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Canada

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# National Risk Profile – Overland Flooding

**November 2 2020**  
**Understanding Risk BC**

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Canada





## Sustainable approach for understanding disaster risks:

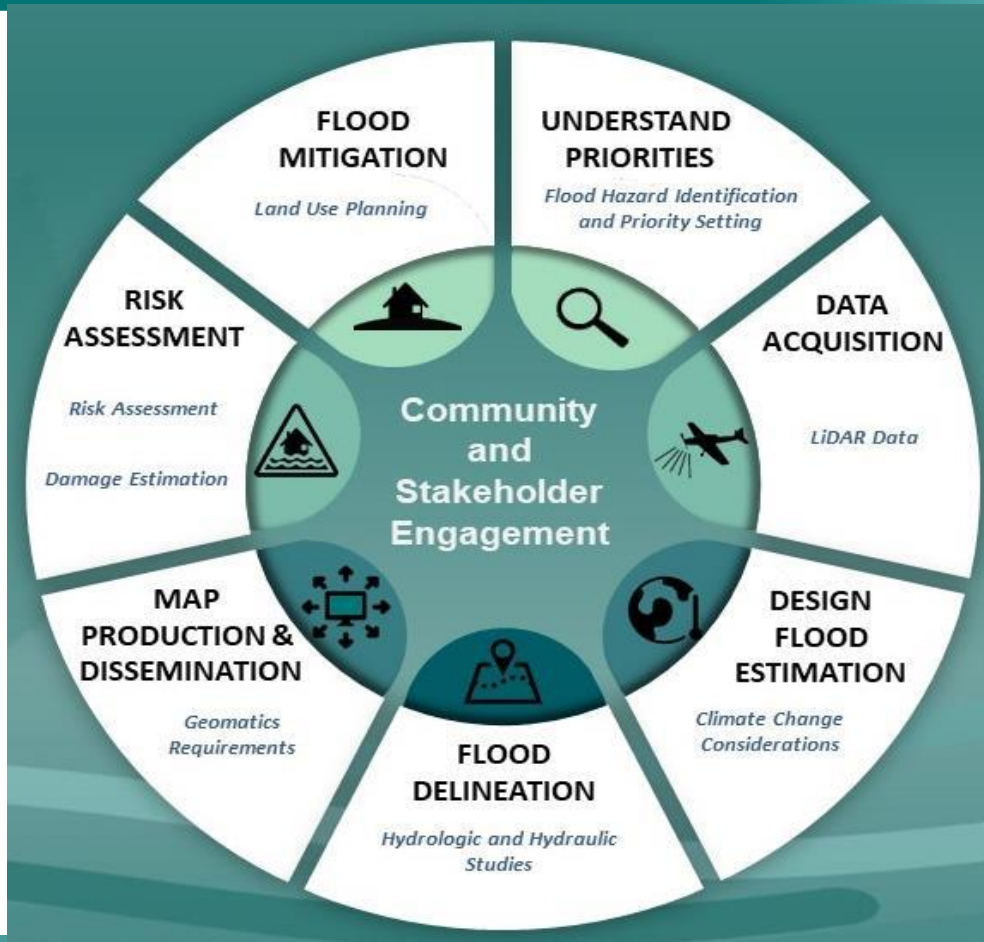
- **Top-down** risk assessment methods (national scenario based planning, capability assessment, critical infrastructure interdependence)



- **Bottom-up** community level assessments (flood hazard risk assessment and local mapping initiatives)











Federal Flood Mapping Framework	Published
Flood Hazard Identification and Priority Setting	In Progress
Federal Airborne LiDAR Data Acquisition Guideline	Published
Case Studies on Climate Change in Floodplain Mapping vol. 1	Published
Federal Hydrologic and Hydraulic Procedures for Flood Hazard Delineation	Published
Federal Geomatics Guidelines for Flood Mapping	Published
Federal Flood Risk Assessment Procedures	In Progress
Federal Flood Damage Estimation Guidelines for Buildings and Infrastructure	In Progress
Federal Land Use Guide for Flood Risk Areas	In Progress
Bibliography of Best Practices and References for Flood Mitigation	Published





