

SUMMER 2019

**TOGETHER FOR  
CLIMATE  
ESQUIMALT**

**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 Esquimalt 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 Township staff in Esquimalt.

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 ESQUIMALT

	More extreme rainfall events causing inflow and infiltration of rainwater into sanitary sewer systems. [High risk]
	More extreme weather events and conditions increasing demand on public services (e.g. emergency responders and public works staff). [Medium-high risk]
	More extreme weather and heat events increasing mortality and health issues, particularly for vulnerable populations (e.g. homeless, elderly, pregnant women). [Medium risk]
	Rising annual temperatures and hotter drier summers negatively affecting city trees. [Medium risk]
	Increase in extreme weather and high wind events causing damage to infrastructure and utilities (e.g. electricity disruptions, impact on West Bay Marina and float homes) [Medium risk]
	Rising annual temperatures and drier summers causing stress for native species populations, affecting biodiversity and creating new opportunities for invasive species. [Medium risk]
	Hotter and drier summers increasing PM 2.5, ground-level ozone, allergens, and smoke, leading to poor air quality. [Medium risk]
	More extreme weather events and resulting impacts (e.g. erosion, contamination, coastal inundation) affecting access to recreational opportunities such as beach access, trail closures, etc. [Medium risk]
	Hotter air and surface water temperatures increasing the incidence of vector-borne diseases (e.g., West Nile Virus, Lyme Disease). [Medium-low risk]

	<p>Hotter and drier summers increase the risk of wildland-urban fire in the region, affecting the Township’s emergency response capacity. There is some risk to Esquimalt, but there are other regional risks that could affect Esquimalt (e.g., Saanich or Sooke Watershed). [Medium-low risk]</p>
	<p>Sea level rise inundating historical and culturally significant sites. [Medium-low risk]</p>
	<p>Drier summers and more extreme heat events causing erosion from drier conditions, affecting soil viability and absorption of stormwater. [Medium-low risk]</p>
	<p>Rising annual temperatures and extreme heat events affecting water quality in the Gorge (e.g. algal blooms). [Medium-low risk]</p>

### 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.

<p><b>Hotter, drier summers and more extreme heat events</b></p>	<ul style="list-style-type: none"> <li>- Increasing need for irrigation</li> <li>- Increasing cooling demand</li> <li>- Impact of heat and smoke on outdoor workers</li> </ul>
<p><b>More extreme rainfall events</b></p>	<ul style="list-style-type: none"> <li>- Causing flooding from pooling in low lying areas or rainfall exceeding the capacity of the drainage system</li> </ul>
<p><b>More extreme weather events</b></p>	<ul style="list-style-type: none"> <li>- Affecting business continuity</li> </ul>
<p><b>Sea level rise and storm surges</b></p>	<ul style="list-style-type: none"> <li>- Compromising stormwater infrastructure (e.g. blocking outfalls, flooding lift pump stations)</li> <li>-Causing coastal flooding and inundation of developed and developable land</li> </ul>
<p><b>Rising ocean temperatures and acidification</b></p>	<ul style="list-style-type: none"> <li>- Affecting species and organisms in marine environment</li> <li>- Impacting local fishing charters and changes in salmon and halibut populations</li> </ul>

**RISK METHODOLOGY**

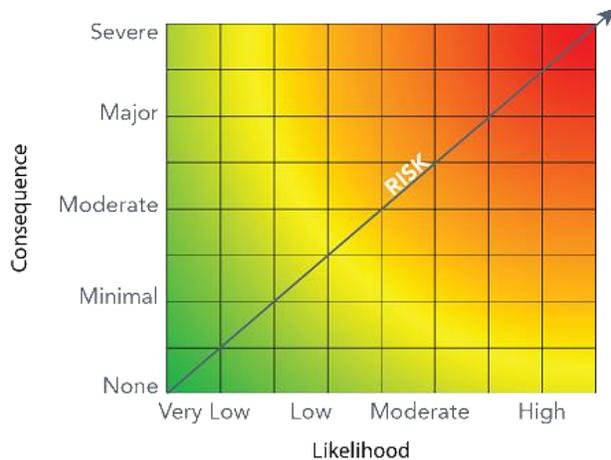
The risks outlined above were identified through a process of two local workshops in Esquimalt involving a variety of stakeholders and local experts. The first workshop introduced participants to the project and the various ways the climate is expected to change locally. Participants were asked to think about how these changes will impact Esquimalt’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 Esquimalt specifically. 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 Esquimalt. What kinds of actions can we take to address Esquimalt'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 Esquimalt
2. Protect the natural environment in Esquimalt (and the surrounding areas) from risks associated with a changing climate
3. Protect health and well-being of residents and visitors in Esquimalt
4. Help Esquimalt residents, businesses, and institutions minimize climate risks and prepare for changing climate conditions
5. Integrate climate change into decision-making across Esquimalt

## **PROJECT BACKGROUND**

The Together for Climate project, led by ICLEI Canada, involves four local workshops that provide an opportunity for Esquimalt 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 Township 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 February 27, 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 Esquimalt so we can build actions to address these risks in the next phase of this project.

### MEETING PARTICIPANTS

The second meeting was convened by Craig Brown and 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.

<b>Name</b>	<b>Agency</b>
<b>Karen Hay</b>	Esquimalt Planning
<b>Melissa Piasta</b>	PSPC – Esquimalt Graving Dock
<b>Stefanie Bendall</b>	PSPC – Esquimalt Graving Dock
<b>Adam Nicolson</b>	Victoria Shipyards
<b>Bill Brown</b>	Director of Development Services
<b>Tricia deMacedo</b>	Township of Esquimalt
<b>Eleanor Calder</b>	Esquimalt Neighbourhood House, Resident
<b>Kiki Fox</b>	Esquimalt Chamber of Commerce
<b>Duncan Cavens</b>	C2MP/APC
<b>Dominique Sigg</b>	BC Government, Climate Action Secretariat
<b>Paul Helston</b>	Esquimalt Environmental Advisory Committee
<b>Bill Johnston</b>	Island Health
<b>Jade Yehia</b>	Island Health
<b>Sara Jansen</b>	Esquimalt Emergency Program Manager

