

Alive and Inseparable

British Columbia's Coastal Environment



Land and ocean are linked

The coastal zone, where land and ocean meet, is one of the most diverse and productive environments in the world. Moist Pacific air brings plentiful rainfall to the coastal forests, while streams carry nutrients from the land back into the ocean. Ocean currents also bring a rich supply of nutrients to shallower areas where abundant plankton become food for juvenile salmon, herring, and many other animals. Researchers have discovered that ocean nutrients, in the form of millions of returning salmon, also nourish the coastal ecosystems on land.

Salmon spawn in the streams and rivers along the coast. The tiny salmon fry migrate to the ocean where they spend years feeding on marine organisms before returning to their native streams to spawn. Bears and wolves feed on the returning salmon in streams and estuaries. They move huge numbers of partially eaten, spawned-out salmon into the surrounding forest. Many other animals, such as bald eagles, crows and ravens, gulls and even insects, use these left-overs as a food source. In watersheds with healthy salmon runs, a large part of the nitrogen in plants along streams comes from salmon carcasses.



PHOTO: COPYRIGHT STEVE PRIDGEON

Unfortunately, the land and ocean also share pollutants. When pollutants from activities on land are carried to the sea in storm water or in industrial discharges, they harm marine ecosystems. At the same time, emissions from marine vessels are a major source of air pollution in the Vancouver area.

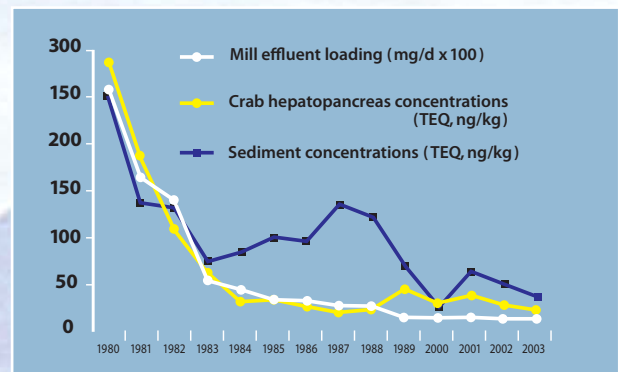
DID YOU KNOW: Globally, the biggest source (about 50%) of marine oil pollution is urban and industrial run-off entering storm drains and streams.

Industrial contaminants

Many of the worst contaminants still present in the environment were discharged in the first half of the last century. They were mostly used in industry or were by-products of burning or industrial processes. Many are now banned or strictly controlled.

Persistent organic pollutants are chemicals that remain for a very long time in the environment because they resist being broken down. When contaminated organisms are eaten by other animals, the compounds become more concentrated in the bodies of the predators.

Dioxins and furans are persistent chemicals that were discharged into coastal waters in pulp mill effluent. This was recognized as a problem in the 1980's and regulations were enacted to prohibit discharge of these compounds. With changes in mill technology, coastal pulp mills no longer discharge detectable levels of dioxins and furans to marine waters. As a result, the sediments and animals living near mills are also much less contaminated than they were 20 years ago.



Because they decompose very slowly, persistent contaminants already in the environment continue to circulate. Some are being transported through the atmosphere to B.C. from other parts of the world where they are still in use. New industrial contaminants also continue to emerge as issues. Researchers have found that West Coast killer whales are among the most contaminated marine mammals in the world.

DID YOU KNOW: Research in the US has found that the largest source of dioxin and furan emissions is now backyard burning of household trash.



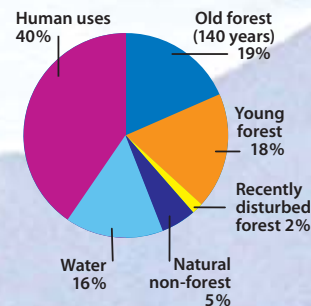
Population and economic activity

A healthy economy depends on healthy ecosystems.

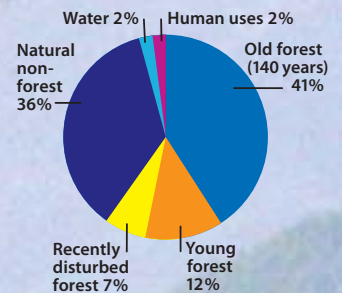
People along the coast depend on healthy ecosystems, both on land and in the ocean, for their livelihoods as well as for recreation and cultural pursuits. At the same time, it is people and their activities – transportation, industry, logging, fishing, urban development, agriculture – that put pressure on the surrounding ecosystems.