# Flood Maps

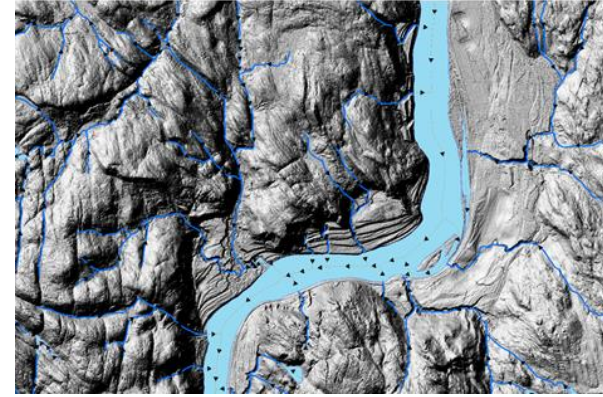
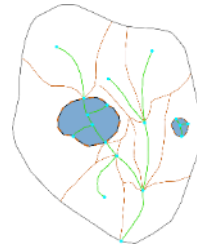
- Flood maps across Canada vary
- Many are outdated and don't include future climate change
- Significant gaps exists







- **Current and accurate geospatial data** are essential to the development of flood maps
- Imagery (LiDAR, satellite, aerial)
- High Resolution Terrain Models
- National Hydro Network
- Building Footprints



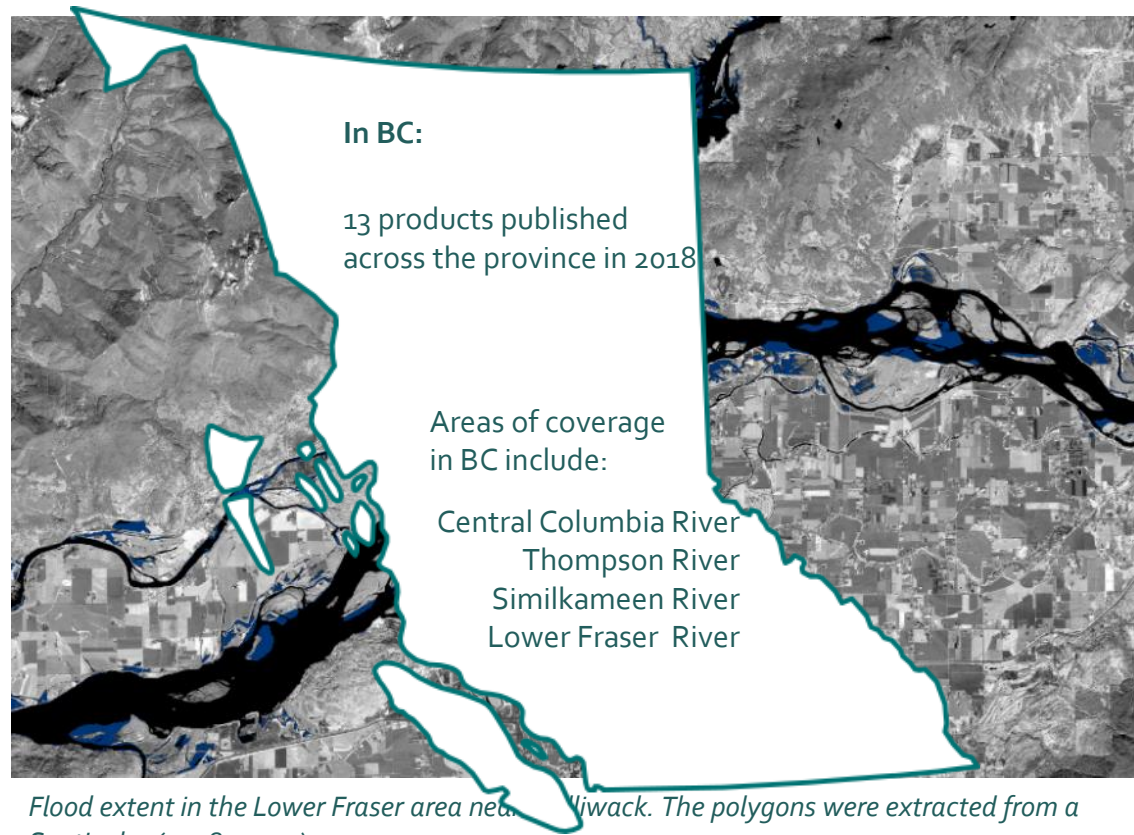








- Supports emergency management organizations, provinces, and municipalities in **response to flooding**.
- Derives **flood extent footprints** from satellite imagery and disseminate via web services 1-4 hours after images are acquired.



