

SUMMER 2019




**TOGETHER FOR
CLIMATE
CAMPBELL RIVER**



**RISK ASSESSMENT
SUMMARY REPORT**

Analyzing risk is a key step in adapting to climate change and planning for a future in which the climate will be different than it is today. This report summarizes the most significant climate risks to Campbell River and is based on stakeholder participation in workshops to date, additional information collected through online surveys and correspondence, interviews with experts in the region, and consultation with the Together for Climate team and City staff in Campbell River.

The outcomes from this assessment reflect our current understanding of present conditions and anticipated climate projections for the region, and should be revisited every five years as climate science and our capacity to respond changes over time. This document should be treated as a living document that can be updated in the interim.

TOP CLIMATE RISKS FOR CAMPBELL RIVER




	Impact Statement	Risk Rating
	Sea level rise and more extreme rainfall events causing stormwater system back up, impacting sewer systems as well.	Medium-high
	Sea level rise and extreme rainfall events causing coastal erosion, affecting public and private development/property (e.g. Ostler Park, Tyee Spit) and escarpments along foreshore.	Medium-high
	Hotter and drier summers increasing PM 2.5, ground-level ozone, allergens, and smoke, leading to poor air quality.	Medium-high
	Rising annual temperatures causing introduction of new insects and pests (e.g. Pine Beetle, Douglas-fir Tussock moth, Gypsy Moth).	Medium-high
	Rising annual temperatures and hotter, drier summers threatening native species habitat and biodiversity (e.g. pollinators).	Medium-high
	Rising river temperatures impacting fish mortality (e.g. 5 species of salmon).	Medium
	More extreme weather events impacting transportation network (e.g. access to bridges to North Island, BC Ferries, access for emergency response).	Medium
	More extreme storms and wildfire events impacting tourism.	Medium
	Rising ocean temperatures increasing ocean acidification, resulting in loss of aquatic species (e.g. local molluscs).	Medium
	More extreme rainfall events increasing turbidity in watershed, affecting water quality.	Medium
	Rising ocean temperatures impacting aquaculture, the fishing industry, and recreational activities.	Medium-low

	More extreme weather events negatively impacting community well-being (e.g. health of vulnerable populations, access to recreation, social gathering spaces).	Medium-low
	More extreme rainfall events impacting fish spawning habitat (e.g. gravel restoration, erosion, turbidity).	Medium-low
	Sea level rise and more extreme rainfall events flooding coastal infrastructure (e.g. critical infrastructure like fire hall, and also recreation amenities).	Medium-low
	Hotter and drier summers increase the risk of wildland-urban interface fire in Campbell River (e.g. McIvor Lake, Beaver Lodge Lands), creating direct impacts to the community. There is also risk of fires in the surrounding regions that could affect the City's emergency response capacity.	Medium-low
	Hotter, drier summers impacting water supply and availability for competing uses (e.g. hydro power, agriculture, domestic use with growing population and development). Availability is also impacted by increased potential for wildfires and resulting impact on water quality.	Medium-low
	More extreme weather events exacerbating impacts from dam breach or causing overland flooding from overspill.	Medium-low
	Rising annual temperatures increasing pathogens and vector borne diseases.	Medium-low
	Hotter, drier summer conditions causing more windfall and damage to trees during wind events.	Medium-low
	Rising annual temperatures reducing snowpack and accelerating glacial melt, implicating downstream ecosystems.	Medium-low
	More extreme weather events causing damage to utility infrastructure, leading to electricity disruption.	Medium-low
	More extreme rainfall events increasing risk to infrastructure from erosion/slope failure (e.g. hospital, highway escarpment).	Medium-low

TOP RISKS TO FIRST NATIONS COMMUNITIES

The top climate risks for any given region will vary based on a community's geographic location, proximity to natural hazards such as the ocean or heavily forested areas, and the position of critical infrastructure and services. Taking these factors into consideration, the table below highlights the top risks to each First Nations community in close proximity to Campbell River. These risks can be

effectively managed through government to government relations and partnerships, and should be included as part of Campbell River’s adaptation planning process.

	Impact Statement	Risk Rating
	Hotter, drier summers increasing risk of wildland-urban interface fire on Homalco reserve.	Medium
	Sea level rise and increasing wildfire risk impacting infrastructure and culturally significant areas on We Wai Kai reserve.	Medium
	Sea level rise and more extreme rainfall events impacting Wei Wai Kum infrastructure and culturally significant sites (e.g. longhouses, cemetery, administration office).	Medium

ADDITIONAL RISKS

The following climate impacts were evaluated as lower priorities but are still important to monitor and take into account when planning for a future climate. Resources for adaptation planning should be directed towards the highest priority impacts first, but designed to address as many of the impacts below whenever possible. These risks should also be re-evaluated at five-year intervals.

More extreme heat events	- Increasing demand on energy resources and infrastructure (e.g. increased cooling demand)
Hotter, drier summers	- Monitor smoke and heat impacts to outdoor workers - Impact of wildfires on infrastructure (e.g. Hydro and gas lines)
More extreme weather events	- Monitor how changes in the North American and global food systems could affect Campbell River - Impacting business continuity
Sea level rise and more extreme rainfall events	- Causing failure of sewer pump lift stations (e.g. MMC, Home Depot, Simms creek)

RISK METHODOLOGY

The risks outlined above were identified through a process of two local workshops in Campbell River involving a variety of stakeholders and local experts. The first workshop introduced participants to the project and the various ways the climate is expected to change locally. Participants were asked to think about how these changes will impact Campbell River’s natural, built, and social systems, and then draft climate impact statements.

