



Floodplains Coalition

Lower Fraser Floodplains Dialogue for Regional Action

Reporting Back: Coastal & River-Tidal Gathering • November 13 2024



This report was prepared by the Lower Fraser Floodplains Coalition. Support for the gathering was provided by Erica Crawford at Heronbridge Consulting and a team of facilitators. Funding for the gathering was provided by Natural Resources Canada through the Climate Resilient Coastal Communities Grant and Ministry of Water, Land, and Resource Stewardship. The report was designed by Hanna Araza, West Coast Environmental Law. Cover image: Minnekhada Regional Park / Metro Vancouver.



2018 flood at Derby Reach Regional Park. Photo: Metro Vancouver.

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Executive Summary

On November 13, 2024 representatives from three First Nations and thirteen local governments came together online for the second *Lower Fraser Floodplains Dialogue for Regional Action Series: Coastal & River-tidal Gathering*, along with representatives from the BC Ministries of Water, Land and Resource Stewardship and Emergency Management and Climate Resilience, Vancouver Coastal Health, Fraser Health, and the Lower Fraser Fisheries Alliance, hosted by the Lower Fraser Floodplains Coalition (LFFC). Dialogue focused on sharing information about flood risk analysis in the region, collaborative flood resilience projects, good ways for First Nations and local governments to work together, and messages to the provincial government.

The gathering began with a welcome and opening remarks from **Councillor George Chaffee of Kwikwetlem First Nation**. **Councillor Chaffee** emphasized that in a watershed everyone needs to come together and work together with respect, being part of the solution instead of part of the problem. Working with First Nations and listening to the traditional knowledge shared by elders when walking the path of reconciliation helps everyone be ten steps ahead. **Councillor Dylan Krueger of the City of Delta and Chair of the Metro Vancouver Flood Resiliency Committee** followed and spoke to the importance of regional-scale planning and the critical role of collaboration for First Nations and all levels of government in addressing flood resiliency.

SETTING THE TABLE FOR DIALOGUE

Mariah Mund, Resilience Lead at the Emergency Planning Secretariat (EPS) described the evolution of the flood management landscape in the Lower Fraser, from pre-colonial First Nations practices of reducing flood risk by adaptively managing human activities and communities, to a flood control system of dikes, channels and pump stations that aims to keep water out of the floodplain. Since 2022, the LFFC has promoted relationship building for First Nations and local governments, and technical work to fill knowledge gaps about multi-beneficial flood management practices to protect communities and ecosystems. The 2024 BC Flood Strategy is a positive step, but needs to be implemented in the Lower Fraser.

EPS has received a 3-year grant (2024-2027) through the Natural Resources Canada “Climate Resilient Coastal Communities Program” to develop a network analysis of the interdependencies of critical infrastructure and local essential services in the Lower Fraser. The funding will also enable EPS and LFFC to work with communities to identify new, nature-based flood resilience projects.

Gillian Fuss, Manager at the Emergency Planning Secretariat, which provides services to the 31 Mainland Coast Salish First Nations, gave an update on the EPS **strategic plan and framework for disaster risk reduction and climate resilience (Hilekw Sq’eq’o)** which means “to get ready together” in Hal’qeméylem. Hilekw Sq’eq’o emphasizes regional collaboration to improve resilience collectively rather than individually. She encouraged non-First Nations actors to gain cultural competency so they can work effectively with First Nations communities. Hilekw Sq’eq’o supports First Nations’ jurisdiction over their traditional territories, including the principle of free, prior, and informed consent.

The **Lower Fraser Floodplains Coalition** described work to advance the five priorities identified at the June 2023 regional gathering, including: understanding risk; protecting critical infrastructure and local essential services;

river and waterway restoration and resilience; food security; and developing a framework for regional decision-making. LFFC has three baskets of work to support these regional priorities. Basket 1 (understanding risk and risk reduction options) includes technical work to fill in gaps at the regional level and a network analysis of critical infrastructure systems and local essential services. Basket 2 (facilitating multi-benefit, nature-based flood resilience projects) includes webinars; relationship building for farmers and First Nations; advocating for funding programs and identifying resources needed to support collaborative projects. Basket 3 (advancing a regional framework for flood risk management) involves development of regional scale decision support tools, and continued advocacy to the provincial and federal governments to provide sustained support and resources for the region.

SPOTLIGHT ON REGIONAL ACTION

Jay Hope of Xixne Consulting shared information and lessons from three related projects underway up-river in the Fraser, including the Fraser Coquihalla Rivers Area Flood Management Plan (the “Hope Flood Table”), the Fraser Canyon Flood and Landslide Geo-risk Mapping Project and the Stó:lō Geohazard Risk Mapping Project. The projects include First Nations and local governments along with provincial and federal representatives, and provide valuable insights on collaborative, regional scale risk assessment, grounded in reconciliation and respect. Overall, being action-oriented is important. Promoting communication across the projects has been helpful because they fit together like a puzzle in addressing flood issues across the region.

Marcin Pachcinski, Division Manager, Metro Vancouver Flood Resilience Committee spoke about *Metro Vancouver’s Prioritization Framework for Funding Capital Projects – Flood Infrastructure Investment Across the Region* initiative. This has two parts: a scan that looks at all the capital flood projects that have been funded through federal and provincial funding programs; and the development of prioritization criteria for the funding of future projects. Metro Vancouver plans to finalize the report in early 2025 and it will be made public.

DIALOGUES

Understanding flood risk across the region: Guests shared work and planned work on flood risk from across the region. Guests noted that more and better information sharing was needed, as well as regional scale analysis (e.g., a sediment model for the Fraser River and pluvial modelling). Guests shared ways that local governments and First Nations have been building relationships and working together, and noted opportunities to leverage regional needs with the federal and provincial government. More work is needed to understand how to manage housing needs and flood risk.

