

Environmental Trends in British Columbia: 2007

Impacts of a Growing Population



Photo: Ministry of Transportation & Highways

British Columbia's growing population

In 1941, British Columbia was home to about 818,000 people. Since then, the population has grown by 427% and as of 2007, B.C. is now home to over 4.6 million people.

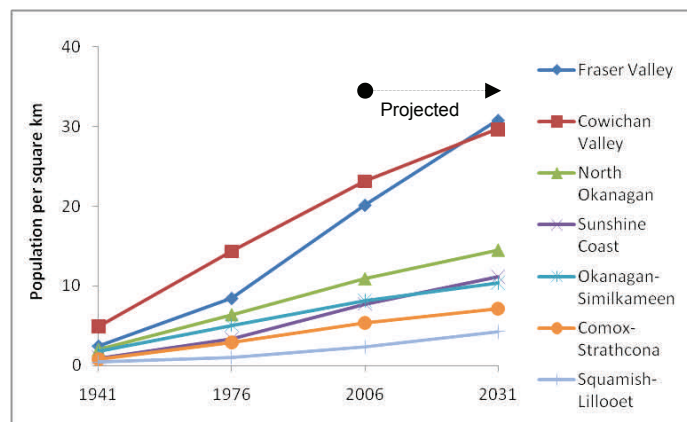
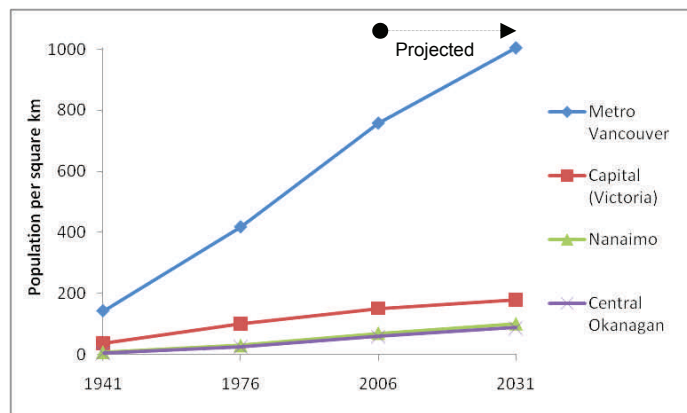
By 2030, B.C.'s population is expected to grow another 30% to 5.5 million people.

As the number of people living in the province grows, pressure on the environment increases. More land is used for development, the demand for water and other resources grows, and a greater amount of sewage, solid waste and pollutants are produced.

The greatest pressures on B.C.'s land and water are likely to be in regions with the greatest density of people.

- Metro Vancouver has the highest population density (758 people per km² in 2006), almost double what it was in 1976 (417 people per km²).
- The Capital Regional District (Victoria), and Nanaimo and Central Okanagan regional districts are the next fastest growing regions.
- Over the next 25 years high growth rates are projected for the Fraser Valley and Cowichan Valley; the southern coast and Okanagan regions will also continue to grow.

Population density and future projections in BC's most populated regional districts



Source: BC Stats 2004

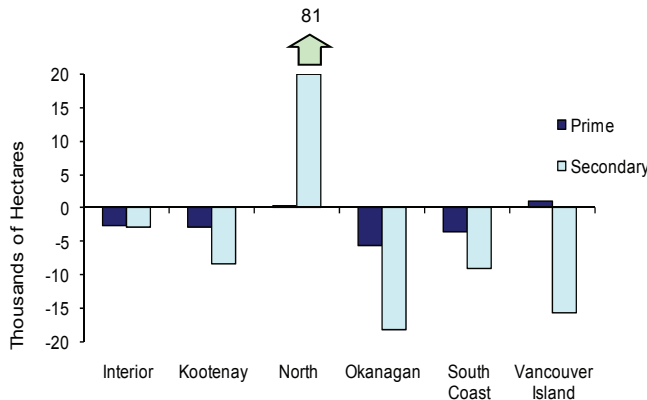
The following indicators show some of the pressures on B.C.'s environment from the growing population and some of the programs to lessen these pressures.

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Changes in the Agricultural Land Reserve

The Agricultural Land Reserve (ALR) was established in 1974 to protect agricultural land in British Columbia from being lost to growing urbanization and other development. Climate, topography and soils determine the value of agricultural lands. Land in the prime agricultural capability category can grow a larger range of crops but secondary agricultural land is also important for grazing and other special crops.

