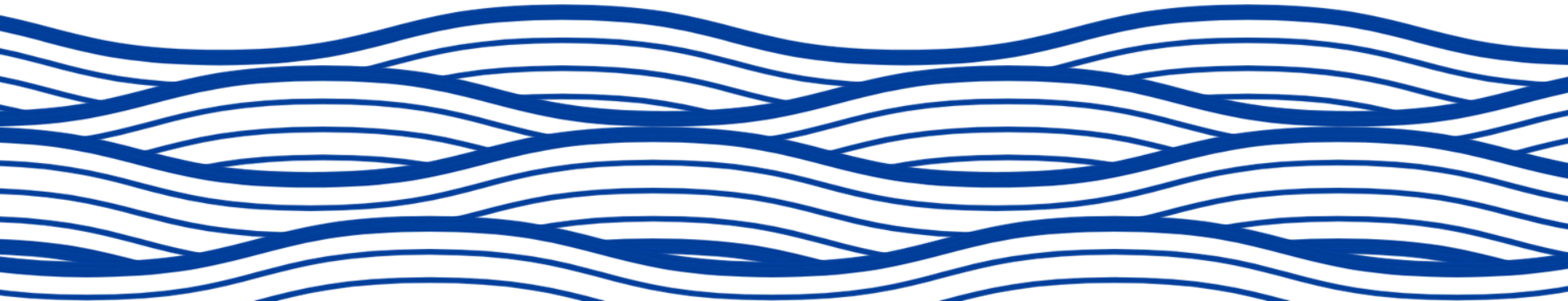
Floodplains Coalition

Lower Fraser Flood Forum
November 13, 2025

Welcome and Opening Remarks



Welcome from Councillor David Kenworthy

AGENDA

1. Welcome and Opening Remarks
2. Context Setting
3. A Next Step: Statement of Solidarity
4. Lunch
5. Taking Action in the Region
6. Closing & Next Steps

Community Agreements

- Practice confidentiality
- Respect each other's values, interests and knowledge systems
- Listen with an open mind and heart
- Step forward, step back
- Bring your full self
- Take a breath
- Photos / recording (opt-in)

Achievements & Aspirations

Reflect on your community / organization's flood resilience work:

- Two "Wins" From This Past Year
- One "Wish" For the Year To Come

Write all 3 in past tense (as though all have happened), e.g.:

- We are meeting regularly with a neighbouring community about...
- I learned about...
- We formed an internal working group on...
- We received funding for...
- I finally know who to call when...
- We got a new coffee maker in the office and it's amazing!

Achievements & Aspirations

Find 2 others with different coloured name tags to you (groups of 3)

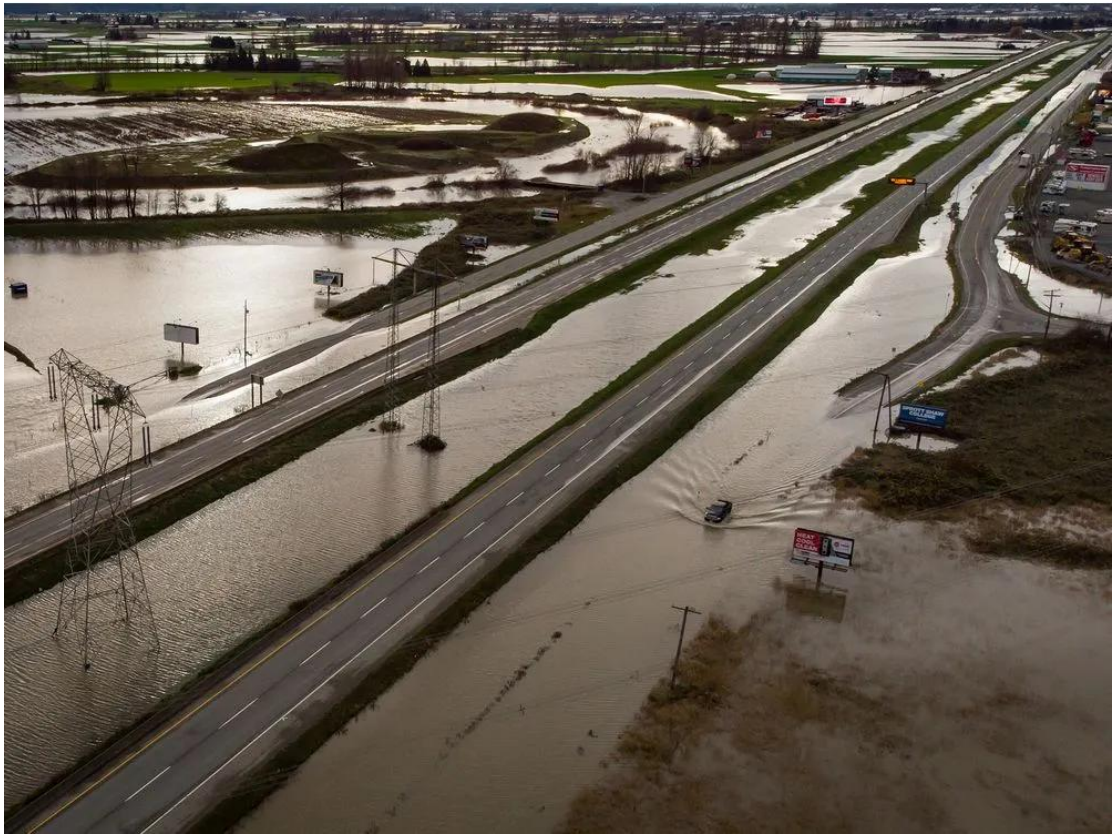
Take turns (~3 min each)

- Read out your 3 examples (all in past tense)
- Others guess which is a “wish”
- Short discussion, then switch

Context Setting: Groundwork for Resilience

Gillian Fuss
Emergency Planning Secretariat

How did we get here?



Policy Review: *Flood Control Infrastructure*

Credit: Deb Carlson

History

- 1864 and onwards **settler farmers build *ad hoc* dikes** to protect their farmland, but the flood overwhelmed them
- 1898 Province creates **Inspector of Dikes** to construct & maintain dikes.
- 1948 flood, dikes fail. BC and federal governments create **Fraser Valley Dyking Board** to quickly build/re-build dikes. Funding feds (75%), province (25%). Engineers sent to "**restore faith in the diking system**"
- 1949 Lower Mainland Regional Planning Board set up, and eventually developed a regional plan with flood prone areas for "rural uses"
- 1968 – 1994 **Fraser River Flood Control Program** (funded 50/50 by the federal and BC governments, with local government providing maintenance.
- 1972 - another flood, Provincial approval for development in the floodplain
- 2003 **Inspector of Dikes loses supervisory powers to local govts**, ever since, short-term, competitive funding programs.
- 2015 report - **87% of dikes 'unacceptable to poor'**, 97% don't meet current seismic standards
- By 2019 City of Abbotsford estimates **it needs $448 million**.

Policy Review: *Flood Control Infrastructure*

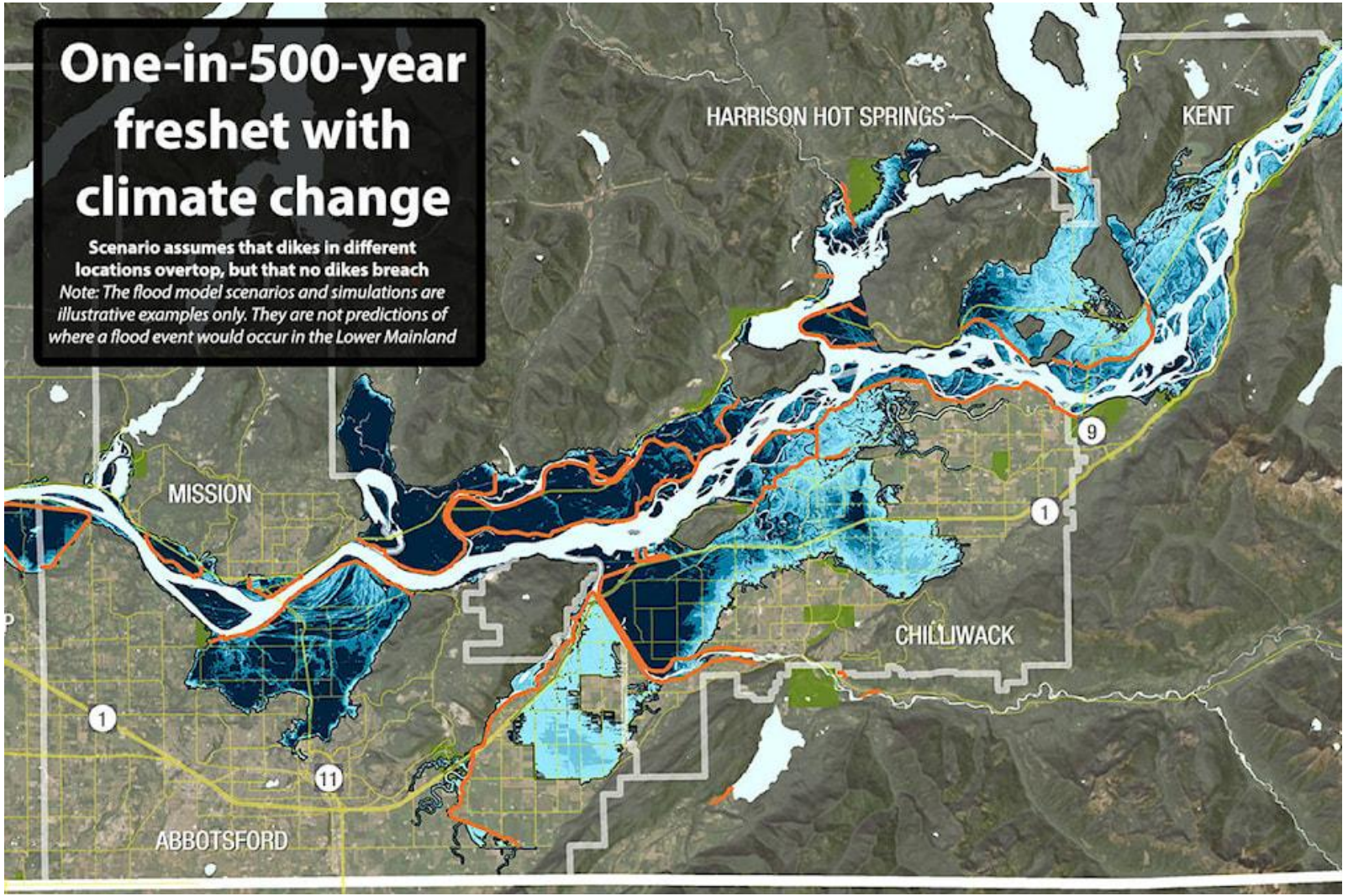
Credit: Deb Carlson

History

- Planning has always been adhoc or reactive to what was needed at the time, development or flood risk reduction
- Dike construction occurred after a flood, funding was reactive, and a significant portion paid by the Federal Government
- Dikes have failed several times, and are not in good condition, but remain cost prohibitive
- We have inherited a complex system of risk, where residents have little awareness of their risks
- Do we want to continue this, or be more strategic about how we are planning and building?

By careful engineering methods one can restrain the River in spots, one can nudge it here and suggest to it there, but never without fabulous expenditures can the lower Fraser River be harnessed and controlled by a system of dykes.

Fraser Valley Dyking Board, 1949


One-in-500-year freshet with climate change
Scenario assumes that dikes in different locations overtop, but that no dikes breach
Note: The flood model scenarios and simulations are illustrative examples only. They are not predictions of where a flood event would occur in the Lower Mainland
HARRISON HOT SPRINGS
KENT
MISSION
CHILLIWACK
ABBOTSFORD
1
9
1
11

The Lower Fraser Floodplains Coalition

CONVENE

Convene neighbors to build relationships, share information, and work together.

