Climate Change: Threats to Archaeological Sites
PEI Aboriginal Affairs Secretariat

Aboriginal Affairs and Archaeology
Register of archaeological and paleontological sites
ArcGIS Layers:

Inventory of registered archaeological and palaeontological sites.

Community history information.

Mi’kmaq place names.

Mi’kmaq traditional use.

Archaeological site reports.

Permit reports, MARI forms, etc.

Historical maps.

Predictive modelling.
High proportion of coastal and watercourse sites from all chronological periods.

Many sites have been submerged by rising sea levels and erosion:
- storm surges.
- less sea ice.
- increased precipitation.
- flooding.

Recent history/impacts on human society and archaeological resources:
- Yankee Gale, 1851.
- August Gale, 1873.
- 1870s period of higher tropical storm activity.
- October 1923 (water level high for 24 hours).
- January 2000 (widespread flooding of low lying coastal areas of PEI).
- October and Nov. 2000 (widespread flooding and damage to North shore and west coast of PEI).
- Millennia of unrecorded events
PEI archaeology coastal change study (2016)

<table>
<thead>
<tr>
<th>Erosion Rate</th>
<th>Sites with Erosion Rate</th>
<th>ASL</th>
<th>Total Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2 – 0.8 m/yr</td>
<td>118</td>
<td></td>
<td></td>
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<tr>
<td>&gt; 0.8 m/yr</td>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2 m ASL</td>
<td>115</td>
<td></td>
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</tbody>
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Malpeque Bay

**Number of archaeological sites with:**

- **0.2 – 0.8 m/yr Erosion**
  - Sites: 118
- **> 0.8 m/yr Erosion**
  - Sites: 76

**ASL 0-2 m**

- Sites: 115

**Number of archaeological sites with:**

- **0.2 – 0.8 m/yr Erosion + 0-2 m ASL**
  - Sites: 61
- **> 0.8 m/yr Erosion + 0-2 m ASL**
  - Sites: 32
Archaeological sites – high erosion/low elevation
Paleo-Indian
C. 12,000 BP

Archaic
c. 9500 BP

Maritime Woodland/
Ceramic
c. 3000 BP

Proto-historic/
Contact
AD 1500

Historic

http://climate.geologist-1011.net/HoloceneTemperatures.png
Peopling of the Maritimes – Paleo-Indian Period

12,700 - 12,200 Cal BP

Map showing sites and site clusters in the Maritimes region from 12,700 to 12,200 Cal BP.
Paleo-Indian site: Tryon, PEI
Paleo-Indian environment

- Resource rich peri-glacial environment.
- Tundra-like.
- Non-arboreal birch, willow, Artemisia and upland grasses and sedges.
- Environment suitable for migrating caribou.
- Using glacial ice to preserve food?
At ~9000 C14 years BP, ancient PEI had a surface area (joined to mainland).
Ground stone tools – butchering, symbolic, and woodworking
Jones site, Archaic Period, 9500 BP
Pitawelkek site, Georges Island
Woodland Period
Pitawelkek Site, Georges Island, c. 2000 years old
2.195 cm/year since 1934.
Pointe-aux-Vieux (CdCx-5)
Pointe-aux-Vieux (CdCx-5)

Acadian settlement at Malpeque.

1728 - 1758

Map credit: Doug Sobey
Pointe-aux-Vieux (CdCx-5)

NOTES BY THE WAY

A Visit to The Old Episcopal Church.

FRENCH BURNING PLACE

The Graves of Nearly All Of The Early Settlers Washed Away.

As soon as the train reached the place, I was told to make a speech to the gathering of the old men who came to see me. I told them that I had been to the United States and had seen some fine churches, but this one was the best. They were very pleased and thanked me for my kind words. I also said a prayer for the souls of their ancestors who had fought for their country.

The church was built in the early 1800s and is still in use today. It has a beautiful bell tower and a large, ornate altar. The pews are made of wood and are quite comfortable. The church is also home to a small museum where you can learn about the history of the area.

A Brief Description of the Church

The church is located on a hill overlooking the town of Pointe-aux-Vieux. It is a large, white building with a steep roof. The church is surrounded by a fence and a small garden. The windows are large and let in plenty of light. The interior of the church is quite simple, with a few simple tables and chairs. There is also a small altar and a few religious statues.

The Church and Its History

The church was built in the early 1800s by a group of French settlers who had come to the area to work in the woods. They built the church as a place of worship and as a way to keep their traditions alive. The church has been in continuous use ever since, and is still an important part of the community.

A Visit to the Church

I visited the church one day and was struck by its beauty. The wood inside was quite lovely, and the space was very quiet. I was also impressed by the history of the church and the stories of the people who have lived here over the years.

In conclusion, the church is a beautiful and important part of the Pointe-aux-Vieux community. It is a place of worship and a source of pride for the people who live here. I would highly recommend visiting the church and learning about its history.
Archaeological investigations (2008 – 2010)
December 2010 storms

- Rusticoville Bridge (Photo: Don Jardine 2010)
- Oyster Bed Bridge (Photo: Don Jardine 2010)
- MacLean’s Bridge, Lot 11 (Photo: Robert Henderson)

**Storm Surge Facts**

- December 21, 2010 – Full moon and lunar eclipse
- High tide Charlottetown at 11:22 and 22:05 and North Rustico at 17:27.
- Third Monday northeaster in as many weeks
- Strong NE winds gusting over 100km/hr
- Waves over 5 m in height
- Tide gauge at Charlottetown shows a peak level of 3.494 metres above chart datum at 21:40.
- Tide gauge at Shediac, NB was destroyed by this storm surge.
‘After’
In your opinion, how important is it to protect archaeological sites?

1/265 = not important (0.4%)
18/265 = somewhat important (6.8%)
247/265 = very important (93%)