3.3 Drinking Water Supply

Introduction

Drinking Water in the Cowichan Region

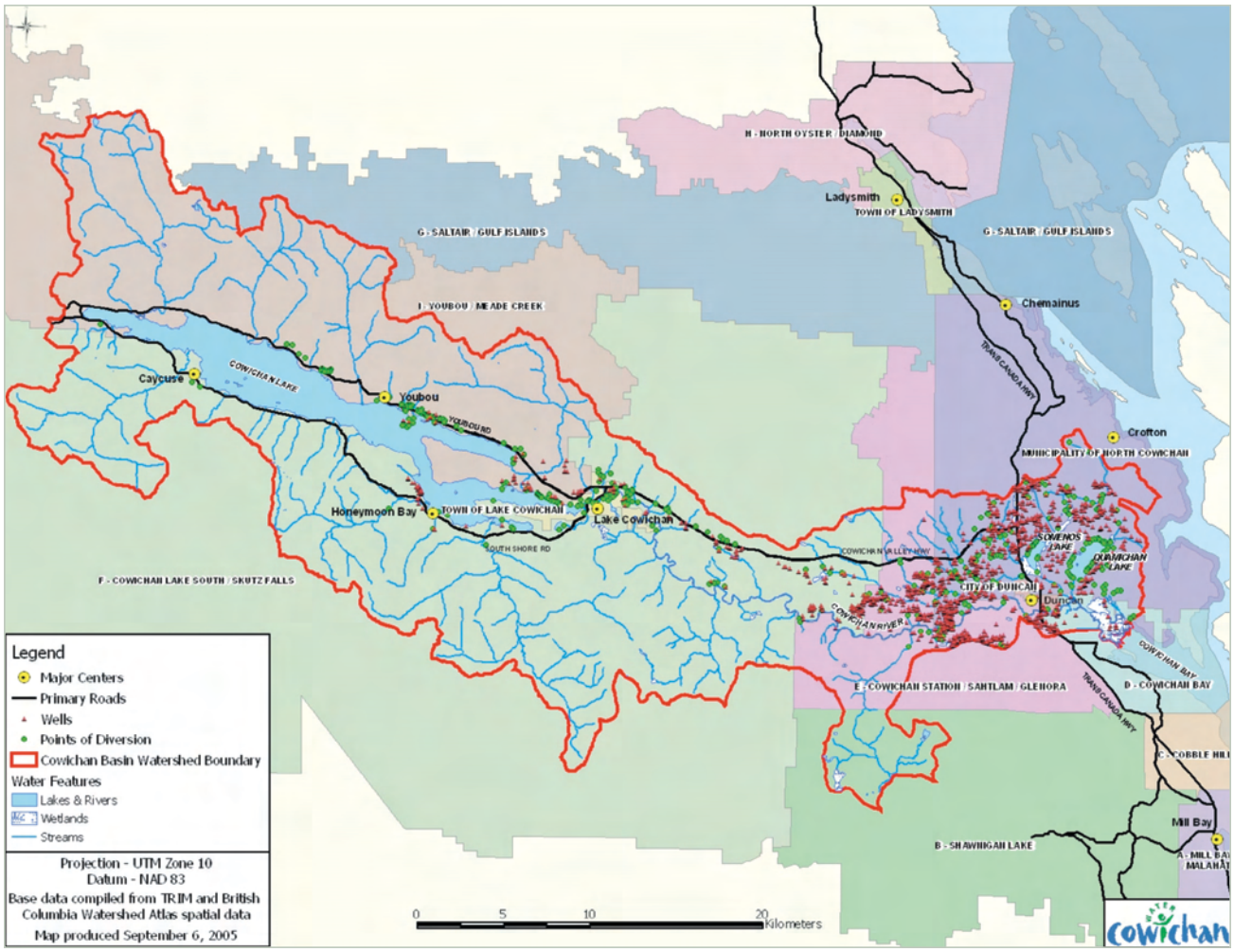
Drinking water (also known as potable water) is used for a variety of household purposes such as drinking, cooking, washing dishes, and showering. Potable water (i.e., water from the same source that supplies drinking water pipes) is also used for many non-drinking purposes, such as flushing toilets, washing cars and irrigating lawns. Business and industry also need water for a variety of activities and processes. The over-use of water for such human purposes can have serious ecological consequences. For example, streams can run dry and be unable to support fish and other aquatic species, and wetlands can no longer support the same types of plants and animals.

In the Cowichan Region, water is either drawn from groundwater sources (wells) or from surface water sources (lakes, creeks). Regional, local and First Nations governments supply much of the water used by CVRD residents and businesses, with the balance supplied by approximately 25 private operators and extracted via private wells (Appendix B). While the total number of private wells in the region as a whole is not known, the Ministry of Environment wells database identifies more than 1,300 wells in the Cowichan Basin, with more than 530 water licenses in that area (Figure 3.21). In 2004, there were 667 water licenses in the Cowichan and Koksilah watersheds[158]. Catlayst Paper was the largest licensee with 83% of volume licensed.

