



Lessons from Mother Nature

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Overview

Look at our:

- Past - History Lesson
- Present
- Lessons Learned
- Future & Next Steps



Blue Mussel Café – North Rustico

PAST - HISTORY LESSON

- Review of past events Pre-2019
- Dorian
- Fiona



1974 Tornado

- Widespread destruction - tornado created by sudden and severe thunderstorm
- 1.4 inches of rain in 30 minutes
- 6 mobile homes overturned West Royalty area - 1 turned over 4 times)
- 8 aircraft damages at YYG - overturned, wings torn off
- Several cottages damaged in Mermaid area
- Hailstones “as big as eggs/golf balls”
- Barns and silos flattened

1982 Blizzard

Impacts in the Western end of the province were similar to Winter of 2015

Took up to 2 weeks to clear all roads

- 60 cm snow
- 100 km/hr winds
- -35 C
- Trains buried
- \$1,585 Million



2000 Storm Surge (s) January & December

- Occurred in January and December
- January impacted most of south side:
 - most intense in Ch'town's history
 - Water level + 4 meters
- December event was north side
- Approx \$20 million damages

September 2003 - Hurricane Juan



2004 Storm Surge



September 2008 TS Hannah



April 2009 H1N1



2010 Storm Surge (s) January & December



September 2010 Hurricane Earl



December 2014 Heavy Rainfall



September 2019 Hurricane Dorian



Hurricane Dorian



Hurricane Dorian

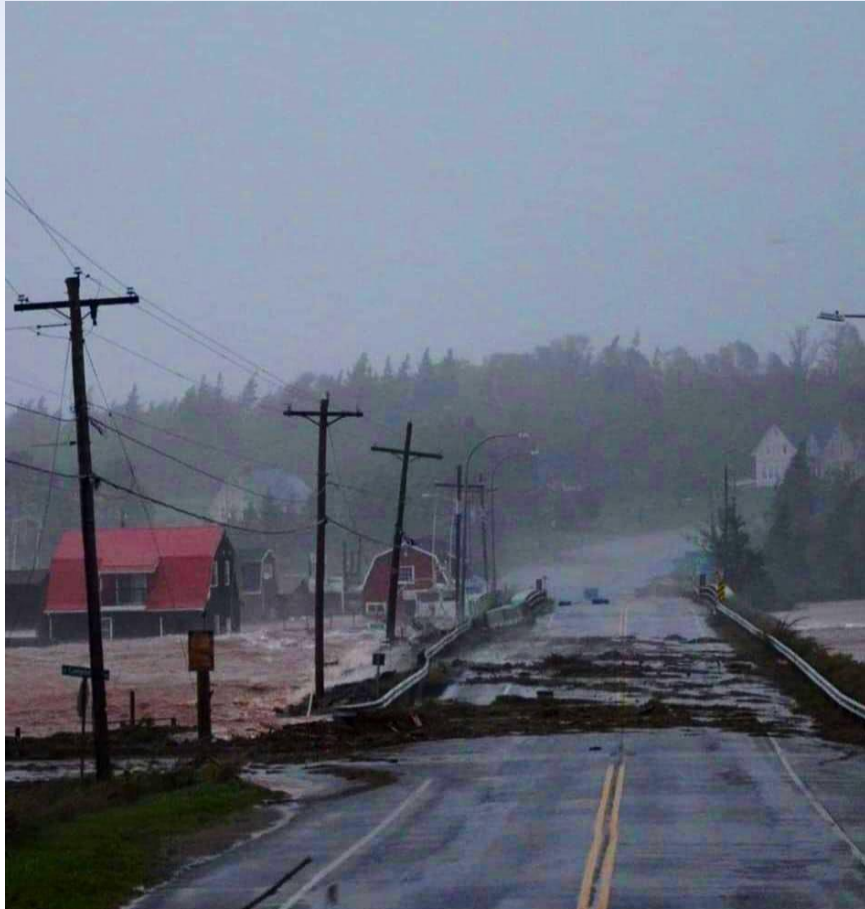


September 2022 - Hurricane Fiona



Photo source:
Don Jardine

Hurricane Fiona



Hurricane Fiona



Hurricane Fiona

Savage Harbour

Photo sources: Don Jardine; UPEI Drone Team



Hurricane Fiona



Feehans Shore

Photo sources: Don Jardine; UPEI Drone Team

Hurricane Fiona



Hurricane Fiona



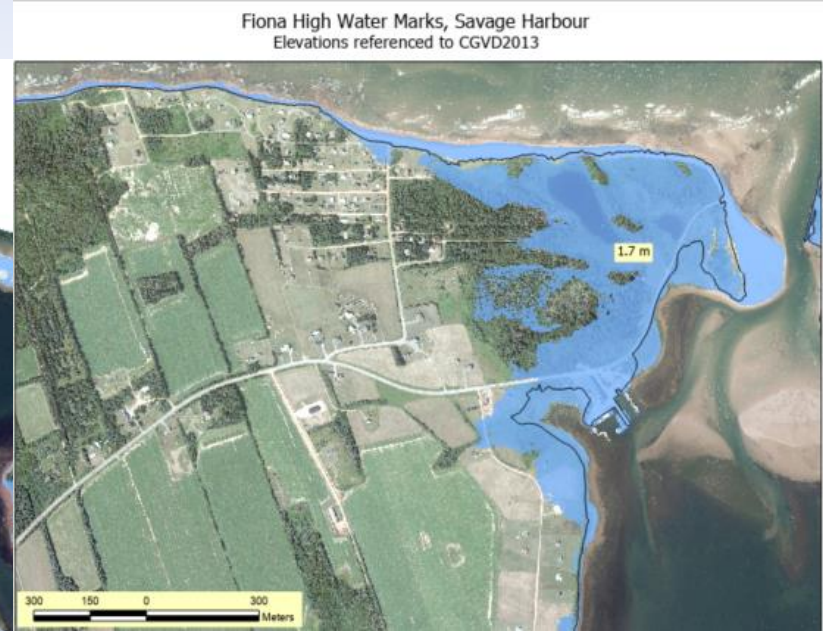
Hurricane Fiona



Hurricane Fiona



Mapping high water marks after Fiona



PRESENT

- **PEI Climate Adaptation Plan**
- **Coastal Flood Maps**
- **Storm Surge Early Warning**
- **Public Online Tools**
- **Lessons**
- **Challenges**



Stanley Bridge

Building Resilience: Climate Adaptation Plan

Five-year plan (2023-2028)

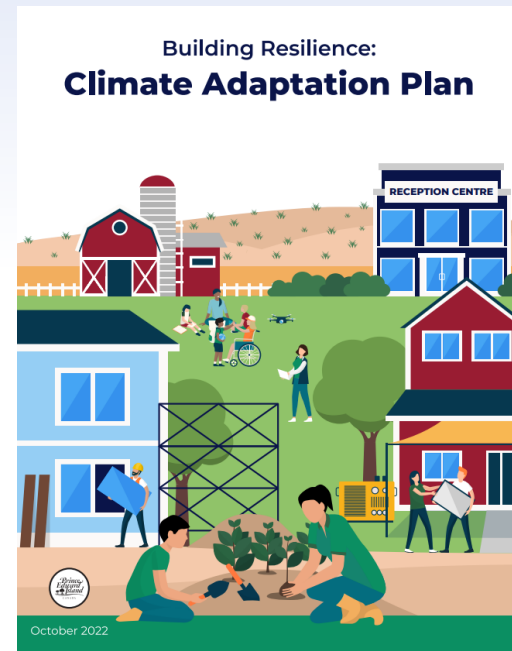
Focus: **resiliency** and **equity**

28 actions, involving **cross-departmental** implementation

- Different actions being led by different departments

Six different themes:

- Disaster Resilience & Response
- Resilient communities
- Climate-Ready Industries
- Knowledge Capacity
- Natural Habitat & Biodiversity
- Health & Mental Well-Being

