Advanced Technology for Planning, Design, and Monitoring of Coastal Resiliency Projects

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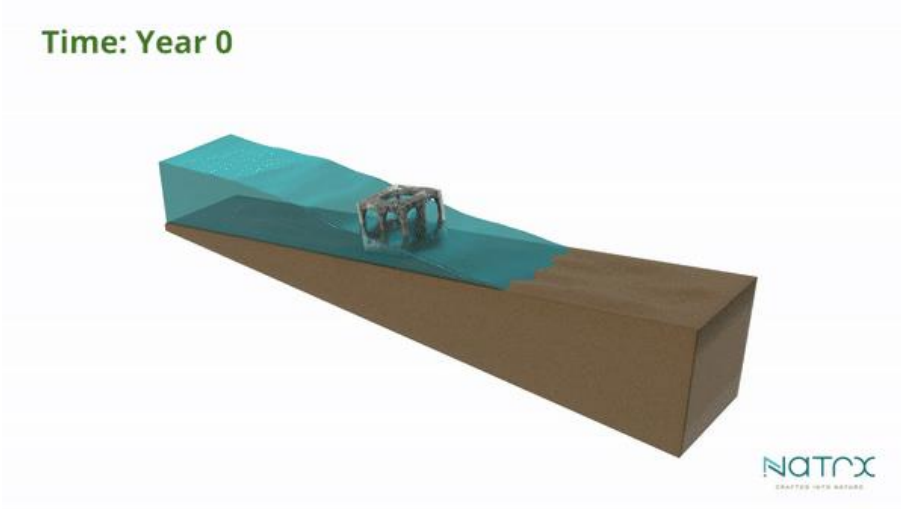
Natrx technology promotes a harmonious
balance between the natural and built worlds.

Rethinking What's Possible



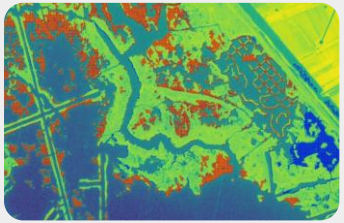
Harness the power of natural systems

Create harmony with ecology

Minimize material use

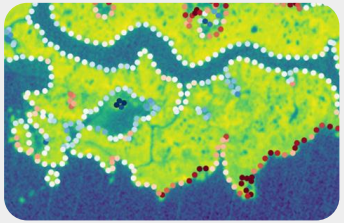
Expect natural, dynamic performance

The Natrx Platform



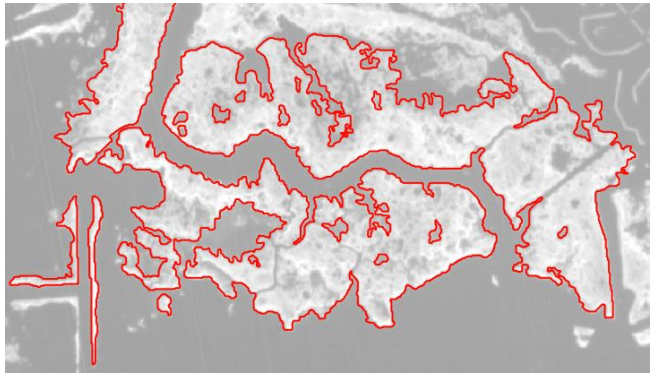
Assess:
Remote risk assessment, analysis, planning, and design

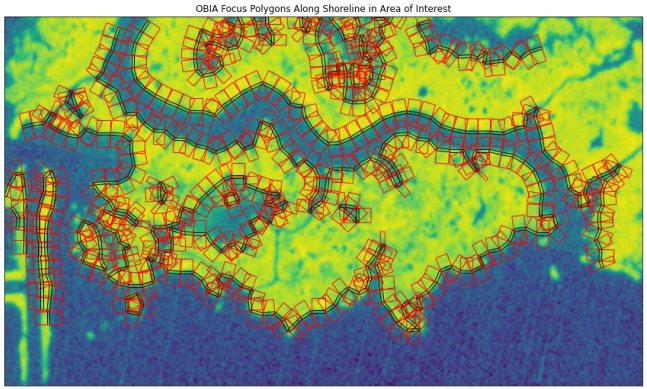
Address:
Dry Forming™ advanced manufacturing and deployment

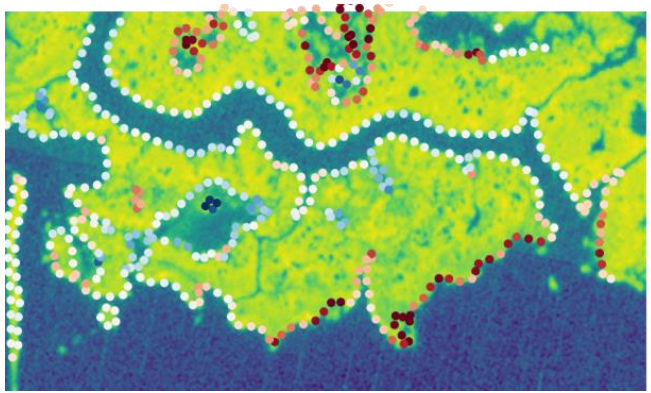


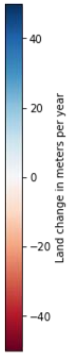
Appraise:
Ongoing monitoring, measurement, and reporting of project performance and value creation

