



Health Impacts of Climate Change in BC

Ministry of Health
SABCS Conference
September 21, 2022



Ministry of Health

Acknowledging with Gratitude

The Lək̓ʷəŋən Peoples, known today as the Songhees and Esquimalt Nations, and the Métis Chartered Community of Greater Victoria



Overview

Purpose: to introduce health perspectives on impacts of climate change

- Health actions under Climate Preparedness & Adaptation Strategy
- Health Impacts of Climate Change
- Examples from British Columbia
- Climate & Health Assessments
- Risk to Resilience Project



Adapted from the WHO Operational Framework for Building Climate Resilient Health Systems (2015).

Climate Preparedness and Adaptation Strategy

Climate Preparedness and Adaptation Strategy

Actions for 2022-2025



- Health emerged as key issue in 2019 preliminary strategic climate risk assessment & in public & Indigenous engagement
- Climate Resilience team established in Ministry of Health to support CPAS actions in collaboration with health authorities
- Health actions in 2022-25 aim to support the shift to a low-carbon, climate resilient health system:
 - Assess climate risks to health & health system to inform planning
 - Build knowledge & capacity of health workforce & population to prepare & respond to climate-related health risks
 - Promote cross-sectoral collaboration on innovative, evidence-based solutions grounded in cultural safety & health equity

