Federal Flood Mapping Guidelines Series



Bibliography of Best Practices and References for Flood Mitigation

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General Information Product 115e

Natural Resources Canada
Public Safety Canada

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ACKNOWLEDGEMENTS

The Bibliography of Best Practices and References for Flood Mitigation has been developed under the leadership of the Flood Mapping Committee, a partnership between Public Safety Canada, Natural Resources Canada, Environment and Climate Change Canada, National Research Council of Canada, Defence Research and Development Canada, Infrastructure Canada, Department of National Defence, and Crown-Indigenous Relations and Northern Affairs Canada. A Technical Working Group on Flood Mapping formed in 2015 and comprised of key stakeholders from federal and provincial jurisdictions, as well as the private sector and academia, has also contributed valuable input to the development of the Federal Flood Mapping Guidelines Series documents. Provincial and territorial government representatives also provided essential feedback for this publication.

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Additional Information

For more information about this document, please contact the Canada Centre for Mapping and Earth Observation of Natural Resources Canada: NRCan.Geoinfo.RNCan@Canada.ca.



CONTEXT

A community achieves an elevated level of resilience when its risks are proactively managed, it is adequately prepared for known and potential disaster events and it demonstrates an ability to recover after such events have taken place. In order to become resilient, a community's mitigation planners must first understand risks and ensure their capacity to manage those risks.

Floods are the most commonly occurring natural hazard in Canada and account for the largest portion of disaster recovery costs on an annual basis. Mitigating flood risks is therefore key to increasing the resilience of affected communities. By proactively investing in flood mitigation activities, a community secures practical investments for its future growth and prosperity, reducing the risk of significant disaster recovery costs, productivity losses, economic losses, destruction of non-monetary cultural assets, environmental damage, injuries and deaths.

Flooding is the temporary inundation by water of normally dry land, and it can occur in coastal and lake areas, along rivers, from stream blockages including ice jams, from failure of engineering works including dams, from extreme rainfall, rapid snow/ice melt or poor drainage characteristics, and other sources. Flood mapping that accurately delineates flood hazards, including those impacted by future conditions due to anticipated development or projected changes in climate, serves as the precondition for such mitigation activities and is therefore the first step to increasing community resilience with regard to flooding. Establishing a national approach to flood mapping will facilitate a common national best practice and increase the sharing and use of flood hazard information, thereby improving the foundation from which further mitigation efforts can be initiated.

FLOOD MAPPING FRAMEWORK

The Flood Mapping Framework consists of all the components of the flood mitigation process, from flood hazard identification to the implementation of flood mitigation efforts. The following flow chart illustrates the relationship between these different components and links each of them to the relevant *Federal Flood Mapping Guidelines Series* document:

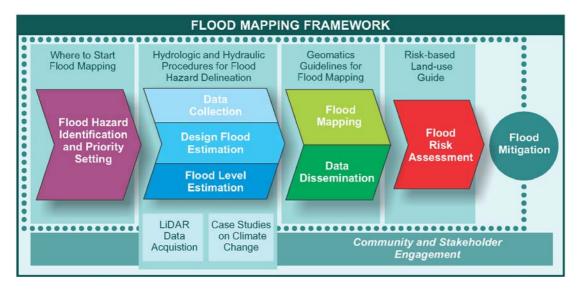


Figure 1: Floodplain Mapping Framework



FEDERAL FLOOD MAPPING GUIDELINES SERIES

The following documents are intended to inform any individual or organization involved with flood management in Canada:

- 1. Federal Flood Mapping Framework
- 2. Flood Hazard Identification and Priority Setting
- 3. Federal Hydrologic and Hydraulic Procedures for Flood Hazard Delineation
- 4. Federal Airborne LiDAR Data Acquisition Guideline
- 5. Case Studies on Climate Change in Floodplain Mapping
- 6. Federal Geomatics Guidelines for Flood Mapping
- 7. Flood Risk Assessment
- 8. Risk-based Land-use Guide: Safe use of land based on hazard risk assessment
- 9. Bibliography of Best Practices and References for Flood Mitigation

GUIDELINE SUMMARIES

1. Federal Flood Mapping Framework

This document provides background and context on flood mapping in Canada, describes a vision and principles for flood guidance, and introduces the Federal Flood Mapping Guidelines Series. It provides a summary of each of the documents in the Series and explains how each document fits into the overall framework, including its place in the flood mapping cycle.