Understanding risk management options for critical infrastructure: Guests pointed to risk assessment for local infrastructure and asset management planning prepared by local governments, work that is contained by municipal boundaries. Regional work includes diking assessment and the Metro Vancouver Hazard, Risk, and Vulnerability Analysis (HRVA), as well as Ministry of Agriculture flood vulnerability work. A shared understanding of ‘critical infrastructure’ would be helpful for the region, and also regular ways of communicating for communities in shared watersheds. Infrastructure upgrades (e.g., Highway 99) are opportunities to build in resilience.

Unlocking a steady flow of collaborative, nature-based flood resilience projects: Guests shared examples of projects, but noted that it would be helpful to know more about projects across the region, and

that sustained support was needed, suggesting a program similar to FireSmart with support for collaboration, as well as more efficient permitting processes.

Key messages for the Province about supporting flood risk management in the Lower Fraser: Affordable housing and addressing flood risk are critically linked. Watershed health and human health are linked. Communities in the Lower Fraser know that collaboration is needed to move forward and they are ready to do this work. Clear guidance is needed for First Nations and local governments to work together, including consistency across Ministries.

NEXT STEPS

LFFC will be reaching out to local governments and First Nations about participation in the critical infrastructure network analysis, which will begin in summer 2025 and will have several phases. EPS & LFFC will also be setting up sessions to engage with First Nations and local governments about funding opportunities through the CRCC grant regarding flood risk assessment and flood resilience projects.



Introduction

On November 13, 2024 representatives from three First Nations and thirteen local governments came together online for the second Lower Fraser Floodplains Dialogue for Regional Action Series: Coastal & River-tidal Gathering, hosted by the Lower Fraser Floodplains Coalition. Also in attendance were representatives from the BC Ministry of Water, Land and Resource Stewardship and Emergency Management and Climate Resilience, Vancouver Coastal Health, Fraser Health, and the Lower Fraser Fisheries Alliance.

WELCOMING & OPENING REMARKS

The dialogue began with a welcome from **Councillor George Chaffee of Kwikwetlem First Nation**, who has lived in the unceded territory along the Coquitlam River for his entire life.

In his remarks Councillor Chaffee shared about the transformation of the Coquitlam River watershed over the past 100 years, through the construction of the dam which took away 80% of the water and the urban development which has occupied 80% of the land. He spoke as a knowledge keeper who has learned from his elders who carry thousands of years of accumulated knowledge, and explained he was taught that the watershed needs balance. For a hundred years his Nation was excluded from having a say in the watershed, but they have returned to a leadership role as stewards and guardians in the revitalization of the watershed. Councillor Chaffee emphasized the importance of everyone coming together with respect to be part of the solution, even those who have been part of the problem. For his people, as long as there is one fish or one animal left in the watershed they will work to protect it and help it heal. When the City of Coquitlam came to Kwikwetlem First Nation and proposed a new dike that would protect the Nation, and also apologized for past wrongs, the elders said this was the right way to proceed. It is important to walk the new road of reconciliation together, with respect. Working with First Nations and listening to the traditional knowledge shared by elders helps everyone be ten steps ahead. Councillor Chaffee encouraged everyone to work together for the common goal of protecting our shared watersheds, all across BC.



It is important to walk the new road of reconciliation together, with respect. Working with First Nations and listening to the traditional knowledge shared by elders helps everyone be ten steps ahead.

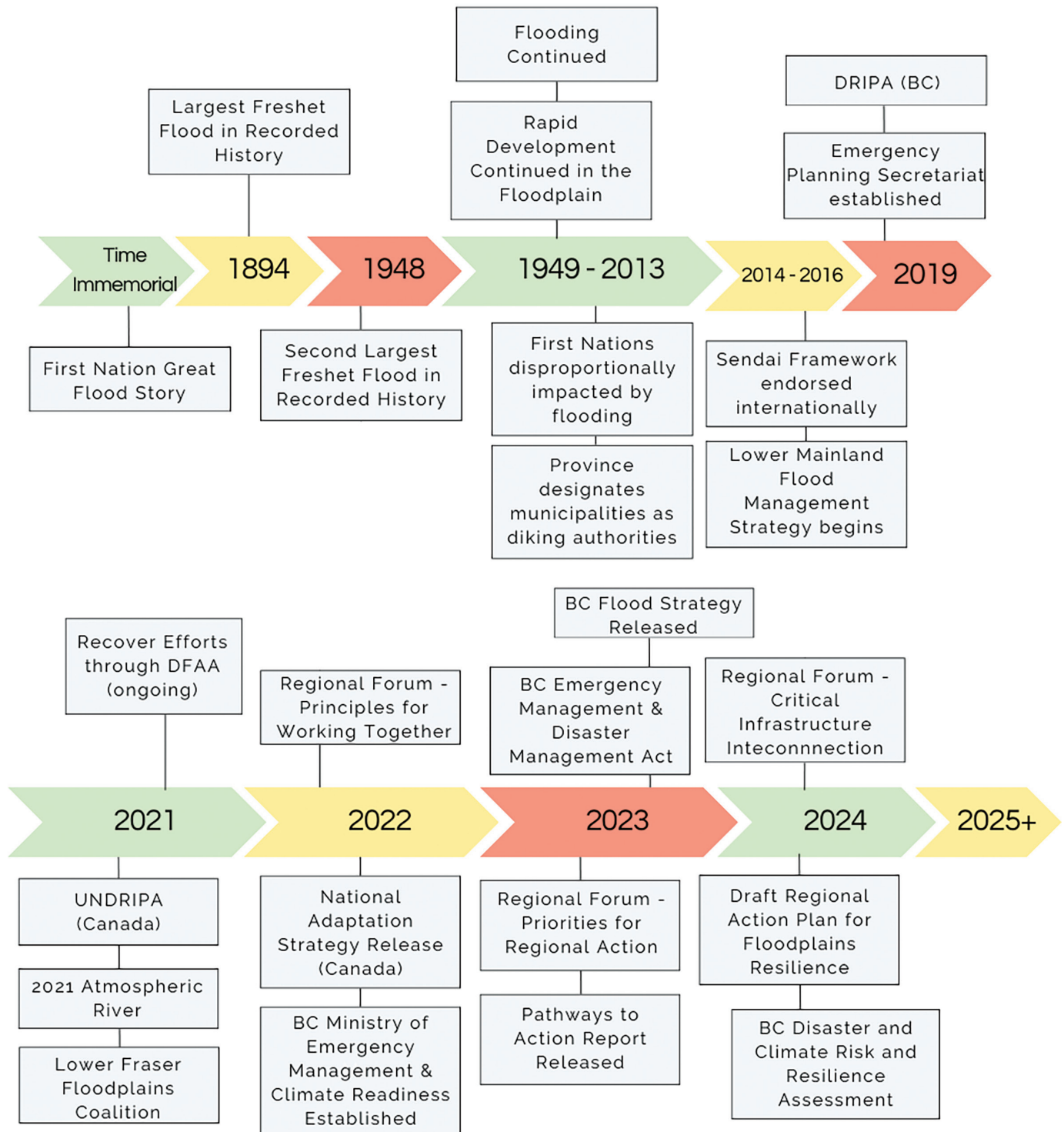
Councillor George Chaffee,
Kwikwetlem First Nation