Health Impacts of Climate Change

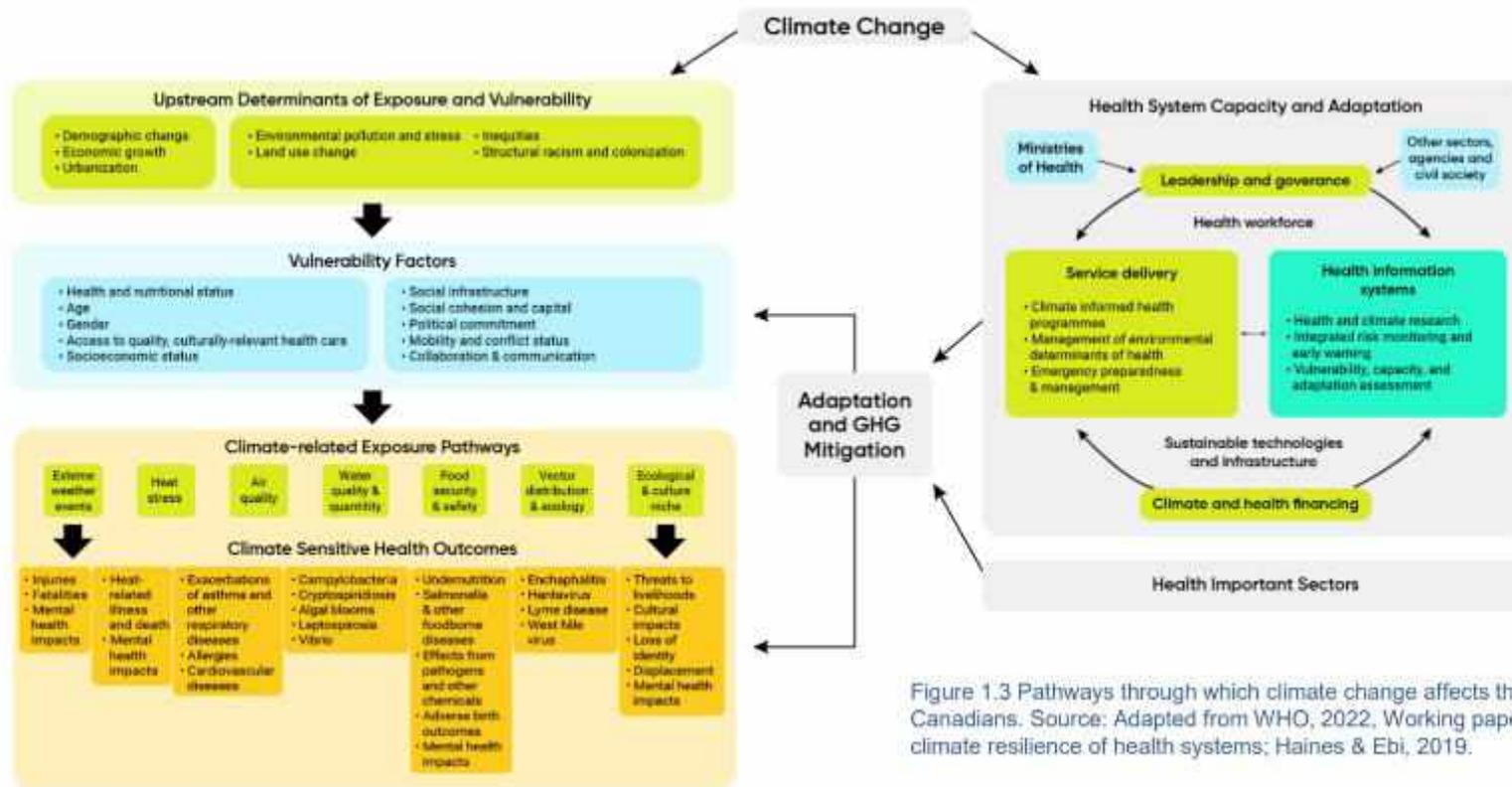


Figure 1.3 Pathways through which climate change affects the health of Canadians. Source: Adapted from WHO, 2022, Working paper on measuring climate resilience of health systems; Haines & Ebi, 2019.

HEALTH IMPACTS RELATED TO NATURAL HAZARDS

(E.G. EXTREME TEMPERATURES • DROUGHT • WILDFIRES • UV • STORMS • FLOODING • LANDSLIDES)

EXAMPLES OF INCREASING RISKS FROM NATURAL HAZARDS



- Increase in direct heat-related illnesses (e.g., heat stroke), especially for workers
- Increase in respiratory disorders (e.g., asthma)
- Perinatal care complications
- Psychosocial impacts
- Increase in cardiovascular disorders, especially for seniors
- Increase in heat-related deaths
- Increase in emergency visits for mental health problems



- Deaths, injuries and illness from violent storms or floods
- Physical and mental health impacts from food insecurity
- Increase in respiratory illnesses related to wildfires
- Illnesses related to water contamination
- Psychological health effects, including mental health and stress-related illnesses

DIFFERENCES IN EXPOSURE & SENSITIVITY TO NATURAL HAZARDS AND THE ABILITY TO TAKE PROTECTIVE MEASURES RESULT IN SOME POPULATIONS BEING AT INCREASED RISK TO HEALTH IMPACTS OF NATURAL HAZARDS:



Pregnant people



Seniors and children



People with pre-existing health conditions



Indigenous peoples



People with low socio-economic status



Outdoor workers

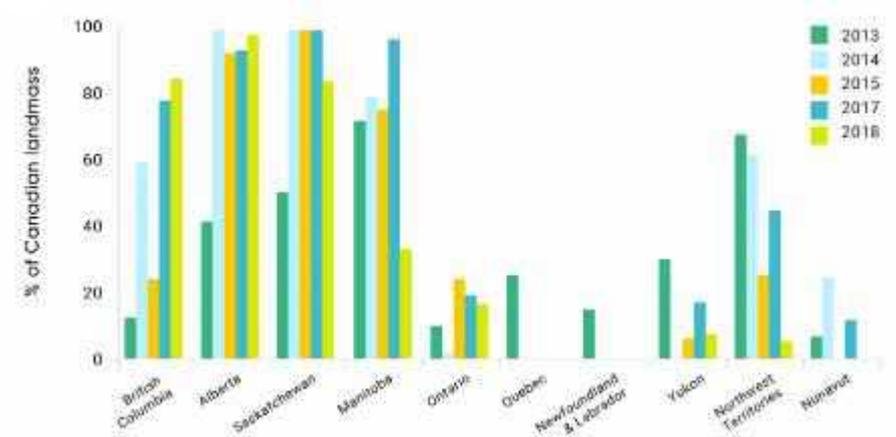
- Climate change & extreme weather pose serious **risks to health & health systems**
- Some regions & populations are disproportionately impacted based on level of **vulnerability, exposure & adaptive capacity**
- Together, these factors influence **climate resilience**, i.e., the capacity to prevent, prepare for & adapt to climate-related health risks



