

COASTAL TERMS AND WHAT THEY MEAN IN PICTOU COUNTY

Pictou County lies along the Northumberland Strait. Its coastline includes beaches, dunes, wetlands, estuaries, sheltered inlets, sedimentary rock and other materials that can be worn away by coastal processes.

The coast is shaped by tides, waves, storms, moving sediment, river water, runoff, drainage and seasonal ice. These processes can occur together. Coastal risk in Pictou County therefore involves more than sea-level rise alone.

COASTAL PROCESSES AND HAZARDS

COASTAL HAZARD

A **coastal hazard** is a coastal process that could cause harm to people, property, infrastructure or natural areas.

Coastal hazards include flooding, erosion, storm surge and large waves. The effects of a coastal hazard depend on local conditions, including land elevation, slope, shoreline type, drainage, buildings and infrastructure.

COASTAL RISK

Coastal risk is the chance that a coastal hazard will cause harm and how serious that harm could be.

Risk depends on the hazard, what is exposed and how vulnerable people, property, infrastructure or natural areas are. Two locations exposed to the same storm may experience different levels of risk because of differences in elevation, shoreline type, buildings, infrastructure or access.

In Pictou County: Understanding risk requires both technical information and local knowledge about the people, places and services that could be affected.

COASTAL EROSION

Coastal erosion is the removal and movement of shoreline material by waves, currents, runoff, wind, ice and gravity.

Erosion may happen slowly or during a single storm. Material removed from one location may move along the coast and become part of a beach or deposit somewhere else.

In Pictou County: Erosion can affect beaches, dunes, banks and other shorelines. Stabilizing one location may change how sediment moves and affect nearby areas.

COASTAL FLOODING

Coastal flooding happens when ocean water covers land that is normally dry.

Flooding may result from high tides, storm surge, waves or higher average sea levels.

In Pictou County: Low-lying shorelines, harbour areas, roads, drainage systems and infrastructure near the coast may be exposed.

STORM SURGE

A **storm surge** is a temporary rise in coastal water caused mainly by strong winds and low air pressure during a storm.

Flooding can become more severe when storm surge occurs at the same time as high tide or large waves.

In Pictou County: Storm surge can affect low-lying coastal areas and infrastructure. Future sea-level rise will give storm surge and waves a higher starting point.

SEA-LEVEL RISE

Sea-level rise is the long-term increase in the average height of the ocean.

The amount experienced in a particular location can reflect both changes in ocean levels and movement of the land. Higher average water levels allow tides, storm surge and waves to reach farther inland or affect areas more often.

In Pictou County: The effects will not be the same everywhere. Elevation, slope, shoreline material, sediment, wetlands, beaches and existing infrastructure all influence local conditions.

HEAVY RAINFALL AND RUNOFF

Runoff is rainwater or melting snow that flows across the land into ditches, streams, rivers, drainage systems and the ocean.

Heavy rainfall can increase runoff, raise river levels and place more pressure on drainage systems.

In Pictou County: Rainfall and coastal flooding may happen at the same time. High ocean water can make it harder for rivers and drainage systems to release water.

COMPOUND FLOODING

Compound flooding happens when more than one source of flooding occurs at the same time or in close succession.

For example, heavy rainfall may increase river levels and runoff while storm surge raises coastal water levels.

In Pictou County: Coastal water, rivers, runoff and drainage systems are connected. Understanding these connections is important around river mouths, harbours, estuaries and low-lying developed areas.

SEASONAL ICE

Seasonal ice can reduce the amount of wave energy reaching parts of the shoreline during winter.

Changes in temperature can affect when ice forms, how long it remains and how much protection it provides.

In Pictou County: Less or shorter-lasting ice cover may leave some shorelines exposed to waves during more of the winter storm season.

COASTAL ECOSYSTEM

A **coastal ecosystem** includes living things and natural features found where land and water meet.

Beaches, dunes, wetlands, estuaries and vegetated shorelines provide habitat and influence how water, waves and sediment move.

In Pictou County: These natural areas can experience damage from flooding, erosion and changing water levels. They may also store floodwater, reduce wave energy, trap sediment and support wildlife.

PLANNING TERMS

DEVELOPMENT SETBACK

A **development setback** is a required minimum distance between development and a defined feature, such as a shoreline or coastal bank.

A setback can help keep new buildings and infrastructure away from areas exposed to flooding or erosion.

The setback distance and the point from which it is measured may vary according to the applicable policy, local shoreline conditions and available hazard information.

TOP OF BANK

The **top of bank** is the upper edge of a shoreline bank or slope where the land becomes noticeably flatter.

It can be used as the starting point for measuring a coastal development setback or buffer. Identifying it may require professional judgment where the shoreline does not have a clear bank.

ORDINARY HIGH WATER MARK

The **ordinary high water mark** generally describes the usual upper extent of water along a shoreline under normal conditions. It is not the highest point reached during an extreme storm or flood.

Municipal planning documents may use this feature when measuring development requirements in locations where a clear top of bank cannot be identified. The Land Use By-law contains the applicable legal definitions and measurement requirements.

COASTAL BUFFER

A **coastal buffer** is an area between development and the coast that remains natural or is managed to protect vegetation and coastal features.

Buffers can help manage runoff, support habitat and leave room for natural shoreline processes.

A coastal buffer and a development setback are not always the same thing. A policy may use both.

FLOOD-RESILIENT DESIGN

Flood-resilient design means locating or designing a building to reduce flood damage.

Examples include raising occupied areas, placing electrical and mechanical equipment above expected flood levels, improving drainage and using materials that are less easily damaged by water.

These measures may reduce damage to a building. They do not remove risks to roads, wells, septic systems, utilities or emergency access.

WAYS TO RESPOND

SHORELINE PROTECTION

Shoreline protection includes structures or other work intended to reduce erosion, flooding or wave damage.

Examples include armourstone, seawalls, revetments and breakwaters.

These structures may protect a particular building or piece of infrastructure. They can also change wave action and sediment movement, which may affect other parts of the shoreline.

NATURE-BASED MEASURES

Nature-based measures use, protect or restore natural coastal features to help manage flooding and erosion.

Examples include restoring dunes, wetlands and beaches, maintaining coastal vegetation and using living shorelines.

In Pictou County: These measures may also support habitat, water quality and other ecological functions. Their suitability depends on shoreline type, available space, sediment movement, wave exposure and what needs protection.

COASTAL ADAPTATION

Coastal adaptation means changing how we plan, build or manage land in response to coastal hazards and changing climate conditions.

Adaptation approaches generally include:

- **Protect:** Use engineered or natural measures to reduce flooding or erosion impacts on important buildings, infrastructure or community assets.
- **Accommodate:** Accept some exposure while reducing damage through building elevation, improved drainage, flood-resilient design or emergency planning.
- **Work with Nature:** Maintain or restore natural features that may help manage flooding, erosion and wave impacts.
- **Avoid New Risk:** Direct new development away from locations where coastal hazards may create unacceptable risks.
- **Plan for Future Change:** Consider how buildings, infrastructure or community assets could be adapted, relocated or used differently if they cannot be safely or reasonably maintained over the long term.

Different places may need different combinations of these approaches. Choices may also change over time as coastal conditions and available information change.

THE MAIN POINT

Pictou County's coastal risks are connected. Ocean water levels, tides, storms, waves, rainfall, rivers, drainage, erosion and ecosystems can influence one another.

The same solution will not be appropriate everywhere. Local knowledge, scientific information, community priorities and long-term planning all have a role in deciding what approaches may be appropriate in different parts of Pictou County.