OpenTopography

Metadata Report

Project Name *Survey of Point Beach State Forest, Wisconsin, August 2021*

Summary:

Lake Michigan's water level was recently near an all-time high, leading to widespread erosion of coastal bluffs and beaches. These coastal environments are integral parts of nearby communities and estimating how shorelines will evolve in response to changing lake conditions is vital for sustainable community planning. The terrestrial sediment input from eroding beaches and especially bluffs, balanced against nearshore transport processes, determines the stability of a coastal region. Estimating the rates of those processes requires obtaining in situ measurements, which is challenging but essential for developing effective shoreline protection strategies. To address this shortcoming, researchers will collect repeat topobathy and nearshore wave data to create a hydrodynamic model that can couple offshore sediment transport with onshore erosion. These model results will be used to develop simple wave run-up / bluff erosion estimates that can be applied throughout the region.
Funding: Wisconsin Sea Grant 2022-2024 R/RCE-19

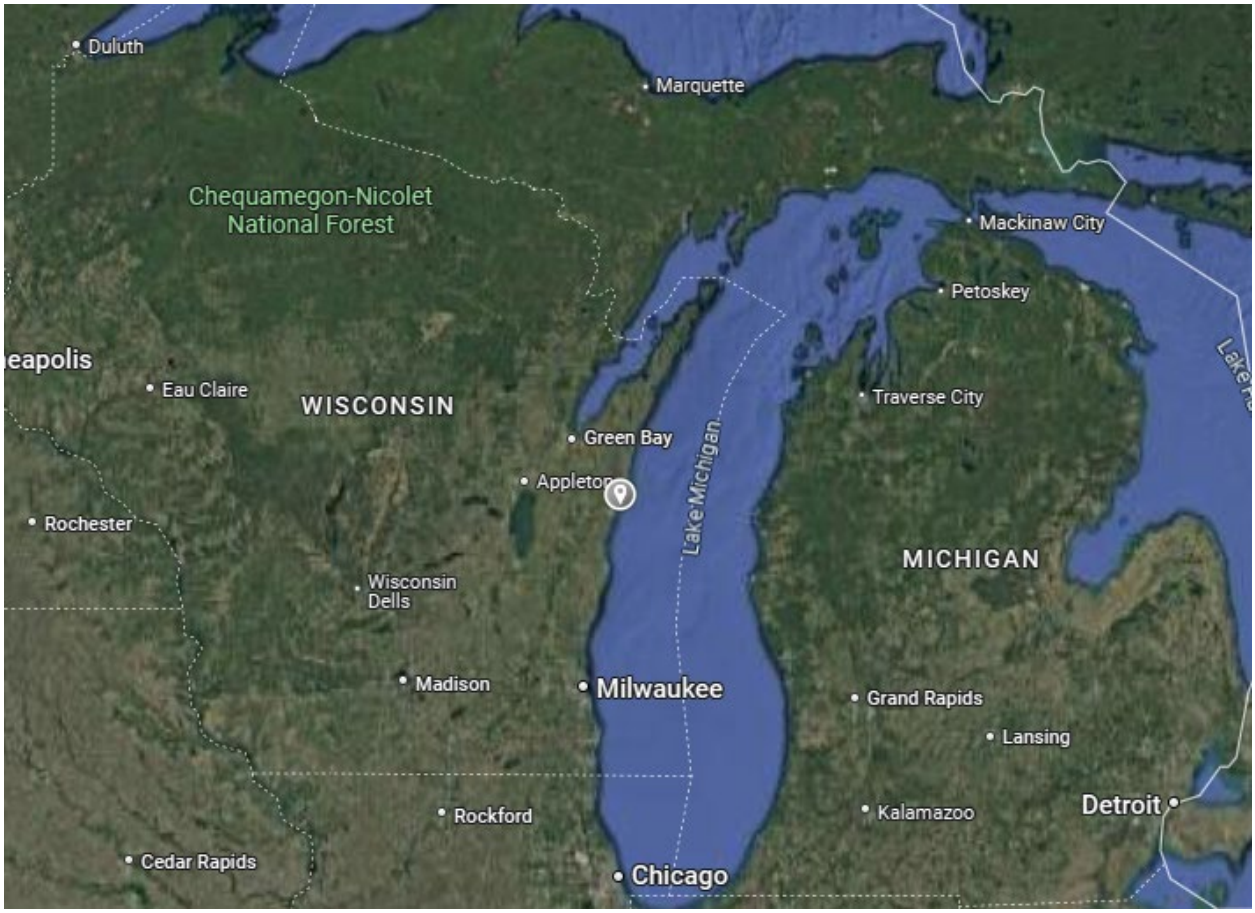
Personnel

- PI's: Luke Zoet (lzoet@wisc.edu); J. Elmo Rawling III (elmo.rawling@wisc.edu)
- Field staff: Chelsea Volpano

Site Information

- Site description
  Sandy beach backed with slightly vegetated dunes. Located within Point Beach State Forest. Starting at Rawley Point and extending south for ~2 km.
- Site objective
  Repeat surveys of beach recovery following high erosion in 2020.

- Site location: 44.21222384164747, -87.50783958451592



Survey Results

- Equipment used:
    1. Phantom 4 RTK Drone + DJI Base Station

- GPS solutions

Products

- Date of dataset collection: 08/19/2021
- Coordinate system of datasets: WGS84 UTM zone 16N
- Spatial resolution: 2.68 cm/pix
    - X error: 0.563 cm
    - Y error: 0.678 cm
    - Z error: 2.507 cm

- Data formats: Point Cloud- .laz DEM- .tif Ortho- .tif
- Data processing methods:

    https://www.aerotas.com/phantom-4-rtk-ppk-processing-workflow

Misc Notes