Next, **Dylan Kruger, Delta City Councillor and Chair of the Metro Vancouver Flood Resiliency Committee** spoke to the importance of regional-scale planning and the critical role of collaboration for First Nations and all levels of government in addressing flood resiliency. Councillor Kruger highlighted Metro Vancouver's efforts to coordinate flood mitigation priorities, connect initiatives to funding sources, and provide a unified regional voice. He expressed gratitude to the EPS and LFFC for bringing everyone together, and encouraged productive discussions to advance collective efforts in mitigating flood risks and protecting communities.



Setting the Table for Dialogue: Context



Mariah Mund, Resilience Lead at the Emergency Planning Secretariat, began the day by briefly reviewing the flood landscape of the Lower Fraser, as a reminder of where we are and how we got there.

THE FLOOD MANAGEMENT LANDSCAPE IN THE LOWER FRASER

The region's vulnerability to flooding was brought home by the November 2021 atmospheric river events. Since 2022, the LFFC has promoted relationship building for First Nations and local governments to create opportunities to work together as neighbours and as a region. LFFC also supports technical work to fill knowledge gaps about multi-beneficial flood management to protect communities and ecosystems, and advocates to the federal and provincial governments for supportive policy and funding for our region.

While there was uncertainty around provincial action due to the elections at the time of this gathering, it was noted that the BC Flood Strategy was released in April 2024. The Strategy offers guidance about a more holistic approach to flood management that opens up a range of solutions beyond flood control, including nature-based measures. The BC Flood Strategy also acknowledges the importance of good, collaborative relationships between local governments and First Nations. In the Lower Fraser it's clear that there is strong interest and energy to take up the Strategy and move forward with the work of preparing our communities to be resilient for the future.

HÍLEKW SQ'EQ'O

Gillian Fuss, Manager at the Emergency Planning Secretariat (the non-political organization that supports 31 First Nation communities, from Yale to Semiahmoo to Squamish, in improving emergency planning and preparedness at the local and regional levels), offered an overview of **Hílekw Sq'eq'o**—which means “to get ready together” in Hal'qeméylem. *Hílekw Sq'eq'o* is the EPS strategic plan and a framework for disaster risk reduction and climate resilience. It is aimed at transitioning emergency management from a focus on response and protection, to include resilience. *Hílekw Sq'eq'o* draws on the Sendai Framework for Disaster Risk Reduction, with the addition of three pillars to weave First Nation expertise with global best practices. These pillars are capacity building, emergency response, and community wellness.



Hílekw Sq'eq'o emphasizes regional collaboration to improve resilience collectively rather than individually. This highlights the importance of cultural competency, with non-First Nations actors encouraged to gain this competency so they can work effectively with First Nations communities. The framework supports First Nations' jurisdiction over their traditional territories, including the principle of free, prior, and informed consent.

Hílekw Sq'eq'o serves as a living document that will evolve, integrating both cultural expertise and practical, localized knowledge to guide action plans.

LOWER FRASER FLOODPLAINS COALITION UPDATE

In March 2024, the LFFC hosted two regional dialogues focusing on critical infrastructure—one for coastal and tidal river communities, and another for mid and upriver regions. Critical infrastructure, with interconnected systems, is a key regional issue, as disruptions in one area can have cascading effects across communities. Both the *Pathways to Action* report that concluded the LMFMS (2014-23) and the *Hilekw Sq'eq'o* framework identify reducing risk to critical infrastructure and local essential services as a priority. At the March 2024 dialogues Dr. Stephanie Chang shared insights on the lack of research on how critical infrastructure is exposed to hazards in the Lower Fraser, an area where infrastructure failures were evident during the 2021 atmospheric river event.

