

## Coastal Flooding Risk Outlook Graphical Products

This page describes the Coastal Flooding Risk Outlook Graphical products. The Coastal Flooding Risk depicts the expected geographic areas of coastal flooding risk in Canada. The Coastal Flooding Risk Outlook will be produced daily. The Coastal Flooding Risk Outlook issue time is defined by each region; however, it should remain constant for each region once decided. It is recommended that when choosing an issue time for the Coastal Flooding Risk Outlook it should be before 00 Coordinated Universal Time (UTC).

Table 1. Coordinated Universal Time (UTC) and Canadian time zone relationships.

UTC	PST	MST	CST	EST	AST	NST
12	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	8:30 AM
00	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	8:30 PM
UTC	PDT	MDT	CDT	EDT	ADT	NDT
12	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	9:30 AM
00	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	8:30 PM

Coastal Flooding Risk Outlook maps are published for day 2 and the subsequent 4 days. The Coastal Flooding Risk Outlook's valid period is from 12Z on day 2 to 12 UTC on day 6. Each individual Coastal Flooding Risk Map is valid from 12 UTC that day to 12Z the next day.

Table 2. Part period and valid time relationships

Part Period	Valid Time (UTC)	Example
Day 1	No product	Monday (today)
Day 2	12 to 12 UTC	Tuesday morning to Wednesday morning
Day 3	12 to 12 UTC	Wednesday morning to Thursday morning
Day 4	12 to 12 UTC	Thursday morning to Friday morning
Day 5	12 to 12 UTC	Friday morning to Saturday morning
Day 6	12 to 12 UTC	Saturday morning to Sunday morning

Coastal flooding alerts supersede the Coastal Flooding Risk Outlook.

The Coastal Flooding Risk Outlook is not required to be amended, however there should be consistency between the alerts and the CFR Outlook. Adjustments in the coastal flooding risk can be made in the next issue of the CFR Outlook.

The Coastal Flooding Risk Outlook may be corrected for map errors and reissued.

## Data location

The graphical product can be accessed at:

[https://hpfx.collab.science.gc.ca/\[YYYYMMDD\]/coastal flooding risk outlooks/\[ASPC,NLWO,PASPC,PSPC\]/](https://hpfx.collab.science.gc.ca/[YYYYMMDD]/coastal%20flooding%20risk%20outlooks/[ASPC,NLWO,PASPC,PSPC]/)

where:

- YYYYMMDD: represents the date of interest.
- ASPC, NLWO, PASPC, PSPC: represents the storm prediction centres that issue the products

## File name nomenclature

File names have the form:

- {YYYYMMDD}T{HHmm}Z\_MSC\_CoastalFloodRiskIndex\_{SPC-Code}\_{coverage-code}\_{PTxxxH}\_{version-id}.png
- {YYYYMMDD}T{HHmm}Z\_MSC\_CoastalFloodRiskIndex\_{SPC-Code}\_{coverage-code}\_{PTxxxHxxM}\_{version-id}.png

With :

- {YYYYMMDD}T{HHmm}Z: Reference datetime as found in the data
- MSC: Constant string for Meteorological Service of Canada, the data source
- CoastalFloodRiskIndex: Product name for “coastal flood risk index”
- {SPC-Code}: Identifier of the office responsible for routing and distributing coastal flood risk index. See the list of possible values: [List of Alerts](#).
- {coverage-code}: Region covered by the coastal flood risk index. Elements within the coverage-code segment are splitted with “-” (if provinces are mentioned)
- {PTxxxH}: Validity datetime offset
- {PTxxxHxxM}: Validity datetime offset with minutes
  - NOTE: filename can use either {PTxxxH} or {PTxxxHxxM}, up to the data producer.
- {version-id}:
  - v1 for original version
  - v2 for the new version after an amendment, v3 for another amendment, v4 and so on

Examples:

- 20240410T2200Z\_MSC\_CoastalFloodRiskIndex\_aspc\_aspc-ns\_PT014H00M\_v1.png
- 20240410T2200Z\_MSC\_CoastalFloodRiskIndex\_aspc\_aspc\_PT014H00M\_v1.png

## Content of Files (Graphical Product)

The graphical product of the Coastal Flooding Risk Outlook is a raster image showing the geographical area, as exemplified below.

