

A challenged river



An aerial view of the mighty Fraser River in Chilliwack looking west.

Jenna Hauck/Black Press

By [Ashley Wray - Abbotsford News](#)

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The Fraser River is many things. It's a massive conveyer of water – moving 800,000 gallons per second into the Strait of Georgia and the Pacific Ocean. It's a freshwater source, home to numerous species of fish. And, it's an instrument of change, shifting gravel bars and moving sediment – making the Fraser Valley what it is today.

Within its 1,370-kilometre odyssey through B.C. – making it the longest river in the province and the 10th longest in the world – dwells an intricate and vast ecosystem.

It is host to a spawning run of more than 10 million pink salmon, the largest in B.C., and is a migration corridor for some of the largest runs of sockeye salmon in North America.

It also contains more than 30 different species of fish, affecting countless other life cycles – from feeding myriad creatures to fertilizing the forests.

Yet, the river's capacity to continue supporting this vast ecosystem is threatened by a number of factors.

From climate change to pollution, the river and the life dependent upon it are struggling to adapt to the changing temperatures and water levels, and the various impurities dumped by industries and residents.

Climate Change

The stretch of the Fraser between Hope and Abbotsford is the most productive area in terms of biodiversity and sustaining life, according to John Vissers of the Fraser Valley Conservancy.

He said there's no question climate change is taking place, resulting in dramatically lower salmon spawning numbers and negative effects upon the river's surrounding environment.

Vissers points to two major trends – water warming and water levels.

warming Water

According to Vissers, the Fraser River recorded its highest water temperatures within the last decade. Dr. Craig Orr, a professional ecologist and executive director of Watershed Watch, said the Fraser River has warmed by a degree and a half Celsius. While it doesn't seem like a lot, the change is staggering for the fish, he said.

The warmer water makes it difficult for salmon to swim upstream to spawn, resulting in a smaller run. According to Orr, the increased level of thermal stress on sockeye, once they re-enter the Fraser, translates into a high mortality rate.

Other species dependent on the Fraser River for survival also suffer from this warming trend.

Fewer fish making it upstream results in less food following the spawning process, as salmon die and float downstream to be picked up by bears and other animals.

This affects the forests as well, says Vissers – when animals drag the fish into the woods to eat, it puts nutrients into the ground and trees.

Orr believes it is vitally important to protect groundwater to help maintain flow and temperature in streams and creeks converging into the Fraser River. Groundwater is stable in temperature and helps prevent fish eggs from freezing in the winter and boiling in the summer. Currently, there's little protection for groundwater – licenses exist for extracting surface water from streams and lakes, but not for groundwater found in aquifers and wells.

Water level

The Fraser River and the streams and creeks that feed it have been experiencing fluctuating water levels, which have also affected the spawning process.

Warmer average temperatures, particularly in winter, cause snow on surrounding mountains to melt sooner. This causes an early peak of high water levels, which salmon require for spawning. That leaves the fish with a low water level during the run period.

Salmon are not able to swim upstream in lower water levels, and in some instances, the spawning routes dry up and are no longer accessible. Shallow water also warms more quickly, causing further problems.

The fish are not able to adapt with the changing weather.

“They have a genetic memory and know when it's time to travel upstream to spawn – they are hard-wired. But they all die before they can reach that point,” said Vissers.

“It's also the unreliability of the seasons – these species are dependent on a reliable climate and they are losing that.”

Vissers believes climate change will continue to alter the Fraser, and salmon may soon not be able to exist in

those conditions.

Pollution

The Fraser River and the creeks, streams and other water sources that flow into it, have many mediums polluting them on a daily basis. As a doorstep to more than two million people, the river faces contamination from industrial dumping, sewage, agricultural run-off, development, and dumping by residents. According to Abbotsford Coun. Patricia Ross, each of those pollutants is a cause for concern, along with legislation to keep it under control. But the biggest issue is lack of education: many people don't realize that water from creeks, streams and storm drains flows directly into the Fraser River without treatment.

Industry

In terms of industrial dumping along the Fraser River, it's not as bad as one might expect, according to an Abbotsford city staff member who said most industries along the river are located closer to Metro Vancouver.

In addition, a majority of the Fraser River that passes through the Valley has a park flanking it, preventing industrial access. The biggest issue is toxins draining into storm systems, creeks and streams, and usually, it's very difficult to link the dumping back to an individual or business.

Sewage

The Joint Abbotsford Mission Environmental Systems Wastewater Treatment Plant (JAMES Plant) provides some of the best sewage treatment in the province.

The treatment is at a secondary level, putting sewage through a biological process, and purifying the water so it has less negative impact on the environment. Chilliwack has a similar, high-quality treatment method.

In addition, the Abbotsford/Mission plant works with local industries, educating them on what they put into waste water. The goal is to reduce substances such as mercury and metals which are difficult to treat in a plant.

While the JAMES plant is also responsible for storm drain water, it is not treated before it meets the Fraser.

Agriculture

With agriculture being a large part of the Fraser Valley's economy, it also contributes to pollution. Many farms indirectly contaminate the river with pesticides, fertilizers and run-off from liquid manure which enters streams and creeks.

Development

Development is another source of river pollution. Often, sediment is distributed from construction sites into the Fraser River via streams and storm drains. As dirt is typically exposed on work sites, rain washes it into the storm systems. The dirty water, which often carries various other materials, can have an impact on aquatic life and can also increase the flood risk.

Residents

Some of the biggest polluters of the Fraser River are unknowing homeowners.

According to Ross, residents need to be cognizant that what they do in their backyards has an impact on the river, from dumping oil or grease in the streams where fish rear; to washing cars, which results in soaps entering storm drains.

Residential use of excessive fertilizer and pesticides also pollute the water, via groundwater and storm drains.

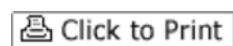
There are numerous provincial and federal pieces of legislation, as well as municipal, that protect aquatic species against sediment and other deleterious substances.

The difficulty is monitoring and enforcement, says Ross.

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