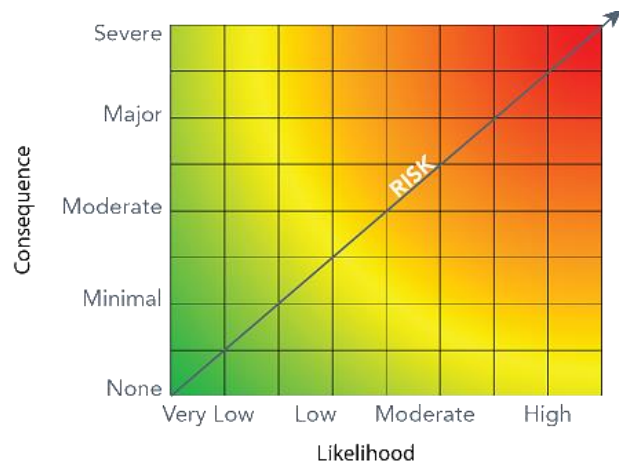
Between the first and second workshop, stakeholders were sent an online vulnerability assessment that asked them to assign a score of high, medium or low to each of the climate impacts they identified in the first workshop. This score was determined by two factors: sensitivity (susceptibility to the climate impact) and adaptive capacity (ability to cope/recover from the impact). Results from the

vulnerability survey provide a first look at prioritizing which impacts will affect the community the most and should be addressed first in the action-planning process.

The risk assessment process is used as a way to further prioritize which risks are most pertinent to plan for. In the risk assessment workshop, participants were asked to assess the consequences of each climate impact statement using the following 12 criteria:

Social	Economic	Environmental
Public Health & Safety	Property Damage	Air
Displacement	Local Economy & Growth	Water
Loss of Livelihood	Community Livability	Soil
Cultural Aspects	Public Administration	Ecosystem Function

Risk is a function of likelihood and consequence. A likelihood score was pre-determined for each impact statement by the project team, and participants were asked to review these scores at the workshop. The focus of this working session was to assign consequence scores for each of the social, economic, and environmental factors above to determine the overall risk score for each impact statement.



FROM RISK TO ACTION

There are many different ways climate change will impact any given location. The purpose of the vulnerability and risk assessments are to prioritize the risks that are most important to focus on in Campbell River particularly. Now that we have a list of the most significant risks to plan for, we will use the upcoming workshop to draft actions that can begin to address these risks, while thinking about who should be involved in the implementation of these actions.

OBJECTIVES

The following list of objectives is instrumental for stakeholders to consider when brainstorming actions, as it produces a clear vision of what we hope to accomplish through proactively addressing climate change in Campbell River. What kinds of actions can we take to address Campbell River’s top risks, while fulfilling the objectives below? We will explore the following objectives in more detail at our next local stakeholder meeting:

1. Reduce damage and disruptions to infrastructure in Campbell River
2. Protect the natural environment in Campbell River (and the surrounding areas) from risks associated with a changing climate
3. Monitor, protect, and conserve water resources in and around Campbell River
4. Protect health and well-being of residents and visitors in Campbell River

5. Help Campbell River residents, businesses, and institutions minimize climate risks and prepare for changing climate conditions
6. Integrate climate change into decision-making across Campbell River

PROJECT BACKGROUND

The Together for Climate project, led by ICLEI Canada, involves four local workshops that provide an opportunity for Campbell River staff, stakeholders, and community members to participate in the development of a community-wide Climate Change Adaptation Plan. The purpose of an Adaptation Plan is to incorporate and mainstream adaptation actions into City operations and to reduce the risks climate change poses to a community's physical, economic, social, and ecological systems. Through funding from the Real Estate Foundation of BC, this project brings together eight local and regional governments and communities in British Columbia to share in this process, which involves:

- Identifying locally relevant climate change impacts
- Completing organizational vulnerability and risk assessments
- Establishing long-term adaptation vision and goals
- Identifying relevant adaptation actions
- Developing implementation action plans

This document is a summary of the second localized workshop, which took place on March 5, 2019. The purpose of this workshop was to present the results of the online vulnerability assessment and use the updated list of climate impact statements drafted by participants to collaboratively assess the risks posed by each of these climate impacts. The risk assessment process enables us to prioritize the climatic changes that will have the biggest impact on Campbell River so we can build actions to address these risks in the next phase of this project.

MEETING PARTICIPANTS

The second meeting was convened by Summer Goulden from ICLEI Canada and was attended by those below. Additional stakeholders were invited, but were unable to attend, and will be reflected in future workshop summary reports as appropriate.

Name	Agency
Sue Hanley	Homalco First Nation
Ron Bowles	City of Campbell River
Clinton Crook	City of Campbell River
Laura Walker	City of Campbell River
Jennifer Peters	City of Campbell River
Chloe Swabey	City of Campbell River
Terri Martin	City of Campbell River
Amber Zirnhelt	City of Campbell River
Thomas Doherty	City of Campbell River

Pete Wipper	City of Campbell River
Karla Duarte	City of Campbell River
Renee Lange	Chamber of Commerce
Drew Williams	SD72
Stephen Watson	BC Hydro
Shannon Anderson	Fisheries and Oceans Canada (DFO)
Chuck DeSorcy	Greenways Land Trust
Alex Rowley	Vancouver Island University
Charmaine Enns	Island Health
Samantha Chickite	We Wai Kai Nation
Kim Macaulay	BC Ferries
Nancy Clements	Island Health
Ralda Hansen	Strathcona Regional District
Shaun Koopman	Strathcona Regional District

