



A letter from Gerry Giles, Chair of the CVRD Board of Directors

In 2007, the CVRD Board established an Environment Commission to provide it with advice for addressing environmental issues that fall within the Board's jurisdiction.

In a previous major report, the Commission worked with the CVRD to put forward "12 Big Ideas" to indicate where our communities should focus their efforts to have a positive influence on the condition of our regional environment.

During the past year a significant focus of the Commission has been on developing a means to measure the progress that is being made within the regional district to ensure that our environmental assets are healthy and sustainable. This inaugural State of the Environment Report – developed in collaboration with the CVRD – establishes a scientific baseline and a process for measuring and reporting the status of our important environmental values into the future.

The Commission contracted an experienced scientific team to develop sets of measurable indicators for a variety of environmental values. The team then searched for existing information that could be used to tell us where things currently stand. Their task was to use both historic and current data to analyze current conditions and emergent trends, and to suggest what would be needed in the future to fill information gaps that they discovered.

Their report is a sobering one. The team examined the status of water, air, fish, agricultural land, biodiversity, population and growth, the implications of climate change and the management of waste. The story that emerges is that the wonderful environment that has attracted so many of us to the Cowichan region is under stress and most trends are negative. Although we are addressing some of the critical issues, we continue to degrade many of our most precious assets and we need to pay attention.

The Commission believes that we need to re-double our environmental stewardship efforts, both to arrest the negative trends that have been measured and to restore values that are in danger of dipping below recovery thresholds. Fortunately, while the message is extremely cautionary, it is being delivered to a region that is already alive to the issues and organizing to address them. The Commission is aware of many initiatives from federal, provincial, regional district and municipal



levels that are leading in the right direction. It is also aware of a host of civic organizations that are actively pursuing programs of conservation, water management, food security, energy efficiency, greenhouse gas reduction, lakeshore management, recycling and estuary health among many others. None of these organizations can solve environmental issues alone. We have in front of us a major task that requires collaboration, cooperation and coordination.

In our collective best interest, the job we have to do is to turn each of the troublesome indicator measurements from negative to positive. Good water, abundant local food, efficient use of energy sources, sustained natural ecosystems, effectively reduced waste, revived salmon populations, well-designed settlements, healthy air quality and strong resilience to climate change are goals worthy of our concentrated effort. This State of the Environment Report starts us on a path of measuring how well we are doing and pointing toward areas that most need our attention.

The Commission intends to use the State of the Environment Report to organize its annual work plan and structure its advisory functions to the CVRD Board. The Commission's 2010/11 work plan will focus on priority environmental values, establish teams to develop suitable public education and other initiatives, and develop recommendations for the CVRD Board where our contribution is relevant and our leadership is required. The Commission will also engage with and support existing community organizations in each relevant sector, and work with federal, provincial, regional and community governments on their programs of managed development, sustainability, conservation and restoration.

On behalf of the Board of Directors, I want to congratulate the Environment Commission on producing this vital and important report.

A handwritten signature in black ink that reads 'Gerry Giles'. The signature is written in a cursive, flowing style.

Gerry Giles, Chair

CVRD Board of Directors

Executive Summary

State of the Environment Report Executive Summary

The Cowichan Valley Regional District (CVRD) Environment Commission prepared this inaugural State of the Environment Report to assess the status of a variety of environmental indicators and issues that signal the health of the environment within the regional district. Using the principle “if you don’t measure, you can’t manage,” this ground-breaking report identifies numerous reliable and repeatable measures of how the environment is doing.

The Report strives to answer questions such as:

- > Are our ecosystems and species adequately protected?
- > Are we living within natural ecological thresholds?¹
- > Do the biodiversity and related ecological services that sustain the region have the resilience to respond to climate change and population growth?
- > Are water resources adequately protected to safely provide for people, plants and animals?
- > Is the air quality good?
- > Are we making good use of available land and creating smart, flexible, and resilient communities?
- > Are we producing enough local food?
- > Are we proactively addressing the challenges of climate change?