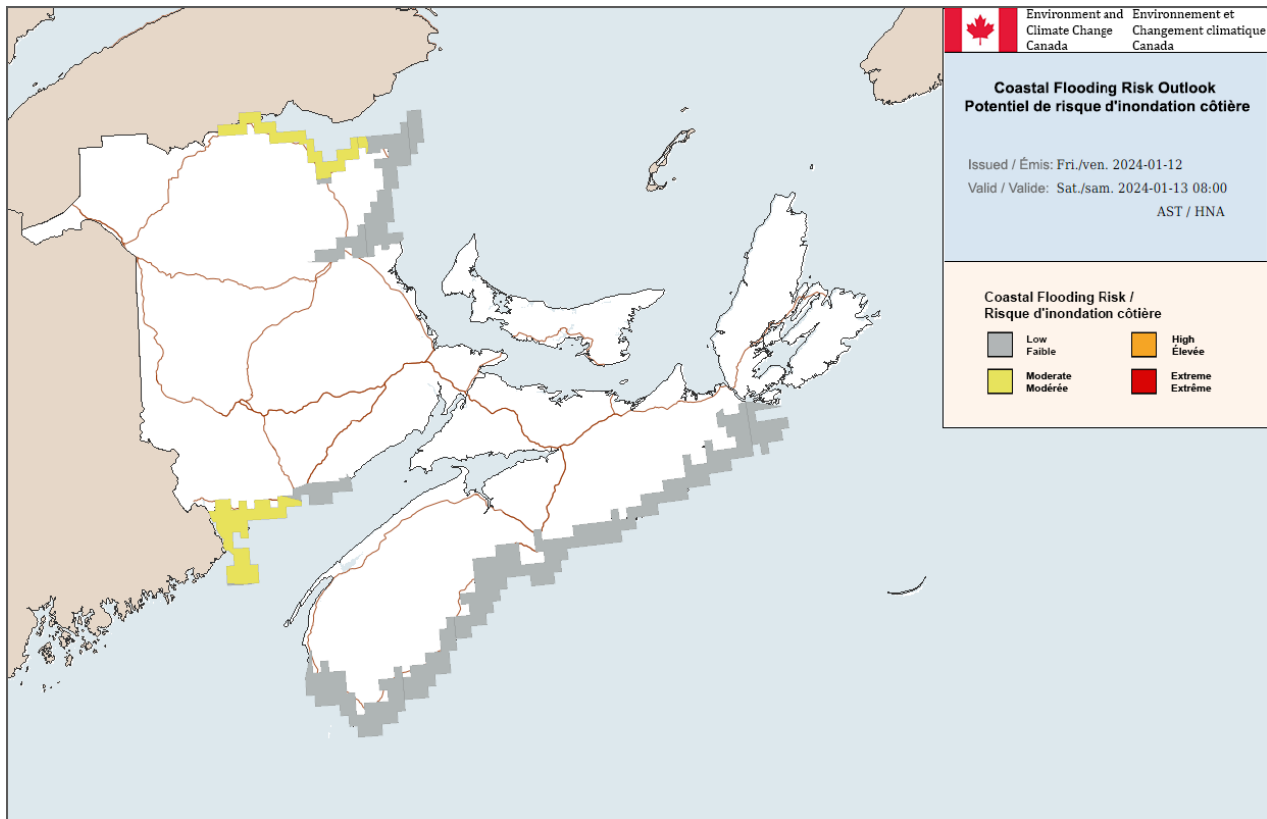


Fig. 1.

Example of a map for the Maritime region displaying roads and coastal flooding risk (low and moderate).