ADVOCATE

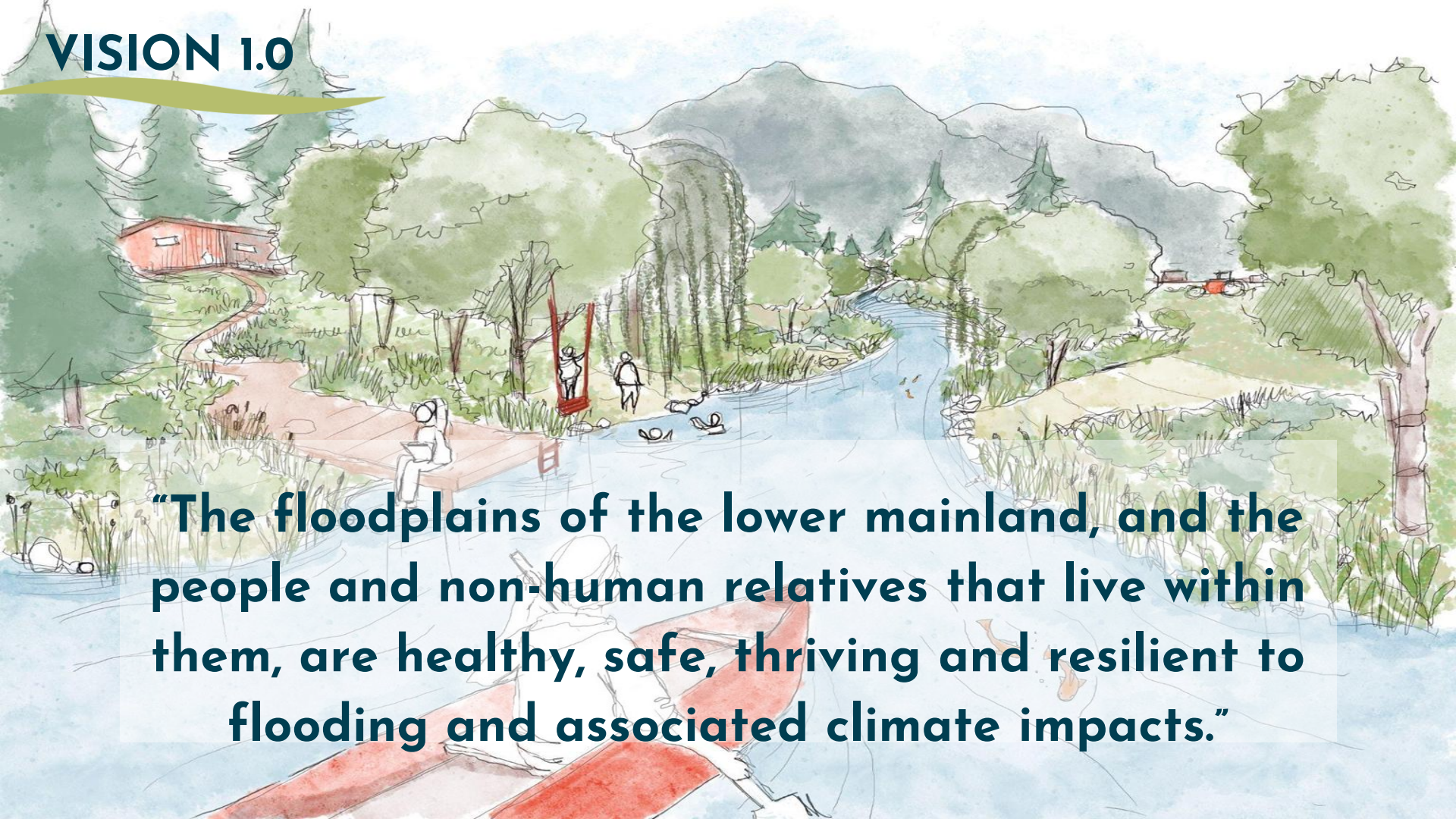
Advocate for resources for this region.

TECHNICAL WORK

Support technical work to fill in critical, strategic gaps, including: interdependencies, Landscape scale opportunities and, nature-based and hybrid adaptation options

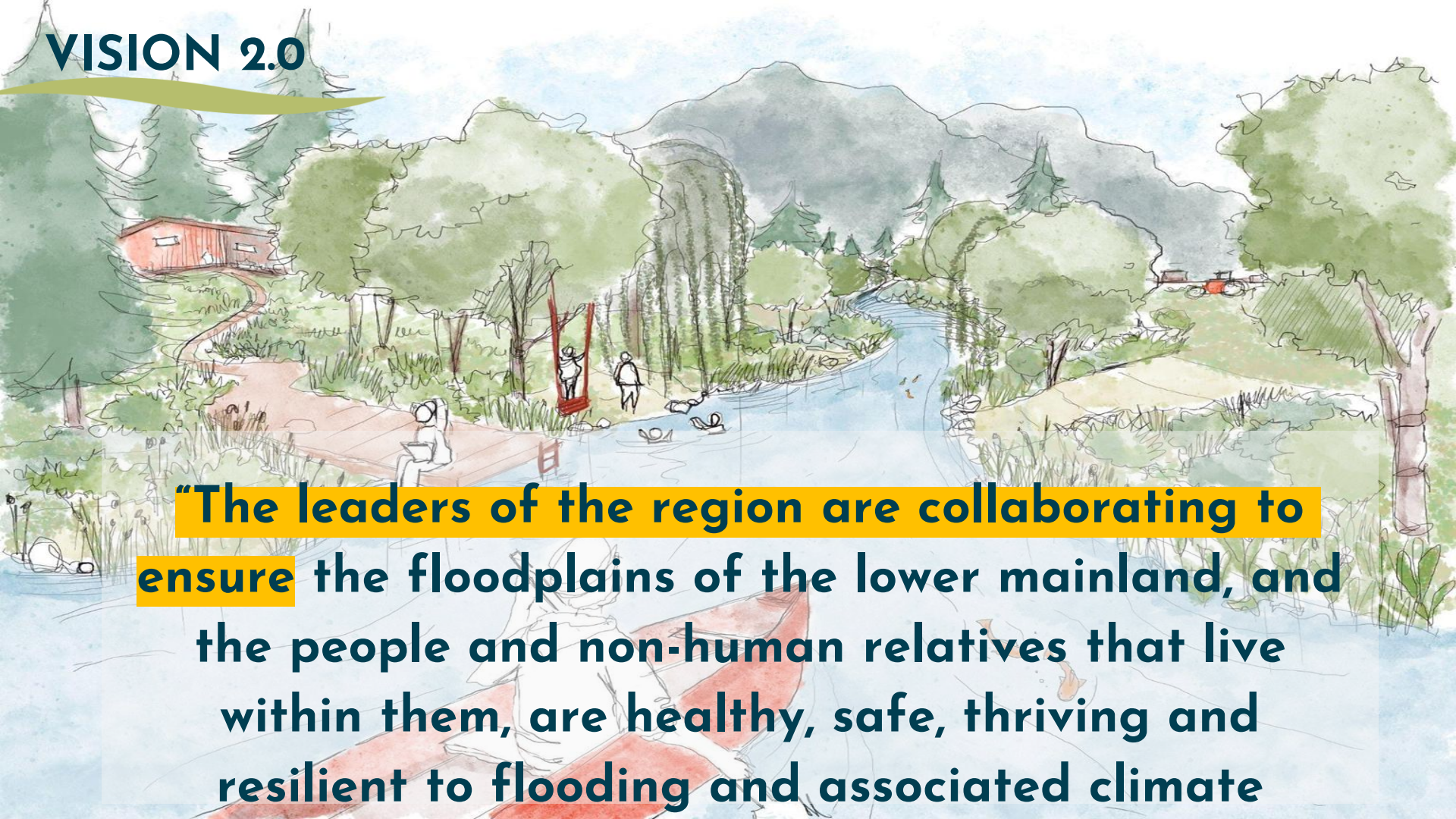
EMERGENCY PLANNING SECRETARIAT EPS YOYES SQ'EQ'D • WORKING TOGETHER
RESILIENT WATERS
WATERSHED WATCH SALMON SOCIETY
UBC SCHOOL OF ARCHITECTURE + LANDSCAPE ARCHITECTURE
WEST COAST Environmental Law
ebbwater CONSULTING
kwl
The Nature Conservancy Protecting nature. Preserving life.

VISION 1.0



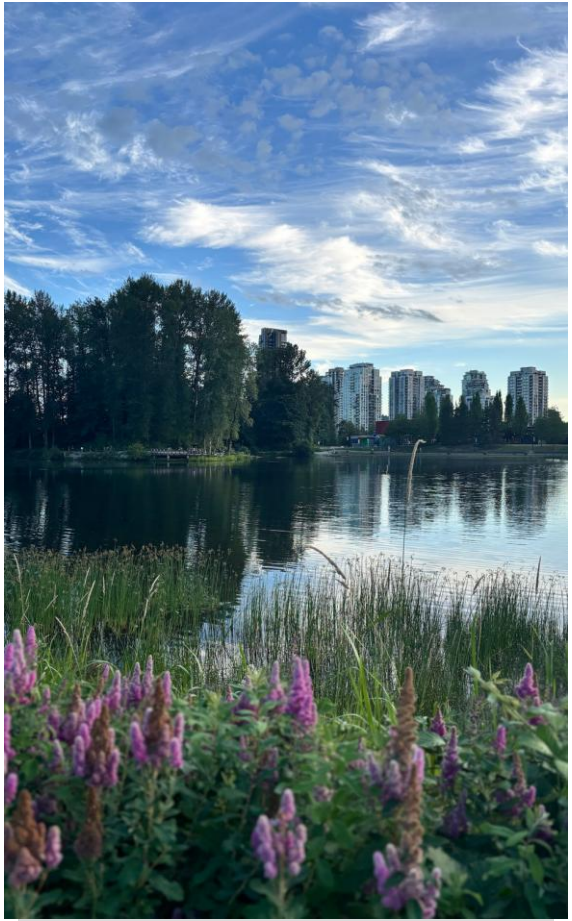
"The floodplains of the lower mainland, and the people and non-human relatives that live within them, are healthy, safe, thriving and resilient to flooding and associated climate impacts."

VISION 2.0



"The leaders of the region are collaborating to ensure the floodplains of the lower mainland, and the people and non-human relatives that live within them, are healthy, safe, thriving and resilient to flooding and associated climate

5 Principles for Working Together



Reducing Risk and Adapting to Climate Change

Understanding and reducing risk and adapting to climate change in accordance with the Sendai Framework on Disaster Risk Reduction because relying on the status quo will not keep us safe

Advancing Reconciliation

Advancing reconciliation, with particular attention to Articles 18, 19, 29, 32 of United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP);

Thriving Salmon and Ecosystems

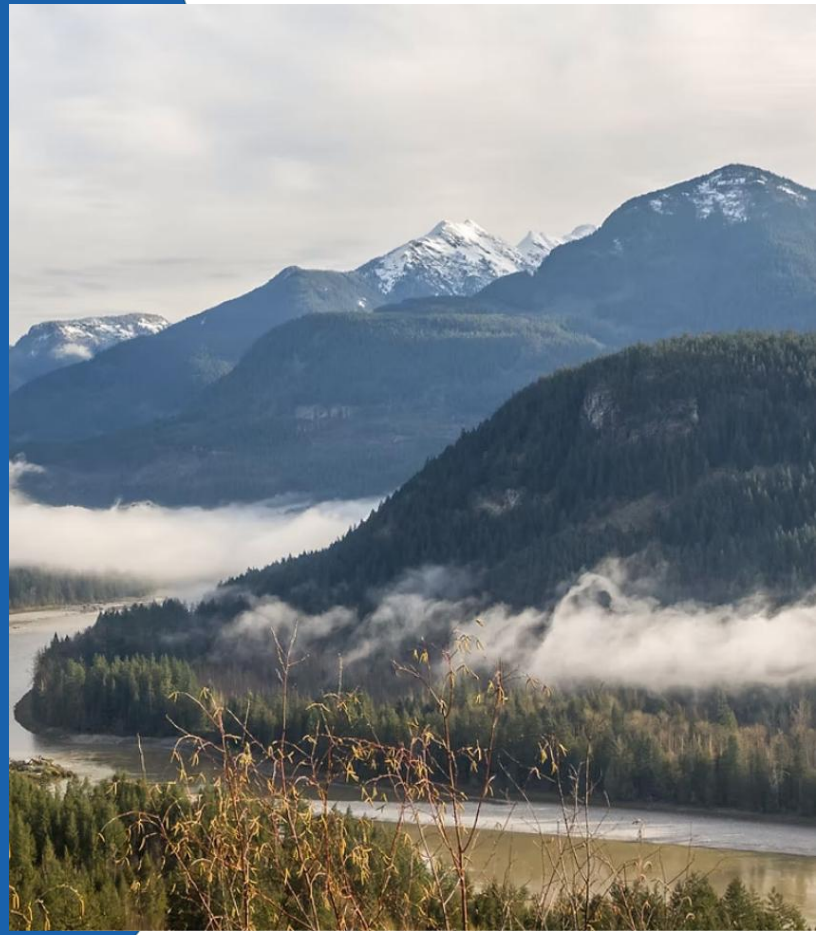
Ensuring that salmon, a keystone species, and the coastal and freshwater ecosystems they depend on are thriving for First Nation culture and the regional economy.

Sustainable Economies and Resilient Communities

Sustainable economies and resilient communities for the long term – we need a shared vision for the future and a plan to measure progress and ensure accountability;

Everyone is Part of the Solution

There are many siloes in planning, decision-making and actions on the ground in the Lower Fraser region, and a more holistic and collaborative approach to managing flood risks is needed.



Multi-Benefits

Making good choices from all these risk reduction options adds up to multi-benef management:

- **Safe Communities**
- **Resilient Economies**
- **Healthy Ecosystems**
- **Avenues for Reconciliati**

Overall, we can proactively invest & mar instead of waiting for disasters to happe

3 Priority Areas

Understanding Risk & Risk Management Options

Focuses on processes like risk assessments, modeling, and data sharing (including assessing risks to critical infrastructure, water systems, and agriculture)

Supports informed decision-making and prioritization of resilience actions.

Policy, Planning, and Decision Making

Focuses on governance, coordination, and enabling conditions. Includes:

- Regional and subregional planning tables
- Shared governance models
- Funding and permitting alignment
- Capacity building

Catalyzing on the Ground Flood Resilience Projects

Focuses on implementation – turning plans into action.

Includes projects related to restoration, food system resilience, nature-based solutions, infrastructure upgrades.

Recent Realities

Economic Challenges

- Trade wars
- Covid 19 recovery
- Extreme flooding and fires across Canada

DFAA 2.0

- Effective as of April 2025
- New rules for recovery reimbursements in high flood hazard zones without mitigation

Funding Status

BC Flood Strategy (and others) have been released, but lack funding to support their implementation.

Federal Budget 2025 does include funding for critical infrastructure and housing.

Hilekw Sq'eq'o

The Disaster Resilience Regional Action Plan for 31 Mainland Coast Salish Communities is complete and being reviewed.