2. Flood Hazard Identification and Priority Setting

This document has yet to be developed. It will outline methods for determining where to conduct flood mapping and how to prioritize flood mapping projects.

3. Federal Hydrologic and Hydraulic Procedures for Flood Hazard Delineation

This document provides technical guidance on hydraulic and hydrologic procedures for preparing flood hazard maps in a Canadian jurisdiction, including standard of care, different types of flooding, guidelines for hydraulic and hydrologic analyses, and incorporation of non-stationary processes including climate change.

4. Federal Airborne LiDAR Data Acquisition Guideline

This document is to be used as a resource for the acquisition of base elevation data from airborne LiDAR data undertaken across Canada. This guideline aims to provide advice to federal, provincial and territorial departments, as well as individuals and organizations in Canada that need to understand and plan for airborne LiDAR data acquisition.



5. Case Studies on Climate Change in Floodplain Mapping

This collection of documents describes projects from across Canada where climate change has been incorporated into the floodplain mapping process. It will provide examples for practitioners to draw on and learn from others' experiences and will complement the climate change-related information and resources included in the "Federal Hydrologic and Hydraulic Procedures for Flood Hazard Delineation" document.

6. Federal Geomatics Guidelines for Flood Mapping

This document covers the Flood Mapping and Dissemination components of the Flood Mapping Framework. It contains information on the different types of flood maps and outlines methods for acquiring, managing and disseminating these maps and associated geospatial data.

7. Flood Risk Assessment

This document is currently under development and will provide technical guidance on conducting flood risk assessments in Canada.

8. Risk-based Land-use Guide: Safe use of land based on hazard risk assessment

This document provides guidance to communities in using risk-based methodologies for the purpose of land-use planning.

9. Bibliography of Best Practices and References Related to Flood Mitigation

This document contains lists of Canadian and international references and case studies pertaining to hydrology and hydraulics, climate change, risk assessment and flood mapping. The purpose of this document is to provide a consolidated list of reference materials intended as further resources for practitioners involved in flood mapping.



1.0 INTRODUCTION

During the course of the development of the *Federal Flood Mapping Guidelines Series* documents, a number of reference materials and case studies pertaining to flood mapping were compiled. The purpose of this report is to provide a consolidated list of these as a reference for further investigation.

The contents of this document is a list of reference materials intended as further resources for practitioners involved in flood mapping. These are divided into Canadian and international subsections and include resources pertaining to all aspects of the flood mapping life cycle.

Like other documents in the *Guidelines Series*, this document is intended to be evergreen and to be updated as further developments take place.

2.0 REFERENCE MATERIALS

The following are reference materials compiled during the process of developing the *Federal Flood Mapping Guidelines Series* documents. They have been divided into Canadian and International sub-sections and are intended to be further consulted by practitioners who have additional interest in topics related to flood mitigation.

2.1 Canadian References

The following is a list of references produced in Canada or pertaining specifically to the Canadian context.

CANADA	
Publications	
Addendum to the Federal Hydrologic and Hydraulic Procedures for Flood Plain Delineation	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca
An Assessment of Flood Risk Management in Canada	https://www.iclr.org/an_assessment_of_flood_risk_management_in_c anada-2/
Assessing the Viability of Overland Flood Insurance: The Canadian Residential Property Market	https://www.preventionweb.net/publications/view/34721
Assessment of the Current State of Flood Mapping in Canada – MMM Report	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca



Assessment of Canadian Floodplain Mapping and Supporting Datasets for Codes and Standards	Published by: National Research Council Canada Authors: M.N. Khaliq and A. Attar
Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation	http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2014/16309
Canada's Marine Coasts in a Changing Climate	http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2016/18388
Canadian Local Governments Responding to Climate Change - The State of Climate Adaptation Planning and Implementation in Canada	https://www.fcm.ca/Documents/presentations/2014/SCC%202014/Canadian_Local_Governments_Responding_to_Climate_Change_Devin_Causley_EN.pdf
CIWEM.org - Journal of Flood Risk Management	https://onlinelibrary.wiley.com/journal/1753318x
Climate Change Adaptation – A State of the Practice Report Preparing for the Impacts of Climate Change on Stormwater and Floodplain Management: A Review of Adaptation Plans and Practices	https://sustainabletechnologies.ca/ca_resourcelib/preparing-impacts- climate-change-stormwater-floodplain-management-review- adaptation-plans-practices/cc-on-sw-and-fp-mgmt/
Contexte de la cartographie des plaines inondables – MMM Report	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca
Disaster Resilience by Design: A Framework for Integrated Assessment and Risk-Based Planning in Canada	https://geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?path=geoscan/downloade.web&search1=R=296800
Évaluation nationale de la cartographie des plaines inondables	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca
Engaging Canadians in Flood Risk Management: Lessons from the International Community	https://www.cigionline.org/publications/engaging-canadians-flood-risk-management-lessons-international-community
Federal Airborne LiDAR Acquisition Guideline	https://doi.org/10.4095/308382



