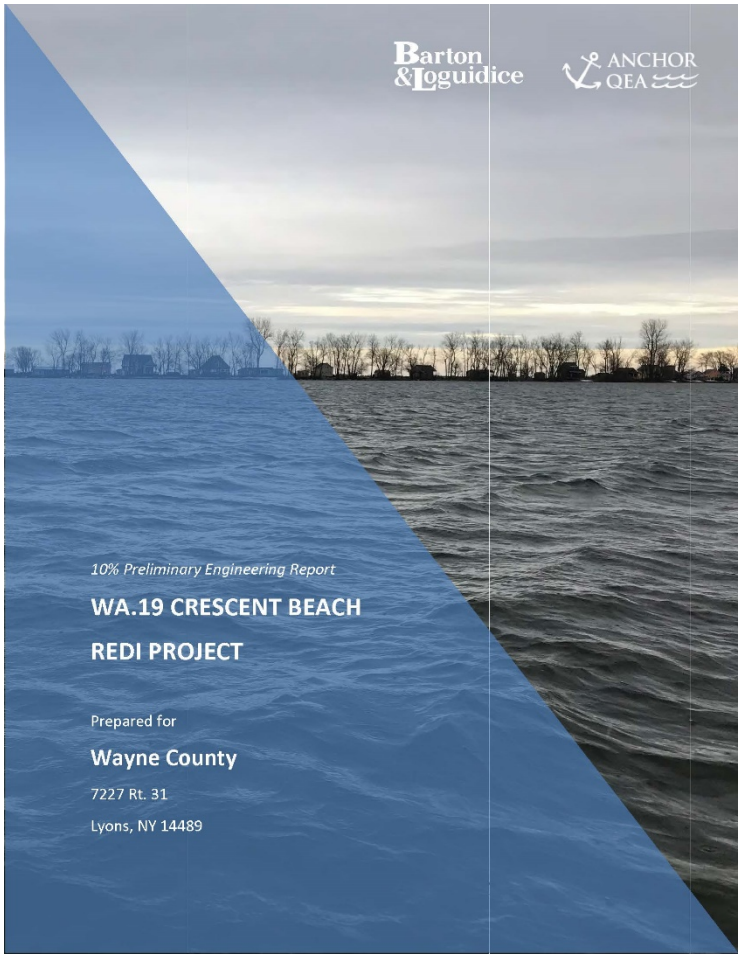
Crescent Beach Living Shoreline Conceptual Design

February 2020

ANCHOR QEA

Barton & Loguidice

Crescent Beach Resiliency & Economic Development Initiative (REDI) Project



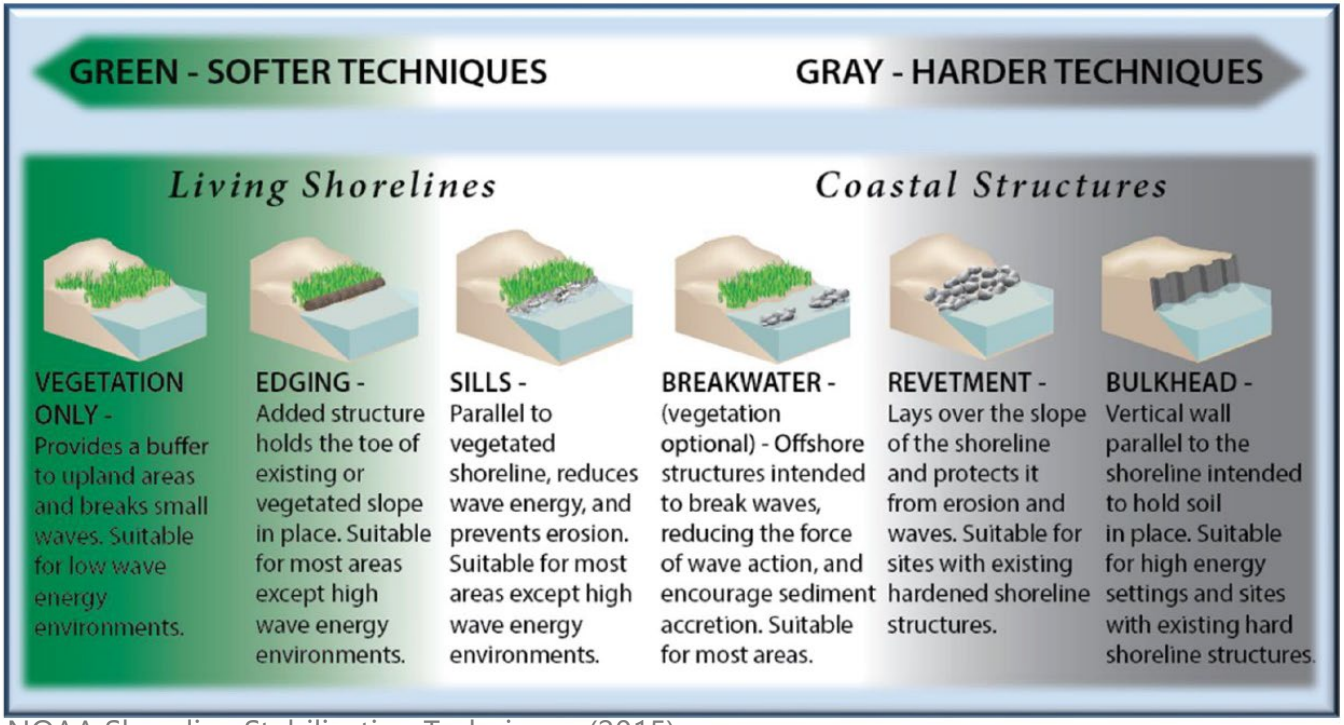
The primary objective of the Crescent Beach Resiliency and Economic Development Initiative (REDI) Project is to design and construct a natural or nature-based shoreline system that will protect Crescent Beach from Lake Ontario wave action and enhance the overall resiliency of the barrier beach.

