



UBCM Convention 2022 | September 15

Photo: Province of BC

# Lessons from an Atmospheric River: Insights for Local Governments



Fraser Basin Council

# Introduction to the Fraser Basin Council

- Non-governmental, not-for-profit organization
- Educator and convener / facilitator of inclusive and constructive dialogue and work on complex, inter-jurisdictional sustainability issues

## FBC's Role in Flood Management

- Facilitation of multi-jurisdictional / multi-interest flood planning
- Development of flood hazard and risk information
- Education and tools for informed decision-making
- Help to connect professionals, practitioners and policy-makers



# Primer on Flood Hazards in BC

- Freshet / snowmelt flooding
- Rain-dominant flooding (including atmospheric rivers)
- Ice jams
- Coastal storm surge
- Debris flows/floods, landslides
- Dam releases/dam failures
- Tsunamis
- Changing climate



Vancouver Sun: November 2021 Floods

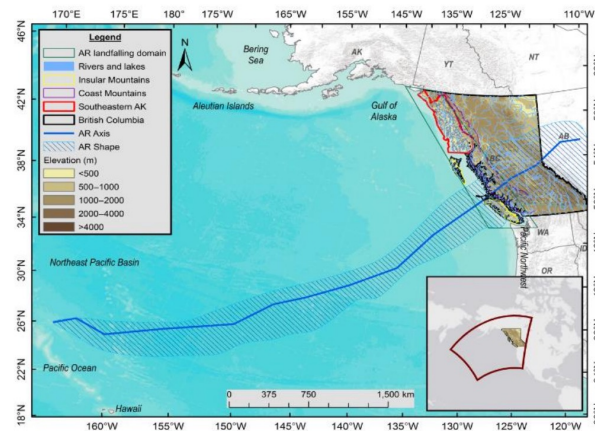
# Atmospheric Rivers: Nov. 13 – Dec. 2, 2021

## Atmospheric Rivers (Pineapple Express, Hawaiian Punch)

- Warm moist air travels from the south Pacific, carrying a lot of water to BC (with climate change, warmer air suspends more water)

## Magnitude and Geographic Extent

- Southern Vancouver Island
- Abbotsford (Sumas and Nooksack Rivers)
- Merritt (Coldwater and Nicola Rivers)
- Princeton (Tulameen and Similkameen Rivers)
- Spences Bridge (Nicola and Thompson Rivers)
- Lots of local creeks (Abbotsford, Chilliwack, Hatzic, and other)
- Multiple landslides and highway washouts (Highways 1, 3, 5, 7, 8, 11, 99 +)



October 2014 BC Atmospheric River

# Far-Reaching Consequences

## Damage and disruption from floods impact everybody.

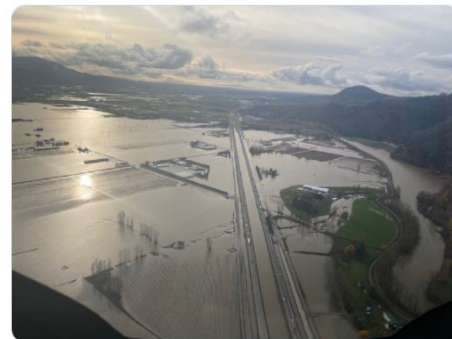
- **People** (many communities, including an estimated 42 First Nations)
  - Loss of life, social, mental and emotional hardship
  - Countless homes, businesses, and other impacts
  - Evacuation and emergency services
- **Agriculture**
  - 620,000 poultry, 420 cows, 1200 hogs, and bees in 110 beehives (in Sumas alone)
- **Environment** (water and soil contamination, habitat degradation)
- **Economy** (direct damages and indirect losses)



BC Transportation @TranBC · Nov 28

We've been asked why some highways are given 60km/h speed limits. Its due to ground saturation. Because of the #BCstorm, the ground under the road could be soft and travelling at higher speeds could further damage it. Safety is our priority.

