



# Coastal Hazard Assessment

Property Identification Number (PID):	SEE MAP		
Civic Address/Lot Number:	Wood Islands Salt Water Trail		
Community/Municipality:	Wood Islands		
Shoreline Classification Type:	Low Plain/Wetland, Estuary; Cliff, Coast		
Watershed Name:	Little Sands Shore	Watershed ID:	WS_273

Prince Edward Island’s coastline is ever-changing. It is shaped by the forces of wind, waves, tides, and change in sea level. Residents, businesses, and visitors value coastal properties. However, coastal hazards, like erosion and flooding, are common and they are growing.

A Coastal Hazard Assessment (CHA) provides information on a property’s potential erosion and flood hazards. This information can help you make decisions before you purchase or develop a property. Actual or potential damage to all property assets are beyond the scope of this assessment. This includes, but is not limited to, building structures and on-site services. The CHA should not be considered a definitive statement as to where and when future damage may occur.

The CHA is not based on a site visit. Instead, it is based on the interpretation of remotely sensed data and climate modeling.

Recovering from erosion and flood damage can be expensive. Disaster financial assistance programs are available, but not everyone is eligible. New development in flood prone areas are not eligible for disaster financial assistance provided through Public Safety Canada’s Disaster Financial Assistance Arrangements, unless steps have been taken during design and construction to protect against a 100-year flood. Information on a 100-year flood, sometimes called a floodplain, is available for coastal areas of Prince Edward Island.

Please consider taking the following steps before you purchase, develop, or subdivide a coastal property:

- talk to a qualified professional to get advice on the design and location of any coastal development,
- think about how long you want your development to last, how much you want to invest, and how comfortable you are with risk,
- learn about previous erosion and flood damage to the property, and
- talk to your insurance agency about potential coverage.

For more information on coastal hazards, please visit: [www.princeedwardisland.ca/coastalhazards](http://www.princeedwardisland.ca/coastalhazards).

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# Coastal Erosion Hazard Assessment

## What is coastal erosion?

Coastal erosion is the natural breakdown and removal of rocks and soil along the coastline. Both the annual freeze–thaw cycle and wave action cause erosion.

Typically, most coastal erosion takes place during storms (e.g., strong waves, high wind, and storm surge conditions). Other factors that influence the erosion rate of a property include the shoreline type (e.g., cliff, low bank, sand dune, wetland), the geology or soil type, the orientation of the shore, the exposure or fetch (i.e., the width of the open water in front of the shore), development or other disturbances on the land adjacent to the bank, and the presence or absence of vegetation.



Figure 1. Example of bank erosion at Victoria Provincial Park



Figure 2. Example of cliff erosion at Cape Egmont

## How much is PEI's coastline eroding?

By using historical (1968-2010) data, we can assess the amount of erosion that an individual property has experienced over time. On average, PEI's coastline is eroding at a rate of 30 cm each year. However, erosion is not always a gradual process; in some instances significant amounts of land (8–10 m) have been lost in a single storm event, while other areas have barely been impacted at all. This is why it is important to inform yourself about the specific erosion hazard of your property.

## What are my options for adapting to coastal erosion?

For properties with moderate to high erosion hazards, the PEI Department of Environment, Energy and Climate Action recommends relocating existing buildings and locating new buildings farther inland. The department does not recommend shoreline stabilization, as a first alternative, along PEI's coastline.

If you are considering installing shoreline stabilization on your coastal property, you must obtain a Watercourse, Wetland and Buffer Zone Activity Permit or hire a licensed contractor. For more information, please visit:

[www.princeedwardisland.ca/en/service/apply-watercourse-wetland-and-buffer-zone-activity-permit](http://www.princeedwardisland.ca/en/service/apply-watercourse-wetland-and-buffer-zone-activity-permit).

## How will PEI's coastline erode in the future?

As a result of climate change the sea level is rising, intense storms are occurring more frequently, and during the winter months there is less sea ice coverage. All of these factors are expected to lead to increased erosion in coastal areas in the future.

## What is the Erosion Hazard Classification for a single property?

By using the average historical (1968-2010) rate of erosion, the level of hazard can be attributed to an individual property. Hazard classifications are as follows:

<b>High Erosion Hazard:</b>	<b>more than 90 cm/yr</b>
<b>Moderate Erosion Hazard:</b>	<b>30–90 cm/yr</b>
<b>Low Erosion Hazard:</b>	<b>less than 30 cm/yr</b>

This hazard classification is based on historical coastal change and is likely to be an underrepresentation of the future erosion rate (i.e., as the climate continues to change, the erosion rate is likely to increase). Furthermore, if the coastline of your property has been altered (e.g., shoreline armoring) the historic rate of erosion may not accurately reflect current conditions.

Please note that the historical rate of erosion is currently not available for coastlines adjacent to saltmarshes. Saltmarshes can provide a natural barrier between coastal properties and the impacts of storm surge flooding. Without interference from coastal development, saltmarshes are expected to expand (inland) as sea level continues to rise.

## Coastal Erosion Hazard Assessment

Average Coastal Erosion Rate (cm/year)	N/A
Maximum Coastal Erosion Rate (cm/year)	N/A
Coastal Erosion Hazard Classification:	N/A

### Comments:

Please note that the shoreline adjacent to PID 849711 is in a sand dune environment. Sand dunes are dynamic, and their shape, size, and location often change, which can influence coastal vulnerability. The coastline around the park space at the end of the peninsula has a variable coastal erosion hazard classification. The average rate of change is 39cm/yr which is classified as moderate. Aerial imagery suggests that a shoreline structure may be present on a portion of this property, which may influence the rate of coastal change. The effectiveness of a shoreline installation in mitigating coastal risk is likely to decrease with time.

