



COLUMBIA BASIN TRUST  
*a legacy for the people*

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# COMMUNITIES ADAPTING TO CLIMATE CHANGE INITIATIVE

REGIONAL DISTRICT OF CENTRAL KOOTENAY AREA D,  
IN PARTNERSHIP WITH THE VILLAGE OF KASLO  
CASE STUDY



This adaptation project was undertaken by the Regional District of Central Kootenay Area D and Village of Kaslo as part of Columbia Basin Trust's Communities Adapting to Climate Change Initiative, with federal funding support through Natural Resources Canada's Regional Adaptation Collaboratives Program



Natural Resources  
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Canada

Canada

## CASE STUDY: RDCK AREA D, IN PARTNERSHIP WITH THE VILLAGE OF KASLO

### About the Case Study

In October 2009, the Regional District of Central Kootenay (RDCK) Area D in partnership with the Village of Kaslo embarked on a one-year climate change adaptation planning process as part of Columbia Basin Trust's (CBT) Communities Adapting to Climate Change Initiative (Phase Two)<sup>1</sup>.

RDCK Area D and Kaslo followed six broad steps for their adaptation planning process:

1. Get Started;
2. Learn about Climate Change;
3. Identify Priorities;
4. Assess Vulnerabilities and Risk;
5. Develop Adaptation Strategies and Actions; and
6. Implement and Monitor Plan.

The project was guided by a Steering Committee comprised of rural and village residents, Village staff and elected officials, and was managed by a local coordinator. This was the first project in the Columbia Basin that addressed climate change impacts and adaptation through a rural lens.

### Community Context

The Village of Kaslo is a picturesque community that sits on the north end of Kootenay Lake with a population of 1,073. RDCK Area D comprises the area at the north end of Kootenay Lake and the Lardeau and Duncan Valleys with a population of 1,525. Nearly 70 per cent of Area D's population is centred around the Village of Kaslo with the remainder being distributed in rural settlements.

The economics in the region are strongly tied to the natural resource industry, and the relative isolation of the area provides a challenge to economic diversification and sustainability. Increasingly, new development has been oriented toward recreational properties, while full-time residency has experienced resurgence due to an increased number of retirees, internet and online employment opportunities, and diversification toward tourism and recreation-related employment.

*"This report gives us a foundation for action. I am so excited about the next step; the opportunity to now work with others and be proactive in doing what we can in order to sustain the good health and well-being of our own communities"*

Rhonda Ruston, Steering Committee member, Argenta

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<sup>1</sup> [www.cbt.org/climatechange](http://www.cbt.org/climatechange)

### Summary of Climate-Related Changes by 2050<sup>2</sup>

**Annual mean temperature** in RDCK Area D and Kaslo is projected to increase by an average of 1.9 degrees Celsius.

**Precipitation** is projected to increase overall by five per cent but to decrease during the summer by 10 per cent.

**Snowpack** is projected to decrease at lower elevations with an overall 26 per cent decrease in annual snowfall.

**Extreme events** such as heavy precipitation, droughts and windstorms are projected to increase.

**Growing-degree days** and frost-free days are projected to increase.

**Stream flows** are projected to change as spring runoff (freshet) is expected to occur earlier in the season, with an increased stream flow between November and April. The low stream flow is anticipated during the May-September period, particularly in July.

**Local observations:** Questionnaires distributed to the public, food growers and water user groups informed the study.

### Community Impacts and Vulnerabilities

Two priority climate change impact areas were identified for further research:

1. Water provision and quality: assess how climate change will impact the availability and quality of year-round accessible water.
2. Local food production: assess how climate change could impact the local production of food.

Forest fire hazards were also considered a high priority and have been addressed through work by Kaslo and District Community Forest Society.

The priority areas were further assessed for vulnerabilities, risks and opportunities by the local Steering Committee. The Steering Committee was informed by research and background reports conducted by Selkirk College (agriculture and watersheds) and the University of British Columbia in partnership with the Pacific Climate Impacts Consortium (PCIC) and Aqua Environmental (water supply and demand).

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<sup>2</sup> Pacific Climate Impacts Consortium (PCIC)

### Water Provision and Quality

Domestic water services in Kootenay Lake and the Lardeau Valley are supplied for the most part by local creeks and managed by multiple community water systems or by systems that are privately owned and operated. These systems are vulnerable to drinking water advisories and overuse of water resources. This project looked at how changes in climate would impact the watersheds and water availability of the creeks that supply the vast majority of the area's population.

Four watersheds were studied, three within the study area. It was found that the three watersheds within the project area require future monitoring of rainfall, stream flow and quality as little to no data were available. A stream flow study indicated that peak stream flow (freshet) is expected to occur earlier in the season, with an increased stream flow between November and April. The low stream flow is anticipated to occur between May and September, particularly in July, a time when water demand and environmental stress are usually at their peak.