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Engaging community members in the floodplain mapping process	https://uwaterloo.ca/partners-for-action/news/raising-risk-awareness-through-flood-mapping
Federal Hydrologic and Hydraulic Procedures for	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca
Flood Hazard Delineation	NRCall.Geolillo.RNCall@Callada.ca
Flood Damage Reduction Program	http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=0365F5C2-1
Flood Hazard Mapping: A	Available by contacting NRCan:
Review of International and National Hydrology and Hydraulic Guidelines	NRCan. Geoinfo. RNCan@Canada.ca
Guide d'orientation fédéral sur l'acquisition de données par lidar aéroporté	https://doi.org/10.4095/308383
Le littoral maritime du Canada face à l'évolution du climat	http://www.rncan.gc.ca/sites/www.nrcan.gc.ca/files/earthsciences/pdf/assess/2016/Coastal_Assessment_Rapport_complet.pdf
National Floodplain Mapping	Available by contacting NRCan:
Assessment – Final Report	NRCan. Geoinfo. RNCan@Canada.ca
Paying for Urban Infrastructure Adaptation in Canada - An Analysis of Existing and Potential Economic Instruments for Local Governments	http://act-adapt.org/wp-content/uploads/2015/09/Urban-Infrastructure- 08Sept.pdf
Predicting the frequency of storm surges and extreme sea levels in the northwest Atlantic	http://ww.coastalchange.ca/download_files/external_reports/Bernier_(2006)_Predictingthefrequencyofstormsurges.pdf
Preparedness of Fifteen Canadian Cities to Limit Flood Damage	http://www.cooperators.ca/en/en/~/media/Cooperators%20Media/Section%20Media/AboutUs/Sustainability/Flood%20Paper_Preparedness%20of%20Cities_FINAL_ENG_21May2015.pdf
Preventing Disaster Before It Strikes: Developing a Canadian Standard for Flood-Resilient Residential Communities	http://www.intactcentreclimateadaptation.ca/wp- content/uploads/2017/09/Preventing-Disaster-Before-It-Strikes.pdf



Procédures hydrologiques et hydrauliques fédérales pour	Veuillez contacter RNCan:
la délimitation des zones inondables	NRCan.Geoinfo.RNCan@Canada.ca
Risk Based Land Use Guide: Safe use of Land Based on Hazard Risk Assessment	https://doi.org/10.4095/295981
Risk Based National Land Use Planning Workshop	http://cnhr.mhrisk.ca/exec-summary_report_land- use_workshop_english_2015-03-31.pdf
Survey and Mapping Procedures for Flood Plain	Available by contacting NRCan:
Delineation	NRCan. Geoinfo. RNCan@Canada.ca
The Economic Impacts of the Weather Effects of Climate Change on Communities	http://www.ibc.ca/ns/resources/studies/the-economic-impacts-of-the- weather-effects-of-climate-change-on-communities
The MSC50 Wind and Wave Hindcast of the North Atlantic Ocean	http://www.waveworkshop.org/8thWaves/Papers/P6.pdf
The Water Survey of Canada: Lesson Package No. 10.1 – Principles of Discharge Measurement	http://publications.gc.ca/collections/collection_2014/ec/En56-245- 1999-eng.pdf
Using Flood Maps for Community Flood Risk Communication	https://uwaterloo.ca/partners-for-action/news/raising-risk-awareness-through-flood-mapping
Vivre avec les changements climatiques au Canada: perspectives des secteurs relatives aux impacts et à l'adaptation	http://www.rncan.gc.ca/environnement/ressources/publications/impact s-adaptation/rapports/evaluations/2014/16310
Way forward for risk assessment tools in Canada	https://geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?path=geoscan/downloade.web&search1=R=302773
Websites	
News	
Climate change impacts 'might already be considered dangerous'	http://www.cbc.ca/news/technology/climate-change-impacts-might- already-be-considered-dangerous-1.2748152