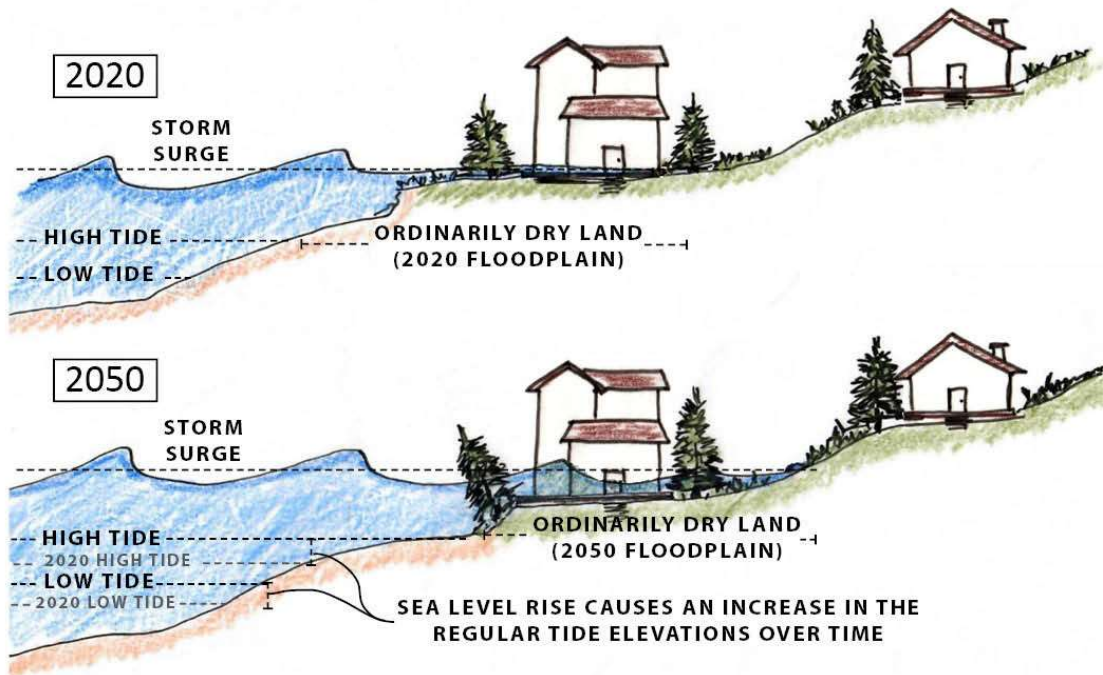
# Coastal Flood Hazard Assessment

## What causes coastal flooding?

Coastal flooding occurs when seawater flows temporarily over low-lying (but normally dry) coastal land. Flooding often happens during storm surge events, and can be particularly damaging if the storm takes place during a high tide. A storm surge is a temporary rise in sea level that results when atmospheric pressure drops and strong winds push the water towards the shore.

As a result of climate change, PEI's sea level is expected to rise by approximately 1 m (3.3 ft) this century. As the sea level rises it will permanently flood low-lying coastal land and coastal saltmarshes will expand inland. Although this will be a gradual process, over time the coastline will become more susceptible to flooding and storm surge flood waters will reach higher elevations more frequently.

The coastal floodplain is the area of land adjacent to the shoreline that will be affected by a coastal flooding event (i.e. storm surge) with a 1% chance of happening annually. This storm level is often referred to as the 1-in-100 year flood. Properties located within the coastal floodplain have at least a 22.2% chance of flooding over the course of a 25-year mortgage.



If you require additional information to support detailed design criteria, such as risk tolerance and minimum design standard thresholds, a **Watershed Flood Project Report (WFPR)** is available to download from:

[www.princeedwardisland.ca/coastalhazards](http://www.princeedwardisland.ca/coastalhazards). The WFPR is intended for researchers and design professionals. This additional data is applicable to all properties within the watershed in which your property is located.

## Is my property in a flood hazard zone?

PEI is fortunate to have access to detailed information on the elevation of all coastal properties. By using climate models of projected sea level rise, this information can be used to assess the coastal flood hazard of a single property.

### High Flood Hazard:

This area of the property falls within the current (2020) coastal floodplain. This low lying coastal land may experience flooding now during extreme storm events, and will be impacted more often as sea level rises and storm water levels reach higher elevations more frequently. As mean sea level continues to rise, a portion of this area will be permanently inundated by sea water during regular high tides.

### Moderate-High Flood Hazard:

This area of the property falls within the 2050 coastal floodplain. It is less likely that this area will experience flooding now, but the likelihood of flooding during an extreme storm event will increase over time.

### Moderate-Low Hazard:

This area of the property falls within the 2100 coastal floodplain. It is unlikely that this area will experience coastal flooding now, but the likelihood of flooding during an extreme storm event will increase over time.

### Minimal Flood Hazard:

This area of the property is elevated above the 2100 coastal floodplain.

A worst-case-scenario designated flood elevation, indicating an additional 0.65m of sea level rise, is also provided on the CHA map of the property. All land above this elevation is considered outside the coastal flood hazard zone.

## Coastal Flood Hazard Assessment

	Approximate area of the property within the hazard zone
High Flood Hazard:	N/A
Moderate-High Flood Hazard:	N/A
Moderate-Low Flood Hazard:	N/A
Minimal Flood Hazard:	N/A

### Comments:

The majority of the land area proposed for the trail system is within the Minimal Flood Hazard Area. That portion of the trail which falls within PID 849711 and is adjacent to Lighthouse Rd falls entirely within the High Flood Hazard Area. If available, local knowledge of previous occurrences of flooding will also help to inform the property owner regarding current and future flood risk.