Program Objectives

- To understand the importance of the actions of the individual
- To acknowledge the importance of the river as a habitat for animals as well as a home and workplace for humans
- To teach students to be responsible for their actions
- To understand how pollution happens along the Fraser River
- To find solutions to some of the pollution that takes place along the river

Helpful Vocabulary

Pollution: A substance that causes harm to living things and the environment.

Ecosystem: a biological community of interacting organisms and their physical environment.

Effluent: liquid waste or sewage discharged into a river or the sea.

Greenhouse Gas Effect: a phenomenon in which the atmosphere of a planet traps radiation emitted by its sun, caused by gases such as carbon dioxide, water vapor, and methane that allow incoming sunlight to pass through but retain heat radiated back from the planet's surface.

Pesticides: a substance used for destroying insects or other organisms harmful to cultivated plants or to animals.

River basin: the portion of land drained by a river and its tributaries.

Sustainable: using something in way that it will not be completely used up or destroyed

Microplastics: fragments of any type of plastic less than 5 mm in length

Pre-Tip Activities

1. Students should be able to recognize the Fraser River on a map. Have students identify the major cities and tributaries of the Fraser River.
2. Pollution is something that doesn't belong in the land, air or water. Begin to explore this idea by reading through the story *A Place for Plastic* by Twinkl. If you have a Twinkl account, you can read it there. If not, you can use [this read-aloud video](#), and choose to either play the audio, or mute the video and read it aloud yourself. Take time after the story to discuss with your students why plastic doesn't belong in the environment, and where it belongs.
3. In one of the activities, we will discuss how plastic pollution can be very dangerous to animals. The videos below give a great overview of what plastic pollution is and the impact it can have on the environment.
 - a. [What is Plastic Pollution](#)
 - b. [How Plastic Hurts the World](#)

Post-Tip Activities

1. At the end of the Swim Like Fin activity, we brainstormed what our special talents are, and how we can use them to help solve big problems like pollution. In this creative activity, students will turn that special talent into a superhero! They should start by developing their hero's powers and backstory. Then, they can pit their hero against a big problem like pollution, climate change, deforestation, ocean acidification, etc. in a comic strip, short story, poem, illustration, model, or whatever creative medium they choose!
2. The Watershed CPR Education Program is a self-guided, virtual learning experience all about the Fraser River, created by the Rivershed Society of BC. In this virtual experience, users are introduced to the three pillars of Watershed CPR—Connect, Protect, and Restore—through a series of engaging activities and interactives about the Fraser Watershed. Users will learn about the flora and fauna that inhabit the Fraser; the First Nations who have lived in this area since time immemorial; some of the conservation issues affecting the watershed; and how to “perform Watershed CPR” and become a Watershed Defender. [Start your journey here!](#)
3. In the program, students learned about plastic pollution and the impact plastic can have on animals especially birds. At the end of the activity students started to have a discussion on what humans can do to reduce the amount of plastic in the environment and were introduced to ideas of recycling, reusing, reducing, refusing, and repurposing. Continue these ideas by creating posters or other displays on how to reduce pollution in the river and our environment.

4. Plastic items can have many lives. Explore the practice of reusing and repurposing plastic by reading or watching [The Life of A Little Plastic Bottle](#) by Suzanne Fossey. After the story, discuss with students the different things we can do with plastic to avoid using it only one time. Project ideas could include but not limited to:
 - a. Water Bottle Bird Feeders
 - b. Create art with plastic
 - c. Have students create their own stories for the life of a piece of plastic or plastic item