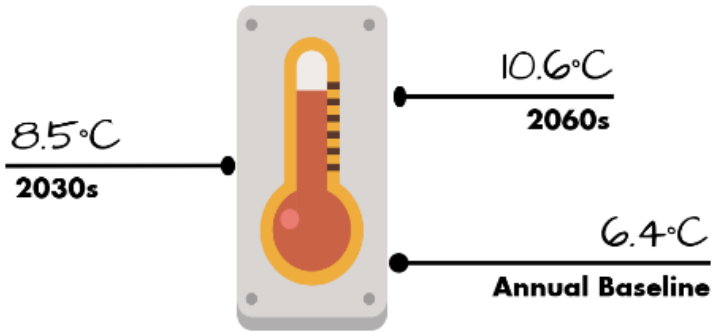


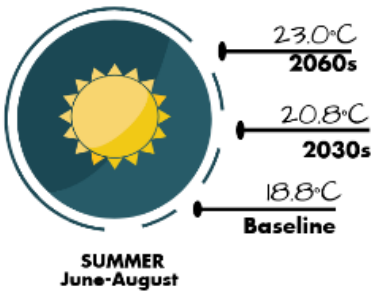
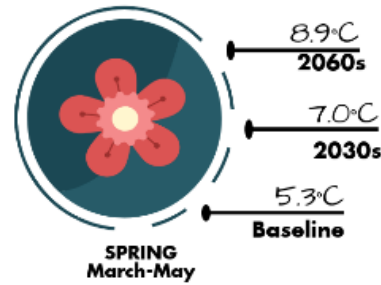
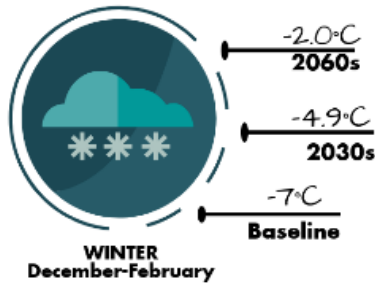
Future Climatic Projections

For: City of Peterborough | Created: August, 2018



ANNUAL MEAN TEMPERATURES

Mean temperatures are projected to significantly increase in every season over the long-term.

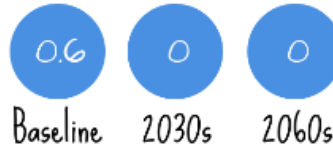


SEASONAL MEAN TEMPERATURES

DAYS ABOVE 30°C



DAYS BELOW -30°C



TEMPERATURE EXTREMES

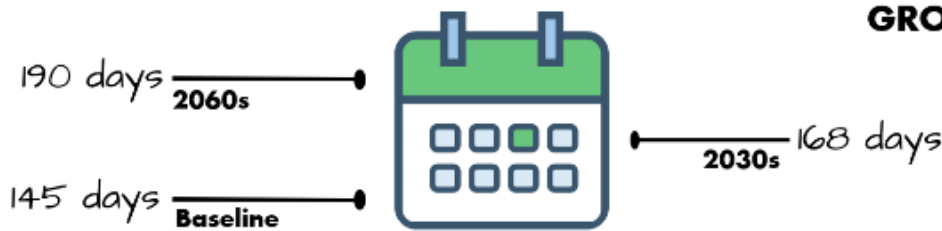
More extreme hot days, close to no extreme cold days.

DAYS WITH FREEZE-THAW CYCLES



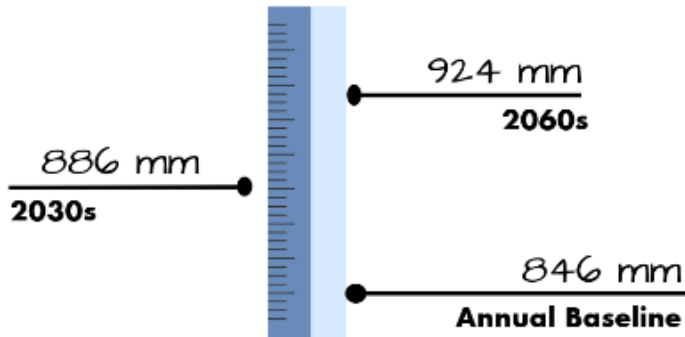
FREEZE-THAW CYCLES

A decrease in freeze-thaw days is expected.