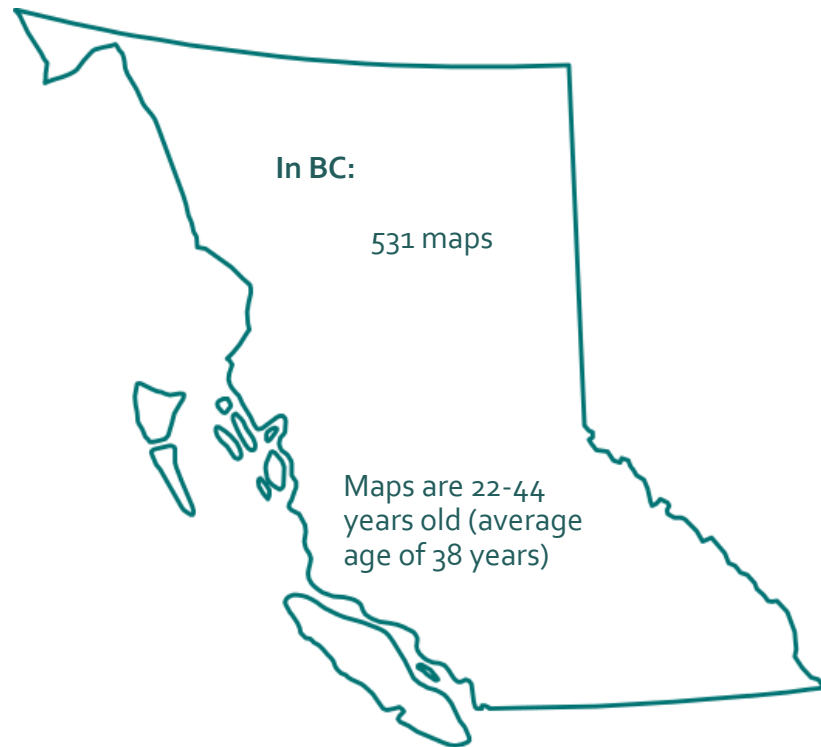
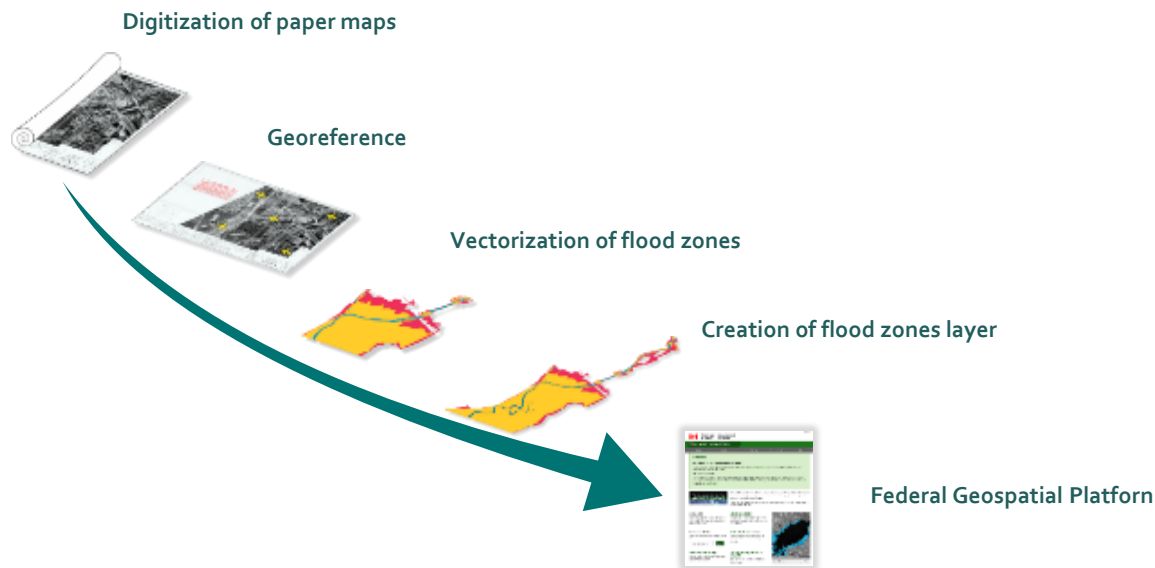
*Flood extent in the Lower Fraser area near Kamloops. The polygons were extracted from a Sentinel-2 (2018-05-23).*