NRCan Climate Resilience Coastal Communities

Natural Resources Canada

- EPS received $1.7M from NRCan as part of the Climate Resilient Coastal Communities program
- Goals:
  - convene the coastal communities
  - identify regional opportunities for flood risk reduction
- Progress
  - Funding engagement sessions, including 1-on-1 with First Nations
  - Scoping critical infrastructure modelling
  - Exploring other modeling to understand risk
- Today: proposing next steps and requesting feedback

Shared Intent

- Strong lobbying and pressure on the Federal Government for funding in the region
- Collectively working towards a shared vision through smaller projects (green infrastructure, ecosystem restoration, etc)
- Utilizing other tools to support resilience (planning, regulations)

What is Today About

- Reconvening to solidify our intent and vision
- Reporting out on progress LFFC has made
- Discussing next steps for accessing funding, work planning, and CRCC project.

Disaster Financial Assistance Arrangements

Kim Fong
Ministry of Emergency Management
and Climate Readiness

BRITISH COLUMBIA | Ministry of Emergency Management and Climate Readiness

Modernized Disaster Financial Assistance Arrangements (DFAA)

Prepared for: Lower Fraser Floodplains Dialogue for Regional Action
Prepared by: EMCR - Financial Recovery Team, Corporate Services Division
Prepared on: November 13th, 2025

Agenda

- Federal DFAA Program - Overview
- Major Changes to Modernized DFAA (2.0) Guidelines
  - Cost-Sharing Model
  - New Cost-Sharing Opportunities
  - Reporting Requirements
- Next steps for Province of B.C.
- Impacts to Communities

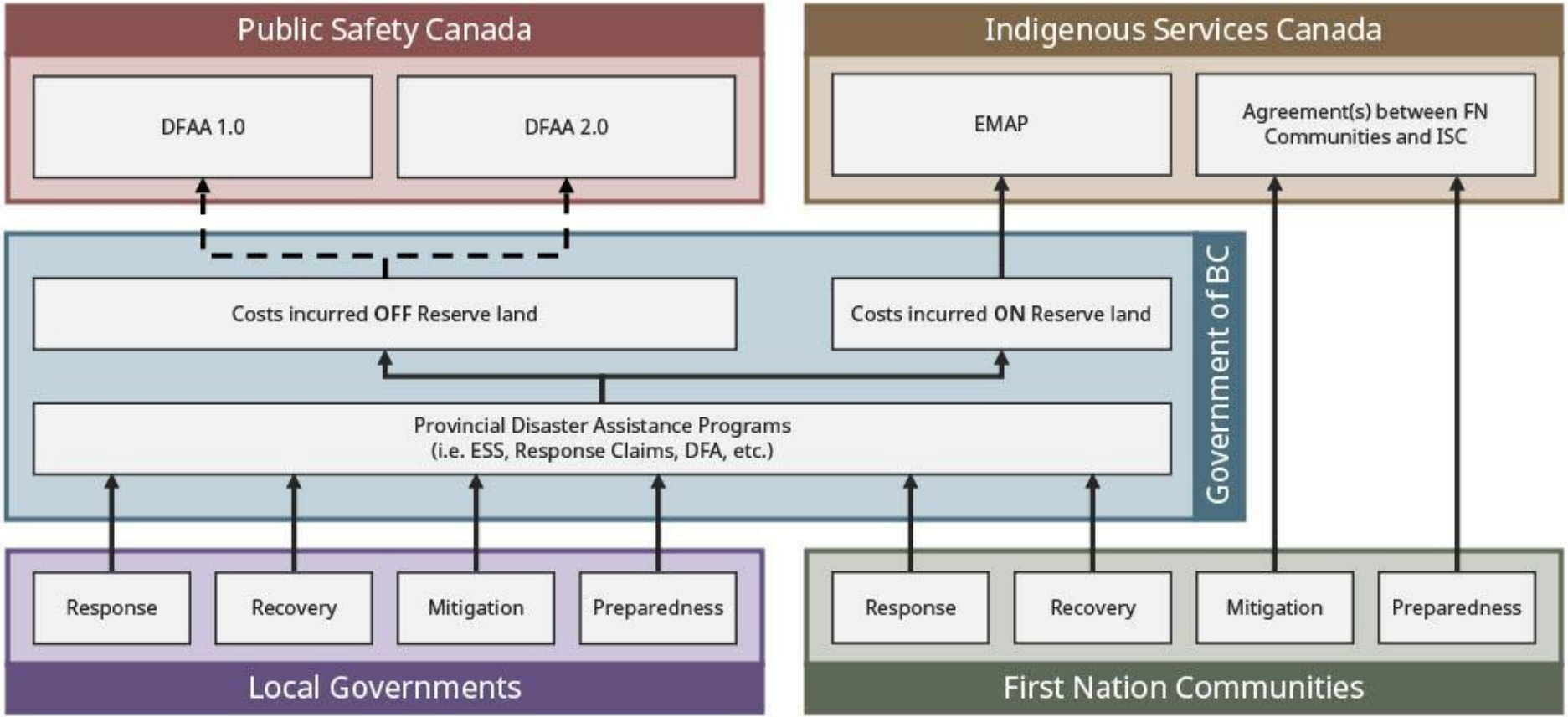
Financial Recovery Team

Responsibilities

Reimburse Response Claims	Onboard Eligible DFAA Costs	Administer Federal Cost-Recovery Programs
QR response claims received from **Local Governments** and **First Nations** Communities (Financial Guidelines)	Coordinate with Ministries to **monitor** and **forecast** DFAA expenditures. Manage **inter-ministry cost transfers** for eligible DFAA expenses to **Emergency Disaster Management Act (EDMA).**	**Disaster Financial Assistance Arrangements (DFAA)** Public Safety Canada **Emergency Management Assistance Program (EMAP)** Indigenous Services Canada

Disaster Assistance Programs

From Community Expenses to Federal Reimbursement



DFAA Overview

Federal cost-sharing program established in 1970 to support Provinces and Territories (PTs) in responding to and recovering from **large scale natural disasters**.

PTs are the **only** eligible recipients of the DFAA.

The DFAA does not provide funding directly to individuals, businesses, communities, local authorities, or other governments.

DFAA 2.0 – Policy Direction

Target federal funding in building resilience, reducing risk, and supporting people

Enable rebuilds to **disaster resilient** guidelines instead of pre-disaster conditions

Create **incentives** for risk reduction and mitigation

Underpinning all policy changes is a push to modernize processes and increase efficiencies

Major Program Changes

Cost-Sharing Model

DFAA 1.0

- All costs are tracked as an aggregated total, and a tier-based cost-share formula was applied to the total.

DFAA 2.0

- Costs are now reported into separate streams which each have their own cost-share percentages and eligibility periods.

New Funding Opportunities

1. Stream 4: Relief and Recovery Supports
2. Disaster Resilience Enhancements (DRE)
3. Stream 5: Post-Disaster Mitigation
4. Disaster Risk Reduction (DRR) Incentive

Reporting Requirements

New **non-financial** data requirements including:

- Number of evacuees
- Residential claims
- Homes relocated
- Infrastructure with major damage
- Other

DFAA 2.0 – Updated Cost-Sharing Model

Stream 4: Relief and Recovery Supports

Policy Objective: To target relief services and supports to people experiencing significant or disproportionate disaster impacts.

Types of Eligible Expenses

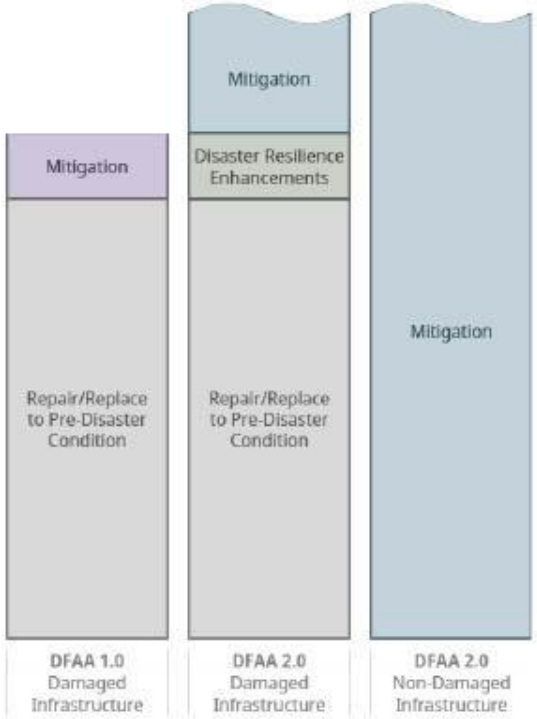
- Mental health and psychosocial supports
- Financial counselling
- Reducing barriers to accessing relief services
- Targeted and temporary relief and supports
- Transition planning
- Temporary housing
- Community recovery and resilience planning
- Post-disaster lessons learned reports

Disaster Resilience Enhancements (DRE)

- "Build back better" component of DFAA 2.0
- Applies to damaged infrastructure only
- Acts as stop gap until building codes and bylaws can be updated

Examples of Disaster Resilience Enhancements

- Raising electrical systems
- Installing back-flow preventers
- Using fire/wind resistant materials for reconstruction
- Upgrading drainage systems with larger pipes in storm water management systems
- Elevating buildings in flood prone areas
- Creating defensible spaces around properties to prevent fires from spreading

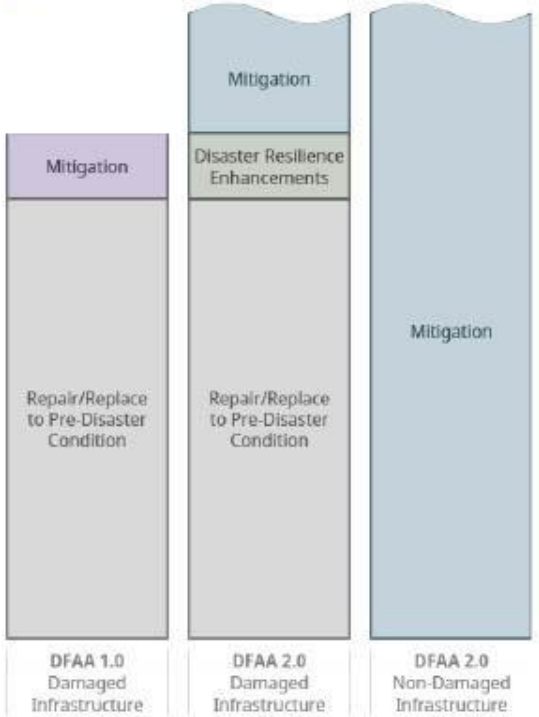


Stream 5: Post-Disaster Mitigation

DFAA 2.0 has introduced a new funding stream for provinces to conduct **post-disaster** recovery on **non-damaged infrastructure**.

Types of Eligible Expenses

- Structural mitigation and protective natural infrastructure
- Non-structural mitigation, including buyouts and relocations
- Community or property-level mitigation activities (e.g., rebates or subsidy programs)



Disaster Risk Reduction (DRR) Incentive

Purpose:

- The DRR incentive is a financial incentive designed to encourage provinces and territories to invest in pre-disaster risk reduction activities.

Key Focuses:

- Recognize and reward proactive efforts that reduce the impacts and costs of disasters.
- Encourage strategic investments in disaster mitigation and resilience.
- Support pre-disaster planning and improved hazard awareness.
- Reduce long-term disaster response and recovery costs.

How can communities contribute:

- Updating building codes, floodplain maps
- Conducting vulnerability assessments, developing emergency response plans.
- Sharing hazard mapping and reports for information sharing


Looking Forward...

Next Steps for Province of B.C.

- Explore options to leverage new funding opportunities
  - Stream 4: psycho-social supports and long-term interim housing
  - Stream 5: rebate and grant programs and mitigating non-damaged infrastructure
- Updates to provincial Disaster Financial Assistance (DFA)
  - General CDFAR updates
  - Assess integration of new Disaster Resilience Enhancements (DRE)
- Adopt a holistic approach to provincial disaster recovery and mitigation to maximize benefits for communities
- Continue to advocate for pre-disaster mitigation funding (DMAF)

Impacts to Communities

- Defining high-risk vs low-risk areas
- Enhanced mitigation requirements
  - 1:200-year flood standard for high-risk areas
  - Failure to appropriately mitigate damaged infrastructure disqualifies it from future federal DFAA funding
- Stream 5 – Disaster mitigation projects
  - Structural, non-structural, natural infrastructure and community-level mitigation
- Stacking rules have changed

Thank You

For more information, please contact:

Kim Fong

Director, Financial Recovery

Kim.Fong@gov.bc.ca

BRITISH COLUMBIA

Ministry of Emergency Management and Climate Readiness

Economic Case for Regional Collaboration

Richard Boyd
All One Sky Foundation

Submit questions for Richard Boyd:

Go to menti.com, enter code 7717 1965

Or use your camera with the QR code

Integrated, Regional Climate Adaptation: Review of Economic Benefits

Lower Fraser Floodplains Dialogue for Regional Action, Nov 13, 2025

Dr. Richard Boyd, All One Sky Foundation

Brendan Riley, Shutterstock, loveexploring.com

Coastal climate adaptation from an economic standpoint

Economically efficient outcome is one where adaptation measures:

- Minimize total lifecycle costs
- Maximize net benefits to society
- Allocate resources to most cost-effective strategies