📷 - #BChwy1 Sumas area from Friday



💬 10

↻ 167

❤️ 482

📤



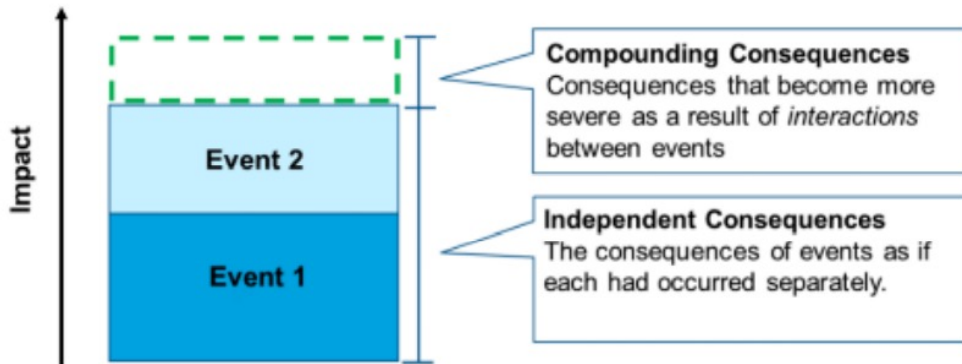


Photo: Christina Toth,  
Nov 2021

Looking south across Sumas Prairie in Abbotsford. Sumas/Nooksack flood, 2021

# Compounding Hazard Events

- Wildfires (loss of forest cover and hydrophobic soils)
- Saturated soils from previous rainfall
- Coinciding floods (e.g., Fraser and tributaries, riverine and coastal)