Net change in agricultural capability category of the ALR by region, 1974 – 2000.



Source: Agricultural Land Commission 2000

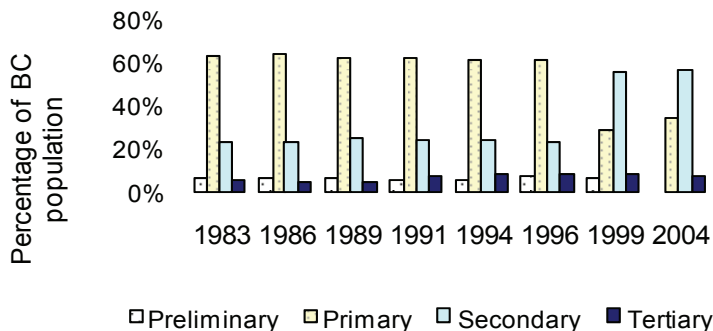
- In 2007, there were 4.76 million hectares of land in the ALR.
- Since 1974, about 13,000 hectares of prime land have been removed.
- The loss of prime agricultural land is most noticeable in the Okanagan and South Coast where population is the highest and land is under increasing demand for development.
- Losses of secondary agricultural land have occurred in all regions except the North, where in 2002 a large area of Crown land was converted to ALR.

Municipal wastewater treatment in British Columbia

Wastewater is treated to protect human health and reduce stress on the environment. The level of treatment used by a municipality is an indicator of the amount of pollutants discharged to the environment in sewage effluent.

In 1999, there was a large increase in proportion of the B.C. population with secondary treatment when the Annacis Island and Lulu treatment plants were upgraded. Since 1999 there has been little change in treatment levels.

Proportion of the B.C. population served by each level of wastewater treatment



Sources: Environment Canada and BC Ministry of Water, Land & Air Protection

Wastewater Treatment Levels

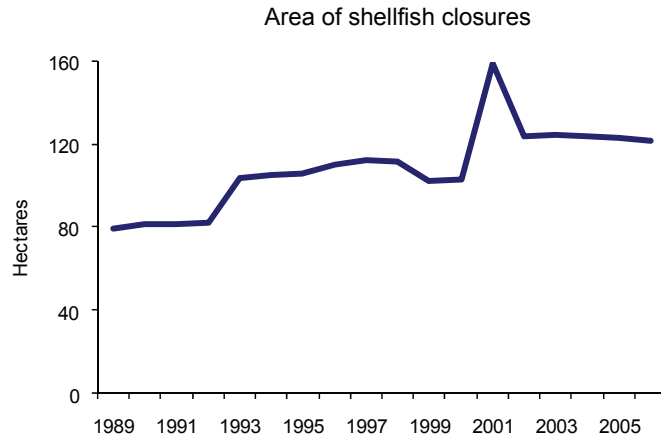
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| Preliminary: | Grit and solid material are screened out before the sewage is released into the environment. |
| Primary: | Solids are separated from the liquids; oil and grease are skimmed off the surface |
| Secondary: | A reduction in the amount of contaminants by fostering consumption of organic material by organisms in the wastewater. |
| Tertiary: | Further treatment to reduce total suspended solids, biological oxygen demand (BOD) and specific contaminants. Waste water with high BOD will reduce dissolved oxygen concentrations in receiving water bodies and can therefore harm fish and other aquatic life that require dissolved oxygen to survive. |

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Shellfish closures due to sewage contamination

Shellfish beds are closed when they are found to be contaminated with fecal coliform bacteria. These bacteria come from sewage discharge as well as urban runoff, agricultural drainage and occasionally wildlife sources.

