

# Visual Tour of the Lower Fraser Basin

This page contains a visual tour of the Lower Fraser Basin and a description of the major issues, including population growth, urbanization, and waste management. Images are shown as thumbnails, hyperlinked to larger GIF or JPEG files of around 130K.

## Geography



The Lower Fraser Basin is located in Southwestern British Columbia, Canada. It stretches from Hope to the Strait of Georgia and from the North Shore Mountains to the US border. Vancouver is the dominant city and a major port on the Pacific Rim.

[satellite image of the Lower Fraser Basin](#)

## Watershed

The Lower Fraser is part of the Fraser River which starts in the Rocky Mountains. The area downstream of Hope was chosen as study area because many of the development pressures (agriculture, industry, urbanization) are concentrated here. The Lower Fraser Basin is defined by watershed boundaries, encompassing the whole area contributing to the drainage into the watercourses.



[airial view eastwards up the Fraser River](#)

This watershed approach is also used for the study of smaller regions within the Lower Fraser Basin: several [case-study watersheds](#) are the focus of more detailed study. A watershed approach is very meaningful for the analysis of the biophysical aspects of the region, but social, economic and institutional boundaries do not often coincide with watersheds. This presents challenges to investigating the many dimensions of sustainability.

## Population

The basin is currently home to approximately two million people. The relatively prosperous economic conditions, the temperate climate and the Westcoast life-style continue to attract people from across Canada and abroad. The Lower Fraser Basin is one of the fastest growing regions in North America and, if current trends continue, the population could rise to more than four million by the year 2030 (double the current population). Crucial choices have to be made if the region is to accommodate this growth.

## Changing economy

Forestry and exploitation of other natural resources have traditionally dominated the economy of the province and still account for the bulk of the regions' trade. Vancouver is the largest port on the Westcoast of the continent and a major trading centre of the Pacific Rim. Several other sectors are also becoming important, including tourism and financial services, but the dependence on natural resources is still a prominent feature of the region.



### [Vancouver's port](#)

## Changing ethnicity



Canada has always been a country of immigrants and the Lower Fraser Basin is no exception. Immigration from abroad accounts for roughly one-third of the population growth in the region, but its impact goes beyond these numbers: the rapidly changing ethnicity presents new and different social challenges. The biggest social transformation in recent years has been the unprecedented wave of Hong Kong immigrants: the Vancouver area is now home to 253,000 Chinese Canadians.

### [Chinatown](#)

## Agriculture

The basin is home to some of the most productive lands in Canada and is one of the major agricultural centres for British Columbia. The pressures on agriculture, however, are many. First, there is increasing pressure on the land for the accommodation of the increasing population. Currently, agriculture land is protected under the Agricultural Land Reserve. Second, international agreements such as NAFTA have made farming in Canada a very uncertain way of life. Third, increasing animal densities have led to intensifications of land use, to the point where pesticide application and manure handling have become a prime environmental concern. Density restrictions and other waste management guidelines will definitely play a role in shaping the future of agriculture in the basin.

## Urbanization



The impacts of urbanization on ecosystems can be disastrous, and with the growing population urbanization will continue to be a major issue. The stream stewardship program initiated by various environmental agencies provides new opportunities to incorporate conservation into urban planning, and several other attempts are underway to preserve the existing green zone while accommodating more people. Slowly, a vision of compact, complete communities is developing. Nevertheless, the impacts of urbanization will become more pressing, and a critical re-evaluation of our current lifestyles will be required if we are serious about preserving the functions of natural areas.

### [Vancouver skyline with snowcapped mountains](#)

In the study of the [Brunette River Watershed](#), one of the case-study watersheds in the Lower Fraser Basin, the impacts of urbanization on the health of the local watercourses are documented and reveal very significant and to a large extent irreversible changes.

## Transportation

Transportation is an important contributing factor in energy and material consumption, as well as in the generation of air and water pollution. Despite efforts to improve public transportation, the reliance on the private automobile has increased in

recent years. Due to urban sprawl and congestion on the main roads, the average commuter now travels over longer distances and slower than several years ago. Commuting on a daily basis into Vancouver from as far away as Abbotsford has become quite common. Many programs are underway to reverse this, including a variety of rapid transit options, High Occupancy Vehicle lanes, car-pooling programs, and the stimulation of bicycling and walking. Limited progress has so far been made in the design of more complete communities which would reduce the need to commute.