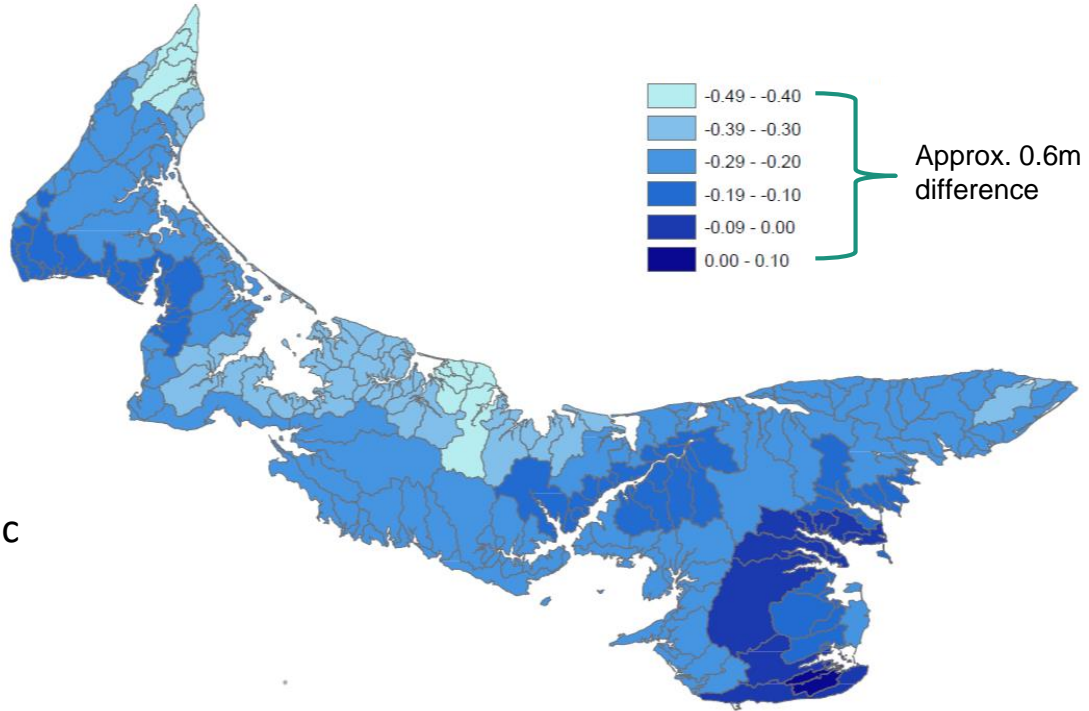


PEI Coastal Flood Hazard Maps (2021)

**Projected sea level rise (SLR)
by decade for 2020 to 2100.**

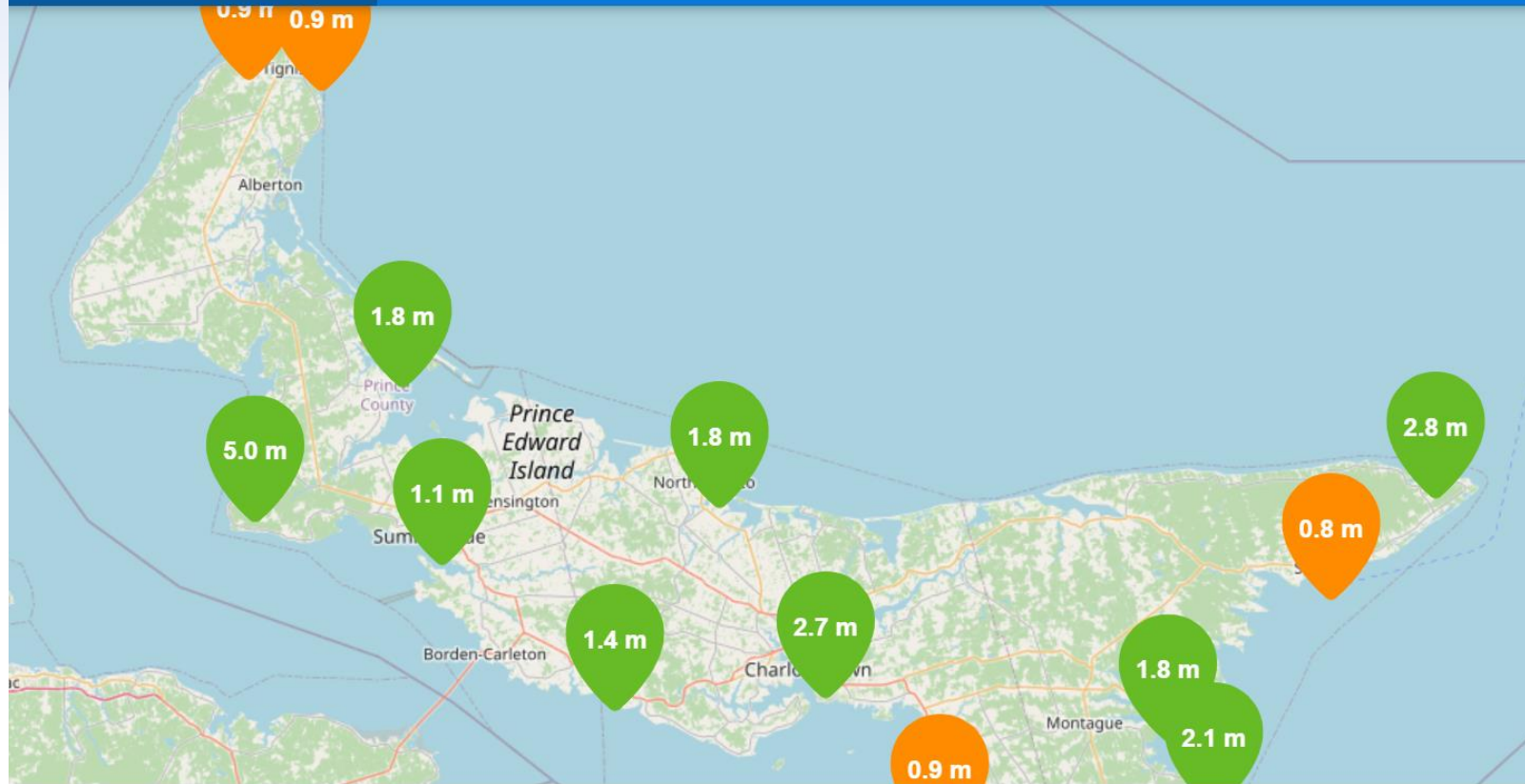
Represents the anticipated
**permanent coastal flood inundation
limits.**

