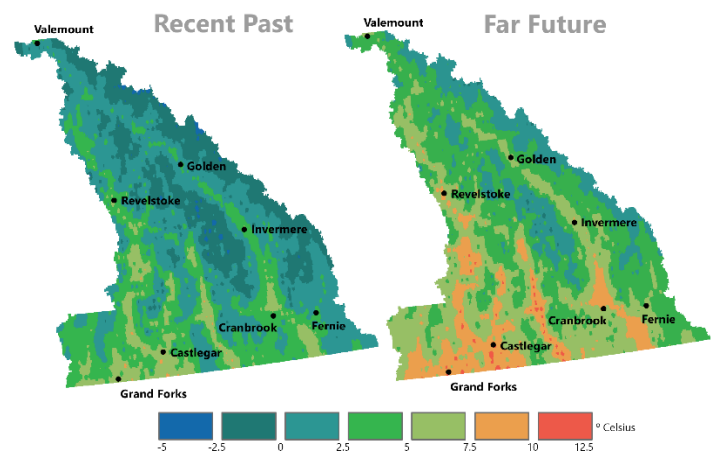
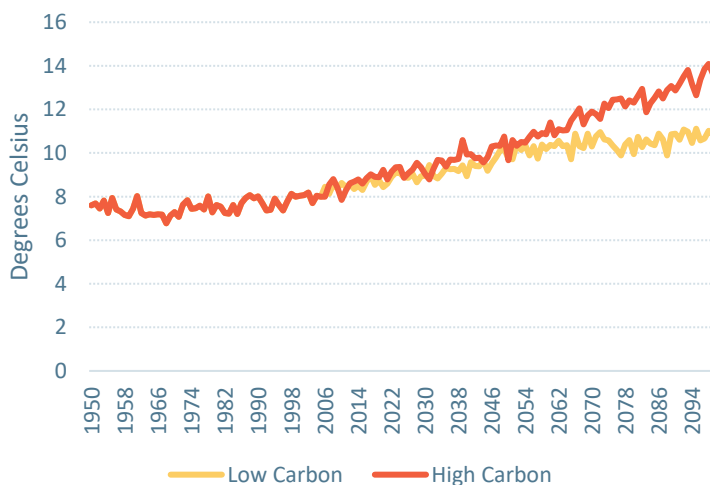


Overview of Climate Change in the Columbia Basin

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	7.4	9.2	9.7	10.3	11.4
	Spring	7.1	8.9	9.3	10.1	10.8
	Summer	17.6	19.8	20.2	21.0	22.7
	Fall	7.2	9.0	9.2	9.9	11.0
	Winter	-2.7	-0.8	-0.5	0.1	1.1
Total precipitation (mm)	Annual	712	745	746	749	767
	Spring	161	180	181	191	192
	Summer	136	114	115	107	106
	Fall	170	183	176	189	193
	Winter	249	254	249	260	273
Days with max temp >25C (days)	Annual	55.8	78.0	80.5	90.5	101.5
Max 1-day precipitation (mm)	Annual	24	26	27	27	30
Longest dry spell (days)	Annual	19.3	21.0	21.0	22.3	23.0
Growing season length (days)	Annual	207.0	229.3	231.8	241.0	252.3



Modeled mean annual temperature for Trail 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/33fGaGV>
- Conserve water at your home or business: <https://bit.ly/2GQGPTX>
- Improve your level of emergency preparedness: <https://bit.ly/2Gc4yNV>

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.

- Make your business more climate-resilient: <https://bit.ly/2wfyLso>
- Get inspired by small business leaders: <https://bit.ly/2HoPtfx>
- Adapt to climate change on your farm: <https://bit.ly/2of0i8G>

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/2IMhvG6>
- Learn about natural solutions to climate change: <https://bit.ly/2Pc8LoG>
- 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/2wqT45e>
- Protect your health from wildfire smoke: <https://bit.ly/2M36fUg>
- Find out about Cool Blocks and neighbourhood-scale climate action: <https://bit.ly/2ZN3auw>

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

Rubber Boa Reptile Sanctuary

The Silver City Trap Club received funds to restore and enhance a reptile habitat for the rubber boa and western skink. Collaborating with Selkirk College students, native plants were planted and four hibernation areas were restored, supporting resilience of local reptile populations in the face of a changing climate.

IncrEDIBLE Trail

This farmers' market and local gardens support the production and consumption of locally produced food and goods. Operating from spring through fall, this weekly pedestrian friendly hub is contributing to the local economy while reducing emissions.

Luca Hair & Esthetics Green Circle Salon

This local hair and esthetics salon is reducing emissions by diverting salon waste from landfills and waterways through collection, recycling, and re-purposing. They are a certified Green Circle Salon.

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: 49.096, -117.713.

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

Disclaimer: This information has been assembled by qualified researchers, but is provided without warranty as to its accuracy or completeness. Selkirk College, Columbia Basin Trust, or any other organization or individual responsible for generation of this profile will not be liable for any loss or damage arising from reliance on this information.