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Health Risks of Wildfire

- Wildfire impacts on **property, public health, and environment** can expand several hundred km from burn zone
- Wildfires expected to become more frequent and intense with **climate change**, with increasing risks to human health
- **Wildfire smoke** contains ozone, sulphur dioxide, nitrogen dioxide, carbon monoxide, volatile organic compounds, & fine particulate matter (PM_{2.5}) particulate matter
- In addition to **cardiorespiratory health risks** from smoke inhalation, wildfires can lead to injury, loss of livelihood, & displacement with implications for **community cohesion & mental health**



% of landmass population by province & territory with average (May to Sept) wildfire-PM_{2.5} concentrations $\geq 1 \mu\text{g}/\text{m}^3$



2021 Flooding: Impacts to Drinking Water

- Flooding can impact **drinking water quality** by transporting debris, sediment & chemical/biological contaminants from land into drinking water sources
- Atmospheric river in Nov 2021 led to the creation of a multi-agency **Flood Water Quality Monitoring Task Force (FWQMTF)** to immediately assess risks to human health and environment from contaminants in flood impacted areas
- Ministry of Health & health authorities **convened health emergency management & public health officials** to share information & coordinate the public health response to health risks to drinking water quality, food safety/security, & indoor air quality (e.g., mould, asbestos), including public communications & guidance



2021 Flooding: Impacts on Food Safety & Security

- Loss of crops and livestock, including loss of traditional food sources
- Panic buying and hoarding
- Road closures resulting in lack to access to fresh food, especially for remote and Indigenous communities
- Loss of winter season food stores & food safety risks due to power outages
- Increased demand on charitable food sector
- Need for culturally preferable food for evacuated and relocated people



2021 Flooding: Impact on First Nations

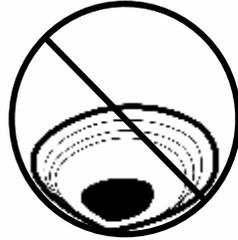


Nov 2021
Atmospheric
River

Flooding and
Contaminated
Runoff

Increased
contaminant
levels in clam
gardens

21 day closure
by DFO



- Sea gardens are an **important food, social, ceremonial & economic factor** for the Coast Salish nations of Tsawout, Penelakut and Halalt.
- In addition to **physical health risks** of exposure to contaminants in food, loss of food source has implications for **social, economic & cultural determinants of health**
- **Commercial harvesting sites reopened after additional testing**, while First Nations harvesting sites remained closed for 21 days without additional testing
- A Federal and Provincial collaborative effort is being undertaken to bring awareness forward to enable a standard and equitable practice to **foster Indigenous Food Sovereignty during future extreme weather events.**

Promoting First Nations Food Sovereignty & Security

We All Take Care of the Harvest (WATCH): pilot project led by First Nations Health Authority, in response to First Nations' concerns that seafood were unsafe to harvest.

WATCH aims to:

- Help communities access **timely & relevant information** about seafood harvest areas;
- Enable communities to **prepare for & manage** climate-related impacts to seafoods; &
- Promote **seafood sovereignty & security** across coastal First Nations.



SPRING NEWS March 29, 2021

WATCH PROJECT

WE ALL TAKE CARE OF THE HARVEST

A seafood and climate change project

The FNHA WATCH Project is a pilot project focused on **seafood safety, security and sovereignty**. The inspiration for the WATCH Project was *The Blob*, a massive marine heatwave that created a cascade of negative impacts for marine life and communities reliant on seafood. These included a toxic algae bloom that closed many harvest areas and caused a shift in salmon migration routes.

2013 2014 2015 2016 2017

HARMFUL ALGAL BLOOMS AND THE FOOD WEB

1. Harmful algal blooms (HAB) are a natural part of the marine ecosystem.
2. HAB can be caused by a variety of factors, including climate change, overfishing, and pollution.
3. HAB can have a variety of impacts on the food web, including the death of fish and other marine life.
4. HAB can also have impacts on humans, including skin irritation and respiratory problems.
5. HAB can also have impacts on the environment, including the death of coral reefs and other marine life.