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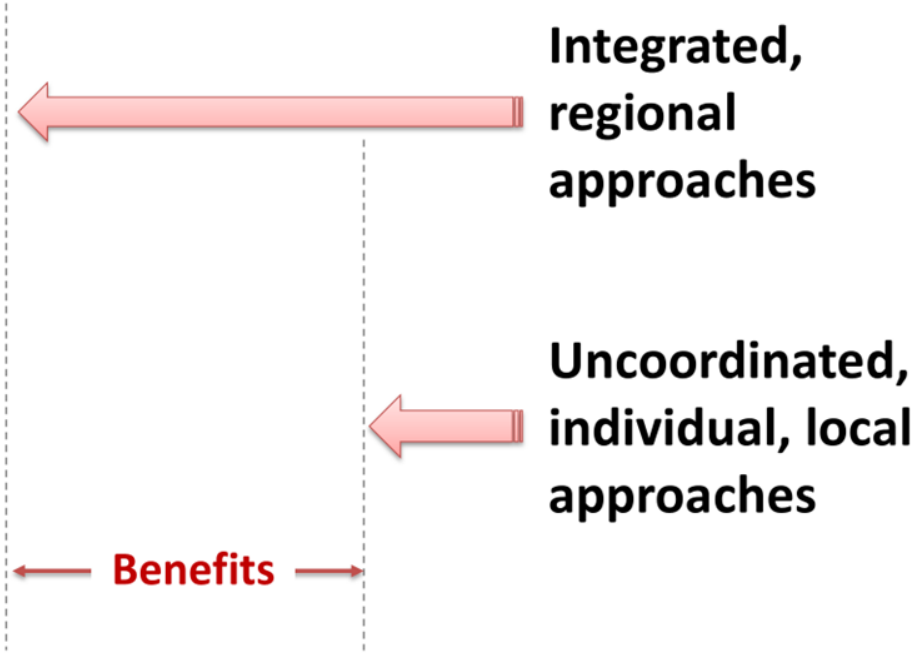


Foundational advantages of integrated, regional approaches

- ✓ Horizontal and vertical coordination across levels of governments
- ✓ Cross-sectoral collaboration between urban planning, infrastructure, environmental management, public health, emergency response, etc.
- ✓ Consideration of spatial dynamics and ecosystem-scale solutions
- ✓ Shared governance structures, participatory processes, knowledge and capacity

→ **Resource efficiency & equity gains**

→ **Reduced maladaptation risks**

→ **Enable transformational adaptation**

Resource efficiency gains

Economies-of-scale

Increased access to funding and cost-sharing mechanisms

Reduced duplication of effort

Adaptation:	Cost savings:
Seawalls	15-30%
Dikes	10-25%
Breakwaters	20-35%
Storm surge barriers	25-40%
Living shorelines	30-50%
Dune restoration	25-40%
Wetlands restoration	30-50%
Beach nourishment	20-35%

Reduce risk of maladaptation, negative spillover effects

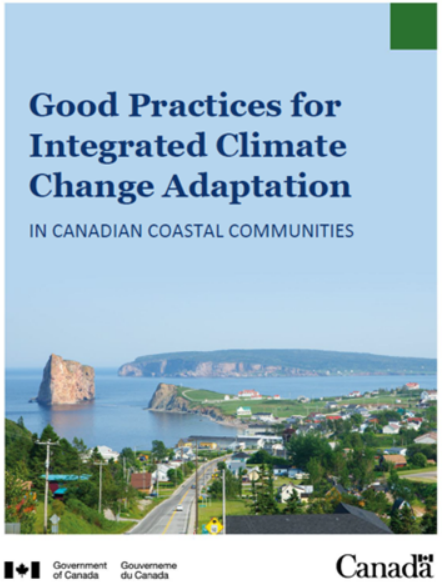
Physical and hydrodynamic spillover effects

- Hard armouring at one location redirects wave energy or prevents natural water absorption, increasing water levels and flooding at other locations
- San Francisco Bay Area case study: $723 million regional damaged per storm event from uncoordinated, independently devised adaptation strategies

Economic spillover effects

- Properties adjacent to seawalls lose value due to worsening erosion and beach loss/access
- Southern California case study: value of protected properties increased by 5-7%, while value of adjacent properties fell by 15%, resulting in a negative net loss in property values and annual property tax revenues
- “Hardening domino effect”

Transformational climate adaptation



"Transformational adaptation measures involve radical restructuring, replacement, or abandonment of practices that are no longer viable under new climatic conditions."

Strategy	Transformational?
Managed retreat	**Yes**; involves relocating people, infrastructure, economic activities, or entire communities away from high-risk coastal areas
Adaptation pathways	**Sometimes;** if the pathway includes major shifts—like transitioning from defending to relocating, or repurposing land from residential to ecological uses, and does not simply sequence incremental upgrades
Nature-based solutions	**Sometimes;** if NbS replaces engineered systems, restores large-scale ecosystems, and drives shifts in land-use or governance (e.g., converting urban waterfronts into living shorelines or managed wetlands)

Managed retreat

Long-term economic benefits

- Avoids escalating infrastructure and disaster recovery costs over time
- Reduces exposure to stranded asset risks (e.g., uninsurable, unsellable properties)
- Delivers regional net benefits when viewed across longer timeframes and broader scales

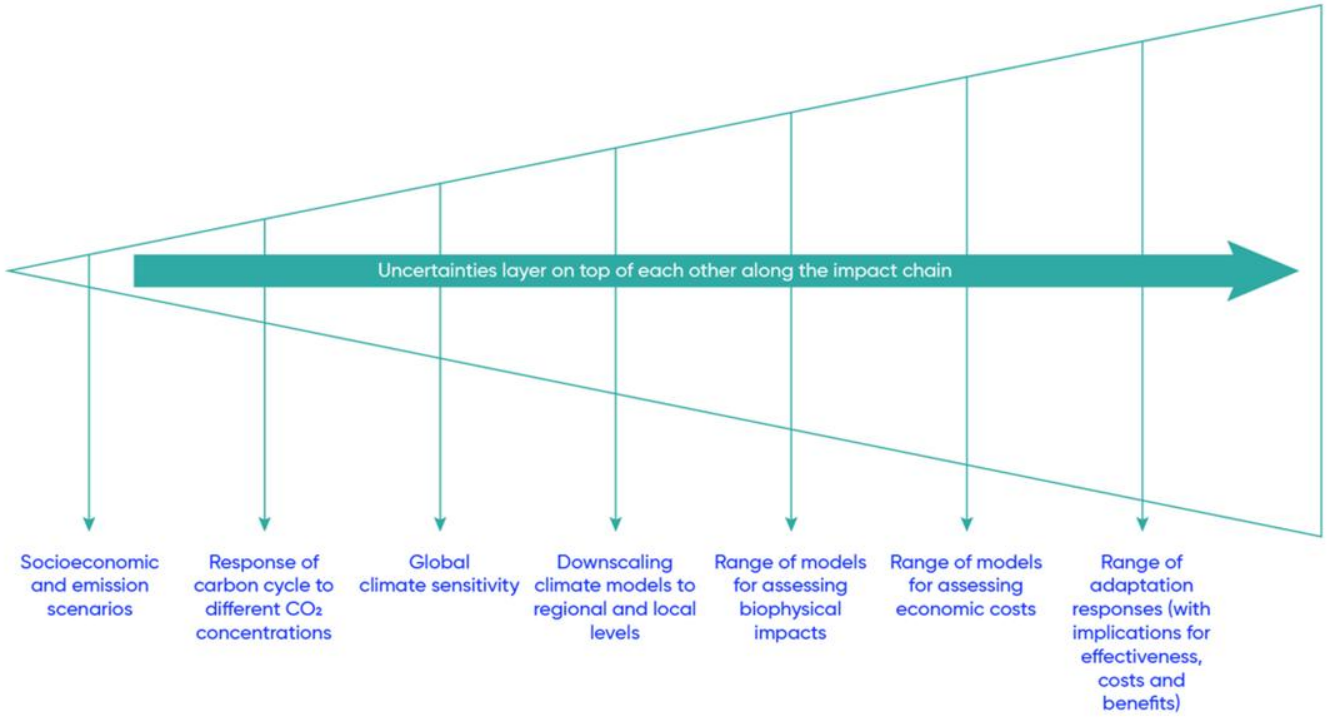
Coordination matters

- Uncoordinated retreat leads to inequities, inefficiencies, and resistance
- Coordination improves cost-effectiveness via shared planning, financing, and phasing

Financial system stability

- Phased retreat averts collapse in property values and tax base
- Stabilizes insurance markets and protects credit systems

Adaptation pathways



Adaptation pathways

Economic efficiency gains

- Avoids overbuilding early by delaying major capital until risk justifies it
- Spreads costs over time, reducing fiscal burden and improving affordability
- Enables selection of low-regret options first, while keeping future options open

Avoiding stranded assets and lock-in

- Reactive, fixed strategies risk locking into costly infrastructure that may prove obsolete or superfluous
- Pathways minimize risk of sunk costs, maladaptation, and stranded investments
- Supports iterative decisions tied to updated SLR projections and socio-economic shifts

The payoff

- Studies show 10–40% higher NPV for pathway-based strategies compared to static approaches
- Real-options value is embedded: flexibility itself has measurable economic worth

Nature-based solutions

Key economic benefits of integrated, regional coastal NbS:

Economic efficiency and effectiveness

- Benefit-cost ratios from 3:1 to over 18:1
- Reduce insured loses by up to 30%

Environmental and economic synergies

- Provide a wide range of co-benefits that increase the value of coastal NbS substantially – e.g., recreation benefits 150 times the cost of beach nourishment
- Attract tourism and recreation, contributing to local and regional economies

Key messages

- ✓ Regional coordination is most economically efficient way to buy climate resilience for coastal communities
- ✓ Uncoordinated action can be an expensive negative-sum game (regional damages >> local benefits)
- ✓ Transformational adaptation is now an economic necessity
- ✓ Managed retreat is fiscally prudent once protection costs exceed relocation costs
- ✓ Adaptive pathway planning raises economic returns by double-digits
- ✓ Nature-based solutions (NbS) are high-return adaptation investments
- ✓ Embedding retreat and NbS within regional adaptation pathways maximizes flexibility and return on investment

Thank you! Questions?

Contact:

Richard Boyd | richard@allonesky.ca | +1.403.612.4470

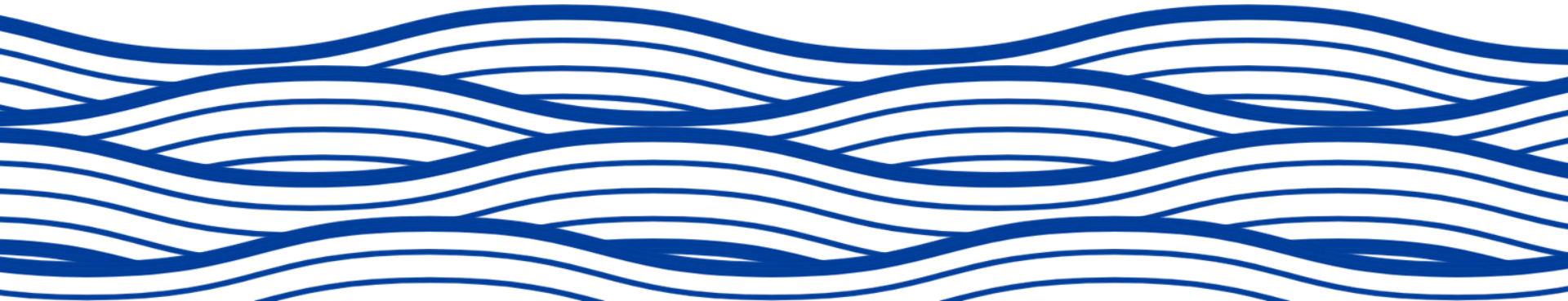
All One Sky
— FOUNDATION —

Current context...what matters?

"What seems important to you about the context for taking a regional approach to flood resilience now?"

Small group discussion

Break (15 min)



Proposal for a … Statement of Solidarity

Deborah Carlson | West Coast Environmental Law
Lina Azeez | Watershed Watch Salmon Society

Floodplains Coalition

Statement of Solidarity - Why?

Statement of Solidarity - Why?

PURPOSE: The goal is to build a united regional voice among local governments and First Nations to call for stronger leadership and investment from the provincial and federal governments in flood resilience that protects people, communities, and ecosystems from coastal, pluvial, and fluvial flood risks.

This statement is an opportunity for local government and First Nation leadership from across the region to send a clear message: *we are ready to work together as a region, and senior governments must step up to support us.*

Let's speak up for our region

- **Strength in unity:** A collective statement amplifies regional influence and demonstrates widespread alignment on the need for urgent flood resilience planning and funding.
- **Shared responsibilities:** Flooding affects all communities across the floodplain—urban and rural, upstream and downstream, First Nation and non-First Nation.
- **Advocating for better solutions:** Together, we can push for strategic investments that prioritize people's safety, environmental health, and climate-ready infrastructure that works with nature, not against it.
- **A regional voice for change:** By speaking as one region, we can shift the provincial, federal and private focus from short-term, reactive measures and funding programs that pit communities against each other to proactive, forward looking, collaborative floodplain management and resilience focused on long term mutual benefits.

The Statement - PREAMBLE

We are Coast Salish First Nations and local governments from Yale to Semiahmoo to Squamish. Our communities are connected by the same waters. We share responsibilities to protect our ways of life and healthy ecosystems in our floodplains while managing the risks of flooding.

We stand together for a resilient Lower Fraser working together with *one heart and one mind (Lets'emó:t; nəċəʔmət ct; Nuts'a'maat; Nch'u7mut)*. This is where people, salmon, and economies thrive together, for the long term, and decisions are made in partnership, not in isolation.

A single major flood in the Lower Fraser could wipe out over $30 billion in economic value, disrupt food supply chains, and cripple key trade routes — putting the safety and prosperity of the entire province and our country at risk.

Despite growing risks from climate change, the Province has stalled on implementation of the B.C. Flood Strategy, and the Federal Government has redrafted the Disaster Financial Assistance Arrangements (DFAA), reducing post-disaster support just as extreme weather events are becoming more frequent and severe. This leaves our region vulnerable and scrambling to prepare with scarce resources. Without action, escalating flood risks will continue to deepen historical inequities, heighten danger to communities, and damage ecosystems of salmon and non-human relatives that sustain our shared economy and wellbeing.

