

# ENVIRONMENT AND CLIMATE CHANGE CANADA'S PREDICTION AND ALERTING FOR COASTAL FLOODING PROGRAM

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**Sept 22 – 26 2025 Santander, Spain**



Environment and Climate Change Canada's 50<sup>th</sup> anniversary  
50<sup>e</sup> anniversaire d'Environnement et Changement climatique Canada  
Meteorological Service of Canada's 150<sup>th</sup> anniversary  
150<sup>e</sup> anniversaire du Service météorologique du Canada



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

# Outline

- The Motivation
- The Results
  - Coastal Flooding - Impact based Alerts and Risk based Products
- Current Work and Next Steps
  - Outstanding items from the initial project
  - New deliverables
    - Improved Change management
    - Improved Accessibility of our Products

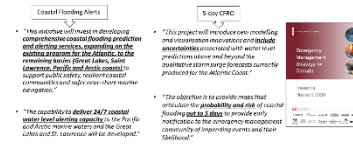
## Environment and Climate Change Canada's Prediction and Alerting for Coastal Flooding Program

Devon Telford\*, Benoit Pouliot, Carmen Hartt

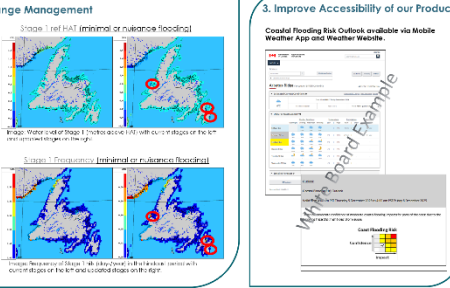
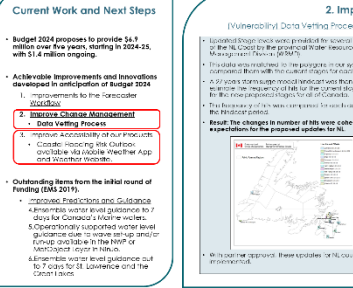
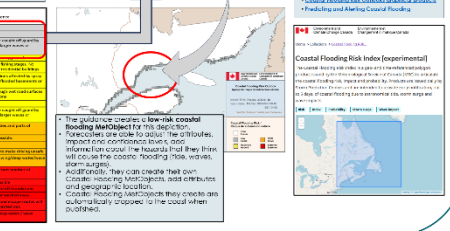
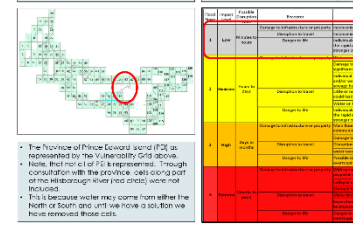
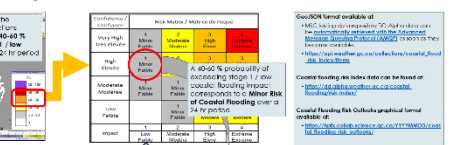
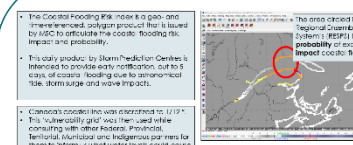
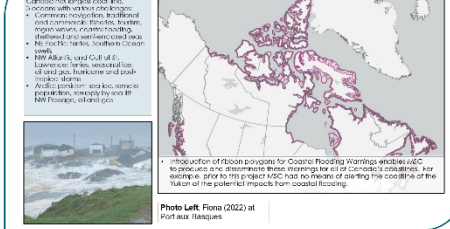
Environment and Climate Change Canada, Meteorological Service of Canada, Gander, Newfoundland and Labrador, Canada

### Introduction

- Emergency Management (EM) Strategy released in August 2019 provided 5 years of funding for Environment and Climate Change Canada (ECCC) to develop the capacity to predict and Alert for Coastal Flooding.
- ECCC developed 2 major deliverables to address the needs outlined in the EM Strategy:
  - Coastal Flooding Alert (Warning) for all of Canada's Coasts.
  - Coastal Flooding Risk Outlook (Forecast).



### Coastal Flooding Alerts (Warnings)



Acknowledgements and Contributions

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- Environment and Climate Change Canada: Devon Telford, Benoit Pouliot, Carmen Hartt, and the rest of the team.
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# Coastal Flooding

## - Impact based Alerts and Risk based Products



## Coastal Flooding - Impact based Alerts and Risk based Products

### Weather Information

Use this site to access weather information as layers on an interactive map. An [alert table](#) is available below for an alternative view of

#### Alerts for:

Oona River (87.1 km northwest), BC

#### COASTAL FLOODING WARNING

6:55 AM PST Wednesday 21 February 2024

This warning is in effect for parts of the coast due to the following hazard(s):