Step 1:

Preliminary Engineering Report
to analyze the coastal setting & provide conceptual design alternatives

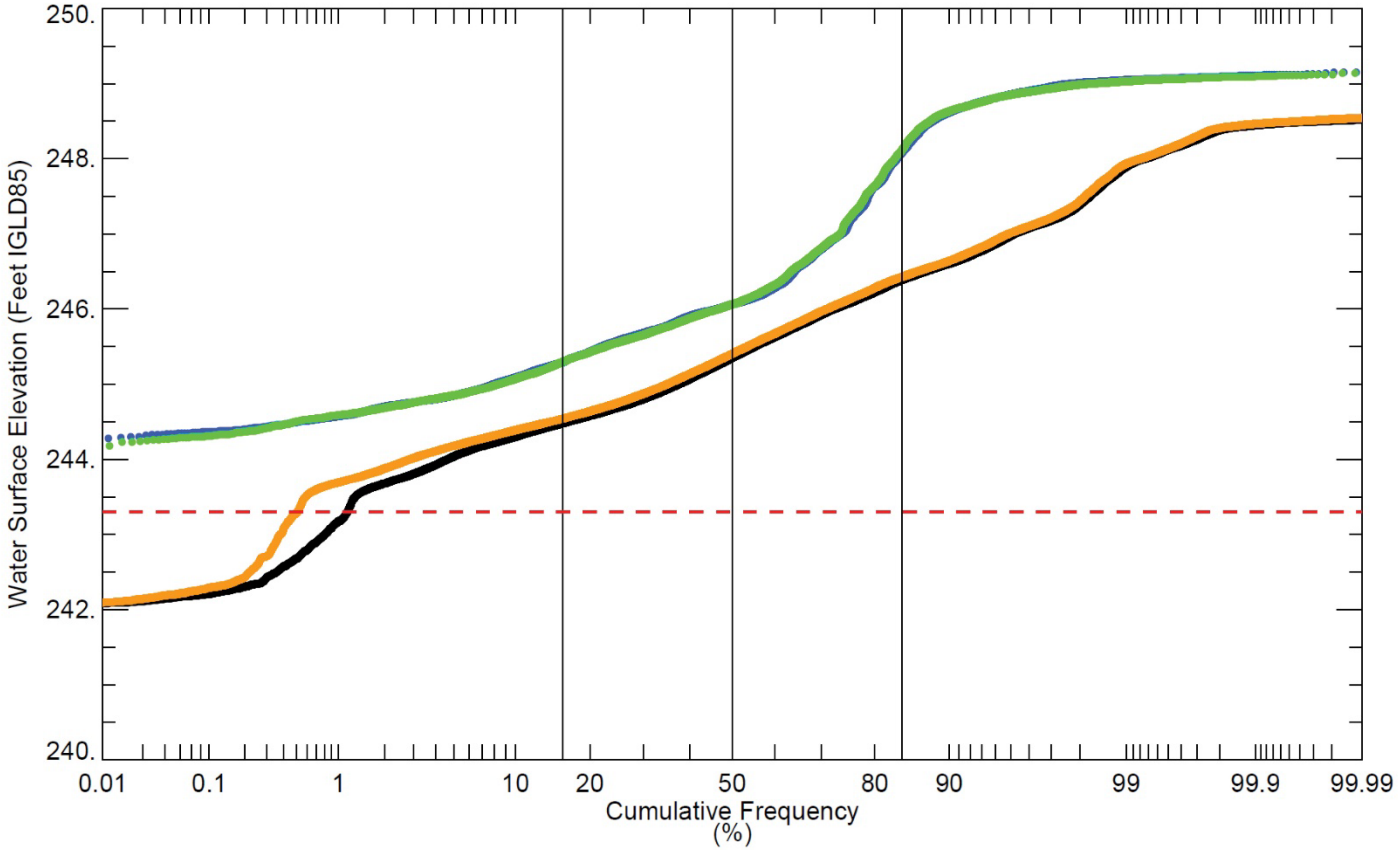
Shoreline Stabilization Challenges & Techniques