The new data and maps are
more precise and locally specific
to each of the
286 coastal watersheds.



Storm Surge Warning - Tide Gauges

Early Warning System (PSSEWS)



Public Online Tools and Resources (November 2021)

1. **Coastal Hazards Information Platform (CHIP)**
Publicly accessible, interactive online map
2. **Coastal Hazard Assessment (CHA)**
Property-specific assessment, completed upon request
3. **Watershed Flood Projections Reports (x286)**
Technical guidance for developers and design professionals
4. **FREE online course** developed by the Intact Centre on Climate Adaptation
Protecting PEI Homes from Flooding and Erosion (5 hours)



www.princeedwardisland.ca/coastalhazards

Flood Plain Limitation - DFAA



Public Safety Canada's guidelines on Disaster Financial Assistance state that **“any new development located within the floodplain will not be eligible for Disaster Financial Assistance Arrangements (DFAA)**

Applies in PEI to all new building permits dated December 1, 2021

What are the Lessons

- **This isn't our first, worst or last;**
- **It is not that the wind blows it is what the wind blows;**
- **Everyone has a role;**
- **Local capacity is the fastest and most diverse resource;**
- **Disasters will impact our everyday conveniences – and WE will have to be better prepared to manage without them.**

What are the Challenges

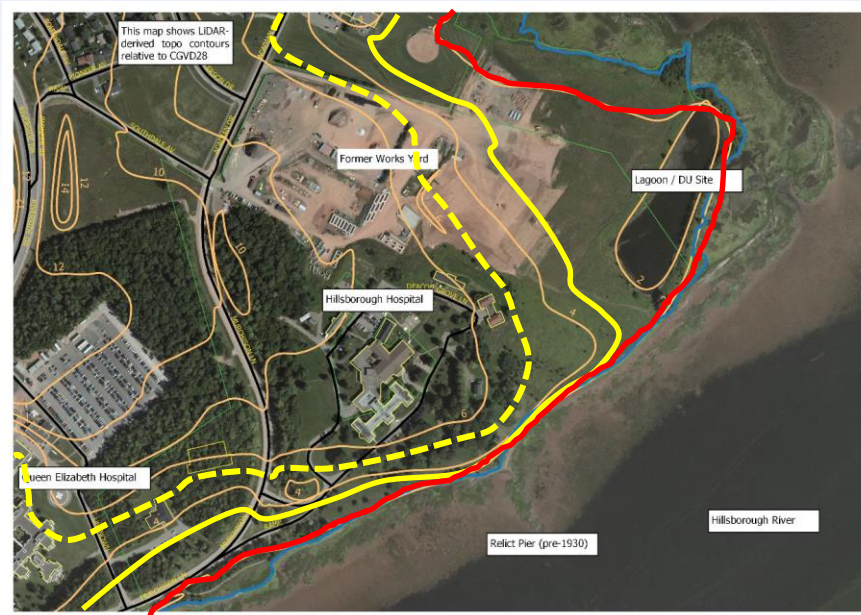
- **“You can have all the tools, but if you have a hammer with no handle, it’s hard to drive the nails”**
- **Mitigation and Preparedness actions cost \$ and time**
 - Like investments and insurance
 - Payoff far outweighs
 - \$2 in Mitigation and Preparedness reduce cost of Response and Recovery by \$14
- **Hard to get buy in on a blue-sky day**
- **Just because it hasn’t happened doesn’t mean it won’t**