Natrx Assess: Geospatial Analysis Technology









1 m resolution

High res satellite
Large features
Landscape shifts

.15 m resolution

High res aerial photography
Individual vegetation
Specifics of Infrastructure

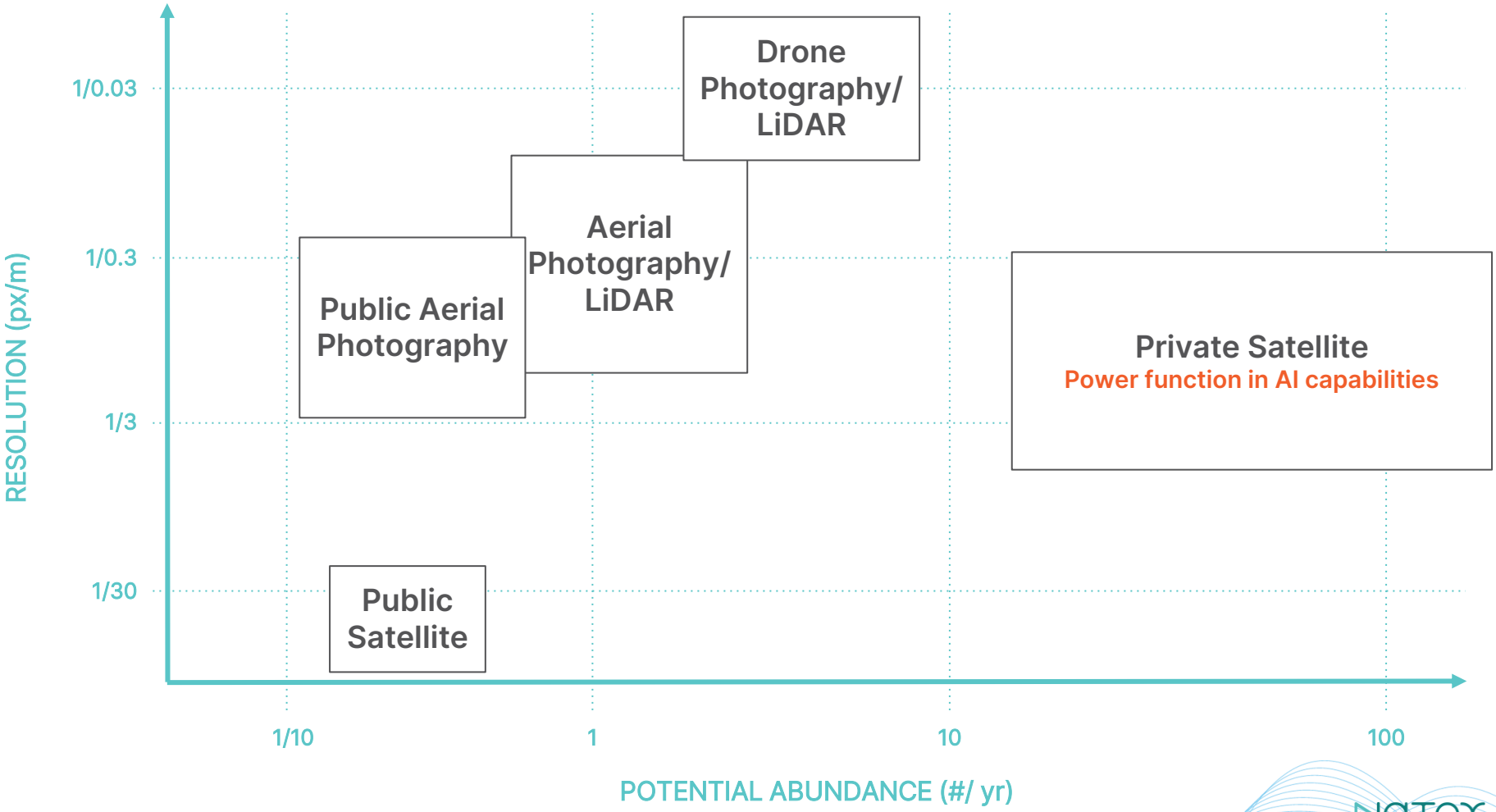
.3 m resolution

High res satellite and aerial photography
Waterways
Shoreline change
Vegetation delineation