*[seabus crossing](#) connecting downtown Vancouver with North Vancouver across Burrard Inlet*



*[Skytrain](#) connecting downtown Vancouver with Burnaby, New Westminster and Surrey*

### **Waste management**

The steadily increasing levels of human activity have resulted in significant waste management problems in both air pollution, wastewater and solid waste. Problems have not been limited to one particular sector: agricultural wastes, industrial discharges, household solid and liquid waste, and transport related emissions have all risen significantly. Increasingly, there are signs that the assimilative capacity of the local ecosystems is being exceeded and that the quality of air and water is deteriorating. Many efforts are underway to deal with these waste management problem, but are often both costly and difficult to implement.

### **Air quality**

General air quality in the Lower Fraser Basin has deteriorated over the last decade or so, primarily as a result of increased transportation. On clear days smog can be seen travelling up the valley with adverse effect for humans and crops. Of all environmental issues, air quality has received the most attention and government programs to deal with the problems, such as AirCare, enjoy relatively widespread public support. However, greater improvements are required to off-set the expected increases in human activity levels in the region. Government programs are currently aiming at improved public transport, cleaner fuels, and lower emission vehicles.



## Water quality

Water quality is a crucial indicator in establishing the health of the Lower Fraser Basin ecosystem. Water is the integrator of activities in the basin, and the effect of almost all activities will ultimately be felt in the watercourses. Water quality is of prime importance to the productivity of the aquatic ecosystems and to their potential as a resource for drinking water, recreation and other non-consumptive uses.



*contaminated water warning sign*

Water quality is being affected by many different activities in the Basin, including municipal sewage discharges, industrial wastewater discharges, agricultural discharges and a variety of other non-point sources of pollution. Although the overall picture of water quality in the region is relatively good, there are some "hot-spots" where there is evidence of significant stress on local watercourses resulting from intense human activities. Detailed [watershed case-studies](#) can help us understand what might happen if development pressures continue.

## Biodiversity

The Lower Fraser Basin is home to a very abundant plant- and wildlife. The Fraser River Estuary especially provides a rich breeding and nursing ground to numerous unique species. Changing landuses -from forestry to agriculture to urbanization- and other human activities have already significantly altered the natural landscape and the species composition and abundance in both terrestrial and aquatic ecosystems. While many efforts are underway to prevent further destruction of ecologically significant areas, the combined effects of habitat alteration and discharges of pollutants in the region's ecosystem will most likely continue to affect the biodiversity of the basin.



*[Fish health assessment](#) by visually determining pathological abnormalities. Despite the high frequency of visually abnormal tissues, other studies have not indicated particularly high contaminant burdens for fish in the Lower*

*Fraser River. More information can be found under the [biophysical analysis of the](#)*

*main Lower Fraser.*



*[Erythronium oregonum](#), or Easter-lilly, one of the threatened plant species in the region*

### **First nations**

The Lower Fraser Basin is home to many First Nation groups. As the original inhabitants of the region these groups have special rights with respect to the natural resources of the basin. But although this is recognized by the various levels of government and other stakeholders, exactly how these rights should be exercised has been and will continue to be controversial. Currently, the First Nations groups in the basin have control over a number of reserves and have been allocated a share of the fisheries resource in the Aboriginal Fisheries Strategy. Until the recently initiated treaty negotiations in British Columbia to settle landclaims provide some clarity, the First Nations people will remain an uncertain factor in the future of the governance of resources in the region.

### **Decision-making and governance**

Establishing effective and participatory decision-making processes is key to achieving sustainability in the Lower Fraser Basin. Sustainability, however, is almost never the focus of any particular decision, but is embedded in many other decisions on land-use, transportation, health care, education, economic policy, etc. Although environmental concerns have been relatively high on the political agenda, the linkages between sustainability and day-to-day decisions, by politicians, business organizations and individuals, are not explicitly addressed.

Several consensus based multi-stakeholder decision-making processes have been established in recent years, to increase public awareness and participation, and to bring concerns over the sustainability of the region more into the picture. Such efforts have resulted in new and innovative partnerships which should help the region in integrating social, economic and ecological concerns. Examples are the Howe Sound Round Table, the Fraser Basin Management Program and the Salmon River Watershed Partnership.

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