See Section 2.6 for more information on water quantity and quality in the Cowichan Region.

158 LGL, 2005.

FIGURE 3.21: Location of wells and points of diversion in the Cowichan Basin



Source: Cowichan Basin Water Issues, Final Report, 2005.

The supply of drinking water is a major concern for the Cowichan Region. Despite this region's often wet winters, water is a limited resource – especially during dry summers. As the population of the region increases, there will be additional pressures on water supply. Climate change is also expected to further limit water supply, as reduced snow packs (see Section 1) lessen the run-off to lakes and creeks during the spring and summer. Concern regarding groundwater levels and aquifer supply is also on the increase, with some well users fearing that new draws on aquifers will exceed their capacity to provide drinking water for all users.

Concerns about drinking water cannot be isolated from the use of water for other purposes: agriculture, ecosystem needs (fish and other aquatic populations), industrial use, and water-based recreational activities. The Cowichan Valley Regional District is addressing some of these issues through studies such as:

> The South Cowichan Water Plan Study[159]: a preliminary study of the region's current water resources and needs (with estimates of future needs), and a water management framework. This will lead to a Water Management Plan for the areas of Mill Bay/Malahat, Shawnigan Lake, Cobble Hill, and Cowichan Bay.

> The Cowichan Basin Water Management Plan[160]: a comprehensive review of water supply issues in the Cowichan Basin, with recommendations on ways to provide adequate water for human and ecological needs now and into the future. One outcome of this Plan has been the formation of a Cowichan Watershed Board to guide the implementation of the Cowichan Basin Water Management Plan.

Concerns about water quantity are coupled with concerns about water quality. Both surface water and groundwater sources are vulnerable to contamination from pollutants. Water purveyors (public and private) are responsible for testing and treating (if necessary) drinking water before it is delivered to households. Therefore, water users on these systems can generally be assured of the quality of the drinking water, unless boil water advisories are issued. For residences served by private wells, there are always fears about contamination from nearby sources such as leaking septic fields. In coastal areas, sea level rise, particularly in conjunction with aquifer draw-down, could lead to salinization of the water supply, rendering it undrinkable.

Measuring Drinking Water

It would be ideal to be able to measure the total and per capita amount of drinking water consumption from all sources across the region. However, as noted above, there are many different water systems throughout the Cowichan Region, both public and private, and most homes in the region are not metered. This makes it virtually impossible to track region-wide water consumption with any accuracy. Only partial information was available for inclusion in this report.

It would also be helpful to be able to track the water levels of the region's aquifers, in order to better understand whether the region is using groundwater faster than it can be replenished by precipitation. Again, these data are only available for parts of the region.

159 WorleyParsons, 2009.

160 Westland Resource Group, 2007.

This report does not include any information on the quality of drinking water. Data on boil water advisories is available, but it was not felt to be a useful indicator. The CVRD is gradually replacing problematic water sources, or taking over privately run small water systems, to ensure that drinking water quality remains high, and the boil water advisories largely indicate where this has not yet happened.

Water Consumption

Indicator and Measure

This indicator is a measurement of the quantity of water consumed. The indicator includes the total amount of water consumed (for household, industrial/commercial, and agricultural purposes), as well as the per capita amount. This is important to know, since, even if per capita use is dropping, the overall amount consumed could increase as the population increases, stressing limited water supplies further.

Data on water consumption is variable across the CVRD. Where there are municipal water systems (as for Ladysmith, Lake Cowichan and Duncan), monthly water consumption data are available.

All CVRD-operated water systems are automatically on Stage 1 watering restrictions from June 1 to October 31 of each year, limiting the number of watering days and hours. In drought conditions, additional water use restrictions may apply.[161]

