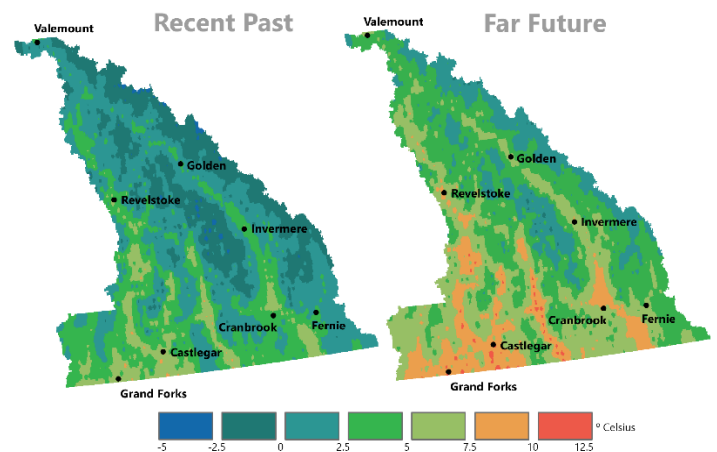
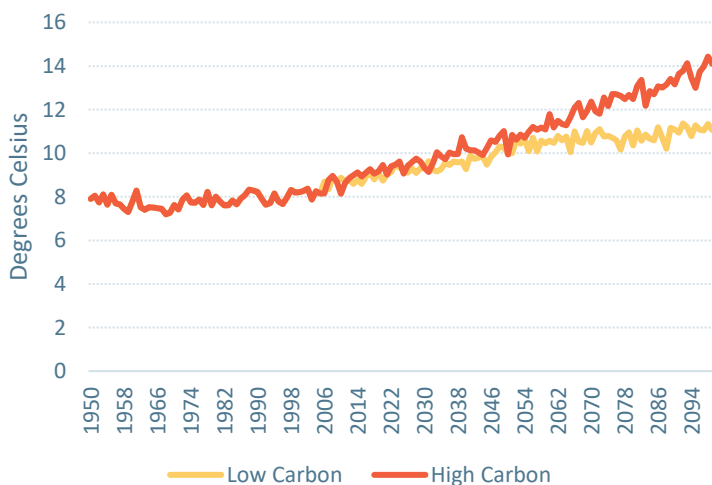


Overview of Climate Change in the Columbia Basin

The Canadian Columbia Basin is already experiencing hotter, drier summers, warmer, wetter winters, and more extreme weather, and climate scientists are projecting these trends to continue into the future.^[1] Average annual temperatures in the Basin have increased by 1.6°C over the last century, and the rate of warming has increased to 3.1°C per century over the last 5 decades. Annual average precipitation has increased by about 20% since the early 1900s, though the rates vary by location and season. Looking ahead to the 2050s, current global climate models are projecting average annual temperatures to be 2.7°C to 3.6°C warmer compared to the recent past (1951 to 1980). Winter and summer precipitation are expected to change by as much as +19% and -24% respectively. Without substantial global reductions in greenhouse gas emissions, Basin residents can expect, depending on their location, up to 42 more days per year with maximum daytime temperatures over 25°C. In addition, the maximum precipitation falling on one day in any given year is projected to increase between 6% and 35%.

Community Data ^[2]

Variable	Period	Recent Past (1951-1980)	Near Future (2021-2050)		Far Future (2051-2080)	
			Low Carbon ⁱⁱ	High Carbon ⁱⁱⁱ	Low Carbon	High Carbon
Mean daily temperature (°C)	Annual	7.6	9.5	9.9	10.6	11.7
	Spring	7.3	9.2	9.5	10.3	11.0
	Summer	17.5	19.8	20.1	21.0	22.5
	Fall	7.5	9.1	9.4	10.1	11.2
	Winter	-2.0	-0.1	0.3	0.9	1.9
Total precipitation (mm)	Annual	763	797	794	814	830
	Spring	141	163	159	174	175
	Summer	161	148	143	137	127
	Fall	189	207	194	205	216
	Winter	280	294	279	290	312
Days with max temp >25C (days)	Annual	51.3	75.3	76.0	87.8	101.5
Max 1-day precipitation (mm)	Annual	24	28	26	29	30
Longest dry spell (days)	Annual	17.0	17.0	17.5	18.5	19.0
Growing season length (days)	Annual	214.3	234.3	235.5	244.3	258.0



Modeled mean annual temperature for Silverton from 1950 to 2099

Modeled mean annual temperature for Basin-Boundary region; recent past (1951-1980) vs. far future (2051-2080); high carbon future scenario.