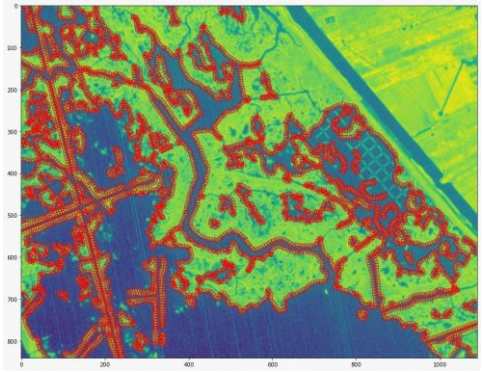
.03 m resolution

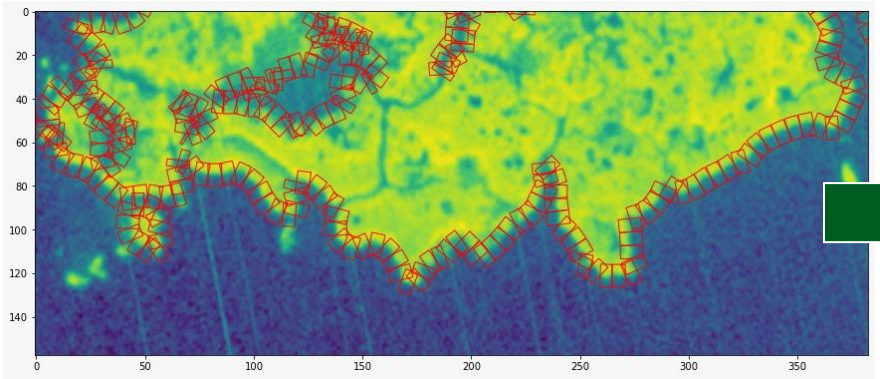
Drone photography
Individual vegetation details
Infrastructure details

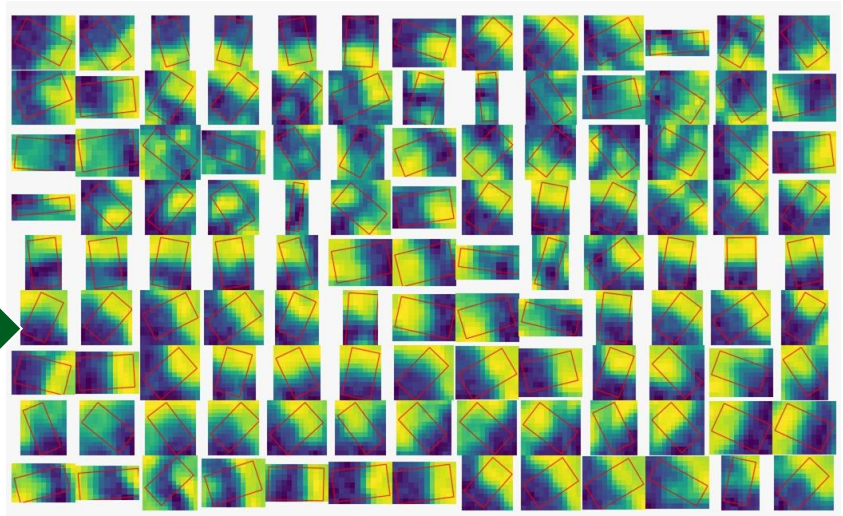
Adapted from: www.focalflight.com/capabilities/image-resolution/


Drone Photography/ LiDAR
Aerial Photography/ LiDAR
Public Aerial Photography
Private Satellite
Power function in AI capabilities
Public Satellite
1/0.03
1/0.3
1/3
1/30
RESOLUTION (px/m)
1/10
1
10
100
POTENTIAL ABUNDANCE (#/ yr)

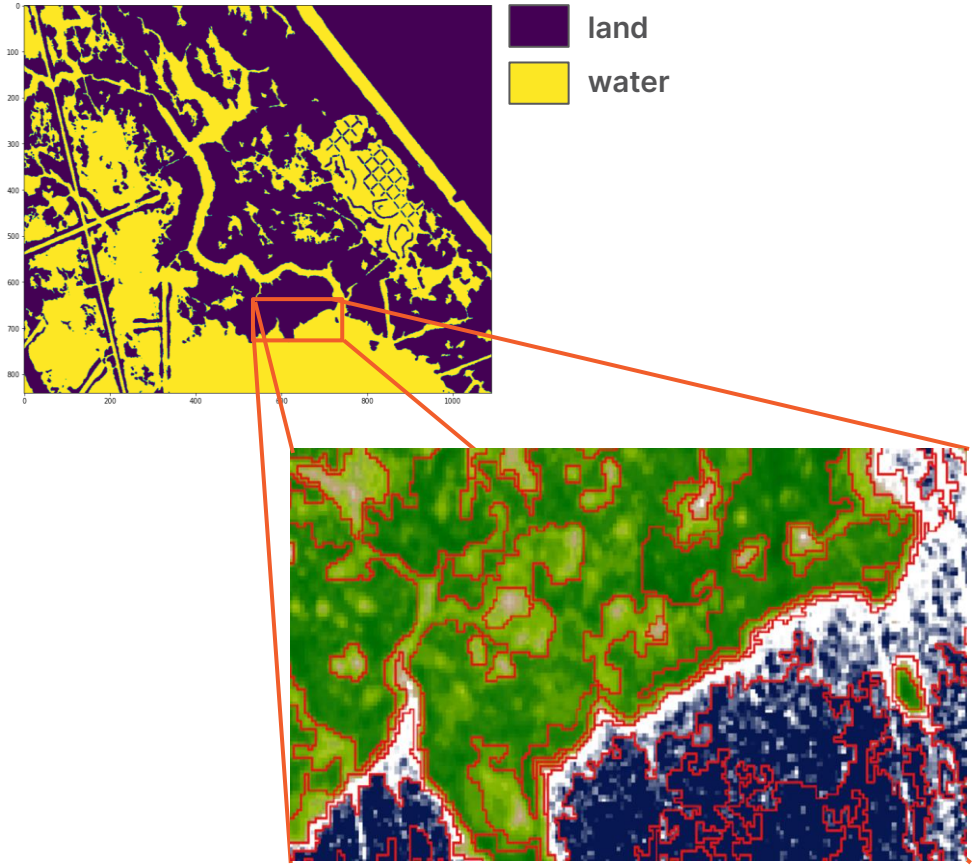
Natrx Assess: Geospatial Analysis Technology