### Local Food Production

Many people in the North Kootenay Lake area have a culture of self-sufficiency and grow food in backyard gardens; however, there is no large-scale agriculture in the area. Local food production was chosen as a priority issue because of the area's dependency on highway systems to deliver food and also because of a wide variety of unknowns about global food production.

Opportunities exist for new crops given projected climate change; however, a temperature rise of more than three degrees Celsius in BC would likely have major negative consequences on crop production and water availability for irrigation. The increase in animal and crop diseases is considered to be one of the key climate change impacts on agriculture in BC, along with winter floods and summer droughts. The largest non-climate-related obstacle to expanding commercial agriculture in the project area has been identified as the price of and accessibility to land for those who wish to farm it.

### Adaptation Actions

The project Steering Committee carefully considered the findings of the anecdotal and technical reports and recommended the following adaptation actions.

A request has been made to the RDCK Area D Advisory Planning Commission to monitor implementation of the recommendations.

### Water Provision and Quality

Education	Policy	Protection of Water Availability and Quality	Emergency Preparedness	Monitoring
<p>Information and communication are a key component of a water strategy. Keep water licencees informed about potential future water shortages, both short term and long term, and ways to reduce water consumption.</p>	<p>Support change in provincial legislation and regulations to allow grey water collection for outdoor use and rainwater for some household use.</p>	<ul style="list-style-type: none"> <li>• Encourage water conservation incentives (e.g. low-flow toilets, rain barrels / tanks, rainwater collection, low-flow irrigation, etc.) for households and businesses, and make links to existing schemes. Public buildings should lead by example.</li> <li>• Some watersheds lie within logging areas. Support forest management practices which maximize and protect water supply. Repair damaged areas and plant out with suitable vegetation.</li> <li>• Use-monitoring is an important component of water provision. Explore options for monitoring of residential and industrial water use (for example a water metering program). Discussions should take place with known large users of water, including the golf course, as to how a reduction in the volume of water could take place.</li> <li>• Provide advice and support to enable water user groups and publicly owned water systems to monitor water quality at intake.</li> <li>• Make every effort to minimize or remove impervious surfaces in new building design, prior to construction, in watershed or riparian development permit areas to mitigate sedimentation and contamination problems in water sources.</li> </ul>	<ul style="list-style-type: none"> <li>• A large number of water users have to pump water using electrical pumps. Back-up power is essential to ensure continued supply in the event of a power outage. Give high priority to ongoing maintenance programs of public or privately owned generation units.</li> <li>• Continue maintenance and upgrading of electrical supply infrastructure, and incorporate climate change projections into long-term planning.</li> </ul>	<p>There is limited supply data for Kemp Creek and no data are available for Bjerkness and Fletcher creeks. Water-flow monitoring on Kemp, Bjerkness and Fletcher creeks is recommended.</p>

**Local Food Production**

Education	Food Supply and Distribution	Emergency Preparedness
<ul style="list-style-type: none"> <li>• Support community education and incentive programs to adopt appropriate irrigation and water retention farming methods to reduce water consumption.</li> <li>• Increase food preservation knowledge and practice.</li> <li>• Research best practices for crop farming; (e.g. techniques to mitigate variability and extreme weather events and changes in precipitation patterns).</li> <li>• Monitor and communicate information on current financial agricultural incentives to support food growers.</li> </ul>	<ul style="list-style-type: none"> <li>• Roads are often blocked during the winter and during extreme weather conditions. Encourage and support proactive highway maintenance to ensure storm drains and creeks that flow under the highway are kept clear of debris.</li> <li>• Food growers and farmers need assistance in growing food crops. Promote community farm equipment co-ops. Explore the re-launch of farmers' institutes.</li> <li>• A warming climate presents opportunities as well as challenges. Monitor and record crop disease and bugs as well as new crop viability in the area.</li> <li>• The RDCK is drawing up an Area Agricultural Plan in 2011. It is important that the climate change adaptation recommendations are reflected in this plan and other long-term plans or studies conducted by the RDCK.</li> <li>• Continue to support and promote local seed banks.</li> <li>• Tree cover is important for shade and for land stability. Identify and communicate tree-planting grants / schemes and by 2012 implement active tree-planting program.</li> </ul>	<ul style="list-style-type: none"> <li>• By 2011, re-release RDCK Emergency Preparedness Plan to ensure thorough knowledge and understanding of the need for three-day minimum food and water storage.</li> </ul>

**For more information about the Communities Adapting to Climate Change Initiative:**

Website: [www.cbt.org/climatechange](http://www.cbt.org/climatechange)

Email: [adaptation@cbt.org](mailto:adaptation@cbt.org)

Project Contact: Regional District of Central Kootenay

Planning Administrator: Chris Talbot

Project website: <http://www.rdck.bc.ca/adaptation>

Duration of project: One year

Project budget: \$31,147.95

Additional: 180 hours of in-kind staff time and 45 hours from volunteers