Findings

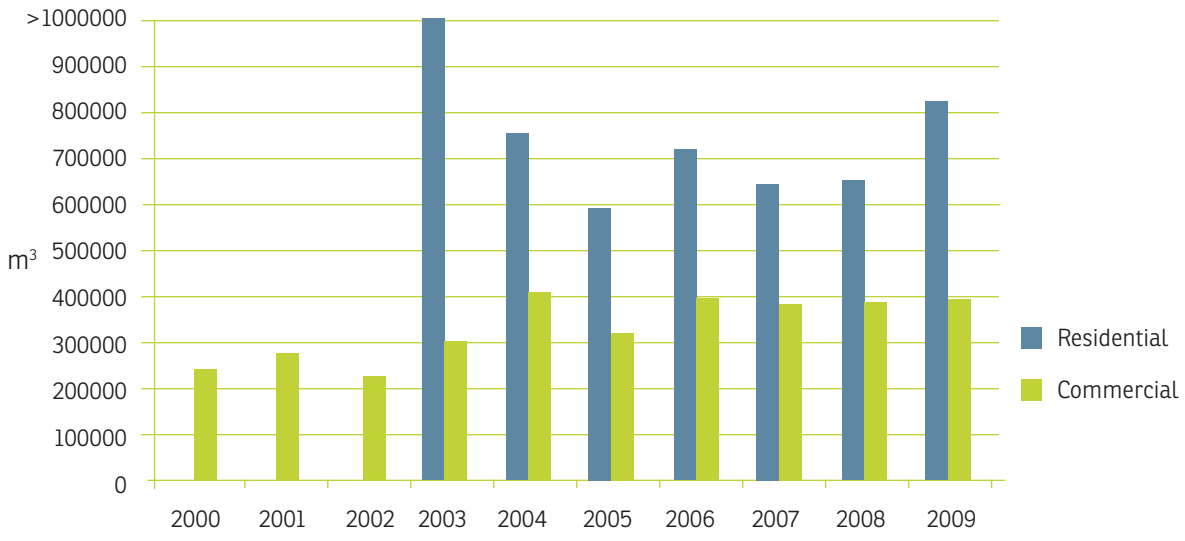
Water consumption data were available for three communities: Ladysmith, Duncan and Lake Cowichan.

Town of Ladysmith

Ladysmith is the first community in the region to have all water users on meters. All commercial operators were metered as of the mid-1990s. As of 2002, all residential users were also metered, and charging for water use based on metered amounts began in 2005. Ladysmith data show annual usage for commercial and residential users (Figure 3.22).

161 CVRD Watering Regulation Summary Table, cvrd.bc.ca/documents/Engineering%20Services/Utilities/Water/Forms/WateringRegTable.PDF

FIGURE 3.22: Town of Ladysmith water consumption 2000–2009



Source: Town of Ladysmith.

For 2003, the first year meters were fully operational, residential consumption was 2,750,000 m^3 annually. This dropped to 750,000 m^3 the following year, even though water usage was not being charged by consumption, and further yet in 2005 (to 580,000 m^3) when consumption charges were first introduced, indicating that metering helped to raised awareness of water conservation. Overall, water usage since 2002 has declined by 23%, in spite of a population increase of 17%.[162] However, total residential usage has generally increased over the past five years. For 2009, the per capita consumption (residential only) was 313 m^3 per person.

Commercial usage has been relatively stable for the past five years.

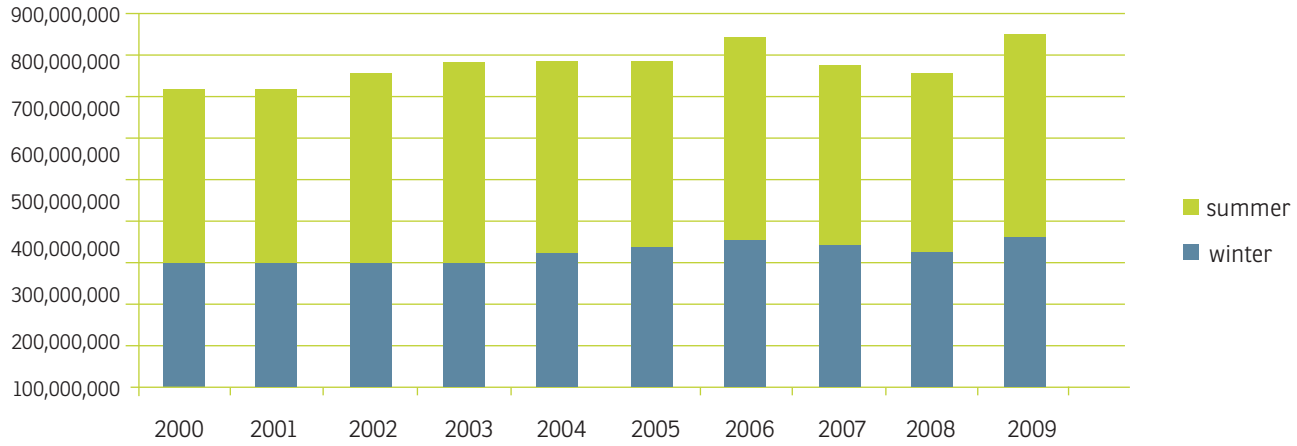
City of Duncan

The City of Duncan tracks monthly overall water consumption. Figure 3.23 below shows water consumption from 2000 to 2009, for winter water use (January–March and October–December) and summer use (April–September). Summer water use is typically higher as it includes lawn and garden watering.

The City of Duncan is retrofitting residences with water meters over the next few years.