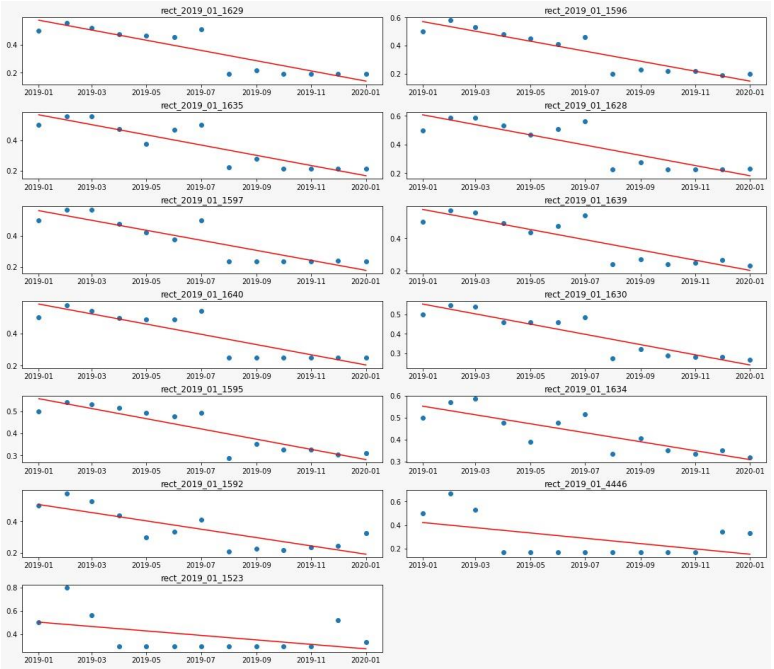






Classification and Trend Analysis





Advanced Technology for Data Analysis

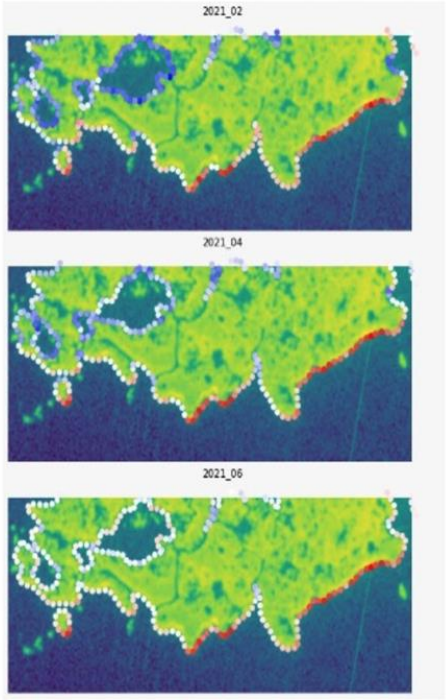
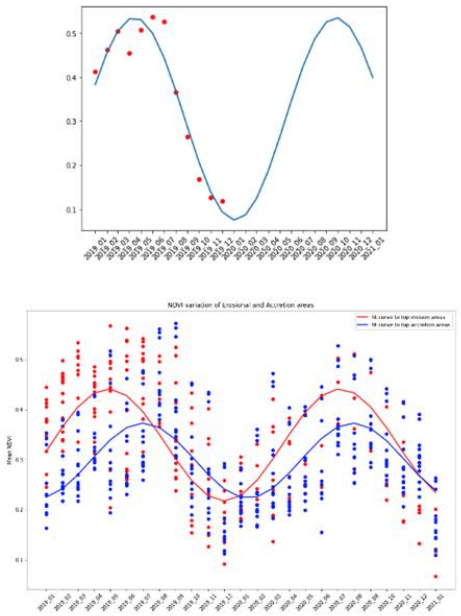
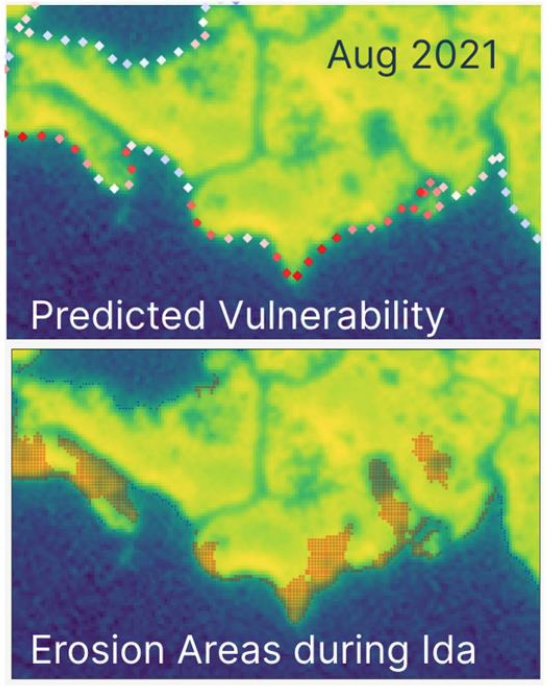