**Map Portion**

- The geographical coverage of the image is based on **REGION**. This coverage area is coloured white, as opposed to areas outside of the coverage area, which is coloured beige.
- Each polygon/multi-polygon corresponds to a Feature and its information.
- The polygon colour matches the **Coastal Flooding Risk** as defined in the legend.
- If multiple polygons occupy the same space, the polygon with the highest severity has the dominant weather condition in the area.

**Title and time information**

An issue and valid time / date is displayed below the ECCC label (Fig. 1). The information contained in this label is formatted as follows:

[Product Name]  
 [Nom du produit]  
 Issued/ Émis: [Abbreviated Day of Week in English/French] [YYYY-MM-DD]  
 Valid / Valide: [Abbreviated Day of Week in English/French] [YYYY-MM-DD] [Time]  
 [Time Zone]  
 Valid for 24 hours/Valide pour 24 heures

For example:  
 Coastal Flooding Risk Outlook  
 Potentiel de risque d'Inondations côtières

Issued / Émis: Thu/jeu. 2020-07-02

Valid / Valide: Fri/ven. 2020-07-02 12:00

PDT / HAP

Valid for 24 hours/Valide pour 24 heures

## Legend

Coastal flooding risk areas are depicted on the map as coloured squares along the coastline of each province or territory that is in white on the map (Fig. 2). Coastal flooding risk areas are associated with a risk category; “low”, “moderate”, “high” or “extreme”. These categories correspond to a unique colour (Table 2) and are used to depict the coastal flooding risk on the map (Fig. 2). The colour of the risk area represents the maximum coastal flooding risk expected over the 24 hours for each area.

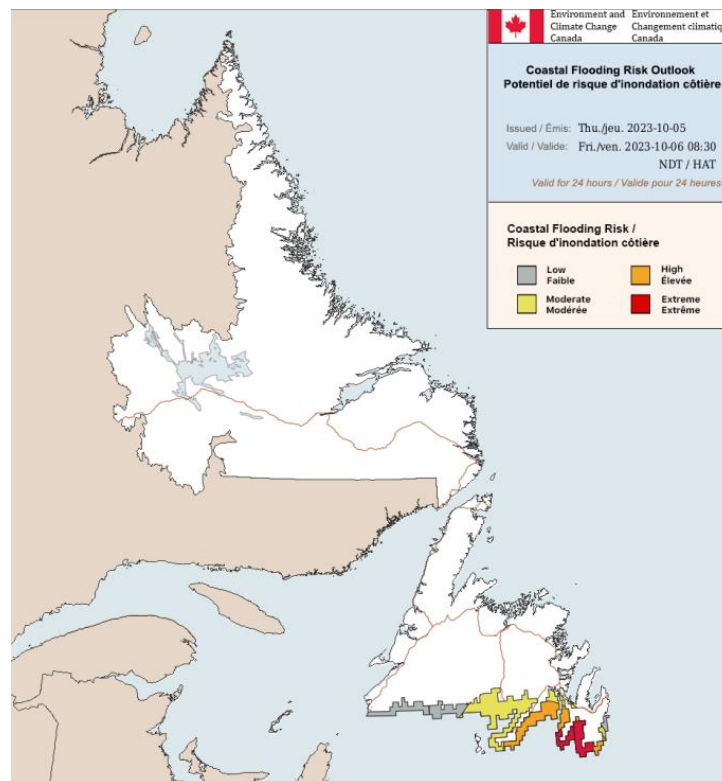






Fig 2. Extreme coastal flooding risk event along the south coast of the Avalon Peninsula, as well as a moderate to extreme risk event along the southern coast of Newfoundland.

Table 3. Coastal Flooding Risk categories.

	Low
	Moderate
	High
	Extreme

## Coastal Flooding Risk Outlook: No Risk

When there is no coastal flooding risk expected for a given 24-hour period, the CFR Outlook will display the message:

**No Coastal Flooding Risk during this period.  
Aucun risque d'inondation côtière pendant cette période.**

## Coastal Flooding Risk Categories

Coastal flooding risk is defined as the probability of coastal flooding impacts on infrastructure, property, travel and safety. Coastal flooding impacts are tiered due to severity (flood stage) and can be characterized by the amount of time required for a community to recover (Table 3).