Flood Governance in Canada: Who's Minding the Store?	http://www.insblogs.com/business-risks/flood-governance-canada-whos-minding-store/6285
Rise in flood claims tied to climate change	http://www.cbc.ca/news/canada/rise-in-flood-claims-tied-to-climate-change-1.943878
Other	
Atlantic Climate Adaptation Solutions (ACASA)	http://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/climate_change/content/adaptation.html
CGU-HS CRIPE (Committee on River Ice Processes and the Environment)	http://www.cripe.ca/
Climate and Climate-related Trends and Projections	http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2008/10261
Flooding in First Nation communities	https://www.sac-isc.gc.ca/eng/1397740805675/1535120329798
Les inondations dans les collectivités des Premières Nations	https://www.sac-isc.gc.ca/fra/1397740805675/1535120329798
ALBERTA	
Publications	
Alberta's 2008 climate change strategy	http://aep.alberta.ca/forms-maps- services/publications/documents/AlbertaClimateChangeStrategy- 2008.pdf
Appendix A – Alberta Government Bulletin: Best Practices Principles and Guidelines	http://open.alberta.ca/dataset/807b9710-0867-453e-8fa7-50c239bcd7d0/resource/6bca2543-87fd-4e86-908e-9e3693439c98/download/pfdas-alberta-appendices.pdf
Bow and Elbow River Hazard Study - Terms of Reference	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/river-hazard-studies/default.aspx
Bow Basin Flood Mitigation and Watershed Management Project	http://www.albertawatersmart.com/bow-basin-flood-mitigation-and-watershed-management-project.html
Canadian Local Governments Responding to Climate Change: The state of climate adaptation planning and implementation in Canada	https://www.fcm.ca/Documents/presentations/2014/SCC%202014/Canadian_Local_Governments_Responding_to_Climate_Change_Devin_Causley_EN.pdf



Case Study: Woodlands County, Alberta – Whitecourt Flood Hazard Study	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/draft-flood-hazard-studies/default.aspx
Determination of Flood Extent Using Remote Sensing: A Term Paper	http://www.ualberta.ca/~mdzahidu/flood_mapping.pdf
Draft Flood Hazard Studies	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/draft-flood-hazard-studies/default.aspx
Flood Hazard Identification Program Guidelines – floodplain mapping guidelines and hydrologic and Hydraulic Information	http://alberta.ca/albertacode/images/Flood-Hazard-Identification- Program-Guidelines.pdf
Flood Hazard studies: website provides information on available flood hazard studies by Basin, Community or Stream, and PDFs provide more details on each individual study summary	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/flood-hazard-studies/default.aspx
Flood Risk Management Guidelines for Location of New Facilities Funded by Alberta Infrastructure	http://www.infrastructure.alberta.ca/Content/docType486/Production/FI oodRiskMgmt.pdf
Guidelines on Extreme Flood Analysis	http://www.transportation.alberta.ca/Content/doctype125/Production/g dlnextrmfld.pdf
Peace River Hazard Study Update	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/river-hazard-studies/documents/PeaceRiverHazardStudy-Mar16-2018.pdf
Report of the Auditor General of Alberta	http://www.oag.ab.ca/webfiles/reports/OAG%20March%202015%20Report.pdf
Terms of Reference – Peace Area Monitoring Program (PRAMP)	https://maportal.gov.ab.ca/EXT/MeNet/Lists/Practices/Attachments/72 1/PRAMP%20Terms%20of%20Reference%20Final%2028May2015.p df
The 2013 Great Alberta Flood: Actions to Mitigate, Manage and Control Future Floods	http://www.albertawatersmart.com/alberta-flood-2013.html
The Alberta Resilient Communities Project	http://allonesky.ca/wp-content/uploads/2013/10/Alberta-Resilient- Communities-Fund-Overview.pdf