Image Analysis

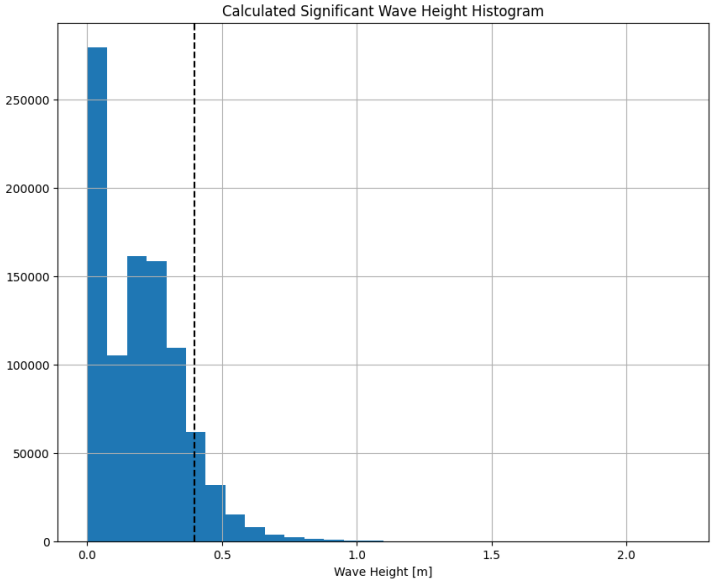


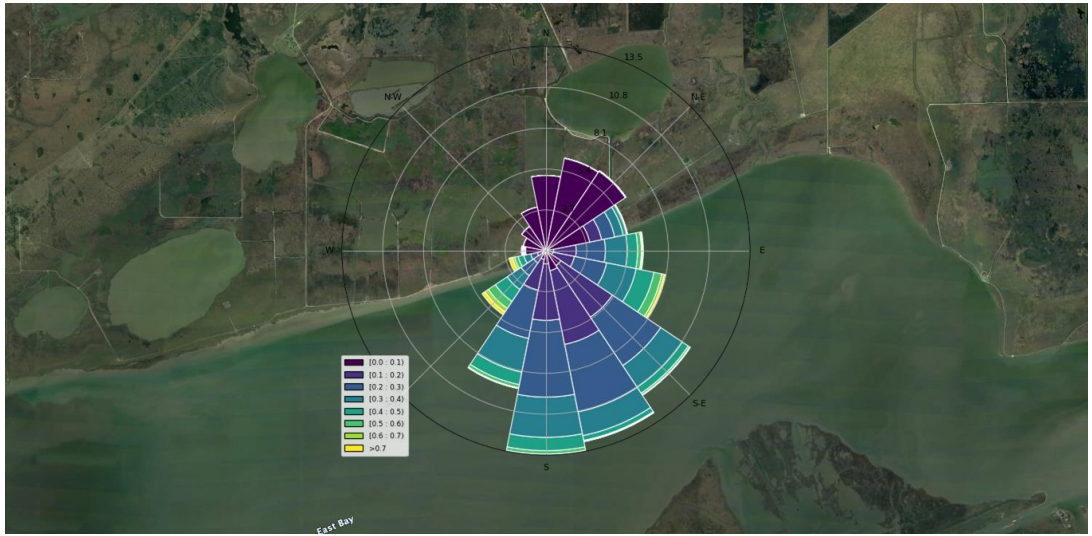
Signal Process



Prediction

Natrx Assess: Design Optimization



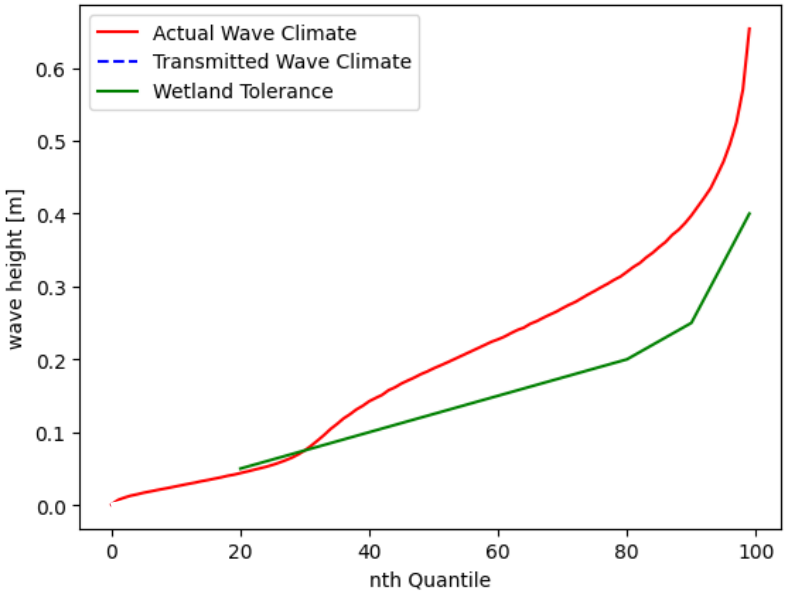


Wave Rose

Natrx Assess: Design Optimization

Design Objective:

Transmitted Wave < Wetlands Tolerance

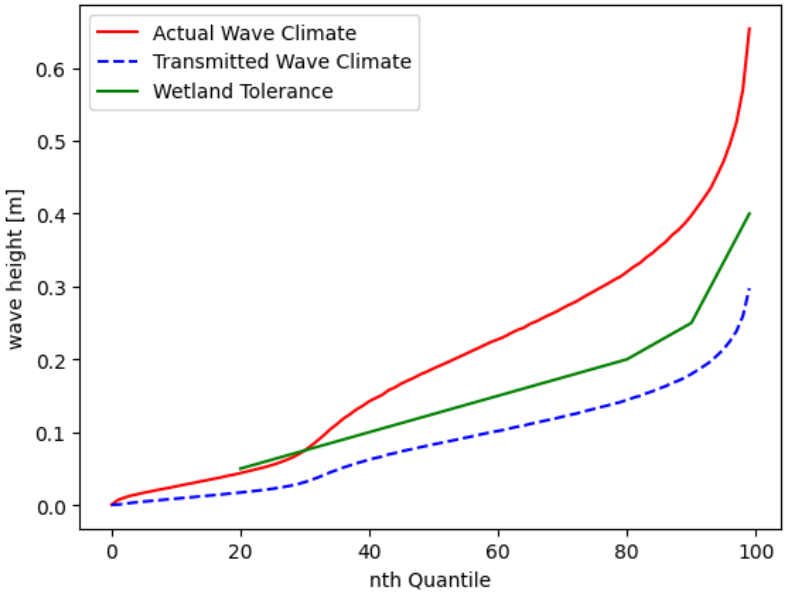


Wave Climate

Natrx Assess: Design Optimization

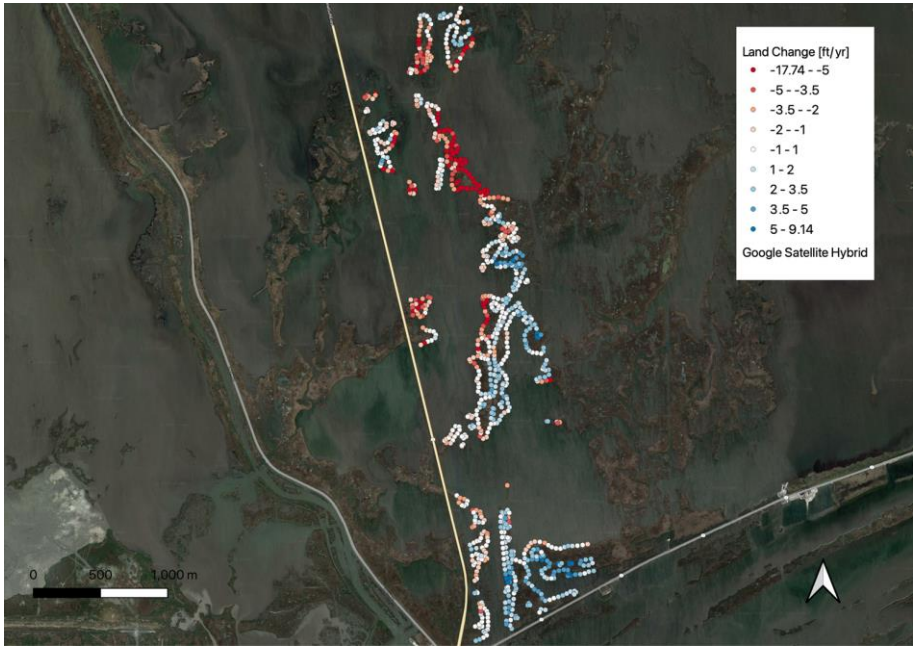
Design Objective:

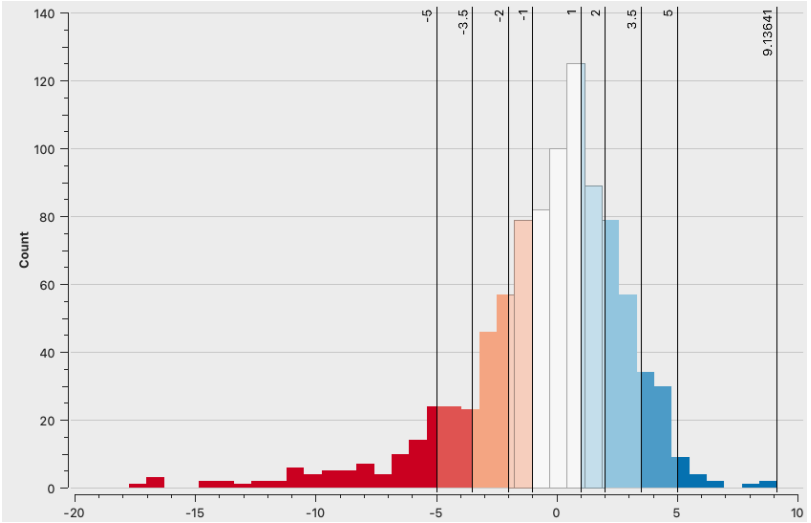
Transmitted Wave < Wetlands Tolerance



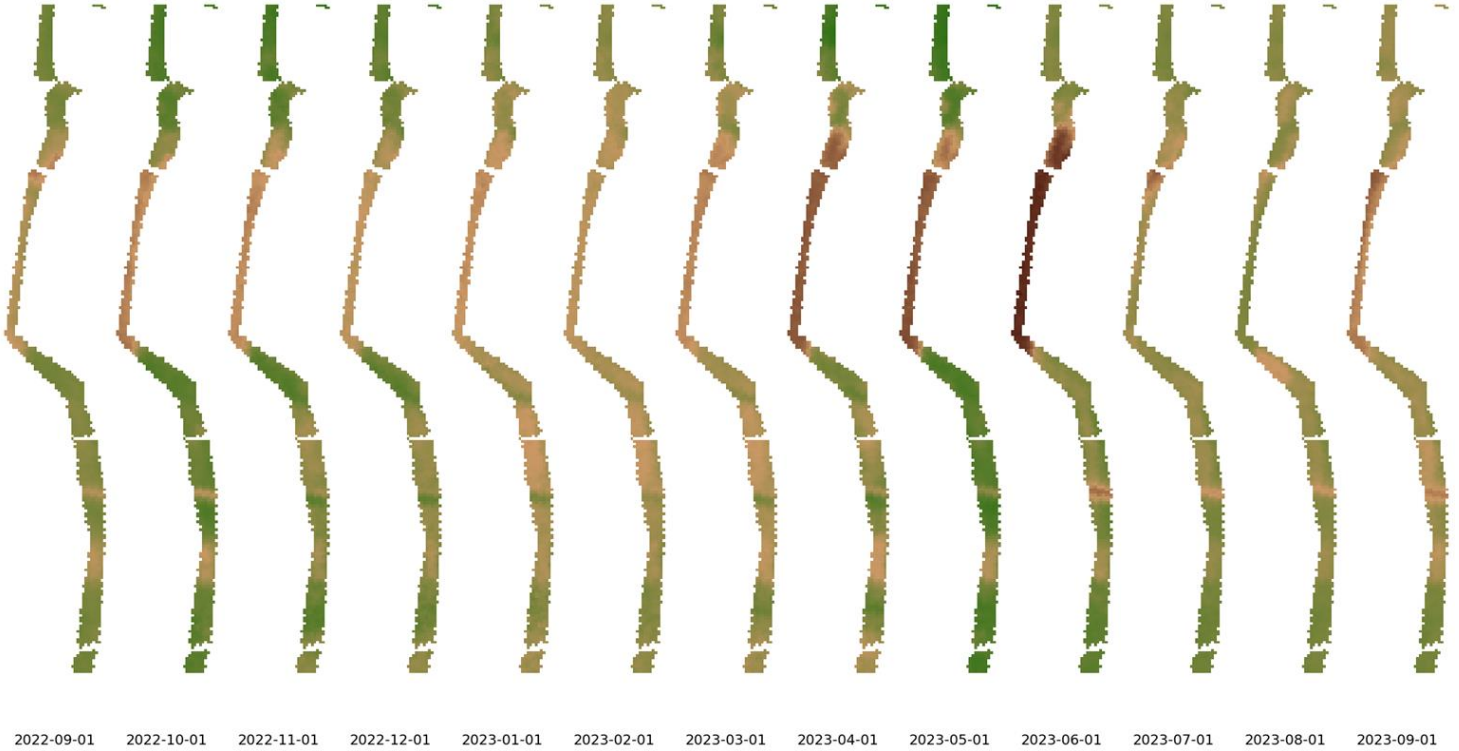
Wave Climate

Linear Infrastructure Monitoring

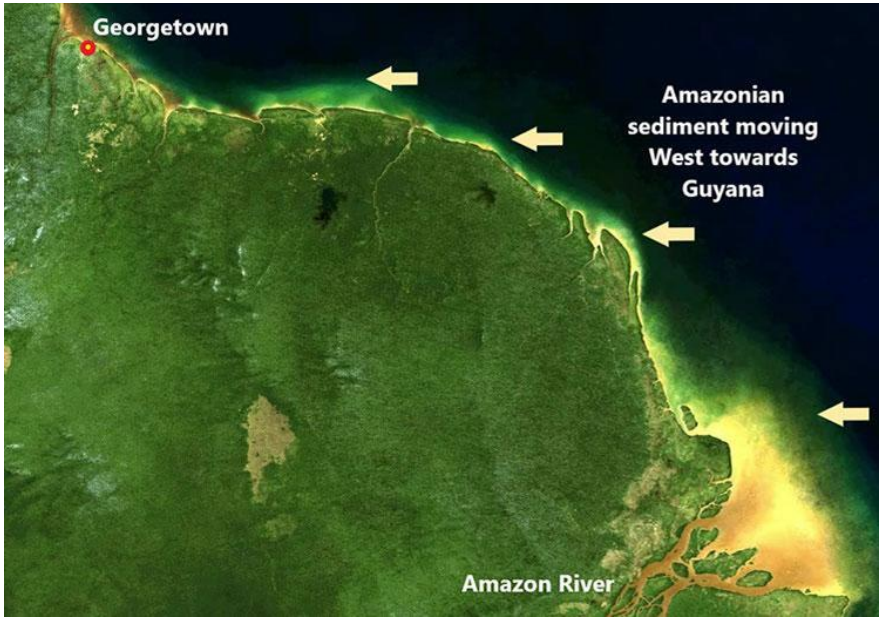


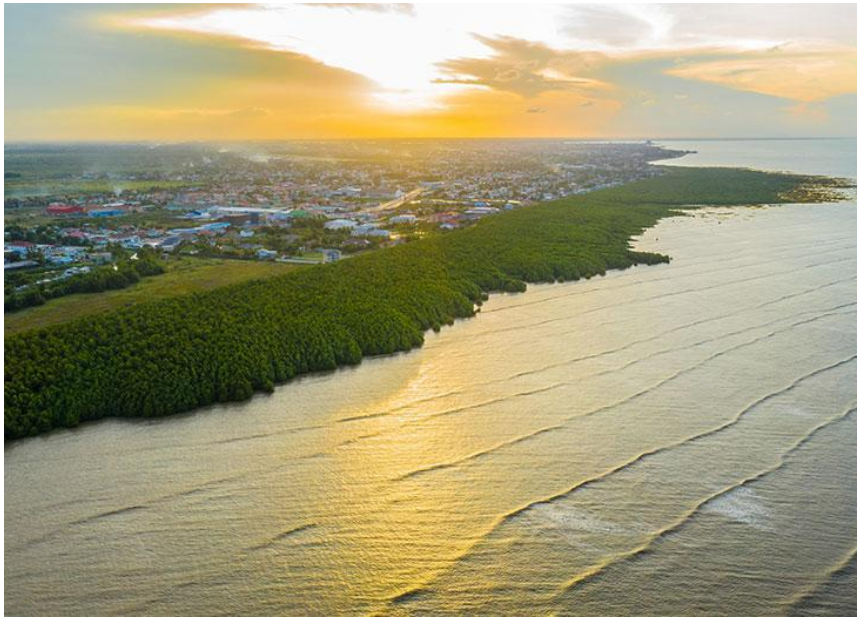