EPS, with LFFC support, has secured funding—\$1.7 million over 3 years for coastal work through the Natural Resources Canada Climate Resilient Coastal Communities program, and \$200,000 for mid and upriver regions from the Ministry of Water, Land and Resource Stewardship—for relationship-building, technical analysis, and capacity-building among First Nations and local governments. The goal, with support from LFFC, is to identify and implement multi-benefit projects that enhance flood resilience and reduce risks across the region, and to develop a network analysis of the interdependencies of critical infrastructure systems and local essential services. This network analysis is designed to be a decision support tool for the region.

Advancing A Regional Approach To Flood Resilience

Flood management in the Lower Fraser region, which involves 31 First Nations, 29 local governments, and many layers of federal, provincial, and First Nations jurisdiction and laws, is inherently complex. Yet regional coordination and collaboration is crucial for managing flood risks because water does not respect jurisdictional boundaries. At the June 2023 forum organized by LFFC, local governments and First Nations identified five shared regional priorities for action:

- understanding risk;
- protecting critical infrastructure and local essential services;
- river and waterway restoration and resilience;
- food security; and
- developing a framework for regional decision-making.

LFFC has organized its activities into three baskets to support and advance these regional priorities.





Red-winged blackbird at Iona Regional Park. Photo: Metro Vancouver.

BASKET 1: Building a knowledge foundation

Understanding flood risk (what's in the floodplain and how vulnerable it is to flood events), as well as learning about an expanded toolbox of options to reduce risk (in addition to existing flood control measures) was identified as a priority at the June 2023 forum. LFFC and EPS are leading and supporting specific work that has been identified as important and not otherwise being done:

- Assembling existing flood risk-related information & undertaking a gap analysis;
- Completing maps / inventory of land use and activities on the floodplain at a scale relevant for understanding options for flood risk reduction and resilience measures;
- Gathering information on critical infrastructure and local essential services, connecting with infrastructure owners in preparation for a three-part expert and community-based process to analyze network dependencies. The importance of this research is underscored by the cascading infrastructure failures experienced in 2021, when flooding on Highway 1 disrupted the region.
- Improving technical understanding of the functioning of the river and associated waterways of the Lower Fraser (pre-contact, current, and future with climate change) as a foundation for modelling flood risk reduction and resilience options.

The overarching goal is to complete a regional flood risk assessment within three years that includes risk management options for critical infrastructure and local essential services.

LFFC also invites everyone to participate in the network dependency analysis of critical infrastructure and local essential services, which will likely begin in summer 2025. Collaboration, shared knowledge, and mutual support are key to building a more resilient future for the Lower Fraser region.

Spotlight: The Region in Action—Risk Assessments

Jay Hope of Xixne Consulting shared ongoing efforts in the Lower Fraser region to assess risks with neighbours. Further upriver, First Nations are working collaboratively to assess flood and geohazard risks. Jay shared lessons from three different, but related projects:

- Fraser Coquihalla Rivers Area Flood Management Plan—the “Hope Flood Table” (flood hazard and risk in the District of Hope region), includes Yale First Nation, Chowéthel First Nation, Union Bar First Nation, the District of Hope, FVRD and the Province;
- Fraser Canyon Flood and Landslide Geo-risk Mapping Project (flood and landslide risk in the Fraser Canyon); and
- Stó:lō Geohazard Risk Mapping Project (flood and landslide risk in the territories of Tiyt Tribe and Pilalt territories), includes the District of Kent and Harrison Hot Springs and eight First Nations.

All three projects incorporate the five principles that were brought forward at the first forum organized by LFFC in 2022. Together the projects provide valuable insights on collaborative, regional scale risk assessment, grounded in reconciliation and respect.

1. Understanding and reducing risk: Each project is looking at flood risks in a new way—collaboratively. Past efforts often involved siloed approaches, where different stakeholders operated with separate interests. This project aims to establish shared understandings of flood risks and a new way of working: collaborative problem-solving, moving away from a fragmented approach and identifying mitigation options.

2. Advancing reconciliation: A critical element of these efforts is trust-building between First Nations, municipalities, and other parties. The project emphasizes the importance of open communication channels to ensure all parties involved can have their concerns raised and addressed, and can understand what is important to each other. In one instance a First Nation was concerned about the impacts on their traditional fishing sites, and the meetings provided an opportunity for the Nation to share this directly with the municipality, and explain the importance of these sites and the concern. It’s also understood that even if a First Nation doesn’t have capacity to attend every meeting, their interests will still be held and respected.

Cultural sharing and experiential learning has been an important part of the work. For example, technical consultants and other partners were taken out on the land, where First Nations shared their traditional stories and ways of being and their relationships to the land and to the rivers.

3. Everyone is part of the solution: To help create a safe space for dialogue there was an open invitation for those with interest to attend the meetings. Also, the cross-jurisdictional approach (local governments, First Nations, federal and provincial governments at the table) is emphasized.

Spotlight: The Region in Action—Risk Assessments (cont'd)

4. Thriving salmon and ecosystems: The projects are moving towards understanding impacts on habitat as well as communities, and looking at watershed tours to demonstrate the importance of fish and fish habitat.

5. Sustainable economies and resilient communities: Building a good understanding of each other's needs and interests will provide a strong foundation. Overall, being action-oriented is important. As well, promoting communication across these three projects is helpful because while each of the projects is distinct, they fit together like a puzzle in addressing flood issues across the region.

BASKET 2: Unlocking a steady flow of multi-benefit, nature-based resilience projects

During the session in June 2023, we heard local governments and First Nations say that their capacity to undertake multi-benefit, nature-based resilience projects could be enhanced with targeted support:

- education and technical support for project implementation;
- learning about existing and ongoing projects;
- federal and provincial funding to support collaborative projects from design to implementation, including the collaborative process and community engagement;
- a more efficient permitting process; and
- better relationships with farmers to identify potential opportunities for flood resilience practices on agricultural land.