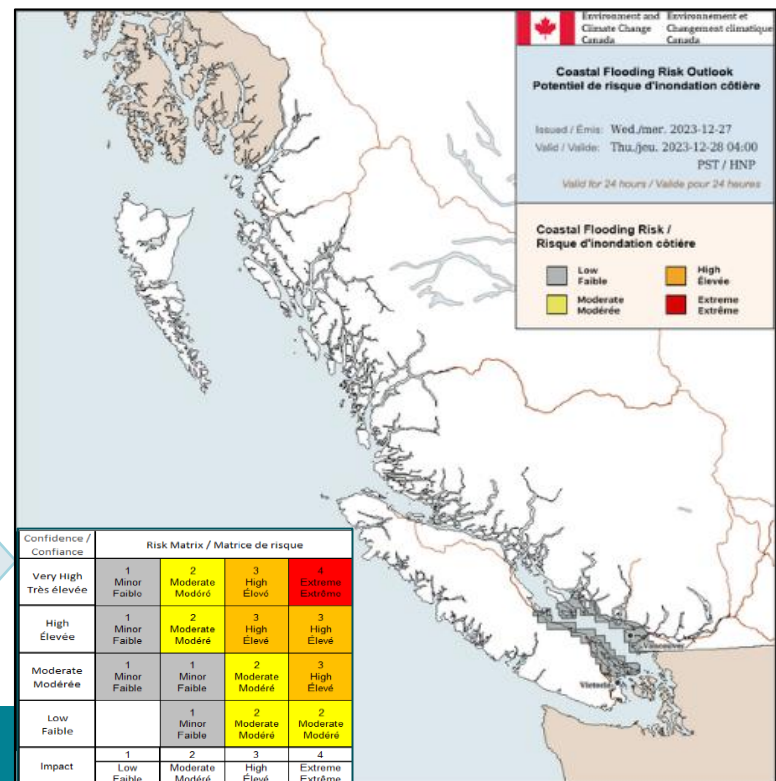
These warnings are issued when water levels pose a flooding threat to coastal areas.

Please continue to monitor alerts and forecasts issued by Environment Canada. To report severe weather, send an email to [BCstorm@ec.gc.ca](mailto:BCstorm@ec.gc.ca) or tweet reports using [#BCStorm](https://twitter.com/BCStorm).



- Introduction of ribbon polygons for Coastal Flooding Warnings enables MSC to produce and disseminate these Warnings for all of Canada's coastlines.

- The Coastal Flooding Risk Index is a geo- and time-referenced, polygon product that is issued by MSC to articulate the coastal flooding risk, impact and probability.
- This daily product by Storm Prediction Centres is intended to provide early notification, out to 5 days, of coastal flooding due to astronomical tide, storm surge and wave impacts.





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## Canada

# Coastal Flooding Update

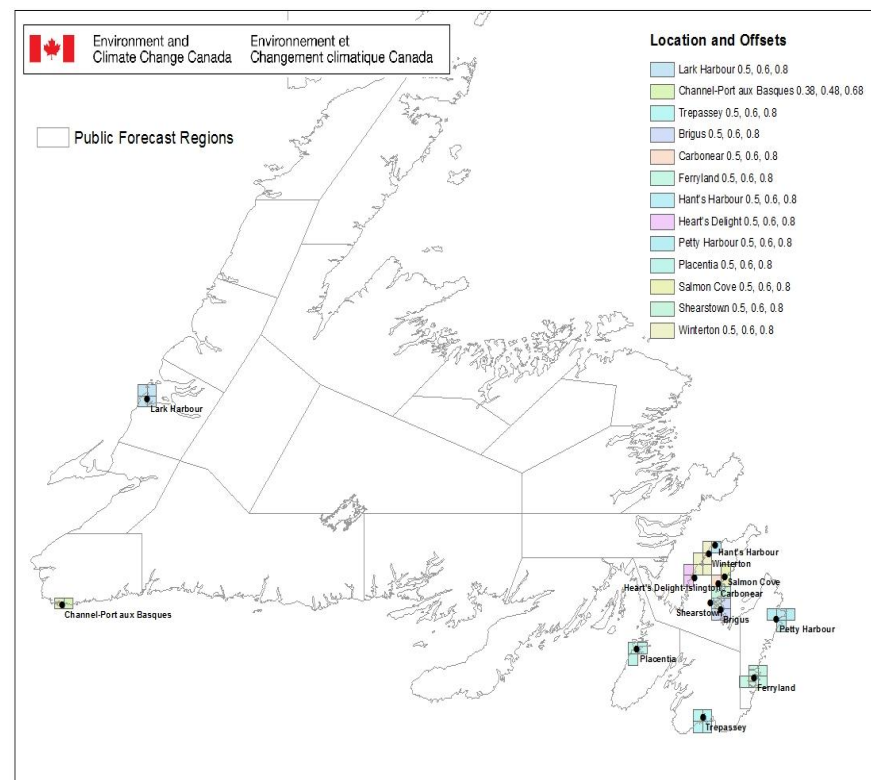


## Current Work and Next Steps

- Improve Change Management

### 2. Data Vetting Process

- Updated Stage levels were provided for several sections of the NL Coast by the provincial Water Resources Management Division (WRMD).
- This data was matched to the polygons in our system and compared them with the current stages for each location.
- A 27 years storm surge model hindcast was then used to estimate the frequency of hits for the current stages and for the new proposed stages for all of Canada.
- The frequency of hits was compared for each data set in the hindcast period.
- **Result: The changes in number of hits were coherent with expectations for the proposed updates for NL.**
- With partner approval, these updates for NL could be implemented.



Thank you for your attention  
Questions or Comments?

What about impact verification?  
Devon.telford@ec.gc.ca

**GeoJSON format available at:**

- MSC testing data repository DD-Alpha data can be [automatically retrieved with the Advanced Message Queuing Protocol \(AMQP\)](#) as soon as they become available.
- [https://api.weather.gc.ca/collections/coastal\\_flood\\_risk\\_index/items](https://api.weather.gc.ca/collections/coastal_flood_risk_index/items)

**Coastal flooding risk index data can be found at:**

- <https://dd.alpha.weather.gc.ca/coastal-flooding/risk-index/>

**Coastal Flooding Risk Outlooks graphical format available at:**

- [https://hpfx.collab.science.gc.ca/YYYYMMDD/coastal\\_flooding\\_risk\\_outlooks/](https://hpfx.collab.science.gc.ca/YYYYMMDD/coastal_flooding_risk_outlooks/)

**Technical documentation**

- [Coastal Flooding Risk Outlooks graphical products](#)
- [Predicting and Alerting Coastal Flooding](#)