# Flood Damage Reduction Program – Map Layer



- The FDRP ran between the mid 70s until the mid to late 90s.
- Close to 2000 flood maps from 10 provinces and territories

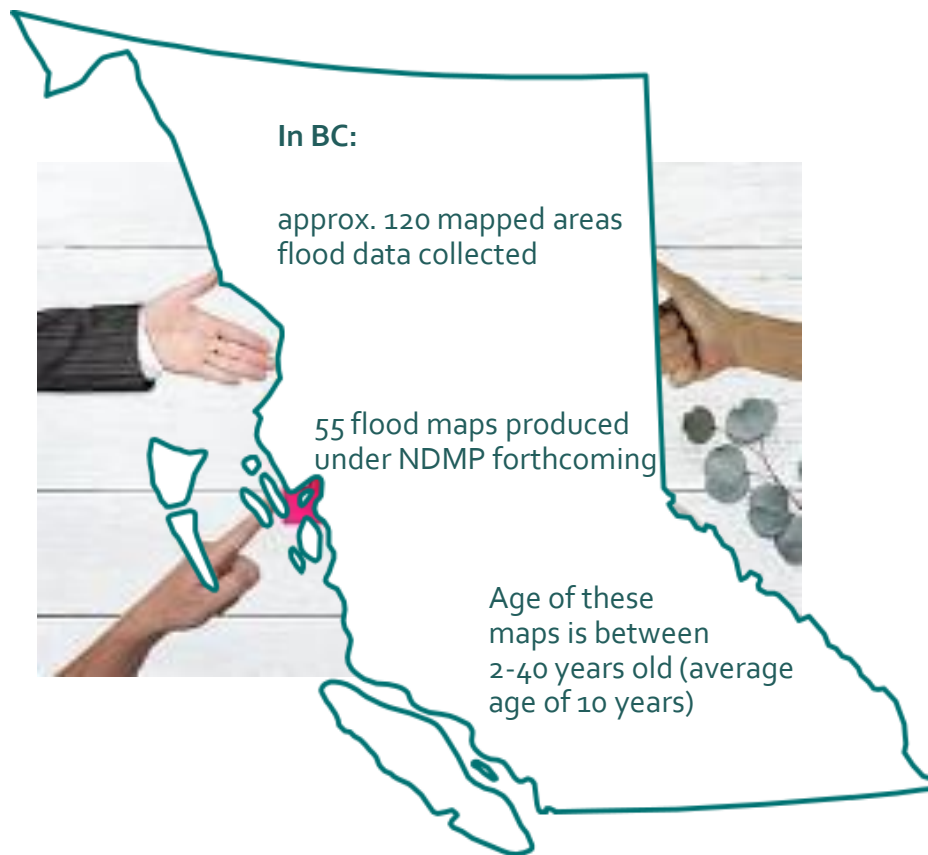




# National Flood Hazard Data Layer



- Requirement for Canada-wide understanding of flood hazards
- Flood hazard data is created using different methodologies and presented using different schemas
- NFHDL will be a common schema for flood hazard information with a mechanism to automatically link databases across Canada
- Underway...