The primary goal for this basket over the next three years is to identify 4-7 multi-benefit flood resilience projects that support flood safety, reconciliation, and environmental benefits.

Over the past year, the Lower Fraser Floodplains Coalition has focused on education, relationship-building, and advocacy to advance this basket of work. LFFC has hosted webinars for practitioners, facilitated discussions between farmers and First Nations communities, and worked with provincial and federal ministries to align funding programs with regional needs. New funding initiatives, such as the Disaster Resilience and Innovation Funding Program (DRIF), are seen as a positive step toward promoting more regionally focused disaster resilience efforts. LFFC members like Resilient Waters have supported projects that have made tangible progress, including upgrading floodgates in the region.

Ongoing efforts also include the creation of a “story map” to showcase current and completed innovative projects, that could include the Living Dyke Pilot Project in Boundary Bay, Tsleil-Waututh Nation's shoreline adaptation work, and flood mitigation efforts in several watersheds. This story map will serve as a learning tool, sharing best practices for future flood resilience projects.

Next steps include addressing regional training and education needs, identifying resources for collaborative projects, and exploring joint applications for significant regional initiatives. The LFFC aims to continue fostering partnerships, addressing jurisdictional gaps, and sharing information to ensure progress continues.

Spotlight: Metro Vancouver's funding program criteria review

Marcin Pachcinski, Division Manager, Metro Vancouver Flood Resilience Committee spoke about Metro Vancouver's *Prioritization Framework for Funding Capital Projects - Flood Infrastructure Investment Across the Region*. Metro Vancouver has two related projects: a scan of all the capital flood projects that have been funded through federal and provincial funding programs, and development of prioritization criteria for the funding of future projects. It was noted that Metro Vancouver is a federation of 21 municipalities, one Treaty First Nations, and one electoral area, that is also in the territory of a number of First Nations governments, with a combined population of 2.8 million people.

The prioritization criteria project seeks to identify a range of criteria that can be used by local governments in the region to make decisions about projects according to their needs and priorities. It includes a review of existing provincial, federal, and American funding criteria. Categories identified include: risk and resilience; sustainability and climate adaptation, First Nations engagement; equity; and capacity and financial considerations. A survey was shared with guests at this event about their perspectives on the criteria, and adding any that they think have been missed. Metro Vancouver is preparing a report about the criteria for early 2025 that will be made public.



Prioritization Framework for Funding Capital Projects

FLOOD INFRASTRUCTURE INVESTMENT ACROSS THE REGION

Marcin Pachcinski

Division Manager, Electoral Area and Implementation Services

Linda Fang / Justin Chan

Ebbwater Consulting

Lower Fraser Floodplains Dialogue for Regional Action: Coastal/River Tidal Gathering, November 13, 2024

metrovancouver

BASKET 3: Updates on progress towards a regional framework for flood resilience

The final basket of work identified to advance the five priorities for action from the June 2023 regional forum is supporting “a regional framework for flood resilience, planning, and risk management.” The BC Flood Strategy discusses regional planning and risk assessment, but with the provincial election in the fall, the Province has not yet indicated how regional scale flood work and coordination across communities will be supported. Yet a regional approach is needed, because the siloed management and competitive funding programs have not served our region or our communities. In the meantime, it is important that the Lower Fraser communities maintain momentum with the work that is already underway, and also that our region continues to use its collective voices to remind both the Province and federal government of the need for resources to support flood risk reduction and resilience in the Lower Fraser.

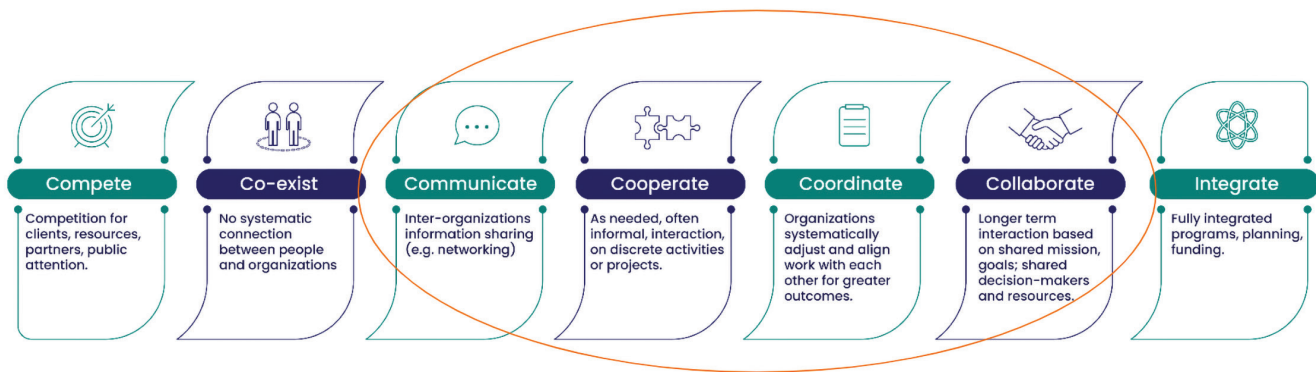
LFFC has taken on some of the work needed to inform a regional approach, focussing on the five priority areas identified at the June 2023 forum. For example, the network dependency analysis for critical infrastructure and local essential services (Basket 1) organized by LFFC will be one of the first initiatives to look at flood resilience across the region as a whole, and will be a way to proactively identify opportunities to build resilience into the critical infrastructure systems and services that communities in the region depend on. These systems and services are also essential for maintaining economic connections at the regional, national and international level. Consideration of the outcomes of this and other analysis to understand risk and risk reduction options can provide a starting point for leadership from First Nations, local governments and representatives from the federal and provincial governments to develop a regional agenda for action.