- Record high water levels
- Continuous wave action
- Flooding, over wash, erosion
- Damage & loss of property, mature trees, vegetation
- Displacement of material & barrier bar breach



NOAA Shoreline Stabilization Techniques (2015)

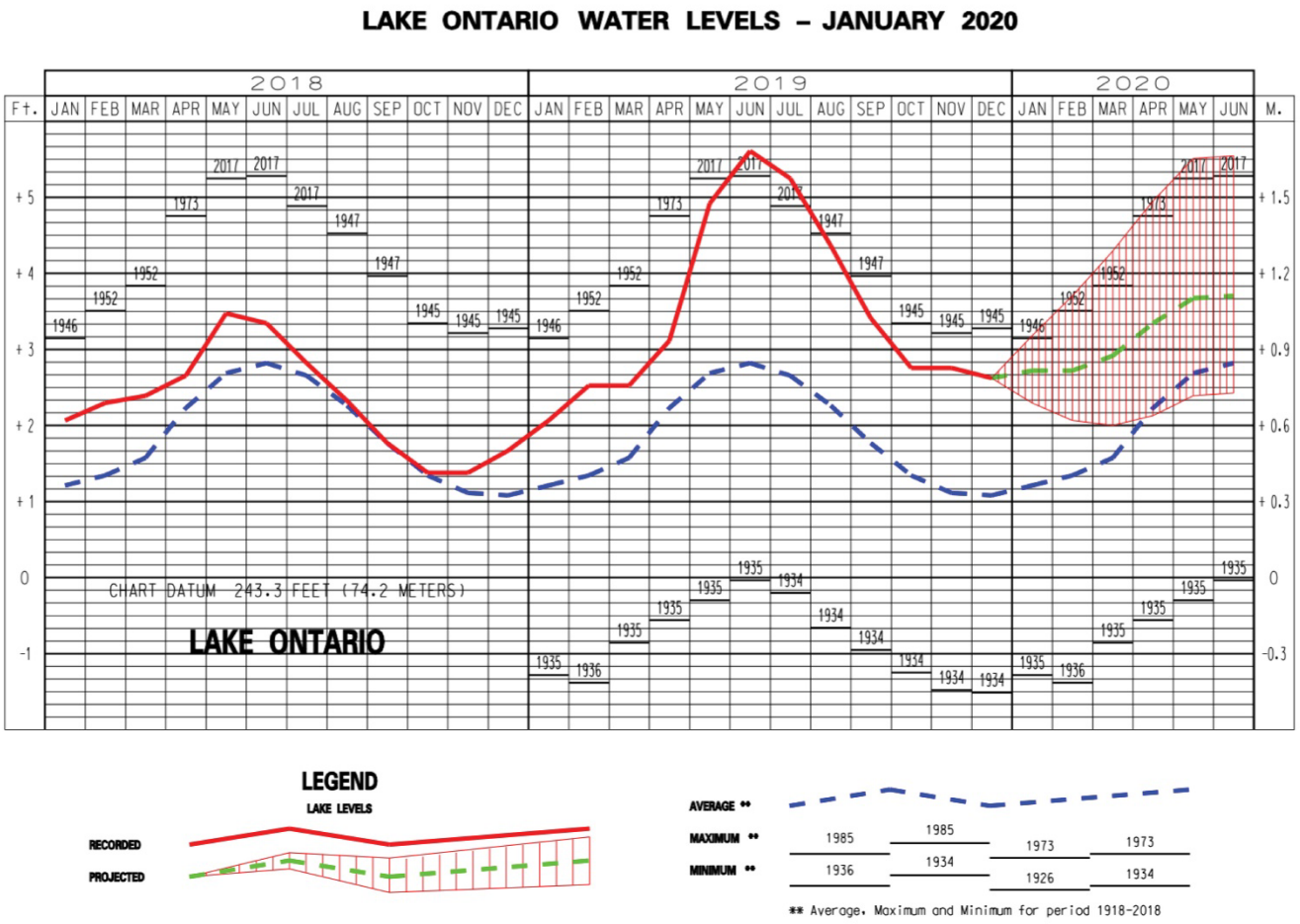
NOAA Water Levels



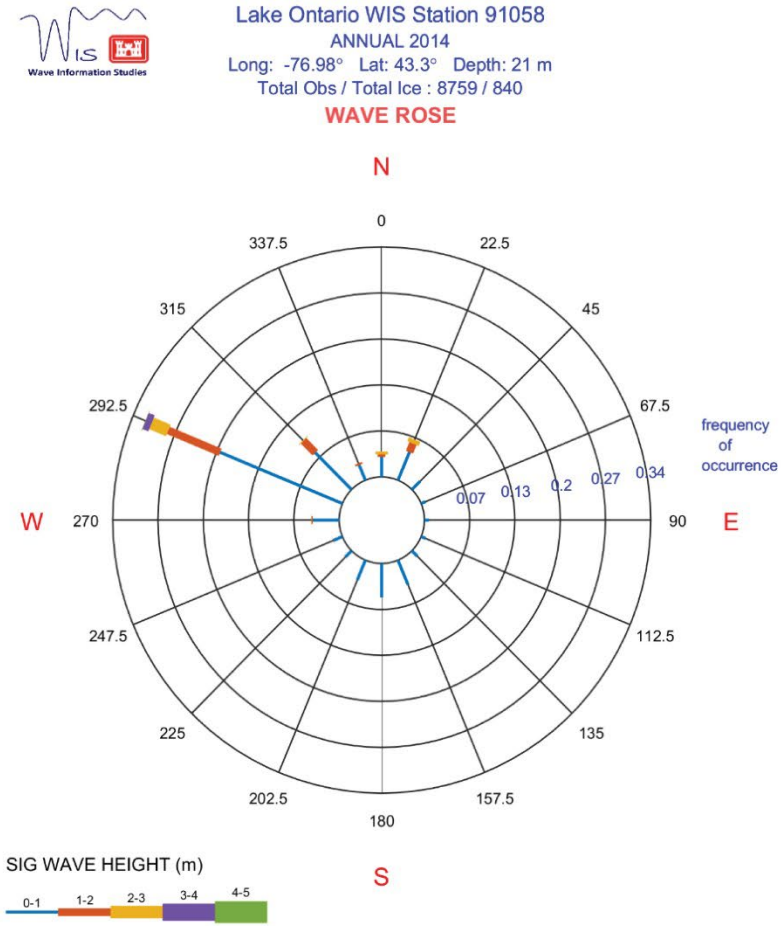