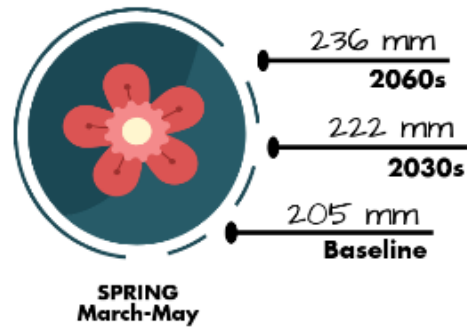
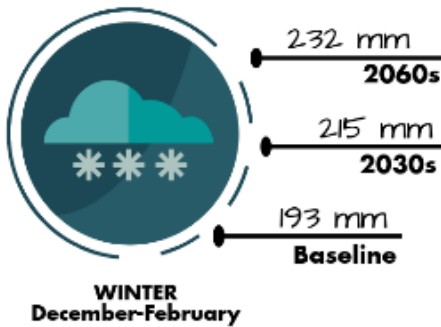
GROWING SEASON

First frost dates will be later, and last frost days will be earlier.

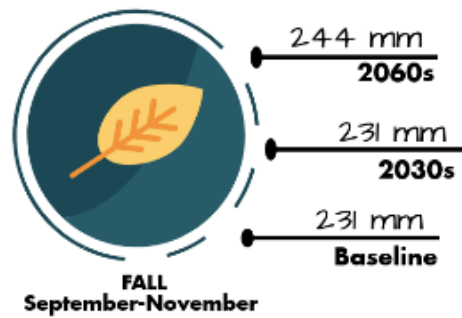
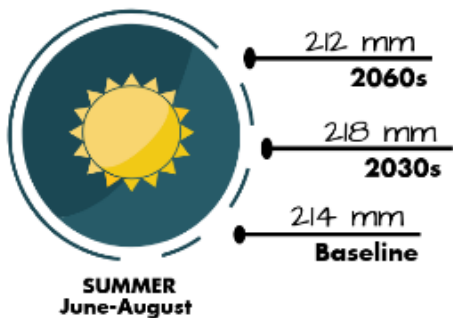


ANNUAL MEAN PRECIPITATION

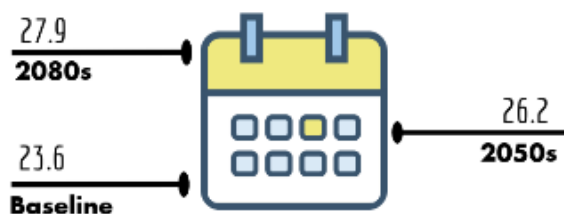
Annual precipitation is expected to increase. Winter and Spring are projected to get significantly wetter, with a slight decline in the Summer.



SEASONAL MEAN PRECIPITATION



DAYS WITH PRECIPITATION OVER 10 mm



EXTREME WEATHER EVENTS

Canada has seen more frequent and intense extreme weather events in the last 50-60 years than ever before.



Precipitation will fall at a faster rate (mm/h)



Shorter storms will have an increasingly high intensity



Return periods of heavy storms will shorten, meaning increased frequency

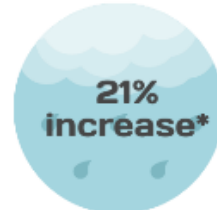
PRECIPITATION EVENTS

Precipitation events in general are projected to become more intense and extreme.

PRECIPITATION INTENSITY



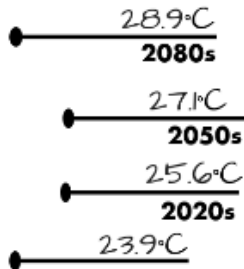
10-year storms



100-year storms

*This was calculated using precipitation intensity rates for a 24-hour rainfall duration.

MAXIMUM SURFACE TEMPERATURE



Lake Ontario Basin max. surface temp.* (2014)



23%

Loss of coldwater (<19°C) stream habitat

WATER TEMPERATURES

Lake Ontario basin temperatures will increase. This can negatively impact wetlands, habitats, and biodiversity.

*This includes all wetlands and tributaries

WATER LEVELS

Lake Ontario water levels are expected to be lower as water shortages and temperatures increase. Ice cover break-up dates are expected to be earlier while freeze-up dates are expected to be later. Projected warming, particularly in winter months, and less ice cover results in greater loss of water through evaporation.

In the long term, projections of warmer temperatures translate into expectations of lower water levels in the Great Lakes system.



Loss of wetland water budget and abundance of wetland vegetation, birds, and fish communities.

* Baseline period: 1990s (1976-2005); Projection periods: 2030s (2021-2050), 2060s (2051-2080).

* Water Temperatures section - Baseline period: 1990s (1981-2010); Projection periods: 2020s (2011-2040), 2050s (2041-2070), 2080s (2071-2100).

Sources:

Canadian Climate Data and Scenarios Network.

Climate Atlas of Canada Tool.

Chu, Cindy. (2015). Climate Change Vulnerability Assessment for Inland Aquatic Ecosystems in the Great Lakes Basin, Ontario. Ontario Ministry of Natural Resources and Forestry, Science and Research Branch, Peterborough, Ontario.