Salmon in Tynehead Regional Park. Photo: Metro Vancouver.



Collaboration Spectrum



The Tamarack Institute. (June, 2017). *The collaboration spectrum - tool* [Illustration]. The Tamarack Institute. <https://www.tamarackcommunity.ca/library/collaboration-spectrum-tool>



Figure adapted by The Center for Implementation

Dialogues

These **November 2024 dialogue sessions** were designed for neighbouring communities (two groups: Coastal River-Tidal, at this gathering and Mid & Up River at another gathering on November 28, 2024) **to share information, resources, ongoing actions and needs** related to flood risk assessment, and critical infrastructure, including:

- **Dialogue Round 1:** (A) Understanding flood risk and hazards and (B) Understanding risk and risk reduction options for critical infrastructure systems;
- **Dialogue Round 2:** How to create a steady flow of collaborative, nature-based flood resilience projects; and
- **Dialogue Round 3:** How to send a message to the Province to support the urgent work needed to manage flood risks in the Lower Fraser.

61 responses



Guests at the gathering were asked to share actions that have already been completed, or are in progress or planned, that will help to increase understanding of flood risk across the region. Understanding risk is an important foundation for identifying, prioritizing and moving forward with flood risk reduction measures. Sharing the work that is occurring across the region is a way to share information and lessons, identify gaps that need to be filled, and help assemble the knowledge foundation that can support regional risk assessment and management. This is not intended as an exhaustive list, but represents the work that guests viewed as important to share.

- North Shore Sea Level Rise Risk Assessment and Adaptive Management Strategy, 2021 (District of West Vancouver, District of North Vancouver, City of North Vancouver, Squamish Nation, Port of Vancouver, and North Shore Emergency Management): <https://www.dnv.org/community-environment/sea-level-rise-strategy>
- North Shore HRVA Story Map 2024: <https://resiliencemapping.ca/northshore-storymap>
- North Shore Extreme Heat Mapping – vulnerable populations 2024: <https://resiliencemapping.ca/northshore-extremeheat>
- Metro Vancouver Multi-Hazard Mapping Project 2024: <https://metrovancover.org/boards/RegionalPlanning/RPL-2024-03-08-AGE.pdf>
- Surrey/Delta Mud Bay Infrastructure Flood Vulnerability Assessment 2017: <https://www.surrey.ca/sites/default/files/media/documents/CFAS-PIEVC-Workshop.pdf>
- Vancouver Sea2City Design Challenge: <https://vancouver.ca/green-vancouver/sea2city-design-challenge.aspx>
- Richmond Seismic & Flood Hazard Assessment
- Richmond Dike Elevation Modelling
- Richmond Flood Protection Management Strategy 2019: https://www.richmond.ca/_shared/assets/Flood_Protection_Management_Strategy57596.pdf

- New Westminster Flood Resilience Plan (collaborated with Richmond on modelling): https://www.newwestcity.ca/services/public-safety/flood-management/sb_expander_articles/46.php
- Vancouver Coastal Health & Fraser Health Climate Change and Health Vulnerability and Capacity Assessment 2022: <https://www.vch.ca/sites/default/files/import/documents/HealthADAPT-Vulnerability-Capacity.pdf>
- LMFMS flood mapping: https://www.fraserbasin.bc.ca/_Library/LMFMS_Maps/Summary_Flood_Primer_2019_MR.pdf

In-progress or planned actions that are increasing understanding of flood (and in some cases multi-hazard) risk across the region

- Tsleil-Waututh Nation & District North Vancouver Whey-ah-Wichen Cates Park Shoreline Restoration Project
- Tsleil-Waututh Reserve Shoreline Adaptation and Restoration Project (in-depth analysis and community consultation was required to design the project): <https://twnation.ca/twn-reserve-shoreline-adaptation-project/>
- Metro Vancouver & Katzie First Nation Barnston Island Dike & Drainage Project: <https://metrovan-couver.org/services/regional-planning/Documents/barnston-island-dike-assessment-update2024.pdf>
- Lower Fraser Fisheries Alliance complementary initiatives re: salmon habitat restoration
- Pitt Meadows Climate Action Strategy: <https://www.pittmeadows.ca/our-community/environment-sustainability/climate-action/climate-action-strategy>
- Pitt Meadows & Katzie First Nation & MV Parks – dike assessment
- Pitt Meadows & BC Hydro – Alouette River management
- Delta Climate Action Strategy
- New Westminster – looking at floodproofing, FCLs, etc.
- Port Moody Coastal Flood Strategy (mid-2025)
- Metro Vancouver Regional Scale Seismic Hazard Mapping (2026): https://www.iclr.org/wp-content/uploads/2024/05/ICLRFridayForum_MVSMMP_20240510.pdf
- Metro Vancouver IDF update: <https://metrovan-couver.org/services/liquid-waste/Documents/climate-change-impacts-precipitation-stormwater-2050-2100%E2%80%93technical-brief-2018.pdf>
- Metro Vancouver Regional HRVA
- SRWFMP technical work
- Stó:lō Geohazard Mapping Project (landslides on linear infrastructure)
- Semá:th First Nation flood risk assessment, coordinating with Matsqui First Nation and Leq'a:mel First Nation
- Provincial DCCRA – but it's a 'bird's-eye-view' and will need more granular data for our region

Ideas about ways to advance understanding of risk in the region in the next 3 years

More information sharing

- Shared information about flood-related bylaws
- Assembling a combined list of flood mitigation strategies
- Share City of Vancouver work on rainfall and coastal flooding events
- Access to foundational work from LMFMS

Addressing knowledge gaps

- Regional wave assessment (correlation between flood events and tidal cycle)
- Sediment model for the Fraser River and delta
- Regional water sustainability plan
- Look at longer term measures together, e.g., options for relocation from vulnerable locations in the floodplain
- Pluvial modelling and flood risk
- Further investigation of flood and seismic risk
- Develop a 25-50 year framework

How can local governments and First Nations in the Lower Fraser region work together to advance these actions? Who is involved, what sort of collaboration is needed, and how could this be organized?