This pressure is greatest on B.C.'s southwest coast, where most people live. Over 40% of the land in the Greater Vancouver Regional District has been permanently altered by human uses (such as housing, transportation, agriculture). In contrast, only 2% of the vast land area of the B.C. coast has been permanently altered.

Greater Vancouver Regional District: 2002



British Columbia Coast: 1990s



To manage this expansion requires smart planning for sustainable communities and consumers willing to make choices that benefit the environment. The problem is urgent because the population is growing rapidly: by 2025, the coastal population is projected to increase by 29%, which is almost one million people.





DID YOU KNOW: B.C.'s newest protected area – the Great Bear Rainforest – was announced February 7, 2006. It totals 1.8 million hectares on the central and north coast. Strict controls on forestry and other activities will protect another four million hectares in the region.



PHOTO BY JOHN K. B. FORD

Ecosystem protection

Protected areas preserve wilderness and protect wildlife. Protected ecosystems are also vital to ensure the flow of clean water, control erosion and flooding, regulate the climate and protect resources that underpin economic activity. Not least, they also provide recreation, enjoyment and tourism income.

B.C. has almost twice as much protected land area (13.8% as of 2006) as the Canadian average (7.3%). Of the coastal ecosystems, the rugged and mountainous parts of the central coast are best represented.

Although only a small fraction of marine ecosystems are currently protected, this will more than double when the Gwaii Haanas National Marine Conservation Area Reserve is officially designated.

A critical issue for protected areas is maintaining connections to other undisturbed habitats. Roads are the largest source of disturbance, particularly in the Georgia Basin, where most protected areas contain roads or have them close to the boundary.

Biodiversity

The rugged B.C. coast, with its complex geography of deep fiords and countless islands, is home to animals that live nowhere else. It is one of the most biologically diverse areas in Canada.

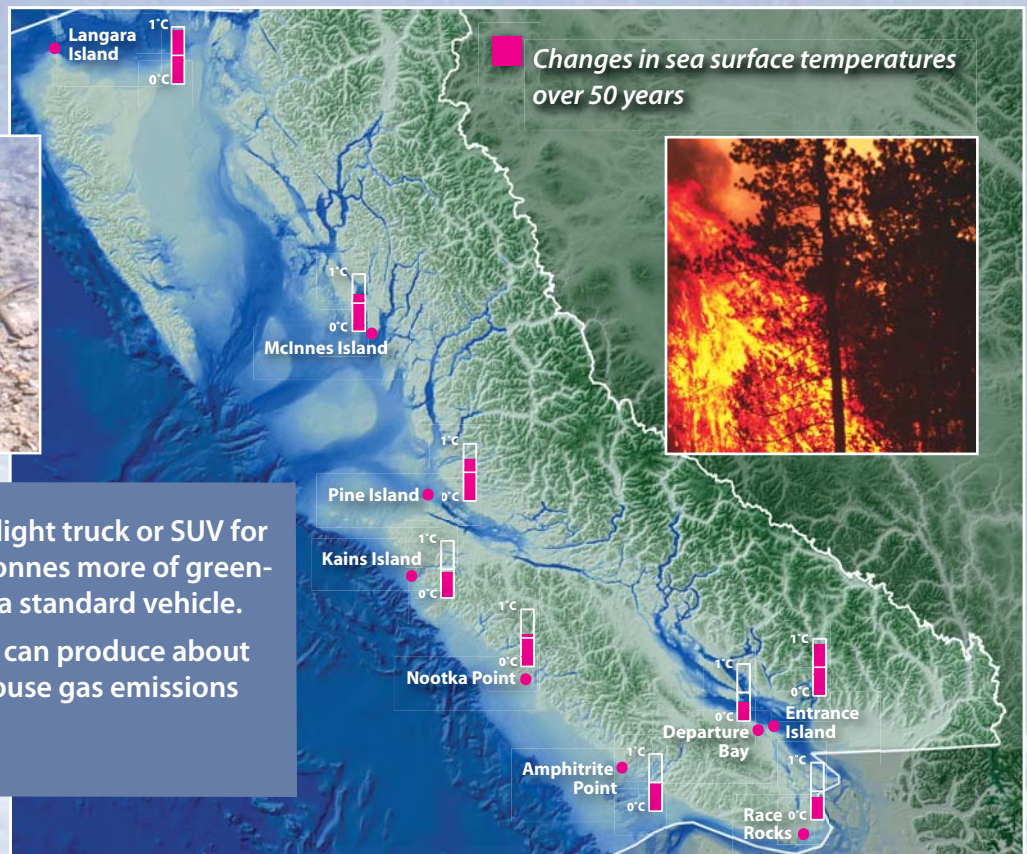
- Of all the species in B.C., two-thirds of the mammals and three-quarters of the freshwater fish live only in the coast region.
- One-quarter of all remaining coastal temperate rainforests in the world are found in B.C.

