

Monitoring Coastal Change through the COASTIE program

The impact of Hurricane Fiona along the north shore of Prince Edward Island (PEI) were captured through a new Citizen Science program from the University of Windsor. The COASTIE program (<https://coastiecanada.ca/>) is a partnership between Parks Canada and the Windsor Coastal Group (<https://www.windsorcoastalgroup.ca/>), and the program provided some of the first images of beach and dune erosion in PEI and was featured on both CTV and CBC national news broadcasts. The COASTIE program is managed by Dr. Chris Houser, Dean of Science at the University of Windsor, who was inspired by his grade 12 geography high school teacher (Mr. Leung at Huron Heights Secondary School in Newmarket) to pursue a degree in environmental science.

The COASTIE program started in October 2021, and there are sites at national parks across the Maritimes, Quebec, and Ontario. Visitors to participating parks have taken over 2300 photographs of the beach and dune from the same perspective using specially designed cellphone cradles. The near-daily photographs provide important information about when and how the beach and dune are eroded by storms and how they recover in the weeks and months following a storm. Based on photographs taken immediately before and after the storm, they were able to estimate that nearly 15 m of the dune was eroded, representing $\sim 30 \text{ m}^3$ of volume for every m length of beach at Brackley Beach. The eroded sediment will eventually return, but it will take years to more than a decade for the dune to return. How long it will take will depend on whether there are future storms, changes in the timing and extent of sea ice and the rate of sea level rise.

COASTIE photographs as well as drone-based topographic surveys and meteorological data are available for you to use in your class to discuss beach and dune erosion and the impact of a changing climate on our coast. Dr. Houser and his team will be able to help you develop questions and assignments and provide support for GIS-based assessments of storm impact and post-storm recovery over the next couple of years. More parks from across Canada will be joining the COASTIE program in 2023.

In addition to the COASTIE program, Dr. Houser has coastal erosion data from across the Great Lakes and manages several studies focused on beach safety. He will be creating assignments related to coastal erosion and beach safety in the next year for use in your classes. Do not hesitate to reach out to him at chouser@uwindsor.ca