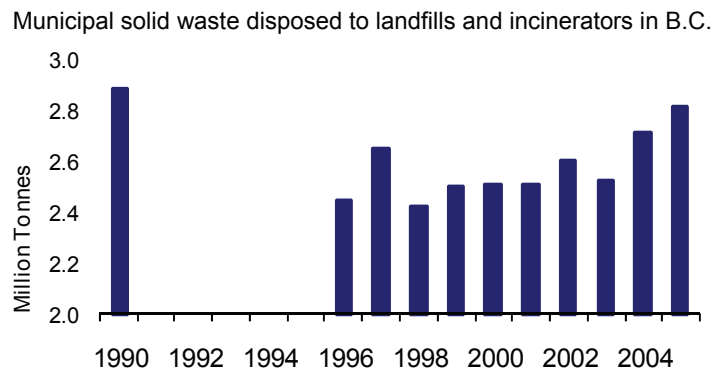
- Closures to shellfish harvest on the B.C. coast have been stable since 2002.
- The spike in 2001 reflects a 46,000 hectare temporary closure in Clayoquot and Barkley Sounds that is believed to have been caused by contamination from wildlife sources.
- In recent years, Georgia Basin locations represented 58% of the area closed to shellfish harvesting.
- Outside the Georgia Basin, the areas closed to shellfish harvesting tripled from 1989 to 2004. This is partly due to expanded monitoring programs, but it is also directly linked to the increasing population and growing development along shorelines.



Source: Environment Canada

Municipal solid waste disposed

The amount of solid waste in landfills reflects British Columbians' consumption patterns and represents wasted resources and wasted energy. It is also a potential source of contamination for groundwater, soil, and the air. Recycling and waste diversion programs have been in place in some parts of the province for more than 15 years.



Source: Recycling Council of British Columbia 2004 and 2007

- From 1990 to 2005, the total amount of disposed waste has been reduced by 2.4 %, even though the population grew by 29 %.
- Between 2004 and 2005, the population increased by 1.3 %, but there was a 3.9 % increase in the amount of waste that ended up in landfills and incinerators. This means there is an increasing amount of waste disposed per person.

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Waste diversion through industry-led product stewardship programs

Some industries are now taking responsibility for managing the lifecycle of their products (from design to manufacturing through recycling and safe disposal of the product). Product stewardship helps reduce the amount of waste sent to landfills and lessens the pollutants ending up in the environment.

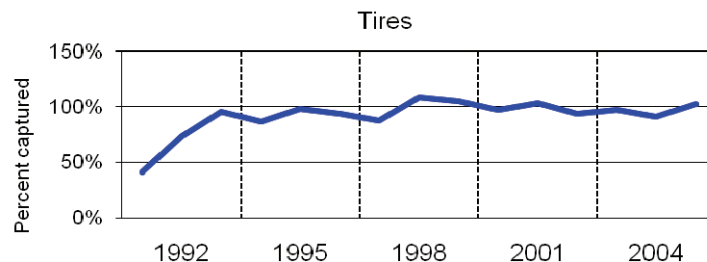
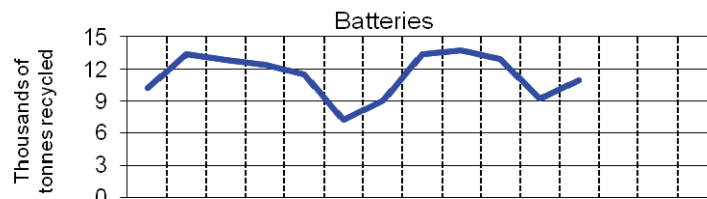
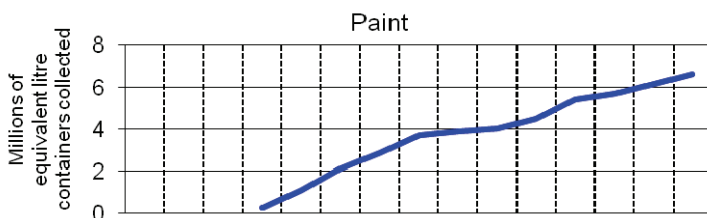
B.C. has eight established industry-led product stewardship programs:

1. Household paint, solvents, flammable liquids, gasoline, pesticides
2. Tree-marking paint
3. Used oil, oil filters and oil containers
4. Scrap tires
5. Lead-acid batteries
6. Beverage containers
7. Medications
8. Electronic products

It is difficult to assess the success of these programs. Most programs do not track total sales of a product so it is not possible to determine what proportion of products are recycled or recovered by the stewardship programs.

- Sales data are collected for tires, however, and recovered tires have been consistently close to 100% of the number sold in B.C.
- Records for most of these established programs show that a large volume of hazardous and non-biodegradable products has been diverted from landfills.