What's needed	How to do it
Build trust between First Nations and local governments	• Go on a paddling trip • Instead of focusing on project-specific consultation, work to build relationships and then collaborate on developing projects • Or, go deep: focus on one initiative, but work closely and collaboratively from the beginning, e.g., have HRVA workshops. This can help identify what may be missing in existing processes.
Make it easier to share information	• Project information should be accessible across governments (subject to appropriate sharing). This would benefit everyone, including new employees. A dashboard is one idea. • Quarterly updates
Leverage Metro Vancouver and FVRD	• Advocate as a region(s) to access funding and fed/prov support • Coordinate plans instead of working in siloes • Support data and methodologies that are relevant for our region • Support a (joint) regional knowledge hub? (see information sharing, above)
Consider housing needs and flood risk	• Be proactive and try to avoid putting multi-family housing in vulnerable floodplain areas • Ensure flood protection is developed for First Nations communities already vulnerable to flood hazards

What's needed	How to do it
Build on better understanding of risk to get clarity about risk tolerance of communities	• Need more work on how to effectively share information about flood hazards and risks with people in the floodplain, and how they can access that information • Need more information about community-specific impacts and values, including sensitive and cultural areas.

1(B). UNDERSTANDING RISK MANAGEMENT OPTIONS FOR CRITICAL INFRASTRUCTURE

Reducing flood risk for critical infrastructure to keep communities safe and the region from collapsing in a major flood event has been identified as a priority in both Pathways to Action (2023) and the the framework for disaster risk reduction and climate resilience (Hilekw Sq'eq'o) developed by EPS for the 31 Mainland Coast Salish Nations. Guests at the dialogue were asked to share actions that have already been completed, or are in progress or planned, that will support or are already advancing the development of flood risk management options for critical infrastructure across the region.

Examples of *completed actions* that are increasing understanding of risk management options for critical infrastructure

- Port Coquitlam – 8 asset management plans, all completed at once to have a snapshot of data: <https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/prelim-strat-climate-risk-assessment.pdf>
- Pitt Meadows – Flood Hazard Risk Assessment 2018: https://www.pittmeadows.ca/sites/default/files/docs/pitt_meadows_flood_hazard_risk_assessment.pdf
- Richmond Flood Management Strategy (2019)
- Integrated Cadastral Information Society database
- Dike Vulnerabilities Mapping (2024, FBC)
- Regional Assessment of Flood Vulnerability (2016): https://floodwise.ca/wp-content/uploads/2022/02/Regional_Assessment_of_Flood_Vulnerability_2016_web.pdf
- Province of BC Preliminary Strategic Climate Risk Assessment (2019): <https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/prelim-strat-climate-risk-assessment.pdf>

In progress or planned actions that are increasing understanding of risk management options for critical infrastructure

- Provincial floodplain mapping (Flood Hazard Identification and Mapping from Mission to Yale, followed by additional areas)
- Burnaby Asset Management Roadmap
- Langley HRVA
- Metro Van prioritization framework

- Stó:lō Geohazard Risk Mapping
- Richmond Dike Masterplan
- Metro Van HRVA - will integrate Translink & YVR
- Ministry of Agriculture - Agricultural sector flood vulnerability

Other actions suggested

- Build a shared understanding of what 'critical infrastructure' includes
- Assessment of critical infrastructure risks, including what matters to communities
- Ensure that communities in shared watersheds have a way to share information, e.g., monthly meetings/updates
- Investigate opportunities for flood storage on agricultural lands
- Flood resilient planning for critical infrastructure: when is it being renewed, can it be adapted or relocated from floodplain
- Pluvial event mapping and flood risk assessment

How can local governments and First Nations in the Lower Fraser region work together to advance these actions? Who is involved, what sort of collaboration is needed, and how could this be organized?

What's needed	How to do it
Network analysis of critical infrastructure interdependencies	• Bring everyone together – including health authorities, MOTT, Fortis, BC Hydro, agriculture • Communities can share mapping of CI risk, including schools, First Nations land, transport hubs, ways of moving • Designate and understand escape/access routes • Consider food security and delivery & supply chains • Make sure salmon are being protected
Share and access relevant information	• Watershed-based approach to knowledge and communication • Data-sharing agreements • Community involvement in data collection • More real-time water quality data • Regional scale knowledge hub for sharing information • Quarterly updates on ongoing work in communities

What's needed	How to do it
Take advantage of infrastructure updates	- Consider equity in infrastructure upgrades - Consider improving resilience in infrastructure upgrades (eg., Highway 99) - Risk tolerance needs to be explored

2. UNLOCKING A STEADY FLOW OF COLLABORATIVE, NATURE-BASED FLOOD RESILIENCE PROJECTS

Guests at the dialogue were asked to share actions and projects that are already increasing flood resilience and reducing risk in the region. In particular, guests were encouraged to describe projects that highlight collaboration, and nature-based approaches that have multiple benefits. Given that these types of projects can be more challenging to fund, design, and implement, it's important to highlight the work that is already underway so that lessons can inform new projects.