Notes: IGLD85 = International Great Lakes Datum of 1985, WSEL = Water Surface Elevation, LWD = Low Water Datum

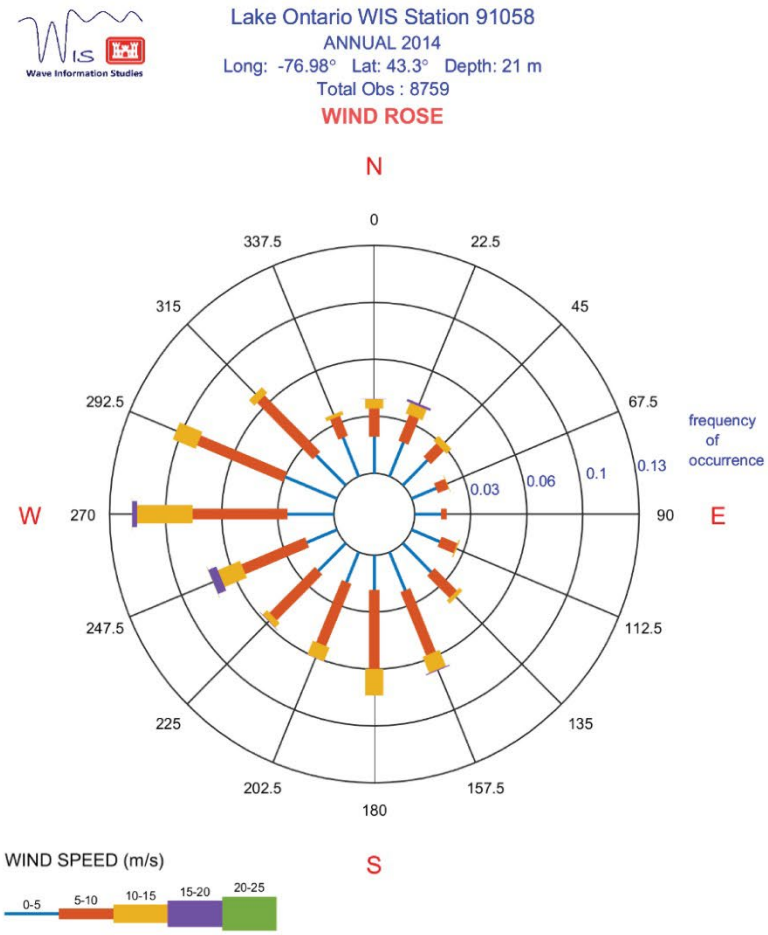
- Measured Hourly WSEL at Rochester, NY (NOAA 9052058 1961 to 2016)
- Measured Hourly WSEL at Rochester, NY (NOAA 9052058 2017 to 2019)
- Measured Hourly WSEL at Oswego, NY (NOAA 9052030 1965 to 2016)
- Measured Hourly WSEL at Oswego, NY (NOAA 9052030 2017 to 2019)
- Lake Ontario LWD