Quantities of products recycled in three key industry stewardship programs in B.C. [Note different measurements and scale for each graph].



Source: Recycling Council of British Columbia 2004 and 2007



Note: Where tire recovery is more than 100 per cent of tires sold, it was due to recycling of previously stockpiled tires.

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Intensity of conventional energy use in economic activity

Our economic activities use energy and all energy production, transmission, and use has some type of environmental impact. For example, burning fossil fuels emits air pollutants and greenhouse gases; large hydroelectric dams flood substantial areas of land.

One way to calculate the overall environmental impact of economic activity is **energy intensity**.

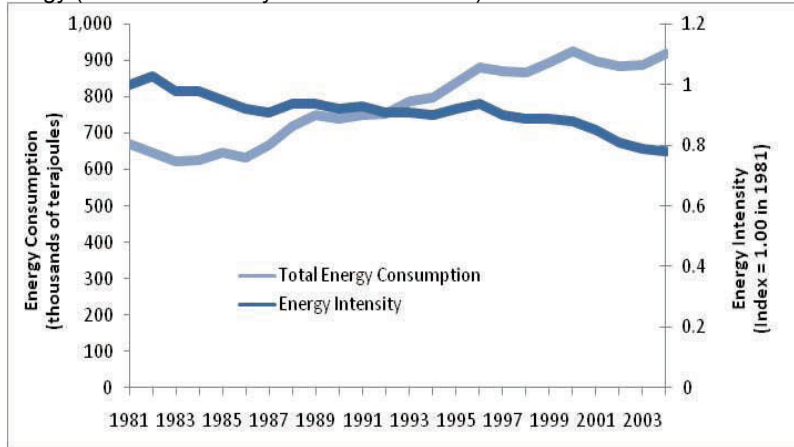
Energy intensity is the energy used per unit of GDP or gross domestic product, which is a measure of economic activity.

The GDP is the total dollar value of all goods and services made and purchased within one year by individuals and households, government, and businesses.



Photo: Ministry of Transportation & Highways

The intensity of conventional energy use and consumption of conventional energy (fossil fuels and hydroelectric sources) in B.C.



Sources: Energy: Statistics Canada; Gross Domestic Product: BC Stats 2007.



Photo: Ministry of Transportation & Highways

- From 1981 to 2004 the total energy used continuously increased, but energy intensity steadily decreased.
- Factors that reduce energy intensity include an economic shift towards less energy-intensive sectors, and increases in energy efficiency and in the use of alternative energy sources.
- This means the environmental impact per unit of economic activity (GDP) is lower, as it takes less energy to accomplish the same activity.

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Taking Action - What is being done?

Agriculture: Environmental Farm Plans and Beneficial Management Practices

From 2004 to 2006, B.C. growers completed 1,302 Environmental Farm Plans to identify environmental strengths and potential risks on their farms. They put in place 441 projects to enhance beneficial management practices, most of which were aimed at protecting water quality or quantity.



Photo: Ministry of Agriculture & Lands

Fisheries: Collaborative Management of Marine Fisheries

Several commercial and recreational fisheries in B.C. are moving toward collaborative management. The hake, herring, and tuna fisheries are currently the most advanced in the process and there is a high degree of collaboration in the management of rockfish, lingcod and sardines from the Strait of Georgia.

Forestry: Certification of Products

Third-party certification programs provide an incentive to forestry industries to operate sustainably according to a set of environmental and social standards. In Canada, four voluntary programs certify forests:

1. Forest Stewardship Council
2. Sustainable Forestry Initiative Program
3. Canadian Standards Association
4. Program for the Endorsement of Forest Certification Schemes

What can you do?

The actions of individuals count!

- Drive less: walk, take public transit, join a car pool, ride a bicycle, buy a fuel-efficient vehicle.
- Reduce consumption and disposal of unnecessary goods.
- Recycle materials, conserve energy and water, and reduce waste.
- Support “green” businesses and buy products certified for sustainability.
- Support and encourage sustainable practices at work or school.
- Get involved in local stewardship projects and community groups concerned with sustainability.



For detailed information on these and other indicators, including an in-depth report [pdf], see the Environmental Trends in British Columbia: 2007 website:

<http://www.env.gov.bc.ca/soe/et07/>