Upper Bow River Hazard Study – Terms of Reference	Available by contacting NRCan: NRCan.Geoinfo.RNCan@Canada.ca
Websites	
Alberta.ca	
Climate change in Alberta	https://www.alberta.ca/climate-change-alberta.aspx
Climate Leadership	http://alberta.ca/climate/
Flood Hazard Identification Program	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/
Flood Hazard mapping	http://aep.alberta.ca/water/programs-and-services/flood-hazard-identification-program/flood-hazard-mapping.aspx
News	
Alberta flooding sets records, prompts calls for action on climate change	http://www.macleans.ca/news/canada/alberta-flooding-sets-records-prompts-calls-for-action-on-climate-change/
Climate change causing extreme weather on the prairies	http://globalnews.ca/news/1284984/climate-change-causing-extreme-weather-on-the-prairies/
Is Alberta Flooding a Sign of Climate Change?	http://www.huffingtonpost.ca/david-suzuki/alberta-flood-climate- change_b_3480005.html
Other	
Flooding Events in Canada – Prairie Provinces	https://www.ec.gc.ca/eau-water/default.asp?lang=En&n=E0399791-1
Flooding in First Nations Communities	https://www.aadnc-aandc.gc.ca/eng/1397740805675/1397741020537
ICLEI Canada Livable Cities Forum: Building Flood Resiliency (Calgary)	www.icleicanada.org/events/livablecities
Les inondations dans les collectivités des Premières Nations	https://www.sac-isc.gc.ca/fra/1397740805675/1535120329798



BRITISH COLUMBIA	
Publications	
BC Ministry of Environment: Climate Change Adaptation Guidelines for sea dikes and coastal flood hazard land use	http://www.env.gov.bc.ca/wsd/public_safety/flood/pdfs_word/guide s_for_mgr_coastal_flood_land_use-2012.pdf
BCREA – Floodplain Mapping Funding Guidebook for BC Local Governments	http://www.bcrea.bc.ca/docs/government-relations/floodplainmapguidebook.pdf
Changing Perspectives – Exploring and Implementing the Realities of Sea Level Rise in the Coastal Community of Surrey, British Columbia	http://www.icevirtuallibrary.com/doi/full/10.1680/cm.61149.213
Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use - Guidelines for Management of Coastal Flood Hazard Land Use	http://www.env.gov.bc.ca/wsd/public_safety/flood/pdfs_word/coast ooded_land_guidelines.pdf
Coastal Flood Mapping: Guidelines and Specifications	http://www.env.gov.bc.ca/wsd/public_safety/flood/pdfs_word/coast oodplain_mapping-2011.pdf
Coastal Sea Level Rise Flood Risk Assessment Report (Vancouver)	https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/coastal-sea-level-rise-risk-assessment-report.pdf?sfvrsn=c09757ca_0
Discussion Paper Climate Leadership Plan	https://engage.gov.bc.ca/app/uploads/sites/116/2015/07/ClimateLershipPlanDiscussionPaper.pdf
Evaluation of B.C. Flood policy for Coastal Areas in a Changing Climate	http://www.arlingtongroup.ca/component/portfolio/?pid=77
Flood Hazard Study North Vancouver-Hydraulics and hydrology info	https://geoscan.nrcan.gc.ca/starweb/geoscan/servlet.starweb?patroscan/downloade.web&search1=R=292146
Flood Protection Strategies in BC	http://www.bcrea.bc.ca/docs/government-relations/2010-11flood-protection-strategies-report-in-bcfinal.pdf?sfvrsn=2
Floodplain Mapping Backgrounder	www.bcrea.bc.ca/docs/government-relations/2014-FM-backgrounder.pdf



Floodplain Maps Action Plan	www.bcrea.bc.ca/docs/government-relations/floodplainmaps_action_plan.pdf
Hazard, Risk & Vulnerability Assessment – Update	http://www.rdn.bc.ca/cms/wpattachments/wpid141atid2769.pdf
Preparing for Climate Change - An Implementation Guide for Local Governments in British Columbia	https://www.wcel.org/publication/preparing-climate-change-implementation-guide-local-governments-british-columbia
Professional practice guidelines - Legislated flood assessment in a changing climate in BC	https://www.apeg.bc.ca/getmedia/18e44281-fb4b-410a-96e9-cb3ea74683c3/APEGBC-Legislated-Flood-Assessments.pdf.aspx
Progress Report—BC Floodplain Maps Action Plan	http://www.bcrea.bc.ca/docs/government-relations/2015-09-progress-report.pdf
Serpentine, Nicomekl & Campbell Rivers – Climate Change floodplain review	http://www.surrey.ca/files/NicomeklSerpentineCampbellRiversClimate ChangeFloodplainReview.pdf
Serpentine, Nicomekl & Campbell Rivers – Climate Change floodplain review Phase 2	http://www.surrey.ca/files/SerpentineNicomeklClimateChangeFloodpla inReviewCompressed.pdf
Terms of Reference - Area Monitoring Program (PRAMP)	https://maportal.gov.ab.ca/EXT/MeNet/Lists/Practices/Attachments/72 1/PRAMP%20Terms%20of%20Reference%20Final%2028May2015.p df
The British Columbia Flood Response Plan (2012)	https://www.newwestcity.ca/database/rte/files/BC%20Flood%20Response%20Plan%202012.pdf
The British Columbia Flood Response Plan (2013)	http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc_flood_response_plan-final.pdf
Websites	
Gov.bc.ca	
Climate change Impacts	http://www2.gov.bc.ca/gov/topic.page?id=BE3D1E436EE14ADE8255 FA0AD060659C
Dike Management and Safety	http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm- 2012/safety_index.html
Flood Protection and Planning	http://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/emergency-management-bc/flood-protection-and-planning