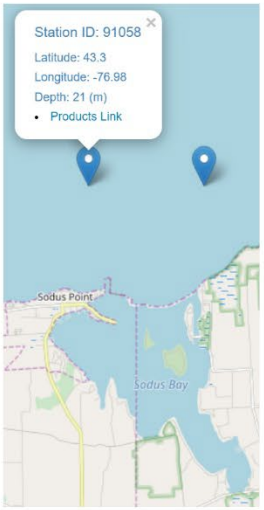
USACE Water Level Forecast



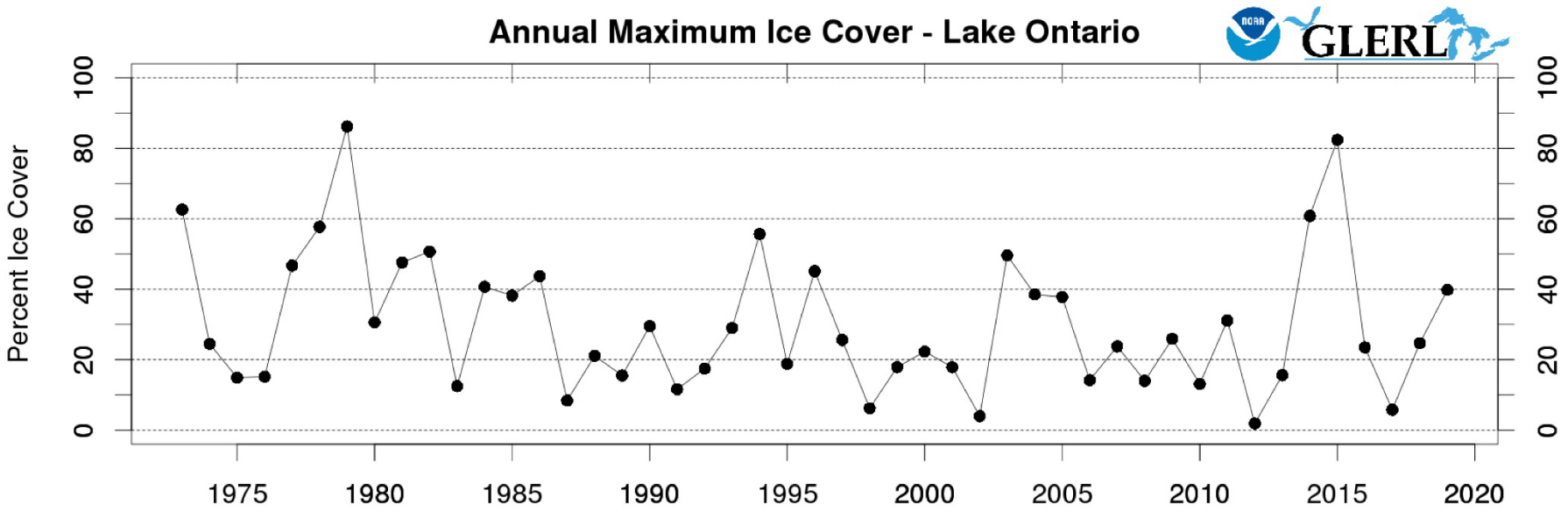
USACE Wind & Waves





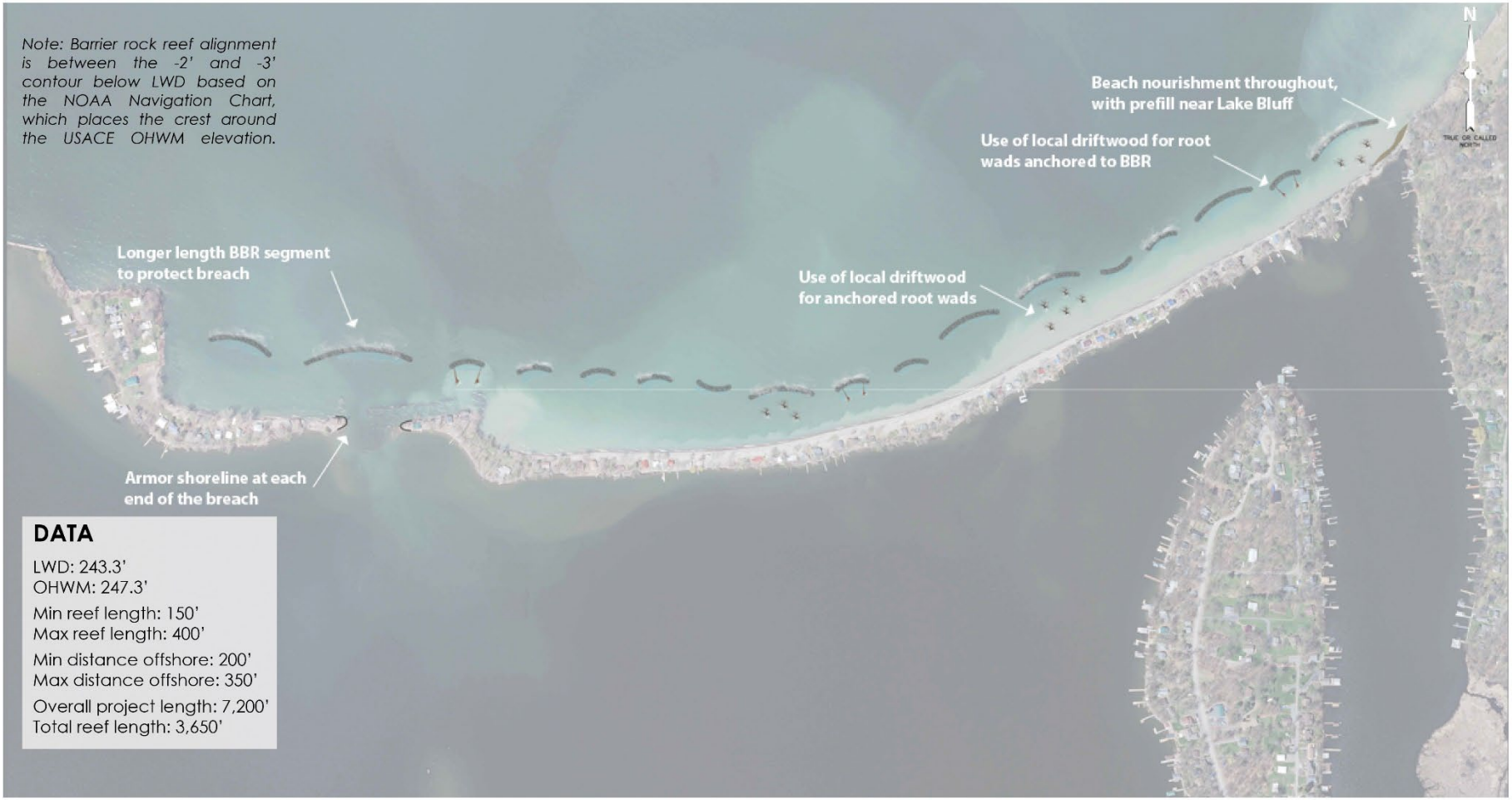


Ice

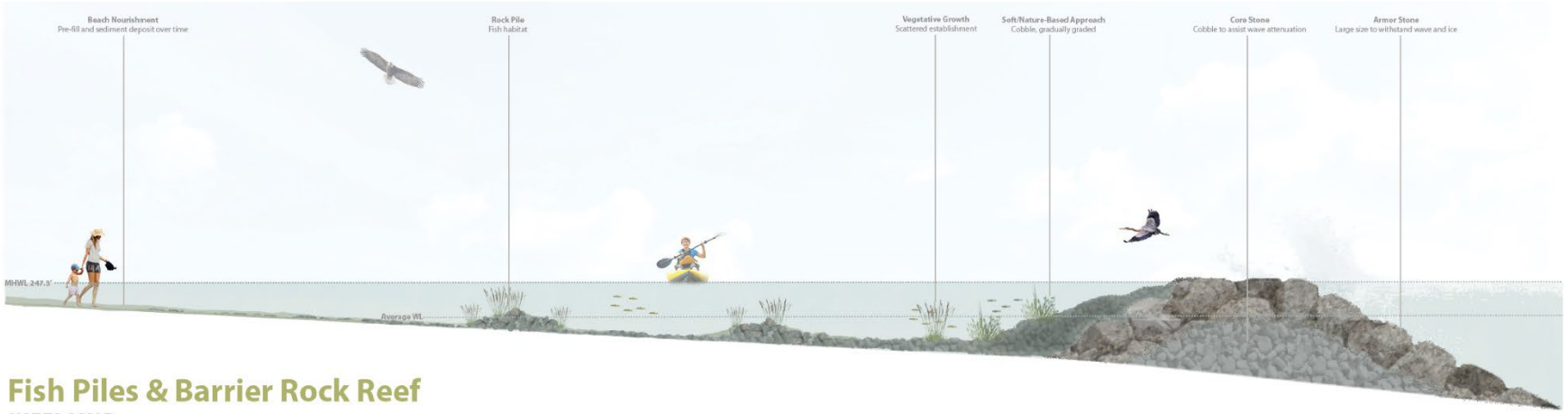

Annual Maximum Ice Cover - Lake Ontario
GLERL
Percent Ice Cover
0
20
40
60
80
100
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020

USACE Sediment Budget Analysis System (SBAS)