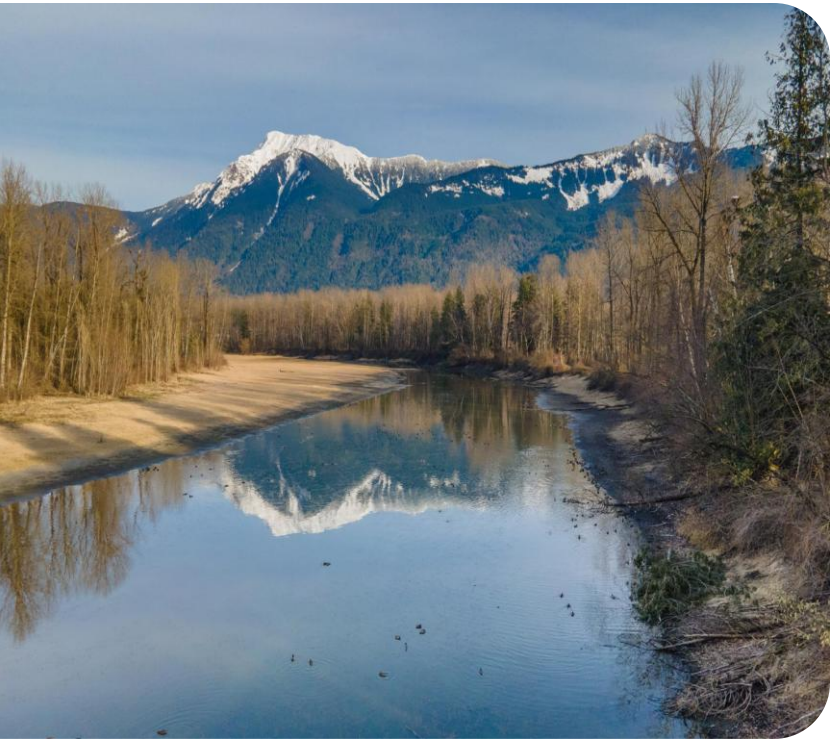
Our communities do not have the resources to meet these challenges alone. We are ready to work together, and with the federal and provincial governments, to develop shared solutions, backed by investments in long-term resilience.

The Statement Continued...

We call on the federal and provincial governments to:

- Recognize the Lower Fraser's resilience as an issue of *national and provincial significance*, urgent, practical, and essential for the long-term safety, prosperity, and cultural well-being of all communities.
- Invest in climate readiness and resilient nation-building projects in the Lower Fraser that are strategic, region-wide and integrated, adopting solutions that work with nature, not against it.
- Respect and uphold First Nations' title, rights, and leadership in all flood and climate readiness and resilience efforts for mutual long-term sustainable benefit.
- Acknowledge that local governments bear disproportionately large responsibilities for the operation, maintenance,upgrading and protection of critical infrastructure essential for the region, the province and the country;
- Harmonize funding opportunities and foster collaborative partnerships across governments, First Nations, and the private sector (critical infrastructure owners/ farmers), to ensure we have the resources and capacity to plan for regional floodplain resilience.

Remarks from Regional Leaders



Councillor Norm Florence
Chawathil First Nation

Councillor Jason Lum
City of Chilliwack

What Do You Think?

Is this a valuable message to deliver to the provincial and federal governments at this time?

Go to menti.com, enter code 7717 1965
Or use your camera with the QR code

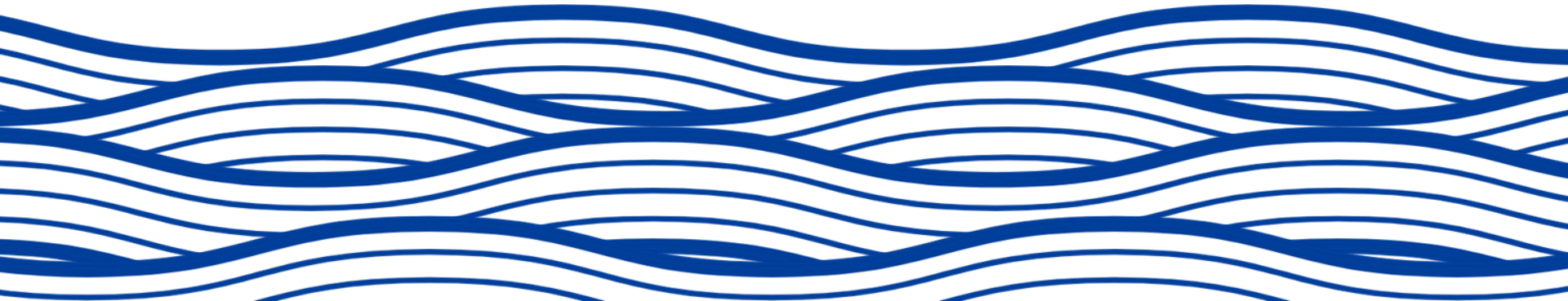
Statement of Solidarity

"Will this get the provincial / federal governments to take notice / respond?"

"What would it take for your community to officially sign on?"

Small group discussion

Lunch



Project Highlights with Ducks Unlimited Canada

Flood Resilience Projects

Explore projects focused on flood protection and resilience in the Lower Fraser. View the map tour below to discover examples of current flood resilience projects and nature-based solutions in the region.

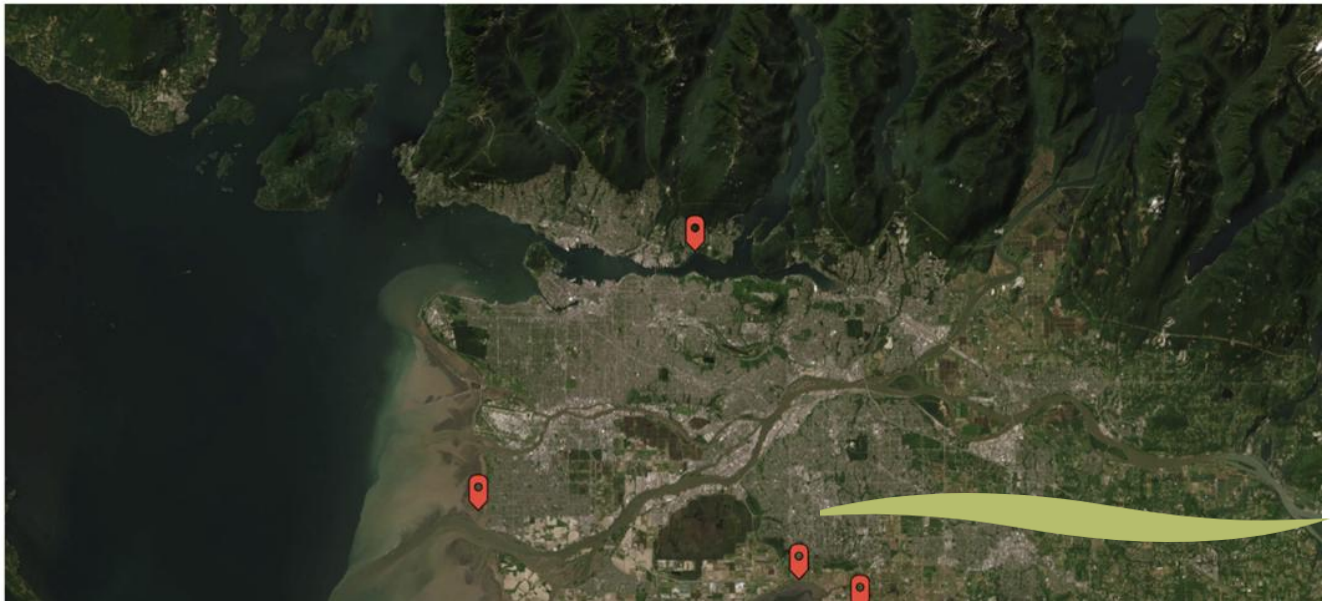
Flood Resilience Projects in the Lower...

Mud Bay Nature-based Foreshore...

Sturgeon Bank Sediment...

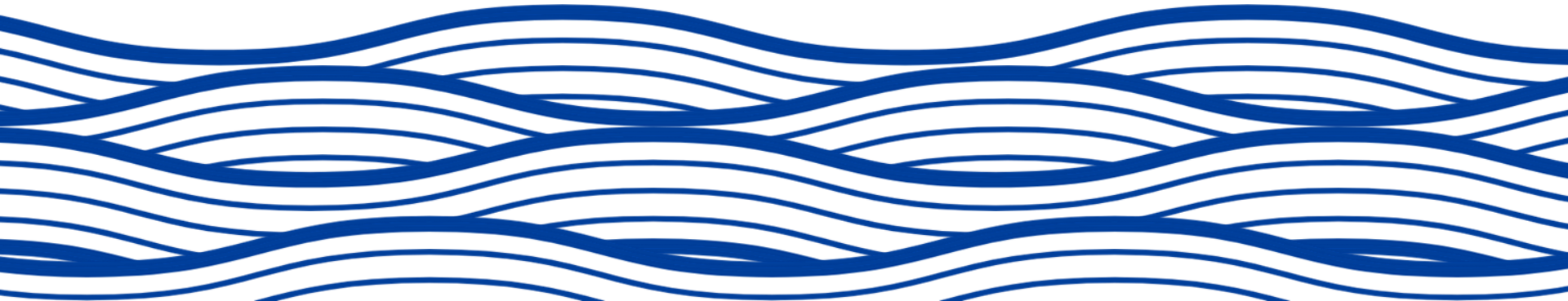
səlilwətaɬ (Tsleil-Waututh Nation)...

Nicomekl Riverfront Park



COASTAL/ NORTH SHORE	RIVER TIDAL	MID RIVER	UP RIVER
Xʷməθkʷəy̓əm (Musqueam)	Q'éyts'i (Katzie)	Áthelets (Aitchelitz)	Chowéthel (Chawathil)
Semiahmoo	Qw'ó:ltl'el (Kwantlen)	Xwchíyò:m (Cheam)	Skw'átets (Peters)
Sḵwx̱wú7mesh Úxwumixw (Squamish)	Kwikwetlem	Qweqwe'ópelhp	Popkum
Tsawwassen	Leq'á:mel (Leq'amel)	Shxwhá:y Village	Sq'welets (Scowlitz)
Səlilwətaɬ (Tsleil-Waututh)	Màthexwi (Matsqui)	Sq'ewqeyl (Skowkale)	Sq'éwqel (Seabird Island)
Anmore & Belcarra	Semà:th (Sumas)	Th'ewá:li (Soowahlie)	Shxw'ōwhámél
Burnaby	Coquitlam	Sxwoyehá:lá (Squiala)	Sq'ewá:lxw (Skawahlook)
Delta	Langley (City & Township)	Sqwá	Union Bar
New Westminster	Maple Ridge	Sts'ailes	Yale
North Vancouver (City & District)	Mission	Ch'iyàqtel (Tzeachten)	Harrison Hot Springs
Port Moody	Pitt Meadows	Yeqwyeqwí:ws	Hope
Richmond	Port Coquitlam	Abbotsford	Kent
Surrey		Chilliwack	
Vancouver			
West Vancouver			
White Rock			

Lunch
(return at 1:15pm)



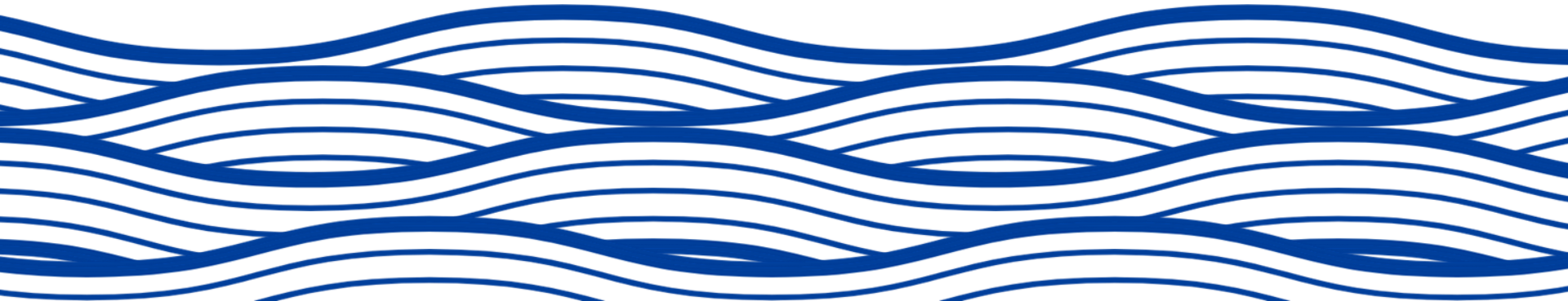
Statement of Solidarity

"Will this get the provincial / federal governments to take notice / respond?"

"What would it take for your community to officially sign on?"

