Climate Action Initiative
BC AGRICULTURE & FOOD

Bulkley-Nechako Fraser-Fort George

Climate Change Scenarios: 2020, 2050 & 2080

TEMPERATURE (by 2020 & 2050)

- Annual average is **1.6°C warmer** (by 2020) (+3.2°C by 2050) Baseline[1]: 1.6°C
- **25 more frost free days** annually (by 2020) (+52 days by 2050) Baseline: 146 days
- **230 more growing degree-days**[2] annually (by 2020) (+520 days by 2050) Baseline: 817

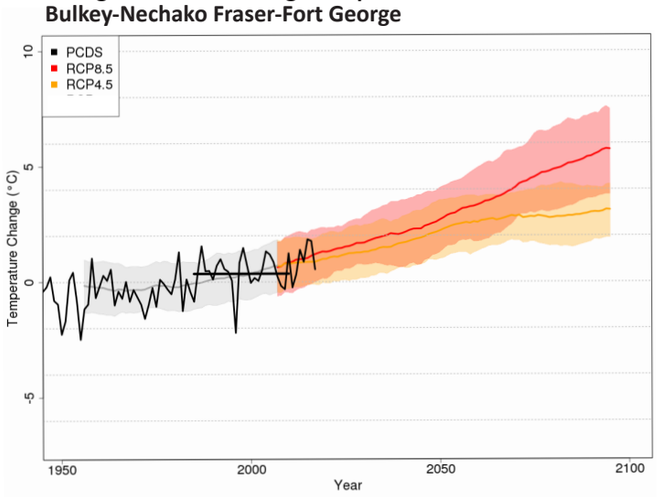
[1] Baseline (for all variables) is the average of the variables from 1971 to 2000.

[2] Growing degree days (GDD) is a weather-based indicator for assessing crop development. GDD are calculated by taking the average of the daily maximum and minimum temperatures compared to a base temperature (usually 10°C for grapes; 5°C for cereals and many grasses.). GDD accumulate over the growing season.

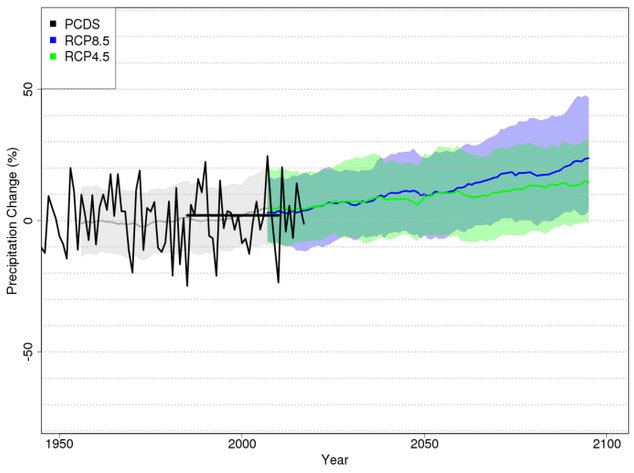
PRECIPITATION (by 2050)

- **Smithers**
  - Spring +11% (baseline: 90mm)
  - Summer +5% (baseline: 150mm)
  - Fall +16% (baseline: 160mm)
  - Winter +7% (baseline: 110mm)
- **Prince George**
  - Spring +16% (baseline: 120mm)
  - Summer +1% (baseline: 170mm)
  - Fall +17% (baseline: 190mm)
  - Winter +7% (baseline: 160mm)
- **McBride**
  - Spring +14% (baseline: 130mm)
  - Summer -3% (baseline: 200mm)
  - Fall +13% (baseline: 200mm)
  - Winter +6% (baseline: 150mm)

Change in Annual Average Temperature in Bulkley-Nechako Fraser-Fort George



Change in Annual Average Precipitation in Bulkley-Nechako Fraser-Fort George



RCP (Representative Concentration Pathways) 8.5 is a high GHG emissions model. RCP 4.5 is a medium GHG emissions model. Bold line indicates the mid-point of the model, shading indicates the projected model range. The black line represents PCDS (Provincial Climate Data Set) and is the historic climate data collected from BC.

Source (both graphs): Pacific Climate Impacts Consortium. Additional info at: https://pacificclimate.org/data/statistically-downscaled-climate-scenarios

HYDROLOGY

- Stream flow projections vary across the region
- Generally an **increase to winter and spring** stream flows and a **decrease to summer and autumn** stream flows
- Potential **increase in runoff** due to increased pine beetle/forest pest impacts[3] and wildfire damage

[3] https://www.unbc.ca/sites/default/files/assets/quesnel_river_research_centre/mountain_pine_beetle__hydrological.pdf

EXTREMES (2050s)

- Almost **twice** the number of **days over 25°C**
  Baseline: 9 days. +18 days by 2050 (+36 days by 2080)
- **7 times** the number of **days over 30°C**
  Baseline: 1 day. +7 days by 2050 (+18 days by 2080)
- **Increased** frequency and magnitude of **extreme rainfall events** (particularly in spring and fall)
- **25% reduction** in annual **frost days** (nights when the minimum temperature drops below 0°C)
  Baseline: 219 days. -52 days by 2050 (-87 days by 2080)

Extremes Source: *Pacific Climate Impacts Consortium*

Climate projections for the Fraser-Fort George and Bulkley-Nechako (FFG/BN) Region

Source: Pacific Climate Impacts Consortium (www.pacificclimate.org)

Climate change projections for the **2050s**

Climate Variable	Time of Year	Projected Change from 1971-2000 Baseline	
		FFG/BN (range)	FFG/BN (average)
Mean Temperature (°C)	Annual	+2°C to +4°C	+3°C
Precipitation (%)	Spring	+5% to +21%	+13%
	Summer	-16% to +13%	+1%
	Fall	+9% to +26%	+16%
	Winter	+3% to +14%	+7%
Growing Degree Days*	Annual	+310 to +790 GDD	+520 GDD
Icing Days*	Annual	-21 to -40 icing days	-28 icing days
Growing Season Length*	Annual	+26 to +50 days	+38 days

Climate change projections for the **2080s**

Climate Variable	Time of Year	Projected Change from 1971-2000 Baseline	
		FFG/BN (range)	FFG/BN (average)
Mean Temperature (°C)	Annual	+4°C to +7°C	+5°C
Precipitation (%)	Spring	+13% to +36%	+24%
	Summer	-24% to +17%	- 4%
	Fall	+12% to +38%	+28%
	Winter	no change to +28%	+14%
Growing Degree Days*	Annual	+560 to +1400 GDD	+920 GDD
Icing Days*	Annual	-35 to -50 icing days	-45 icing days
Growing Season Length*	Annual	+50 to +75 days	+65 days

Baseline is the average of all values during the period of 1971-2000.

* **Growing Degree-Days (GDD)** are a measure of heat accumulation, and represent the cumulative number of degrees that the average daily temperature is above a base temperature of 5°C, for all days of the year.

* **Icing Days (ID)** represent the number of days the maximum 24 hour temperature remains below freezing.

* **Growing Season Length (GSL)** represent the number of days between the first span of six consecutive days with a daily mean temperature above 6°C and the last day with a daily mean temperature above 6°C.