This can be extended to possible consequences for the different receptors. Receptor refers to the entity that may be harmed (a person, property, habitat etc.). In the case of the Coastal Flooding Risk Outlook, MSC is considering infrastructure, property, travel and public safety as coastal flooding receptors (Table 3).

Table 4. Coastal Flooding Impact Tiers with possible disruption time and consequences.

Stage	Impact Level	Possible Disruption Time	Receptor	Possible Consequence
1	Minimal	Minutes to hours	Damage to infrastructure or property	Inconvenience or nuisance flooding.
			Disruption to travel	Inconvenience or nuisance flooding.
			Danger to life	Individuals close to the coast maybe caught off guard by the rapid approach of unexpectedly larger waves or stronger currents.
2	Minor	Hours to days	Damage to infrastructure or property	Water over banks and in yards or in campgrounds.
				Damage to wharfs, boat houses and fishing stages. No significant flooding to main floors of residential buildings.
				Individual properties in coastal locations affected by spray and/or wave overtopping or slightly flooded basements or sewage backup.
			Disruption to travel	Little or no disruption to travel although wet road surfaces could lead to difficult driving conditions.
				Water on bike paths.
				Individuals close to the coast maybe caught off guard by the rapid approach of unexpectedly larger waves or stronger currents.
Danger to life	Individuals close to the coast maybe caught off guard by the rapid approach of unexpectedly larger waves or stronger currents.			
	Individuals close to the coast maybe caught off guard by the rapid approach of unexpectedly larger waves or stronger currents.			
	Significant	Days to months	Damage to infrastructure or property	Main floor flooding affecting properties and parts of communities.
				Damage to buildings/structures is possible.

3			Disruption to travel	Disruption to travel is expected.
			Danger to life	Water over the road is deep enough to make driving unsafe.
				Possible danger to life due to fast flowing/deep water/wave overtopping/wave inundation.
4	Severe	Months to years	Damage to infrastructure or property	Widespread flooding affecting significant number of properties and whole communities.
				Collapse of building/structures is possible.
				Multiple homes are flooded or moved off foundations.
			Disruption to travel	Many cars will likely be submerged or washed away.
				Several sections of nearshore roads and escape routes will be impassable and a few could be washed out.
			Danger to life	Danger to life due to fast flowing / deep water / wave overtopping / wave inundation.

Coastal Flooding Risk categories are determined by the following Coastal Flooding Risk Matrix (see table 4). After an assessment of potential impacts and the likelihood of an event occurring, the risk category is automatically determined based on the risk matrix.

Likelihood is the chance of something happening, normally in terms of very low (less than 20%), low (20-40%), medium (40-60%) or high (greater than 60%) likelihood. These are often described as possible but not expected, possible, probable, and expected.

For example, if the guidance indicates that there could be significant impacts on day 3 for the Atlantic Coast of Nova Scotia, and it is determined to have a 40-60% probability of occurring then there would be a high risk of coastal flooding, with the colour code of orange.

Table 5. Coastal Flooding Risk Matrix

Likelihood / Probabilité		Risk Matrix / Matrice de risque			
> 60 %	4	1 Low Faible	2 Moderate Modéré	3 High Élevé	4 Extreme Extrême
40%-<60%	3	1 Low Faible	2 Moderate Modéré	3 High Élevé	3 High Élevé
20%-<40%	2	1 Low Faible	1 Low Faible	2 Moderate Modéré	3 High Élevé
>0%-<20 %	1	1 Low Faible	1 Low Faible	2 Moderate Modéré	2 Moderate Modéré
	Impact	1	2	3	4
		Minimal	Minor Faible	Significant Important	Severe Grave

As the lead time approaches for Coastal Flooding Warnings, it would be anticipated that higher coastal flooding risk areas are indicators that coastal flooding warnings may soon be issued.

## Support

If you have any questions about this data, please contact us using [Contact Us - Environment Canada \(weather.gc.ca\)](https://www.weather.gc.ca/contact-us-environment-canada)