Ministry of forests, land and natural resource operations dike management and safety	http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm-2012/safety_index.html
Mitigating the risk of flooding	https://news.gov.bc.ca/stories/canada-and-british-columbia-deliver-on-flood-mitigation
Water Management Branch	http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm- 2012/draw_report.html
Water Stewardship	http://www.env.gov.bc.ca/wsd/data_searches/fpm/
News	
300,000 at risk in lower mainland flood: experts	http://bc.ctvnews.ca/300-000-at-risk-in-lower-mainland-flood-experts-1.2196450
Fraser River flood risk increasing due to climate change	http://www.cbc.ca/news/canada/british-columbia/fraser-river-flood-risk-increasing-due-to-climate-change-1.2704962
Future flooding scenario shows Metro Vancouver at risk	http://www.cbc.ca/news/canada/british-columbia/future-flooding- scenario-shows-metro-vancouver-at-risk-1.1382617
Other	
Action Plan Needed to	http://www.bcchambor.org/policies/action.plan.pooded.update
Update Floodplain Mapping	http://www.bcchamber.org/policies/action-plan-needed-update- floodplain-mapping
Update Floodplain Mapping	floodplain-mapping
Alberta Water Portal Association of Professional Engineers and Geoscientists (APEG) of BC Annual	floodplain-mapping http://albertawater.com/
Update Floodplain Mapping Alberta Water Portal Association of Professional Engineers and Geoscientists (APEG) of BC Annual Conference and AGM British Columbia Real Estate Association (BCREA) Flood	http://albertawater.com/ https://events.apeg.bc.ca/ehome/index.php?eventid=127769& www.bcrea.bc.ca/government-relations/flood-protection/flood-
Alberta Water Portal Association of Professional Engineers and Geoscientists (APEG) of BC Annual Conference and AGM British Columbia Real Estate Association (BCREA) Flood Protection Resources British Columbia Real Estate Association (BCREA)'s	http://albertawater.com/ https://events.apeg.bc.ca/ehome/index.php?eventid=127769& www.bcrea.bc.ca/government-relations/flood-protection/flood-protection-resources



Flooding in First Nations Communities	https://www.sac-isc.gc.ca/eng/1397740805675/1535120329798
Fraser Basin Council Lower Mainland Flood Management Strategy	http://www.fraserbasin.bc.ca/water_flood.html
Les inondations dans les collectivités des Premières Nations	https://www.sac-isc.gc.ca/fra/1397740805675/1535120329798
Planning Institute of BC Central-North Chapter Conference (Prince George): Planning for Hazards	https://www.pibc.bc.ca/events/pibc-central-north-chapter-2
MANITOBA	
Publications	
2011 Flood: Technical Review of Lake Manitoba, Lake St. Martin and Assiniboine River Water Levels	www.gov.mb.ca/mit/floodinfo/floodproofing/reports/pdf/assiniboine_lak emb_lsm_report_nov2013.pdf
After the flood: what to do when flood waters recede	http://www.gov.mb.ca/asset_library/en/spring_outlook/after_flood_booklet.pdf
Assiniboine River and Lake Manitoba Basins Flood Mitigation Study: Providing Greater Protection For Manitobans From Flood Risks	http://content.gov.mb.ca/mit/wm/ar_lmb_rd1storyboards.pdf
Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation	http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2014/16309
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