Report Backs

Taking Action in the Region



Katzie First Nation Emergency Preparedness

Alana Park
Emergency Preparedness Coordinator

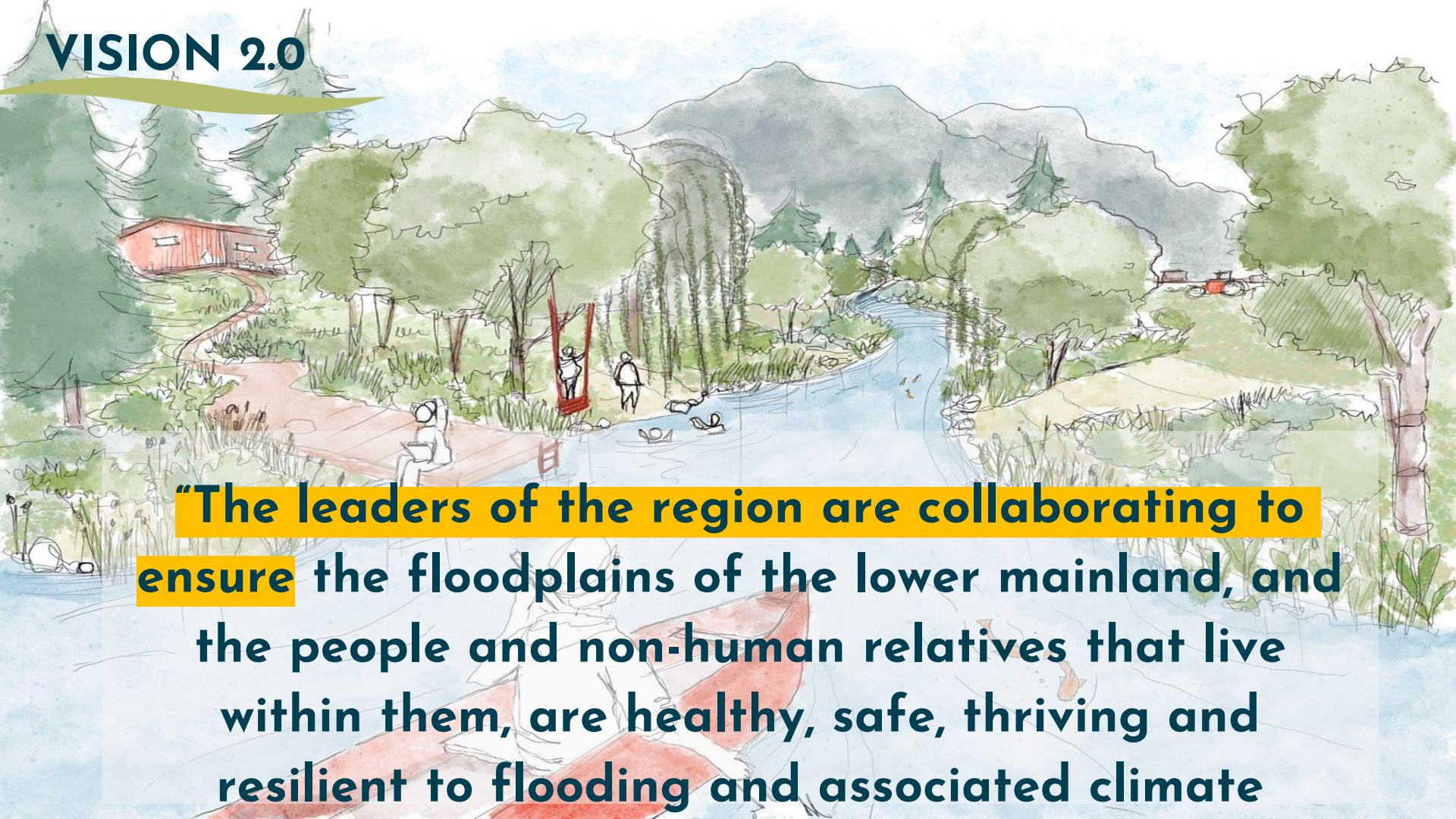
Turning Priorities into Action

Mariah Mund
Emergency Planning Secretariat

What We Heard This Morning

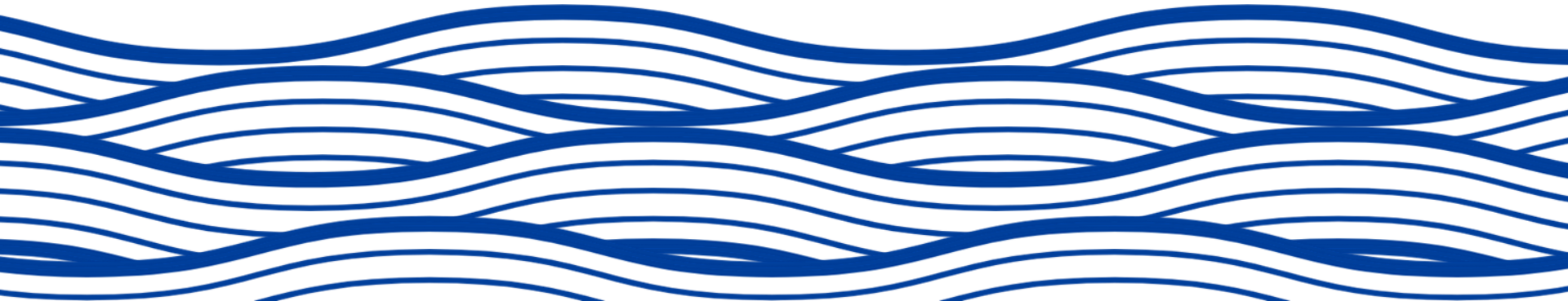
- We have inherited risk from historical decisions about dikes and land-use planning
- The region has already built a foundation for working together (principles, priorities)
- There is an economic case to work together
- DFAA 2.0 is coming and we need to be prepared
- A statement of solidarity could help us get federal and provincial funding

VISION 2.0



"The leaders of the region are collaborating to ensure the floodplains of the lower mainland, and the people and non-human relatives that live within them, are healthy, safe, thriving and resilient to flooding and associated climate

Progress So Far …



3 Priority Areas

Understanding Risk & Risk Management Options

Policy, Planning, and Decision Making

Catalyzing on the Ground Flood Resilience Projects

Priority 1: Progress for Understanding Risk & Risk Management Options

Completed:

- Sea2City Design Challenge (Vancouver)
- Seismic & Flood Hazard Assessment (Richmond)
- Lower Coquihalla – engineering study post AR 2021 (Hope)
- Dike Elevation Modelling (Richmond)
- Flood Hazard Risk Assessment 2018 (Pitt Meadows)
- Integrated Cadastral Information Society database
- Mud Bay Infrastructure Flood Vulnerability Assessment 2017 (Surrey & Delta)
- Integrated Hazard Mapping Report (FVRD)
- Flood Hazard Mapping (FVRD, Chilliwack, LMFMS)
- Vulnerability and Capacity Assessment 2022 (Vancouver Coastal & Fraser Health)
- Hazard Risk Vulnerability Assessment Story Map (North Shore)
- North Shore Sea Level Rise Risk Assessment (North Shore)
- Stó:lō Geohazard Mapping Project (Upriver First Nations)
- Multi-Hazard Mapping Project 2024 (Metro Vancouver)
- Dike Vulnerabilities Mapping 2024 (Province of BC)
- Regional Assessment of Flood Vulnerability 2016
- Preliminary Strategic Climate Risk Assessment 2019 (Province of BC)
- Draft Fraser River hydraulic model (Province of BC)

In Progress:

- Real-time monitoring in Nicomen Slough watersheds (Leq'a:mel)
- Drainage assessment (Matsqui)
- Seismic assessment of flood infrastructure (Chilliwack)
- Hazard Risk and Vulnerability Assessments (Langley; Soowahlie, Metro Vancouver; SAY Lands)
- 500-year flood mapping (Chawathil)
- Hydrometric stations installed for monitoring (Hatzic)
- Coastal Flood Strategy (Port Moody)
- Asset Management Roadmap (Burnaby)
- Alouette River management (Pitt Meadows & BC Hydro)
- Flood risk assessment (Semá:th, coordinating with Matsqui and Leq'a:mel)
- Coastal Vulnerability Studies (Coastal & River Tidal Nations)
- Dike assessment (Pitt Meadows & Katzie First Nation & MVRD)
- SRWFMP risk assessment (Semá:th, Matsqui, Leq'a:mel, Abbotsford)
- Regional Scale Seismic Hazard Mapping (MVRD)
- Prioritization Framework for Funding (MVRD)
- Regional Disaster and Climate Risk and Resilience Assessment (Province of BC)
- Flood Hazard Identification and Mapping Program (Province of BC)
- Agricultural Sector Flood Vulnerability (Province of BC)
- Fraser River bathymetry study

LFFC is FILLING GAPS

Understanding Risk & Risk Management Options

Flooding causes consequences to critical infrastructure that can ripple far beyond any one community

→ **Critical Infrastructure Network Analysis**

Critical technical information doesn't flow smoothly across jurisdictions

→ **Geodatabase of Technical Information**

Risk assessments focus on current flood controls, ignoring their status and how waterways naturally behaved.

→ **Pre-Contact Flood Model**

Current risk assessments can lack First Nation perspectives, missing community priorities or cultural values.

→ **Receptors of Risk & Associated Mapping**

Priority 2: Progress for Policy, Planning and Decision-Making

Existing Collaborations:

- C2C Forums
- FVRD Flood Resiliency Committee
- MVRD Air Quality & Climate Committee
- North Shore Emergency Management
- Hilekw Sq'eq'o
- Sumas River Watershed Flood Mitigation Planning Initiative
- Sto:lo Resource & Resource Management Centre
- Lower Fraser Fisheries Alliance
- Sea Level Rise Planning Collaboration MOU for Local Governments of MVRD
- ESS for Nations

Capacity Building to Support Planning:

- Living with Waters Project
- Ditch to Delta - Landscape Architecture Projects
- Indigenous Engagement Funding Program
- Foodlands Initiative
- SEEDS

Provincial & Federal Policy / Planning:

- Release of the BC Flood Strategy (2024)
  - Flood Hazard Area Land Use Management Guidelines
- BC Coastal Marine Strategy (2024)
- Modernization of the BC Emergency & Disaster Management Act (2023)
- National Adaptation Strategy (2022)
- UNDRIPA (2021) & DRIPA (2019)
- Endorsement of the Sendai Framework by Canada (2015) and BC (2018)
- Watershed Security Strategy (TBD)
- Lower Mainland Flood Management Strategy & Pathways to Action Report (2016-2022)

Local / Regional Planning

- Flood Management Plans (4)
- Climate Action Plans (10-15)
- Asset Management Plans (Port Coquitlam)
- Sea level Rise Adaptive Management Strategy, 2021 (North Shore)
- Liquid Waste Management Plan (MVRD)

LFFC is FILLING GAPS

Policy, Planning, and Decision-Making

Communities and governments lack regular spaces to collaborate on floodplain resilience.

→ 3 regional forums

4 neighborhood forums

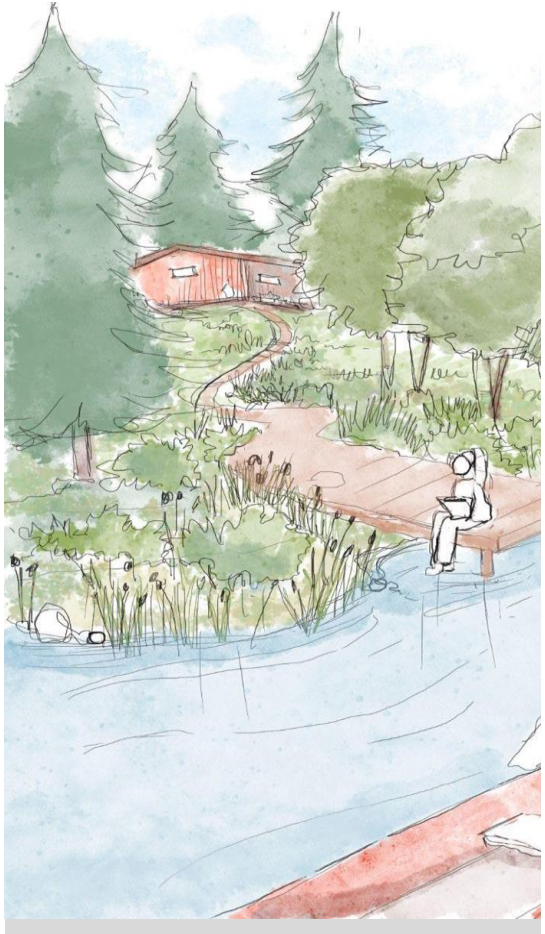
Hard to track policies, decisions, or initiatives that influence flood planning

→ Policy Review

What do we need to move forward?

- Understanding Risk and Risk Reduction Options (Analysis, Mapping and Modelling)
- Collective work plan (with budget) for lobbying
- Support for planning tools, discussions, and utilizing existing funding

Proposing a Regional Work Plan



INTENTIONS

- Identify strategies to protect regional assets and local essentials services
- Determine the scope of studies and modeling required to understand regional flood risks
- Develop a budget and business case for investments that offer the greatest regional benefit
- Align regional goals with provincial and national strategies (BC Flood Strategy, BC Coastal Marine Strategy, Watershed Security Strategy, NAS, Emergency Management Strategies)

Focus Areas for Protection

REGIONAL ASSETS / CRITICAL INFRASTRUCTURE

Highways 1 & 7, railways, airports, pipelines, power generation & transmission, telecommunications, hospitals, ferry terminals, wastewater treatment, and regional emergency support services.

LOCAL ESSENTIAL SERVICES

Fire halls, police stations, local emergency services, schools, community centres

IRREPLACEABLE AREAS

Cultural & heritage sites, critical habitats, ecologically sensitive areas

VULNERABLE POPULATIONS

Areas with highly sensitive communities that are more at risk from flooding

Modeling Part 1

CRITICAL INFRASTRUCTURE NETWORK ANALYSIS

Analyse how a localized flood might cause cascading impacts across the region due to connections between infrastructure assets

LINEAR CRITICAL INFRASTRUCTURE ANALYSIS

Analyze long connected critical infrastructure systems (e.g. roads, railways) to identify where upgrades or protection measures will have the biggest regional benefit.

RAINFALL & STORMWATER MODEL

Analyse flood risk by developing a rainfall model to understand where and how rainfall may impact communities how large rainfall events move across the land, enter stormwater systems, & contribute to flooding in vulnerable areas.