Key Climate Impacts and Opportunities for Action

Housing, Buildings and Infrastructure

Wildfires, flooding, extreme storms, and water shortages all represent threats to the safety and well-being of our communities. These threats are anticipated to become more pronounced with climate change, which will either physically endanger our homes and buildings, or challenge our infrastructure's ability to serve community needs. Take action:

- Protect your property from wildfire: <https://bit.ly/2M5rZAn>
- Conserve water at your home or business: <https://bit.ly/3qBwfa3>
- Improve your level of emergency preparedness: <https://bit.ly/2ZsuKyl>

Economies

Changing weather patterns present risks *and* opportunities for Basin businesses and the economy. Most vulnerable are enterprises that cannot adapt successfully to new climate and environmental conditions or transition to a low carbon economy. However, businesses and sectors that can capitalize on the new climate or support a transition away from fossil fuels are well positioned to succeed.

- Connect with climate-resilient businesses: <https://bit.ly/2NPTazT>
- Learn how your business can account for climate change impacts: <https://bit.ly/2NsYg5b>
- Adapt to climate change on your farm: <https://bit.ly/3k6hOZO>

Nature

As temperature and precipitation patterns shift and change, ecosystems in the Basin can be expected to change, too. This includes more natural disturbances such as wildfire and pests, changes to the water cycle and water availability, and the emergence of new compositions of plant and animal species.

- Prevent the spread of invasive species: <https://bit.ly/2ZxfuAO>
- Learn about natural solutions to climate change: <https://bit.ly/3dqGudv>
- Become a citizen scientist and help monitor ecosystem change: <https://bit.ly/2wpJ3oZ>

Quality of Life

Climate change presents a risk to our health and lifestyles. Our physical and mental health will be increasingly challenged by rising temperatures (and related impacts, such as more frequent wildfires and the spread of vector-borne infectious diseases) and extreme weather events. Vulnerable individuals - the elderly, young children, those with chronic conditions - are at greater risk. Some cultural, recreation, and lifestyle practices may have to be adapted to new climate and environmental conditions.

- Learn more about climate-related health risks: <https://bit.ly/37vvO9u>
- Take action to protect your favourite winter sport: <https://bit.ly/3k2xXyH>
- Meet your neighbours and tackle climate change together: <https://bit.ly/3bjCo49>

References

- [1] Columbia Basin Trust, "Climate Action in the Columbia Basin," Castlegar, 2017.
- [2] Climatic Resources Consulting, "Community Climate Datasets (Custom)," Nelson, 2018.

Local Action Stories

SIFCo Wildland-Urban Interface Management

Landscape level mapping, planning and actions to make Slocan Valley communities safer from wildfire. Over \$2.7 million has been invested and almost 450 hectares of land have been treated by the Slocan Integral Forestry Cooperative (SIFCo).

Wildlife Wise for Backcountry Recreationists

Organized by Yellowstone to Yukon, Wildlife Wise focused on raising awareness of, and mitigating impacts on, wildlife in the backcountry. Reducing human-caused impacts on wildlife helps species remain resilient in the face of a changing climate.

Asset Management Planning

The Village of Silverton has partnered with the Adaptation to Climate Change Team at SFU and a consultant to embed low carbon resilience principles into an asset management planning process. The plan helps the Village prepare to deliver services under new climatic conditions.

ⁱ All figures are median outputs from 12 models for the given time period. Community data is based on calculations for a 10x10km grid with centerpoint: 49.952, -117.357.

ⁱⁱ RCP 4.5 (low carbon) scenarios assume global greenhouse gas emissions are drastically reduced from current levels

ⁱⁱⁱ RCP 8.5 (high carbon) scenarios assume greenhouse gas emissions continue increasing at current rates