Examples of *completed* collaborative, nature-based flood resilience projects

- Tsleil-Waututh Nation Burrard Inlet Story Map: <https://twnation.ca/restoring-a-healthy-inlet-an-interactive-storymap-experience/>
- Burnaby Fraser Foreshore Park Dike Upgrade (2021): <https://www.burnaby.ca/explore-outdoors/parks/burnaby-fraser-foreshore-park#:~:text=Dike%20Upgrade%20at%20Burnaby%20Fraser%20Foreshore%20Park&text=A%20900%2Dmetre%20section%20of,7%2Dkilometre%20Fraser%20River%20frontage.>

In progress or planned collaborative, nature-based flood resilience projects

- Surrey, Semiahmoo First Nation, Delta – Living Dike pilot projects Boundary Bay
- Tsleil-Waututh Shoreline Adaptation Project
- Kwikwetlem First Nation, Coquitlam partnering on diking infrastructure upgrade
- Local governments, UBC collaborating on development of sea level rise guidance for 2050
- BC, Emergency Disaster Management Act implementation, Indigenous Engagement Requirements Funding (for First Nations and local governments): <https://www2.gov.bc.ca/gov/content/safety/emergency-management/local-emergency-programs/financial/ierfp>

Additional ideas

- An online hub to keep track of projects underway
- Research on water system contaminants and solutions
- A way for neighbours to share work
- More site visits
- Some way to lessen consultation burden on First Nations – consultation is important but doesn't feel effective or efficient
- More information about climate adaptation action across the region

How can local governments and First Nations in the Lower Fraser region work together to advance these actions? Who is involved, what sort of collaboration is needed, and how could this be organized?

What's needed	How to do it
More communication	• Create a geospatial database with information about projects
A dedicated funding program tailored to the region	• Create a flood program similar to FireSmart • Have project funding that supports collaboration (including facilitation and relationship building) • Seed funding to develop projects
A more efficient permitting process	• Resolve differences between agencies, e.g., DFO (want to see greener slopes on dikes), and Provincial diking guidelines (hard armouring is required) • A shared table for regulatory authorities?

3. WHAT IS THE ROLE OF THE PROVINCE IN SUPPORTING FLOOD RISK MANAGEMENT IN THE LOWER FRASER?

Guests were asked to consider key messages they would like the Province to hear about supporting flood risk management in the Lower Fraser.

Key messages for the provincial government about their role in advancing flood risk management in the Lower Fraser

- Ensuring affordable housing is critically linked to addressing flood risk in the Lower Fraser
- The Lower Fraser needs support and attention at the Deputy Minister and Assistant Deputy Minister level
- Communities in the Lower Fraser know that collaboration is needed to move forward and they are ready to do this work
- Provincial and federal funding needs to be coordinated to advance collaborative, multi-benefit projects that increase flood resilience. Infrastructure upgrades is one place to start.
- Clear guidance and support is required so that First Nations and local governments can work together effectively and this includes consistency across Ministries.
- The region needs transparency about levels of risk it faces so that communities can determine risk tolerance, and their needs for risk reduction and increased resilience
- Watershed health impacts human health, and they are both related to managing flood risks. The

Province is the entity that has authority and responsibility to set standards and guidance for the region. A helpful example of the way the Province can work with the region is the water quality objectives that were developed with Tsleil-Waututh Nation.

Headlines

Headlines we don't want to see

- *Hello, 911, we need help to deal with the multiple hazards in our region, but there's no one to call*
- *Housing and affordability gains wiped out by latest massive flood event in the Lower Fraser*
- *Rain in the Lower Fraser catches everyone off guard...again*
- *Lower Fraser is ready to get to work on flood management—waiting for the Province to come on board*

Headlines we'd like to see

- *Collaboration in the Lower Fraser: surprising successes!*
- *New assessment shows Provincial funding and leadership is guiding steady progress towards healthy, resilient communities in the Lower Fraser*

Channels/forums to bring these messages forward:	Next steps
• First Nations Leadership Council • UBCM • GIS map for people to see flood hazards where they live • Metro Vancouver Council of Councils • Communications with new provincial ministers following election • LMLGA • A centralized information hub • Site visits	• Have joint site meetings with Provincial representatives • Find opportunities for regular conversations with the Province • Re-send letters that were sent to previous Ministers • Speak as a region • Ask for dedicated funding for the Lower Fraser • Educate the public on where their money is going and how they are impacted by unmanaged flood risks





View from Brae Island Regional Park. Photo: Metro Vancouver.

Next Steps

LFFC will be reaching out to local governments and First Nations about participation in the critical infrastructure network analysis, which will begin in summer 2025 and will have several phases. EPS and LFFC will also be setting up sessions to engage with First Nations and local governments about funding opportunities through the CRCC grant regarding flood risk assessment and flood resilience projects.

LOWER FRASER FLOODPLAINS COALITION

We are a collaborative group of BC-based organizations and experts with the shared goal of helping BC's upcoming flood recovery and management efforts achieve the best possible outcomes. We offer support from a diverse range of interests, experience and networks, including Indigenous groups, conservationists, farmers, environmental legal specialists, researchers and natural resource professionals. We hope to see BC move towards a more holistic, collaborative approach to flood management that benefits people and other species, like salmon.





Floodplains Coalition

The Lower Fraser Floodplains Coalition is a group of BC-based organizations and experts with the shared goal of helping BC's upcoming flood recovery and management efforts achieve the best possible outcomes.

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