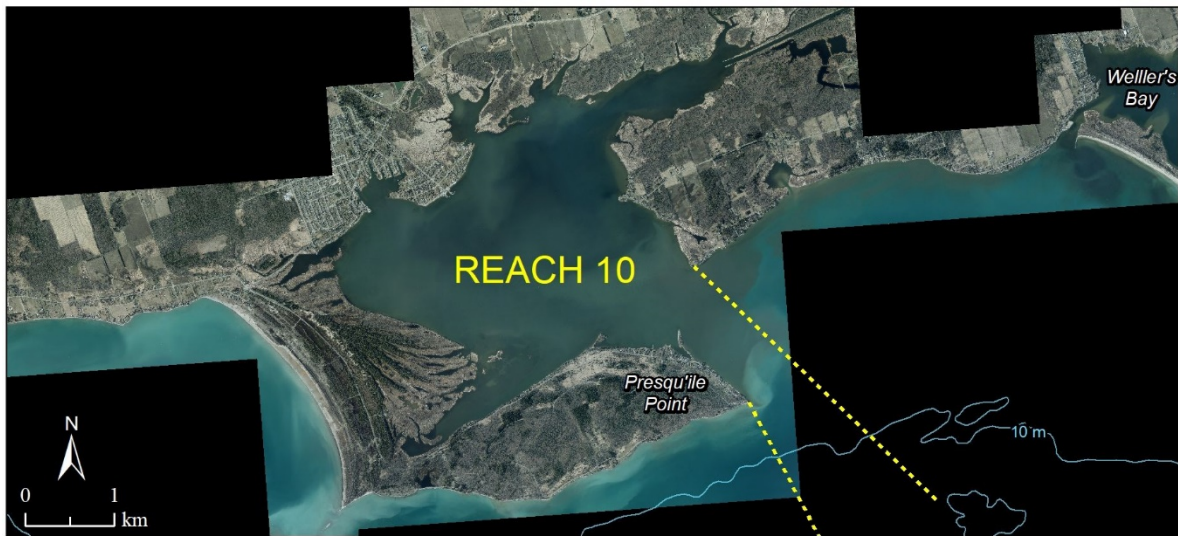


Reach 10 – Presqu’ile Point to Shoal Point



Local Conditions

- Reach Length = approximately 22.0 km.
- Reach 10 is sheltered from Lake Ontario waves by Presqu’ile Provincial Park. The sandy bay extends from Presqu’ile Point to Shoal Point.
- Several of the communities were constructed on former coastal wetlands and are very vulnerable to high lake levels, as seen in 2017 and 2019.
- Undeveloped areas of the bay feature extensive coastal wetlands, including the eastern shore of the Provincial Park.
- The Trent-Severn Waterway is a constructed canal that connects the northeast corner of the bay with the Bay of Quinte near Trenton.

Concrete Seawalls, Presqu’ile Backside

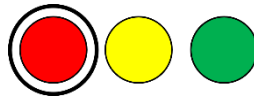


Flooded Properties in Gosport (May, 2019)