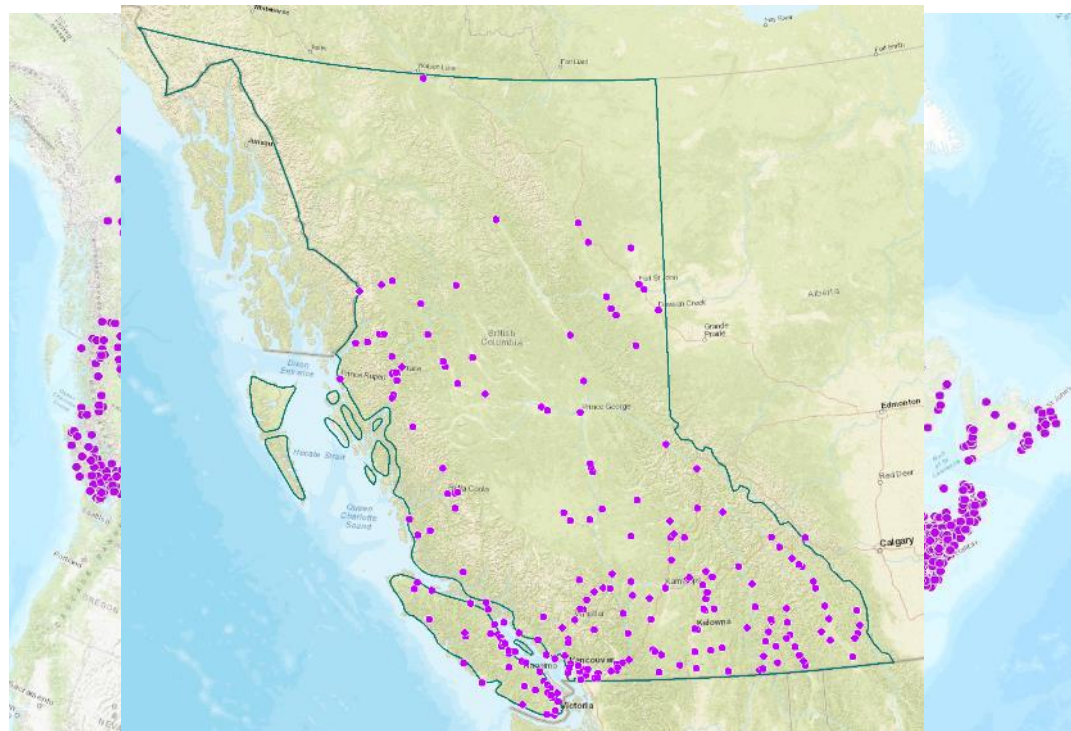
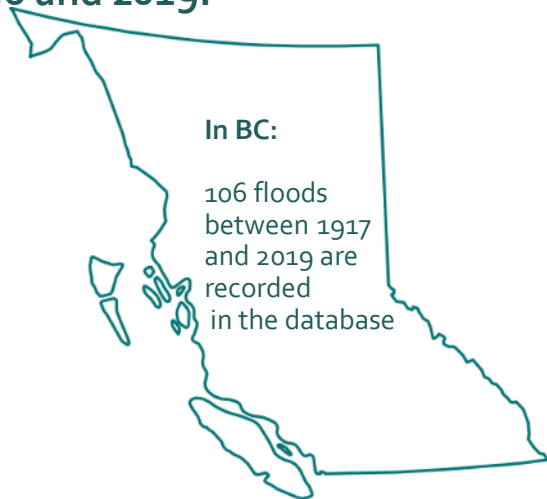




# National Historic Flood Database



- Database of all available historic flood data from multiple sources (national, provincial and territorial and municipal).
- Standardized compilation of 1737 floods recorded in Canada between **1696 and 2019**.





# NRCan and Flood Mapping



NRCan gathers information to inform a national picture on flood risk and fully understand and share knowledge about flood mapping in Canada.

Data	Activities	Collaboration
<ul style="list-style-type: none"><li>• Foundational geospatial data and acquire high-resolution LiDAR</li><li>• Providing mapping services for major flood event response</li><li>• Strengthening partnerships to share flood hazard maps and data</li><li>• Developing national databases and layers from existing sources</li></ul>	<ul style="list-style-type: none"><li>• Development of Flood Mapping Framework</li><li>• Publishing Guidelines</li><li>• Articulating a long-term vision and strategy</li><li>• Research flood mapping techniques and flood risk awareness tools</li></ul>	<ul style="list-style-type: none"><li>• National Technical Working Group of experts</li><li>• Leadership of Federal Flood Mapping Committee</li><li>• Co-chair Indigenous Technical Working Group on Flood Mapping</li><li>• Coordinating Outreach and Engagement</li></ul>

**Emergency Management Strategy**  
**National Risk Profile – overland flooding**







*"Work with the Minister of Public Safety and Emergency Preparedness and with the provinces and territories and Indigenous Peoples to complete all flood maps in Canada."*

*«Collaborer avec le ministre de la Sécurité publique et de la Protection civile et avec les provinces et les territoires et les peuples autochtones pour compléter toutes les cartes des zones inondables au Canada.»*







We endeavour to strengthen the resilience of Canadian communities to overland flooding – Canada's costliest hazard – by promoting a common approach to flood mapping across the country

# Thank you

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