Conceptual Design Plan View

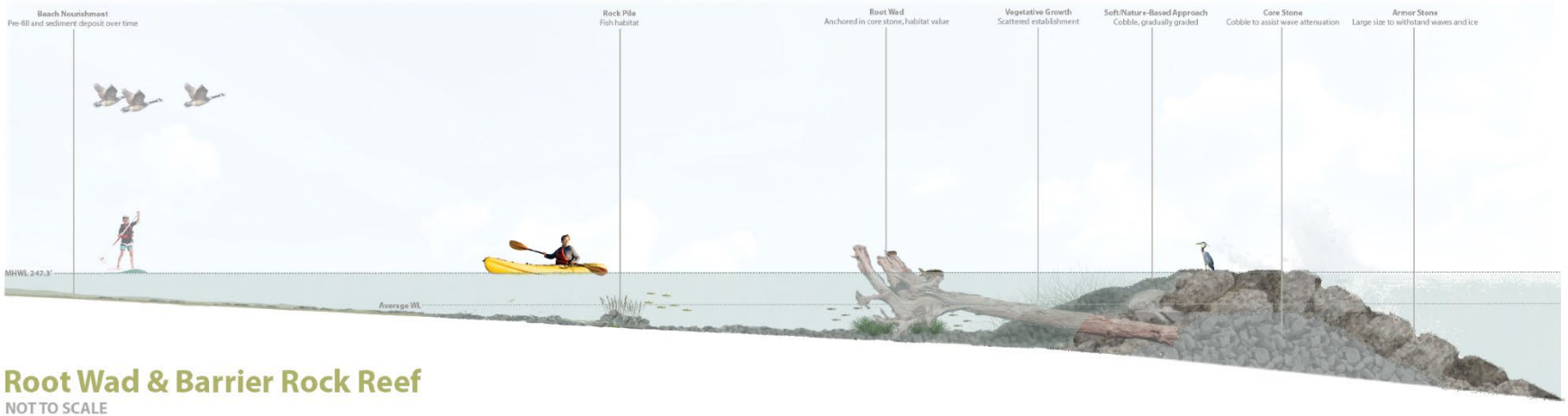


Conceptual Design Sections



Fish Piles & Barrier Rock Reef

NOT TO SCALE



Root Wad & Barrier Rock Reef

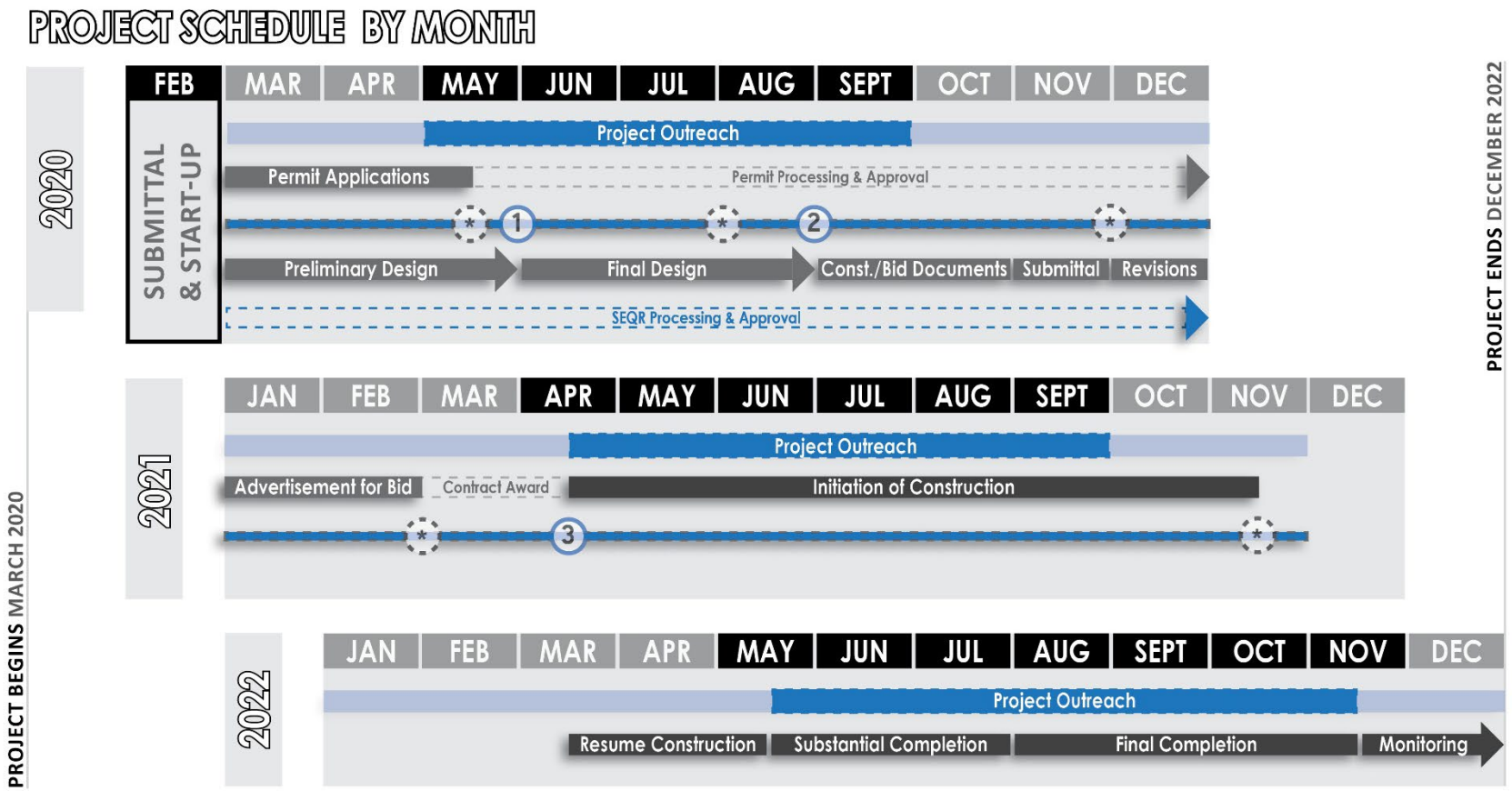
NOT TO SCALE

Anticipated Community Benefits

The barrier bar reef will directly improve the coastal resilience of Crescent Beach, but also provide the following benefits to the surrounding community:

- Conserve & enhance local ecosystems
- Retain walkability & water access for residents
- Support for local tourism & recreational economy
- Improve both water-based & land-based recreation
- Provide visual quality & diversity in selection of materials, appearance, & placement

Timeline



INFORMATIONAL MEETINGS:

PSC (*) Project committee meetings to discuss upcoming meetings, items, & project progress
PIM (1) Public workshop to display PER data collection, preliminary design, & visual preference
PIM (2) Open house to present final design
PIM (3) Attendance at local event to update on construction progress

PROJECT OUTREACH:

Outreach will include monthly updates via social media and regular upload of materials to project website. Areas highlighted in dark blue indicate peak periods when material & updates are distributed more frequently.

POST-CONSTRUCTION

Performance monitoring & construction for living system may continue beyond 3-years.

Next Steps

- Permit Pre-Application meeting with NYSDEC, NYSDOC, USACE
- Begin Design Activities
  - Field data collection, including bathymetry survey
  - Hydrodynamic wave model development
- Public Outreach
  - Schedule first meeting at the beginning of summer 2020
  - Use existing social media platforms to provide continuous stream of materials and solicit an on-going dialogue