Overall, this report identifies a number of areas where we face major challenges. We have dramatically changed the natural landscape, and in so doing have compromised natural ecosystems including native plants and animals. Many native species and ecosystems are at risk, and there are too many invasive species. Coho and chinook salmon stocks have crashed. Water is polluted and scarce in some places and at some times of the year. While the region’s air quality seems to be good, high hospital admission rates for children with respiratory problems may signal a problem. Climate change already creates challenges with floods and drought, and further stress on native species and ecosystems is imminent.

¹ Example of an ecosystem threshold: species diversity of a landscape may decline steadily with increasing habitat degradation to a certain point, and then fall sharply after a critical threshold of degradation is reached.

Low-density development (sprawl) has fragmented ecosystems, negatively impacted watersheds and created car-dependent communities that contribute to climate change through use of fossil fuels. Continued population growth in the region will place further stress on the natural environment and human use of its resources.

Much is unknown. Many residents rely on wells for water – but there are few data on how much water is being withdrawn and whether withdrawal rates are sustainable for the long term. While data for sensitive ecosystems exist for the eastern part of the region (i.e., the Coastal Douglas-fir forest), there are few studies of the ecology of the equally sensitive Coastal Western Hemlock forests to the west. There is no water quality information for many lakes and streams. Furthermore, data on populations of iconic species such as Roosevelt elk are limited, and data for less well-known species – including “species-at-risk” – are frequently sparse.

But the news is not all bad. Agriculture is a thriving industry in the Cowichan Region, providing the opportunity for the region to move towards self-sufficiency in food production. Chum salmon returns are the highest in 60 years. Rates of recycling are soaring. And although data are somewhat lacking, there appears to be reasonably good quality water within most of the region most of the time.

Simply by starting to report out on the State of the Environment, the CVRD, associated municipalities, non-government organizations, businesses and individuals have an opportunity to better understand the natural environment and human impacts, and gain a competitive advantage over areas that have not had the foresight to take this initial step. Indeed, this report is an important first step in “measuring so we can manage”.

As well, it is clear that many steps are being taken to address some of the problems. Reports such as the Cowichan Basin Water Management Plan have identified steps to address some of the water issues in the area, and a Cowichan Watershed Board has now been established to undertake this work. The municipalities of Ladysmith, Duncan and Lake Cowichan have installed (or plan to install) meters so that they can track drinking water consumption. The CVRD is bringing small sewage treatment plants up to standard to avoid water quality issues. The Regional District and several municipalities have undertaken energy and emissions assessments and have begun work to reduce their carbon footprints. Regional residents are knowledgeable and passionate about environmental issues, and are working in many ways to make and keep this region a healthy and desirable place to live.

Regular updates to this State of the Environment Report can help residents of the region stay informed and aware, and help governments and others set priorities for action.

A summary of the key findings from the report are listed below.

The Landbase

- > The human footprint (including development and logging) now covers over 75% of the total landbase and affects its ability to supply and maintain ecological values and services.
- > On the east coast, 50% of the landbase is no longer forested and little or no older forests remain. Despite being regarded as unique and sensitive, very few areas of Coastal Douglas-fir ecosystems have protected area status. Less than 20% of the historic Garry oak ecosystems remain, and less than 5% of those are in a “natural” condition.
- > At higher elevations, and towards the west coast, there are more forested lands. However, the total amount protected (<8%) within the CVRD is well below standards (~50%) set for maintaining ecological values into the future.
- > Ongoing development along shorelines is resulting in continued loss and degradation of those habitats.