Advisory Teams

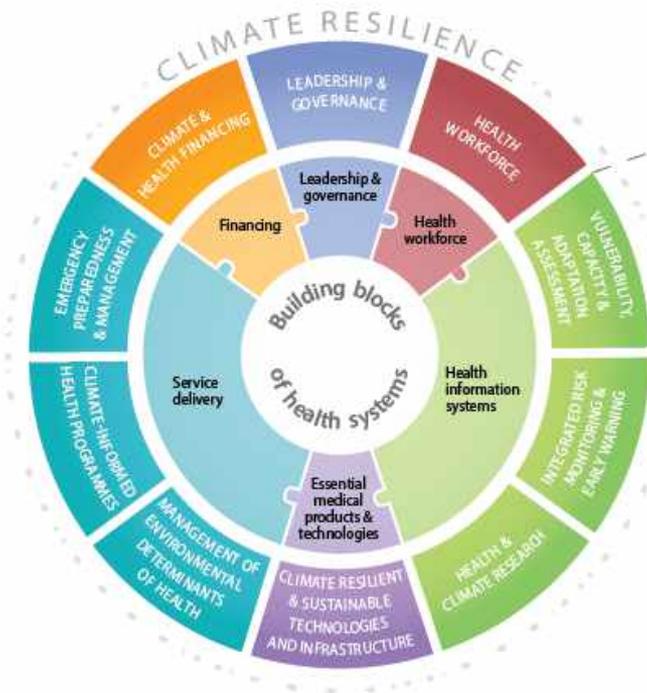
Beginning in spring 2021, two Advisory Teams will help guide the WATCH Project: A First Nations Advisory Team of healers, fisheries, and food specialists, and an external Advisory Team of scientists and policymakers from universities, governments, and non-profit organizations.

Monitoring group

A Monitoring Community of Practice is developing that will share technical expertise to standardize protocols, develop best practices, and more.

NCAA The Rise and Fall of 'The Blob'

Assessing Climate Impacts on Health & Health System



Vulnerability and adaptation assessment

Objective:

To provide basic and flexible guidance on conducting a national or subnational vulnerability and adaptation assessment of current and future vulnerability to the health risks of climate variability and change, and the policies, programmes, and capacities of health systems that could increase resilience, taking into account the multiple determinants of climate-sensitive health outcomes.

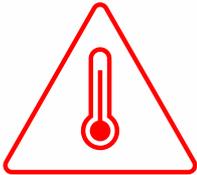
Climate change & health assessments require close collaboration among researchers, experts & partners from a **wide range of disciplines** applying many tools and methods such as ([WHO, 2003](#)):

- Integrated risk assessment
- Indigenous Knowledge, “two-eyed” seeing
- Literature reviews
- Single event case studies
- Focus groups
- Participatory workshops
- Cost-benefit analysis
- Geographical information systems
- Environmental epidemiology (e.g., short & long time-series, ecological studies)
- Climate change, population and socioeconomic projections and scenarios
- Climate and health modelling
- Biological models of infectious disease transmission
- Development and application of indicators
- Comparative risk assessment

Climate Change & Health in BC: From Risk to Resilience (Project)



- Ministry of Health is collaborating with Health Canada **to better understand current climate-related health risks/impacts & vulnerabilities/resilience in B.C.** to inform federal/provincial/regional assessments & planning



- Includes identifying potential **actions to prepare & respond** within population & health system & **case study on 2021 extreme heat, wildfire, & flood events**



- Ministry currently **collecting existing evidence** of health impacts to inform the project (e.g., assessments, reports)
- For more info, see RFP now live on [BCBid](#) (closes Oct 3)

For more information



The success of the “Risk to Resilience” climate & health assessment project will depend on evidence, expertise and perspective from key informants.

If you are interested in learning more, or have information to share please talk to Anna Bunce or email healthclimateresilience@gov.bc.ca