FUTURE

- **Turning information into Design**
- **What we rely on most**
= most critical
- **Storm Surge Modeling**
- **Whole of Society**
- **Local Capacity**
- **EP Week**



Integrating Data into Design



Site of the new Mental Health and Addictions Centre, Charlottetown, PE

No Critical infrastructure below the dashed line

0.1% AEP, 1 in 1000 yr storm surge event

Only risk-tolerant infrastructure and land uses below the yellow line

1% AEP 2100 (future) floodplain

No infrastructure below the red line

1% AEP 2020 (current) floodplain

Integrating Data into Design

Informing Coastal Nature-based Solutions



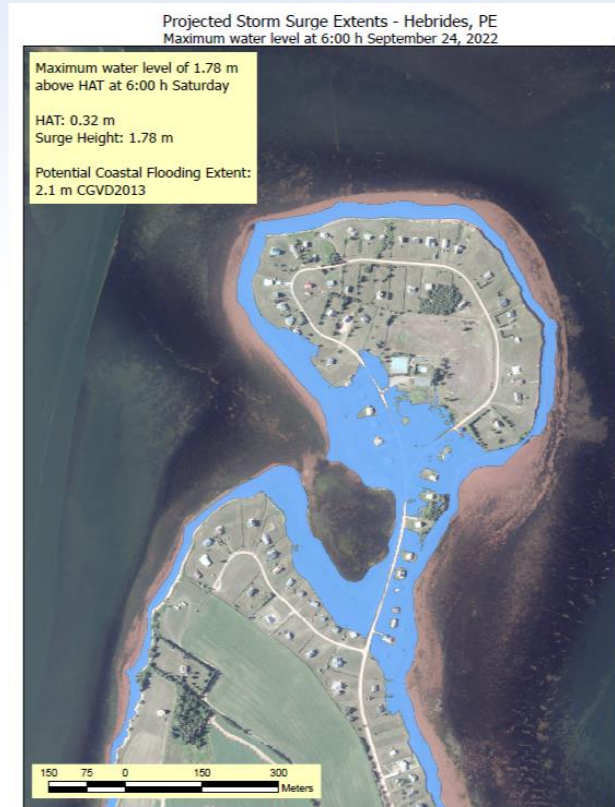
West Point, PE



Souris, PE

Storm Surge Modeling

Hurricane Fiona - ECCC storm surge projections translated into maps



Storm surge projection for Hebrides – Friday Sept 23



Source unknown. Photo posted to social media, Saturday Sept 24

Whole of Society

Everyone has a role to build resiliency in our communities:

- Individual - Personal preparedness
- Understanding local risk
- Businesses and organizations - Business Continuity
- Municipal & Provincial Govt - robust Emergency Management programs including plan that are tested and people are trained

Local Capacity - Building Resiliency

- PEI NGO Council
- United Way
- Fire Departments
- Spontaneous Volunteers
- ...limited only by the imagination



EP Week

First full week of May (May 7 - 13)

- Alert Ready - test alert
- Community presentations
 - Summerside
 - Charlottetown
- EP Share Your Kit Contest



Details will be posted on @peipublicsafety on FB and Twitter



Thank you

Questions?

“There is only one big risk you should avoid at all costs, and that is the risk of doing nothing.”

-Denis Waitley