In 2005, 86 coastal B.C. species were listed as locally extinct, endangered, or threatened by the Committee on the Status of Endangered Wildlife in Canada. These unique species are under pressure from B.C.'s rapidly growing concentration of people and their activities, especially on the south coast.

Sea Otter Recovery: By 1929, the huge numbers of sea otters that formerly ranged the coast were driven to extinction in B.C. by the fur trade. Efforts to bring sea otters back to B.C. began in 1969 and now they number more than 2500 animals.



DID YOU KNOW: Driving a light truck or SUV for 25,000 km produces two tonnes more of greenhouse gasses than driving a standard vehicle. Idling for 10 minutes a day can produce about a quarter tonne of greenhouse gas emissions each year.



Climate change

The climate in B.C. has warmed noticeably over the past half-century. Average air temperatures are warmer and ocean temperatures have increased along the coast. Projections for the 21st century show a continuing warming pattern.

The climate is warming because rising concentrations of carbon dioxide and other greenhouse gases in the atmosphere trap more heat and warm the Earth. Burning fossil fuels releases carbon dioxide; in B.C., the largest source of greenhouse gas emissions comes from transportation, including commercial and private vehicles.

For B.C., the changing climate means:

- Concern about freshwater and hydroelectricity supply as snow pack and glaciers disappear in southern B.C.
- Warmer waters affecting productivity of lakes, streams and the ocean.
- Changing ecosystems and more severe natural disturbances, such as forest fires and pests.
- Increasing risk of damage from extreme weather and flooding in low-lying areas as sea levels rise.

About this project

In 2004, representatives from provincial and federal ministries and two universities began work on an ambitious project to report on the state of British Columbia's coastal environment. In the course of the project, over 140 people from 30 agencies and organizations were involved in producing six technical reports.

Visit the project website to see these reports and much more. It has everything from overviews and short summaries to the original data sets. The web site also provides links to more information on what individuals can do to reduce their impact on the environment.

See: www.env.gov.bc.ca/soe/bcce/



What you can do

Individuals Can Make a Difference

There are many things you can do to ensure that future generations enjoy clean water and air and healthy ecosystems. The actions of one person seem small, but when everyone helps out, the impact can be enormous.

- Drive less: walk, take public transport, ride a bicycle, join a car pool, buy a fuel efficient car.



As our urban populations grow, we must come to recognize automobile pollution as a health issue now, and as a survival issue for the planet in the longer term.
B.C. Public Health Officers Report 2003

- Reduce consumption and disposal of unnecessary goods.
- Recycle materials and compost organic waste.
- Buy locally grown food.
- Reduce energy and water consumption.

Reduce your home heating bills by up to 10 per cent, and greenhouse gas emissions by up to 0.5 tonnes per year, just by lowering the thermostat at night or when the house is unoccupied.

- Support sustainably harvested fisheries, forestry and other industries.
- Patronize "green" businesses.

The widespread awareness of "Dolphin Safe Tuna" reduced unnecessary dolphin deaths in eastern Pacific Ocean tuna fisheries by as much as 97% over 7 years.
Vancouver Aquarium

- Support workplace efforts towards sustainable business practices
- Experience nature with your family and become a life-long advocate for a healthy environment.



Smart Growth BC suggests:

- Get involved in local planning processes.
- Talk to neighbours and friends about sustainability in your community.
- Question politicians and candidates at election time about sustainability.
- Get involved with community groups that are concerned with sustainability issues.

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For thousands of years people have lived on the coast, depending on its rich diversity of living resources. From rainforests to kelp forests, B.C.'s coast supports many unique species of plants and animals.

The productivity of the coastal region is vital to the provincial economy.

The land and ocean are linked, sharing water, air, nutrients - and unfortunately, pollution.

How have we affected the coastal environment and what impacts have our activities had? What are we doing about it? What can YOU do about it?

For answers to these and other questions, see the B.C. State of Environment web site.



www.env.gov.bc.ca/soe/bcce/