Modeling Part 2

SEDIMENT BUDGET OF THE GRAVEL REACH

Sediment buildup shapes river flow, affects flood risk, & impacts infrastructure & ecosystems — understanding sediment processes helps communities plan protection & restoration effectively

ROOM FOR THE WATER ASSESSMENTS

Explore strategies to give the river more space, such as setback dikes, temporary storage areas, restoring wetlands, & managed retreat to reduce flood impacts during peak flows.

DESIGNATED REGIONAL FLOODPLAIN MAP

Designate & map floodplains across the region to support coordinated planning, permitting, and regulations for more effective flood risk management.

Proposed Regional Work Plan

"Do you agree with the overall direction of the work plan?
Anything missing?"

"How can the proposed deliverables be useful to you? What do you need from this, to advance flood resilience in the region?"

Small Group Discussion

Priority 3: Catalyzing Collaborative, NBS Projects

Completed:

- Salmon habitat restoration projects (Lower Fraser Fisheries Alliance)
- Fraser Foreshore Park Dike Upgrade 2021 (Burnaby)
- Greenshores Project (Cultus Lake)
- Bank Stabilization projects (across the region)
- Taylor Road floodbox replacement (Leq'á:mel First Nation)
- Surrey Bend Regional Park (MVRD, Surrey)
- Vedder River Setback (Fraser Valley Watershed Coalition)
- Sturgeon Bank Sediment Enhancement Pilot Project
- Barnston Island Dike & Drainage Project (Pitt Meadows & Katzie)

In Progress:

- Dike Realignment (Skwah, Schway Chilliwack)
- Living Dike pilot project in Mud Bay (Surrey, Semiahmoo, Delta)
- Dike Realignment (Kwikwetlem & Coquitlam)
- Local governments, UBC collaborating on development of sea level rise guidance for 2050
- Hope Slough Farmer & First Nation Collaboration
- Shoreline Adaptation and Restoration Project (Tsleil-Waututh)
- Nicomekl Riverfront Park Project (City of Surrey)
- Still Creek Floodplain Adaptation Project (Vancouver)
- North Nicomen Wetland Restoration (Leqamel)
- Save our Squaiala (Pilalt Tribe)
- Addington Point Marsh Dike Breach

LFFC is FILLING GAPS

Catalyzing Collaborative, NBS Projects

Few opportunities to showcase projects, so lessons and innovations are not easily shared.

Story Map highlighting examples of Local and International Projects

Practitioners need extra training, knowledge, or resources to successfully carry out projects

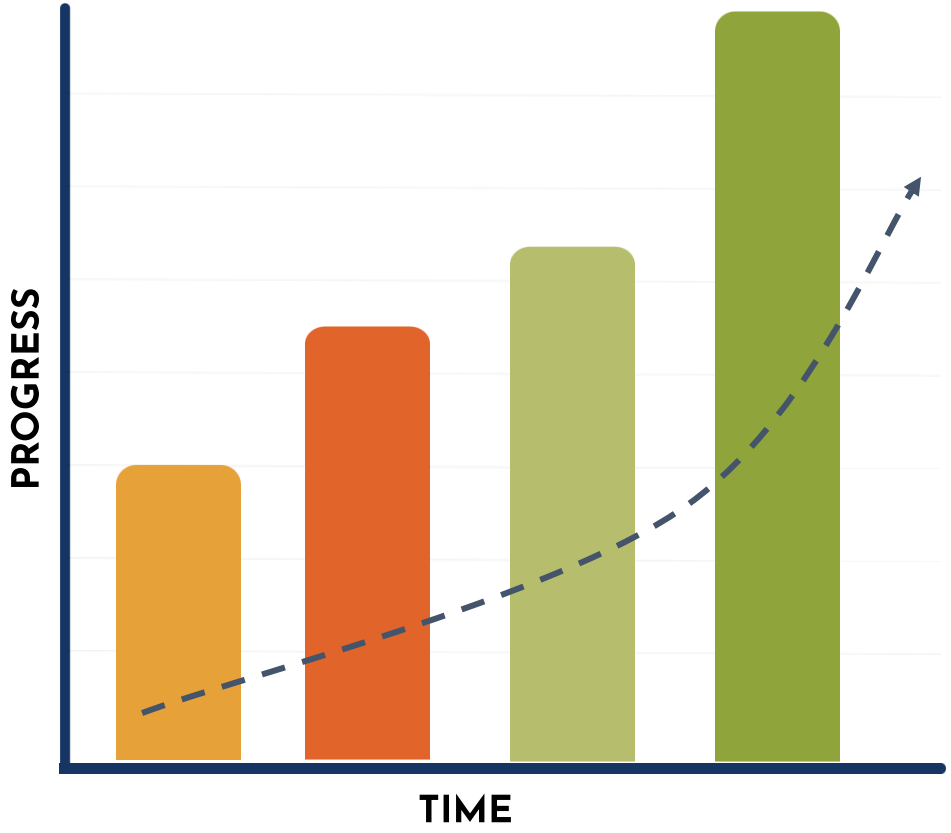
Quarterly topic specific webinars (NBS, insurance, bank stabilization)

Farmers must be part of planning since their land is affected and may be part of the solution

Hope Slough Case Study

Draft Food Security Roadmap with farmers and First Nations in Fraser Valley

Thank You for Building This Momentum



OUR FUNDERS

Natural Resources Canada

BRITISH COLUMBIA — Ministry of Water, Land and Resource Stewardship

REAL ESTATE Foundation OF BC

NATURE FORCE

Ducks Unlimited Canada

OUR SUPPORTERS

- Ministry of Agriculture
- Ebbwater Consulting Inc.
- Zehnder Consulting Inc.
- UBC School of Landscape Architecture
- Kerr Wood Leidal and Associates

Next Steps

- The LFFC will develop a work plan based on the discussions we had today.
- At our next gathering, we will share the refined work plan with a proposal for how local governments and First Nations could be involved.
- We want to hear from you – how would you want to be involved? What would you need to make that happen?

Working Together

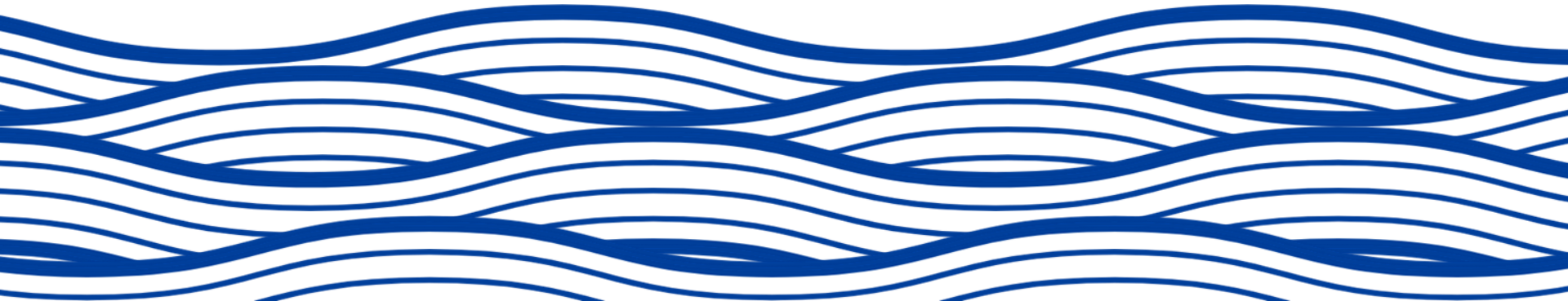
"What roles or contributions could folks across the region make?"

"What could LFFC put in place to make this work?"

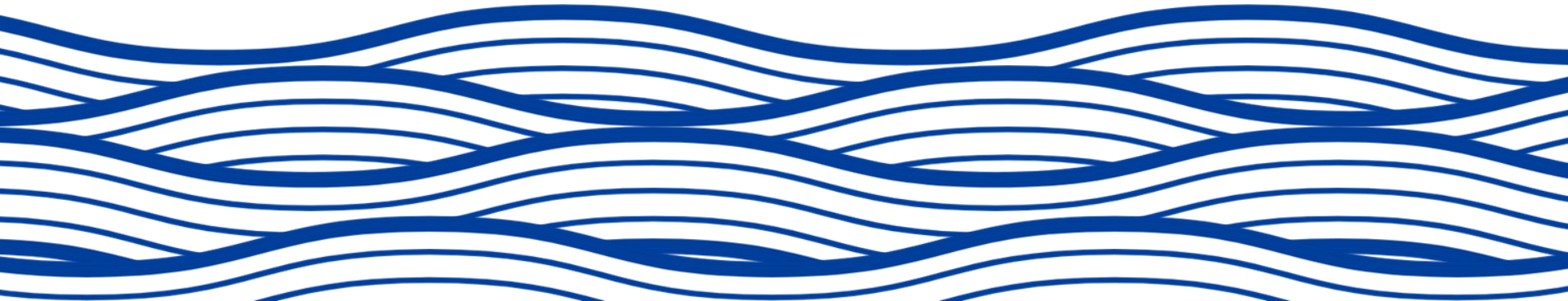
"What would you need, to be able to contribute and get involved?"

Small Group Discussion

Report Backs



Closing



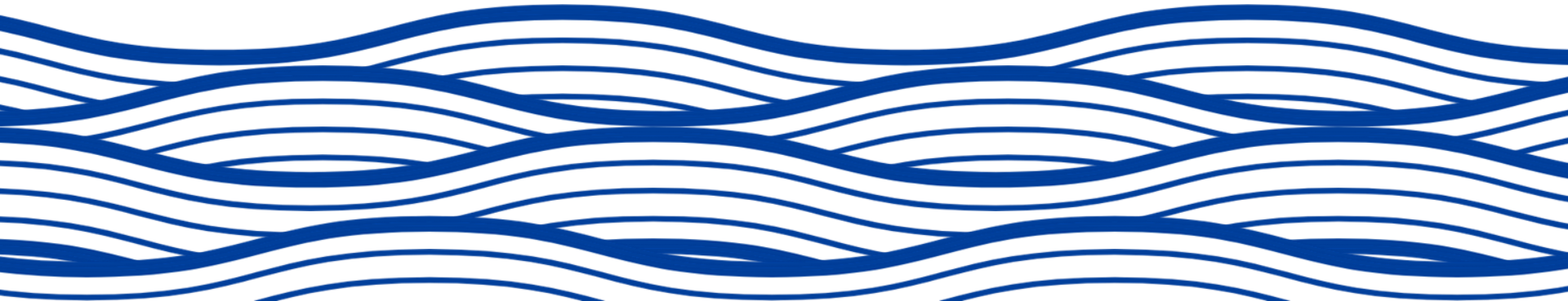
Next Steps

The LFFC will:

- Set-up follow-up meetings with leadership from First Nations & local governments to discuss the Statement of Solidarity.
- Finalize the scope of the Critical Infrastructure Network Analysis and begin the next phase.
- Develop a work plan based on the discussions we had today, utilizing the CRCC funding for initial progress.

Thank-you

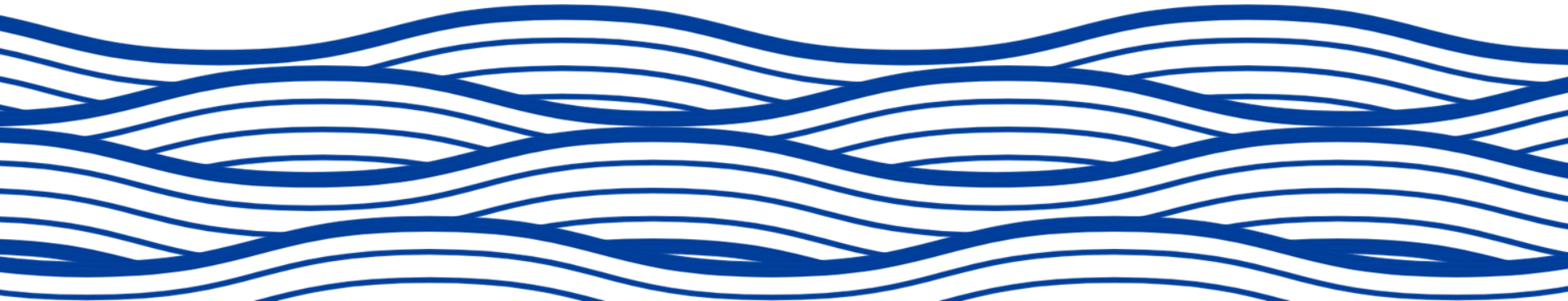
Closing



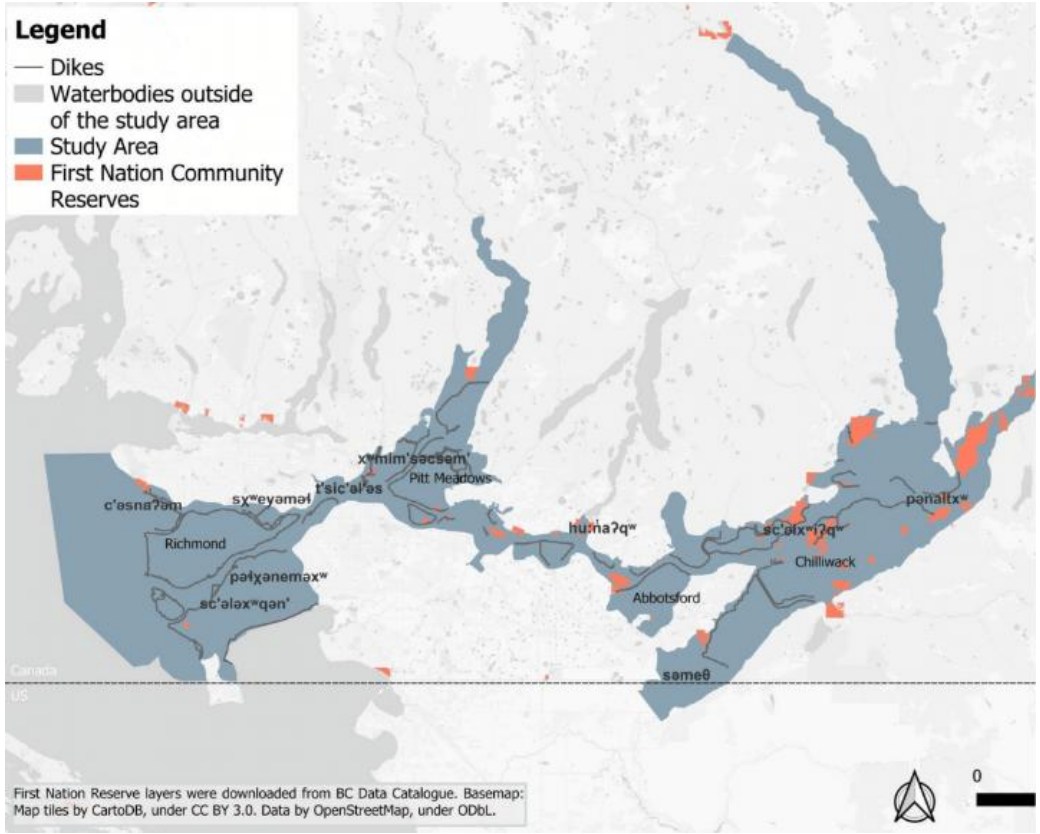
Final Housekeeping

- Please throw away and recycle any refuse at your table
- Facilitators: please roll up your final discussion sheet and bring them to the registration table
- LFFC team – please stick around for a group photo!