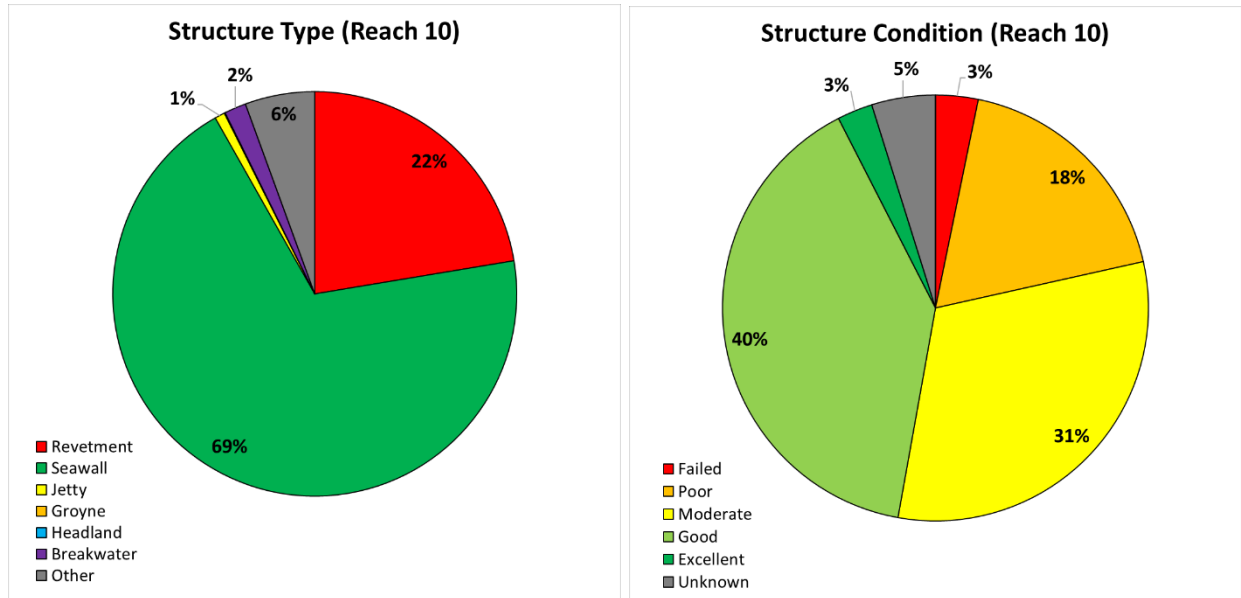


Shoreline Structures

- Reach 10 is 32% armoured, 68% natural.
- Shore protection is prevalent through all developed portions of Presqu'ile Bay including the north side of Presqu'ile Peninsula, Brighton and Gosport.
- The vast majority of shore protection is concrete seawalls, many of which are 40 to 50 years old. Most are in moderate to good condition, though some require repairs.
- Some newer developments in Brighton were built on reclaimed land using steel sheet piling doubling as a seawall.
- Damaged or failing shoreline infrastructure in Presqu'ile Bay is primarily the result of poor drainage, freeze thaw, ice impacts or deterioration with time. The bay is extremely sheltered from wave action on Lake Ontario.
- Unprotected portions of shoreline within Presqu'ile Bay are rich ecological areas with significant amounts of coastal habitat.
- Tolerance for additional shoreline armouring of developed areas (**low/medium/high**):



- Sample statistics (for armoured portion of shoreline):



Sediment Supply and Longshore Sediment Transport

- Sediment transport in Reach 10 is mostly limited to sediment moving along the east end of Presqu'ile Peninsula and into Presqu'ile Bay. Coarser sediments such as sand are deposited on shoals near the entrance to the bay while smaller sediment such as silt is deposited within and circulated throughout the bay.
- The net sediment transport potential along the backside of Presqu'ile from the lighthouse to Atkins Reef is on the order of 50,000 m³/year traveling from south to north (into the bay). The actual net transport is likely much smaller as sediment supply around

Presqu'ile Point is significantly limited by the presence of an extensive bedrock shelf in the nearshore.



Summary of Natural Hazards

- 100-year Erosion Rate (Stable Slope not included):

Start (lat, long)	End (lat, long)	100-year Erosion Rate (m/year)	Bluff Crest or Waterline
43.9981, -77.6753	43.995, -77.7182	Stable Slope Allowance Only	n/a

- 100-year Flood Level and Flood Hazard Limit (including wave uprush):

Start (lat, long)	End (lat, long)	100-year Flood Level (m IGLD85')	Flood Hazard (m IGLD85')
-	-	+76.03	+77.17

- Dynamic Beach(s): n/a
- Wave climate ~1 km offshore (output location W10):

ARI (years)	Depth (m)	Hs (m)	DIR (deg)	Tp (s)
5	3.7	1.43	160	10.5
10	3.7	1.45	160	10.5
25	3.7	1.47	160	10.5
50	3.7	1.48	160	10.5
100	3.7	1.49	160	10.5

Infrastructure and Ecosystem Threats

- Aging shoreline protection, especially on the north side of the Presqu'ile Peninsula.
- Harbour Street and Gosport Community: low and flood prone.

Shoreline Management Recommendations

- Monitor and maintain existing shoreline protection infrastructure in Presqu'ile Bay.

- Incorporate appropriate drainage in shore protection upgrades to prevent hydrostatic pressure buildup and freeze-thaw damage behind concrete seawalls.
- Harbour Street and Gosport Community: further investigate the elevation of ingress and egress routes in the community and implement upgrades where necessary to ensure safe access during the 100-year storm event.
- Prohibit further development on wetlands and ecologically sensitive area around Presqu'ile Bay.
- Floodproofing existing development located within the coastal floodplain (i.e., below the 100-year Flood Level).

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