162 Joe Friesenham, Director of Public Works, Ladysmith, personal communication, 2009.

FIGURE 3.23: City of Duncan water consumption 2000–2009



Source: City of Duncan

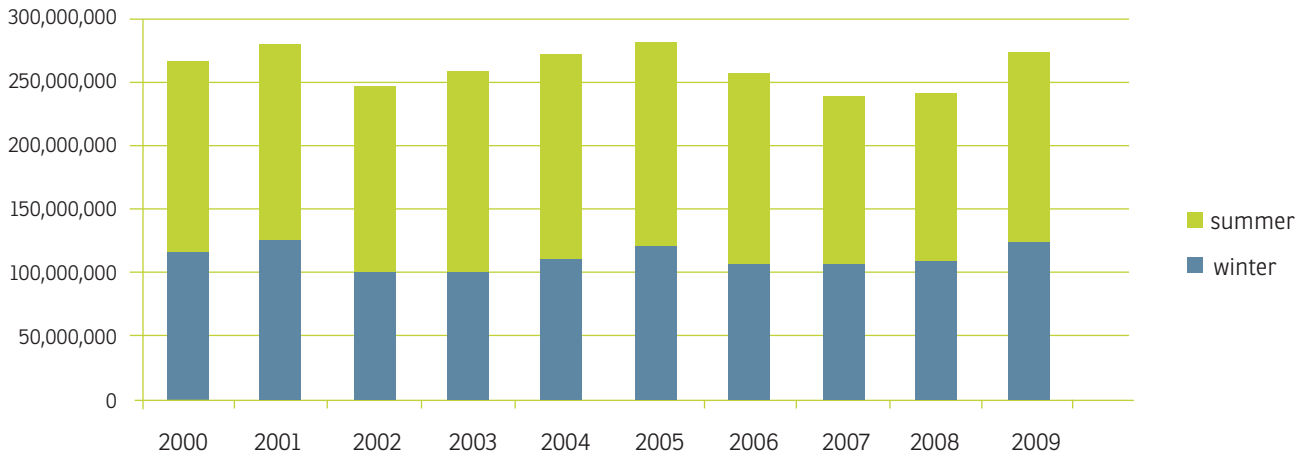
Total water consumption has gradually increased over the past decade, although amounts vary in relation to the summer weather. However, the population of Duncan rose by only 3% between 2001 and 2006, yet the winter water consumption rose by almost 15% during this same period.

Town of Lake Cowichan

The Town of Lake Cowichan tracks daily and monthly water consumption. Figure 3.24 shows the community's total water consumption over the past decade, for winter use (January–March and October–December) and summer use (April–September). As in Duncan, water use during the six months including summer is higher due to outside watering.

Most of Lake Cowichan's commercial operations are metered. The Town of Lake Cowichan is currently installing meters for all water users, and all residences will be metered by the end of 2010. The process of installing meters is helping to identify more leaks, as each meter's backflow valve pressurizes each house.

FIGURE 3.24: Town of Lake Cowichan water consumption 2000–2009



Source: Town of Lake Cowichan.

Water consumption data are variable as the Town has had significant issues with leaky pipes, which it has been working to fix. In general, water consumption has been decreasing since 2005, largely due to fixing leaks in the system. In 2009, there was a big leak (half a million litres a day) that took a long time to locate, resulting in a spike in use. The Town of Lake Cowichan's population grew by 4.3% between 2001 and 2006.

Other Users

Industry is one of the most significant water users in the region. Catalyst Paper, for example, has a licence to use 240 million litres of water per day from the Cowichan River (although actual usage is lower, at approximately 150 million litres per day), which it pipes to the Crofton Mill. This is also the water source for the community of Crofton.

Summary

Having secure supplies of drinking water is essential to the people of the Cowichan Region, and the ability to provide reliable sources of drinking water shapes growth and development. Drinking water in the Cowichan Region comes from both groundwater and surface water sources, provided by public and private water purveyors as well as from individual wells.

Many of the region's residents are not on a metered water system, so it is hard to track use from households (as opposed to the water used by industry, business and agriculture, which may also be served by the same water source). As well, data on the consumption of groundwater by private wells are not available.
Three municipalities are moving towards water metering. Ladysmith now has full metering, and residential water use has declined considerably since meters were first installed, although it seems again to be on the rise. Water consumption in Duncan and Lake Cowichan is generally rising, and both communities are in the process of installing water meters. Water consumption varies by year, in part due to summer watering of lawns and gardens.

Missing Information

Information on groundwater use by private wells is very limited. Even in the Cowichan Basin, where more extensive studies have been conducted, information on the use of water from wells is poor. There is monitoring of the quantity of surface water taken by licensed water users, but no monitoring to ensure that groundwater extraction matched the permitted amount.[163]

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163 Louise Knodel-Joy, Sr. Engineering Technologist, Water Management, CVRD, personal communication, 2010.