Biodiversity

- > The proportion of animals, plants and ecological communities at risk in the CVRD is high compared to many other areas of the province. Ecological communities at risk, such as the massive riparian Sitka-spruce forests in the western part of the region, are not legally protected from harvesting.
- > The CVRD has a large and growing number of invasive plant and animal species, especially in the drier east-side areas of the region. The negative impacts of invasive species are particularly evident in Garry oak ecosystems, riparian areas and wetlands.
- > In the last five years, the number of returning salmon spawners for two of the Cowichan River's primary salmon runs – fall coho and chinook – have been reduced to roughly 10% of numbers documented during the last 80 years. At the same time, chum salmon returns are at some of the highest levels seen in the last 60 years. Chinook salmon in particular are often considered to be indicators of broader ecosystem health, since their survival and reproductive success are affected by a wide range of factors.

Water

- > Measuring, monitoring and understanding patterns and trends for water are complex and difficult. However, there is a general sense that water is abundant and water quality is reasonably good throughout most of the CVRD, most of the time.
- > Some of the key aquifers in the Cowichan Region are naturally vulnerable and are increasingly becoming heavily developed.
- > At critical periods, and particularly in limited dry years, water supplies can lead to the potential for significant impacts on crucial aquatic resources such as fish spawning, or on industrial processes. Climate change is expected to exacerbate this situation.

- > Pollutant levels are typically low, but waters of major rivers are no longer fit to drink, and cumulative downstream impacts have led to closure of shellfish fisheries since the 1970s.
- > Naturally vulnerable lakes – such as Quamichan – already show significant impacts of pollution from a variety of sources. Cowichan Lake is buffered by its large size and depth. Unfortunately, cumulative effects can be difficult to detect and may not be observed until significant events such as “fish kills” occur.
- > Most areas lack the ability to track volumes of drinking water consumption. However, the Town of Ladysmith has introduced water meters to homes, and has seen a significant reduction in water consumption as a result. North Cowichan has also been quite progressive and the municipalities of Duncan and Lake Cowichan are in the process of introducing water meters.

Air Quality

- > Air quality in the Cowichan Region is generally good, and pollution levels are well within provincial standards. However, hospital admission rates for children with respiratory problems in the region are consistently more than 20% higher than the provincial average, and at times twice the average.
- > Air quality diminishes significantly in the fall and winter months, due to increases in seasonal combustion (open burning and woodstove use). Sources of low-level air pollution throughout the year include vehicle exhaust and commercial/industrial emissions.

Population and Growth

- > The Cowichan Valley Regional District has a population of about 77,000, and its population continues to grow. While some of the population is concentrated in higher density areas (such as Duncan), there are fewer than 200 people/km² in most parts of the region. This makes “smart growth” development very hard to achieve.
- > About three-quarters of the population live in communities where they are dependent on cars for most daily needs and errands. About 90% of commuters travel to work by personal vehicle – the vast majority as single occupant drivers.
- > If maximum build-out under current zoning were to occur, two-thirds of the region’s watersheds would have 10–30% impervious surface coverage, with consequent significant ecological impacts on local waterways.

Agriculture

- > Agriculture is a thriving and valuable industry in the Cowichan Region, and there is an opportunity to achievement of regional food security objectives. However, current rates of reported productivity fall short of food security targets.
- > Key barriers to achieving these targets include access to irrigation water (and natural constraints on available water volumes), lack of skilled labour, an absence of processing and distribution facilities, high land prices, and restrictive production quotas.

Climate Change Mitigation and Adaptation

- > The CVRD and its member municipalities, together with many groups and individual citizens, have recognized climate change as an issue that needs to be addressed. Major region-wide strategic and sectoral approaches have yet to occur.

Waste Management

- > The CVRD has set a long-term goal of Zero Waste, with a more immediate goal to achieve a 50% per capita reduction in the disposal of solid waste (over 1990 levels), and has an extensive recycling program to support this.
- > The volume of recyclables has risen significantly in the past ten years, both in terms of total volume and per capita volumes. At the same time, however, total and per capita volumes of solid waste (garbage) have also increased, indicating that while people are recycling more, they are also buying (and disposing of) more "stuff".
- > The CVRD is taking over and bringing up to standard many smaller liquid waste or sewage treatment plants, thus addressing some of the issues related to leaking septic fields. However, many septic fields remain and continue to contribute to water quality issues in the region.