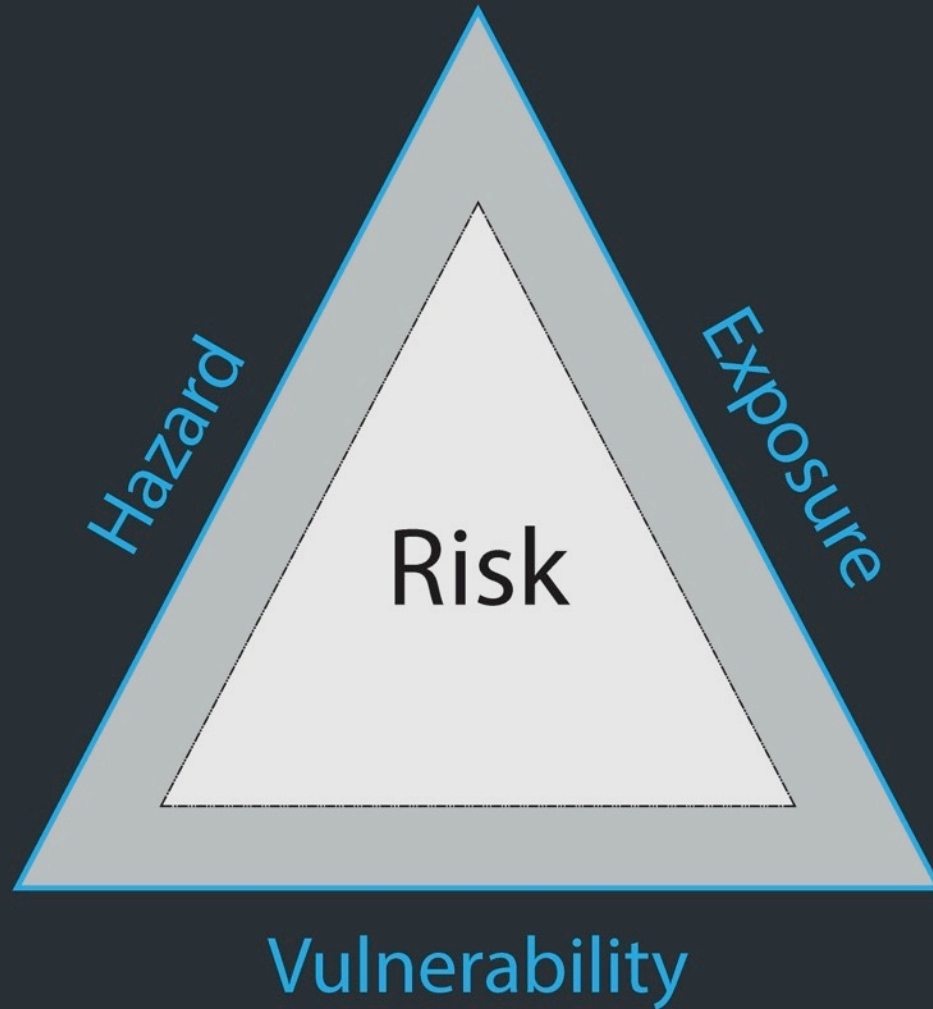


# Flood Risk Management



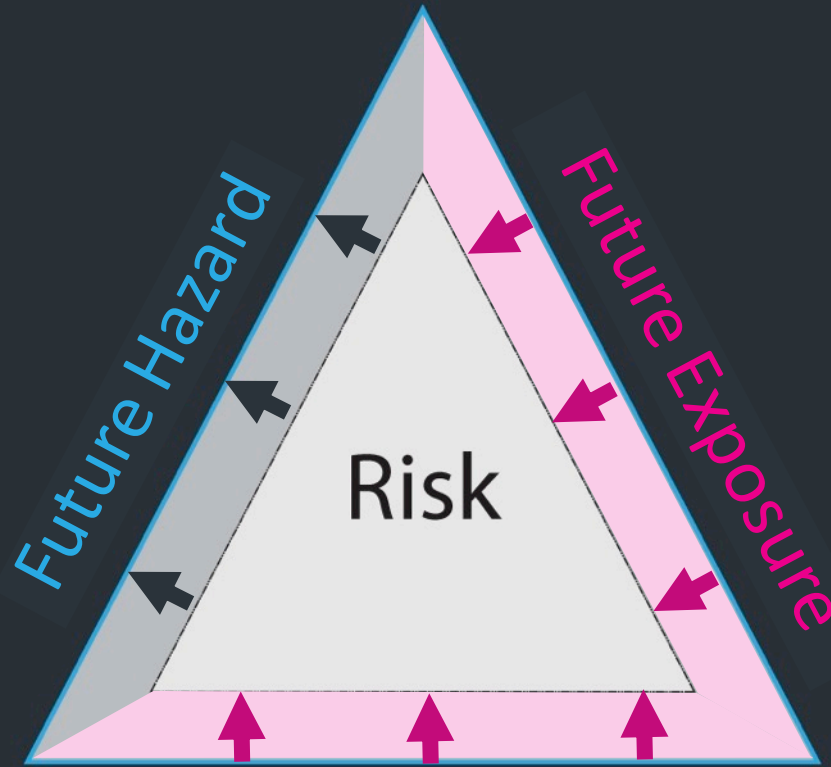
Abbotsford, November 2021 Flood







Climate  
Change



Future Vulnerability

Investment in  
Resilience



Targeted  
Development

# Flood Risk Management – It's more than diking!

- Integrated approaches to manage flood risks:
  - **Knowledge and decision support tools** on flood hazards and risks
  - **Flood protection works**  
(mitigate the flood hazard impacts)
  - **Land use planning and floodproofing**  
(reduce exposure and vulnerability)
  - **Green infrastructure** and nature-based approaches
  - **Resilient buildings** and infrastructure
  - **Flood emergency** planning, response and recovery

# Flood Risk Management – A Call to Action!

- Work underway on **new policy frameworks**  
(e.g., BC Flood Strategy, EPA modernization, Declaration Act)
- Work underway on **regional and local flood plans and strategies**  
(need to clarify alignment, synergies, avoid duplication)
- What's needed:
  - **significant investment** (strategic, comprehensive, long-term)
  - **equitable access** to resources
  - **increased capacity** in governments, private sector and public
  - **coordination and collaboration**



## FLOODWISE IN BC'S LOWER MAINLAND

Your information portal on flood risk management

FLOOD 101

# Contact

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See also [FloodWise.ca](https://FloodWise.ca)



*Fraser Basin Council*