Extra Slides



Pre-Contact Flood Model



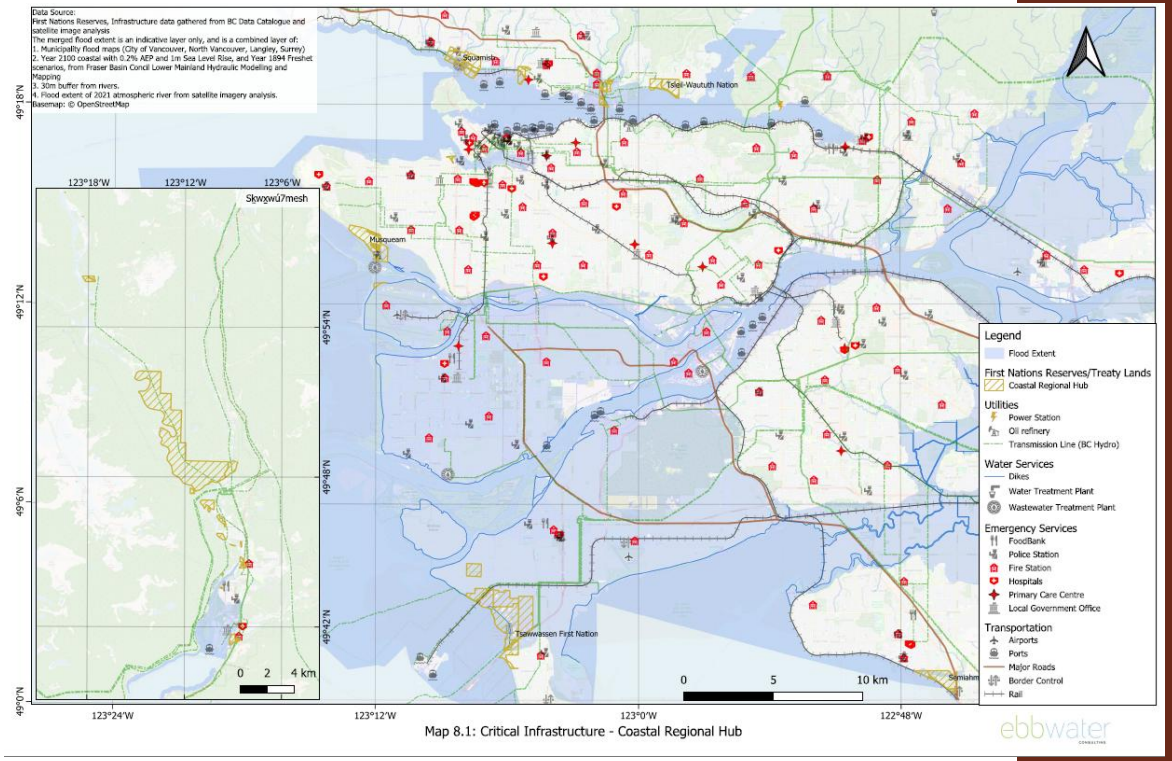
GOAL

to *illustrate* how major human-caused interferences may have altered the flow paths in the Lower Fraser River and its connected waterbodies

METHOD

1) Identify major human interferences that may have altered the hydraulics of the lower Fraser River (e.g. draining the lake, dredging, dike / drainage construction, channelization)
2) Smooth elevation to artificially remove major human interferences Adjust flow paths to match historical maps. Reactivate disconnected sloughs (Elk Brook, Nicomen, Camp, Hope, Nelson, Agassiz, and Maria)
3) Run 3 scenarios (moderate flood, 1894 flood, 2021 AR) to provide an understanding of how the floodplain might look under different flow conditions with low human interference

Exposure & Vulnerability Mapping



Map 8.1: Critical Infrastructure - Coastal Regional Hub

GOAL

to create the building blocks for a flood risk assessment for the Coast Salish Territories

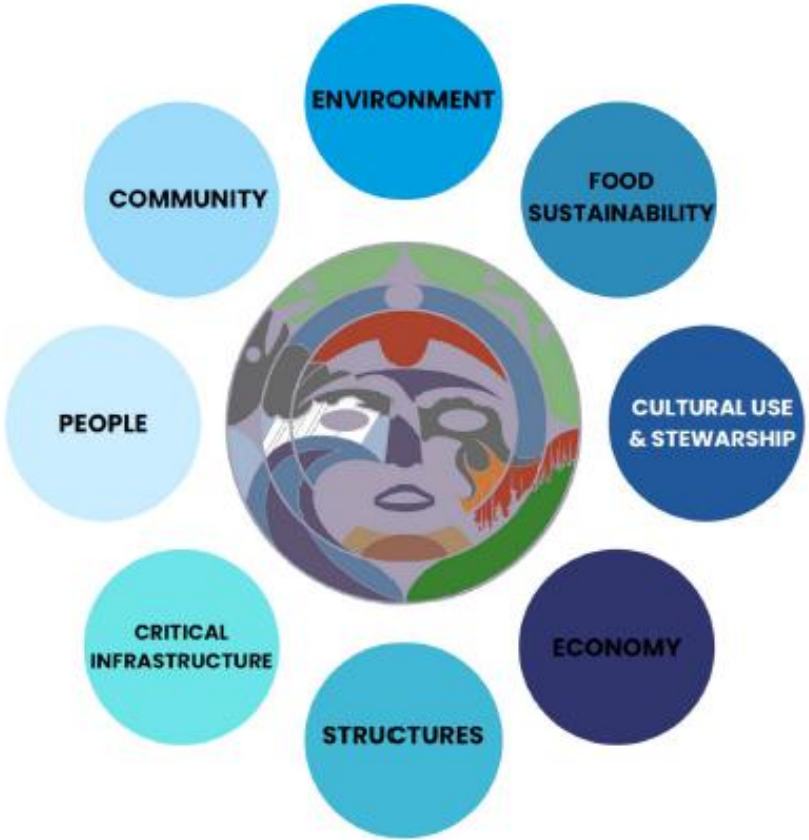
OBJECTIVES

1) Research and report on standard elements of exposure and vulnerability used in flood risk assessments
2) Explore elements of exposure / vulnerability specific to Coast Salish Communities
3) Report on available data for objectives 1 and 2
4) Conduct a gap analysis to support completion of full database to support flood risk assessment.

MAPS

exposure maps produced for each hub for CI, people, environment, food, and structures

Receptors of Risk



Standard Receptors of Risk

- People (Health and Safety)
- People (Society)
- Critical Infrastructure
- Economy
- Environment
- Culture
- Government

Place-Based Receptors of Risk

- Critical Infrastructure (common to standard)
- Structures (common to standard)
- Economy (common to standard)
- People (risks to individuals – health and safety)
- Community (risk to the network of community)
- Environment (place-based considers lower mainland specific environment and salmon)
- Food Sustainaibility (risks to colonial food structure and traditional food harvesting)
- Cultural Use and Stewardship (risks to ability to live out culture and teach traditional practices)

Data Availability

- Ebbwater assessed each receptor to identify available data and where gaps exist. Place-based receptors have less data availability.

Geodatabase of Technical Information

Study Name	Project Purpose	Grant Program	Project Proponent/Owner	Lead Supporting Organization	Project Cost
Fraser River Bank Erosion Protection Enhancement Project in Abbotsford	Increased capacity to adapt to climate change impacts, natural disasters and extreme weather events	DMAF	Abbotsford		
Barrowtown Pump Station – Backup power Generator	General Infrastructure	ARDM	Abbotsford, City of	NA	$ 6,511,000
Fraser River: Matsqui Dyke Erosion Arc Bank Stabilization	General Infrastructure	Grants	Abbotsford, City of	NA	$ 4,000,000
Flood Evacuation Route Plan	Evacuation Route Planning	CEPF	Abbotsford, City of	NA	$ 23,926
Cannell Lake Dam Remediation	General Infrastructure	CEPF	Abbotsford, City of	NA	$ 493,178
Geotechnical (Seismic) Assessment of Abbotsford Dykes	Assessment, Mapping and/or Planning	NDMP	Abbotsford, City of	NA	$ 168,960
Matsqui Dyke Sinkhole Full Repair Project	General Infrastructure	CEPF	Abbotsford, City of	NA	$ 750,000
S3 - Nooksack River Overflow Flood Mitigation Plan	Assessment, Mapping and/or Planning	NDMP	Abbotsford, City of	NA	$ 237,082
Evacuee Registration and Assistance EMBC Modernization Plan	Emergency Support Services	CEPF	Abbotsford, City of	NA	$ 18,133
Group Lodging Kit	Emergency Support Services	CEPF	Abbotsford, City of	NA	$ 29,335
Modernization & Mobility	Emergency Operations Centres	CEPF	Abbotsford, City of	NA	$ 29,598

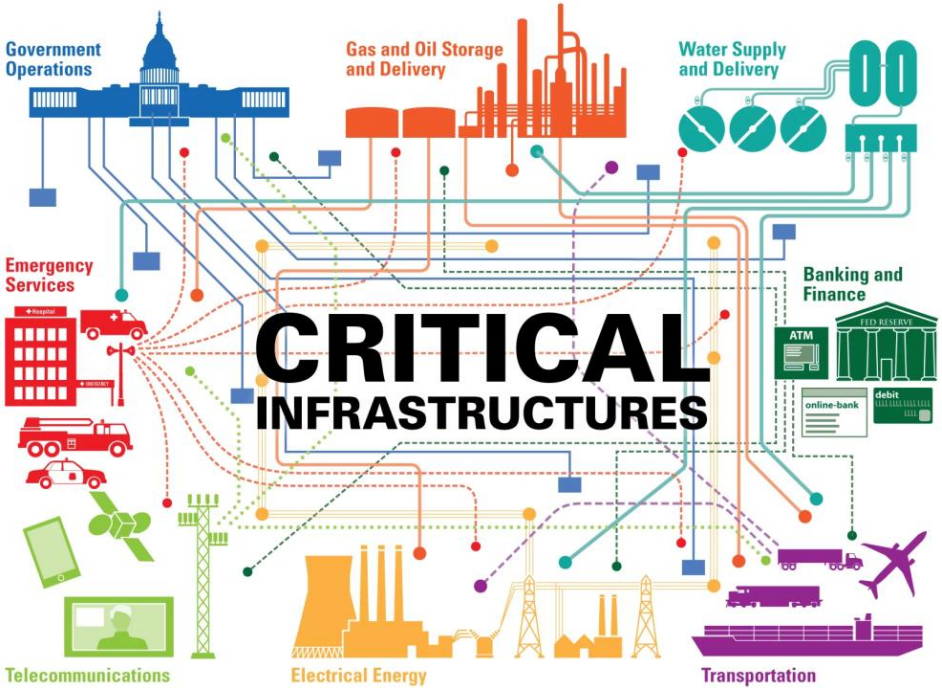
GOAL

collate technical information from across the region to support a place-based climate hazard risk assessment and identify gaps in current/ongoing work to make recommendation for future work

TIMELINE

- a preliminary database has been completed
- LFFC has engaged with First Nations and local governments to add additional work to the database, sharing what they are willing
- geodatabase will be made over the summer. This database will depict on a map where studies, assessments, and other work have been conducted.

Critical Infrastructure Analysis



ORIGINAL PROPOSAL

A *critical infrastructure network analysis* to model how CI systems (roads, power lines, hospitals) are connected, how they rely on one another to keep communities running smoothly, and a model that shows how these connections break during a flood.

VALUE

1) **Identify weak points**—see which services are most at risk of failing in a flood.
2) **Spot dependencies**—understand how the failure of one system (like power) could affect others (like communication or clean water).
3) **Plan smarter**—help communities prepare by protecting the most vulnerable or high-impact infrastructure.
4) **Respond better**—know which routes, facilities, or backup systems to prioritize in an emergency.
5) **Tell the story** needed to get everyone to the table to discuss solutions (lesson learned from SRWFRMP)