



CLIMATE CHANGE ADAPTATION PROGRAM

Delta Regional Snapshot

Supplement to the Farm Flood Readiness Toolkit

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Supplement to the Farm Flood Readiness Toolkit

This snapshot provides an overview of flood risk and resources specific to **Delta** producers. Visit the [Climate & Agriculture Initiative BC](#) website to download the complete [Farm Flood Readiness Toolkit](#).

Agricultural operations in Delta are exposed to varying levels of flood risk, largely depending on their location.

Factors that will influence the flood hazard at a farm include:

- Its proximity to water bodies. The Fraser River presents a significant flood risk, but even smaller creeks or streams can flood surrounding areas under certain conditions.
- Its proximity to the coast. The risk of impacts from flooding associated with sea level rise (SLR) and/or storm surge depend in part on proximity to the ocean. SLR is a significant threat for the lowlands of Delta, especially along Boundary Bay.
- Its proximity to dikes. Properties located near dikes have a relatively high flood hazard. Although dikes are protective infrastructure, all dikes have the potential to fail or overtop.
- If its location is prone to flooding from upland areas, overland flow and stormwater ponding (this depends on its soil, land cover, surrounding topography, etc.).
- The depth of its underlying groundwater table if prone to rising water tables and groundwater flooding.

Delta's flood protection includes a system of dikes, seawalls and pumping stations, designed for current climate conditions and managed by the City of Delta. The Delta dike system is more than 125 years old and approximately 67 kilometres in length. A strategy for phased upgrades to Delta's dikes is underway.

Extensive research, planning and effort are executed annually to gather the most up-to-date information and to design and build robust flood control structures.

This includes exploring the piloting of a *living dike* concept, using foreshore enhancements to address sea level rise and loss of salt marsh habitat.

The greatest flood on record for Delta was an event that occurred in 1894 and affected the southern half of BC. During a [second major flood in 1948](#), the dikes failed. More recently, in 2014, a [state of emergency was declared](#) in Delta owing to storm surges in the Boundary Bay and Beach Grove areas, which were hit hard by strong winds and heavy rain.

Climate Change Projections and Region Flood Hazard

By 2100, it is projected that sea level will rise by 1.2 metres within the Georgia Basin due to climate change. Most of Delta's agricultural lands are less than 2 metres above sea level, placing agricultural operations at comparatively greater risk than the higher elevation areas of Tsawwassen and North Delta.

Climate change is anticipated to increase the magnitude and frequency of Fraser River annual peak flows and shift their occurrence earlier in the spring. Recent studies project that peak flows in the Fraser River will increase in the order of 16% by the 2050s¹. This means that in the event of a freshet flood, floodwaters will be deeper and spread farther.

Climate change is also creating more unpredictable localized flooding. The increasing frequency of extreme/severe rain events, which can occur with little or no warning, also increases the risk of localized flooding.

¹ Northwest Hydraulic Consultants for the Fraser Basin Council. [Hydraulic Modelling and Mapping in BC's Lower Mainland: A Lower Mainland Flood Management Strategy Project](#). North Vancouver, BC, 2019.



Cornfield, Ladner, Delta
Photo by Don Schuetze

Delta Floodplain Maps and Flood Hazard Resources

Reviewing flood maps can be helpful for better understanding risk — particularly in a changing climate. Both simple floodplain maps and detailed flood maps based on a range of climate scenarios are available. These can be used to assess how a flood event might affect your property and the surrounding area.

- [Province of BC Coastal floodplain maps](#) provide more information about floodplains in Delta. See panels U15, U16 and V16.
- [Delta Flood Protection System Risk Assessment](#) report describes the City's flood protection system.
- [Fraser Basin Council regional flood maps](#) provide information about Fraser River flood mapping with a range of climate change flood scenarios.

Flood Monitoring

Real-time river monitoring data for the Fraser River is available through the provincial [River Forecast Centre](#). The City of Delta also has water level monitors in Boundary Bay and in the Fraser River. However, this information is not publicly available. The River Forecast Centre also provides generalized forecasts to [warn of localized flooding](#) based on weather patterns and forecasts.

[Environment Canada Public Weather Alerts](#) issues watches and warnings for severe weather events, including extended heavy rain events.

Flow and water-level forecasts are used to determine when to issue flood advisories, evacuation alerts and evacuation orders. (See [Fact Sheet 5: Flood Evacuation Alerts and Evacuation Orders](#) in the [Farm Flood Readiness Toolkit](#).)

Communication During an Emergency

In the event of an emergency, a local government may activate an Emergency Operations Centre (EOC). An EOC is the communications and coordination hub for all emergency-related planning activities within a local government's jurisdiction.

For information or advice during periods of flood threat or flood emergency, contact your local government's general inquiries phone number or contacts they've identified on their website and social media feeds.

For key contacts and resources pertaining to agricultural flood preparedness in Delta, see the table on the following page.

In the event of an emergency where health, safety or property is in jeopardy and immediate action is required, call 911.

Key flood resources and contacts for Delta

Organization	Contacts	Online Resources
City of Delta	Emergency Management Office: 604-952-3101 emo@delta.ca	Delta website Facebook @CityofDeltaBC Twitter @CityofDeltaBC
BC Ministry of Agriculture, Food and Fisheries	AgriService BC: 1-888-221-7141	Flood resources for agriculture
Ag Safe	Trevor Tapp, Pacific Northwest Safety Consultant: trevor@agsafebc.ca	AgSafe website
BC Storm Surge Forecasting Program		StormsurgeBC website

*This regional snapshot is a supplement to the [Farm Flood Readiness Toolkit](#). It is current as of January 2022.
For funding acknowledgements and disclaimers, please download the toolkit from the CAI website at www.ClimateAgricultureBC.ca.*