Linear Infrastructure Monitoring



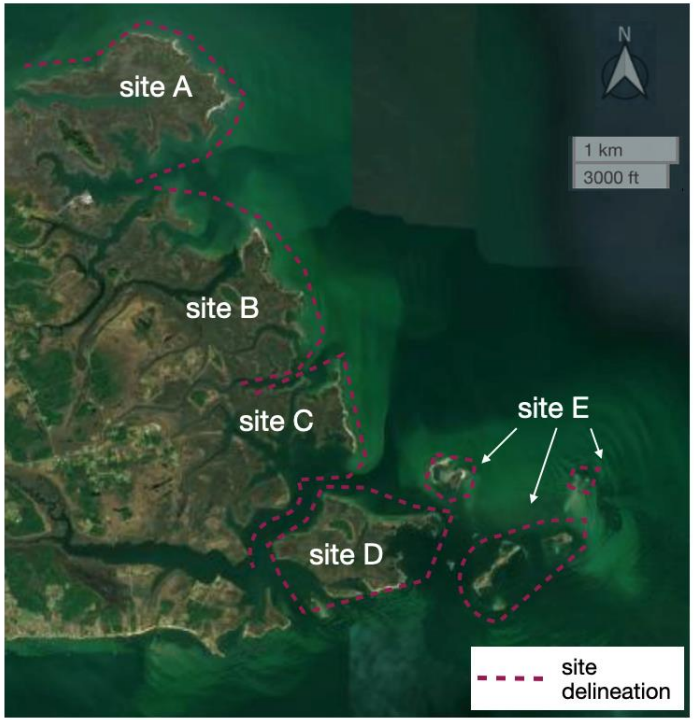
Coastal Dynamics Monitoring





Mobjack Bay Project Planning Analysis

Area

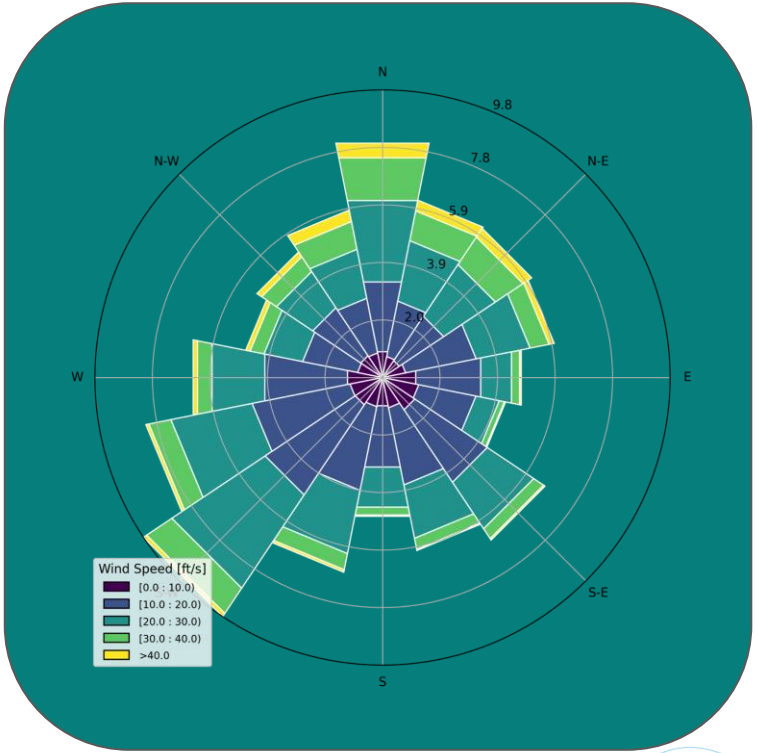


Section Groupings

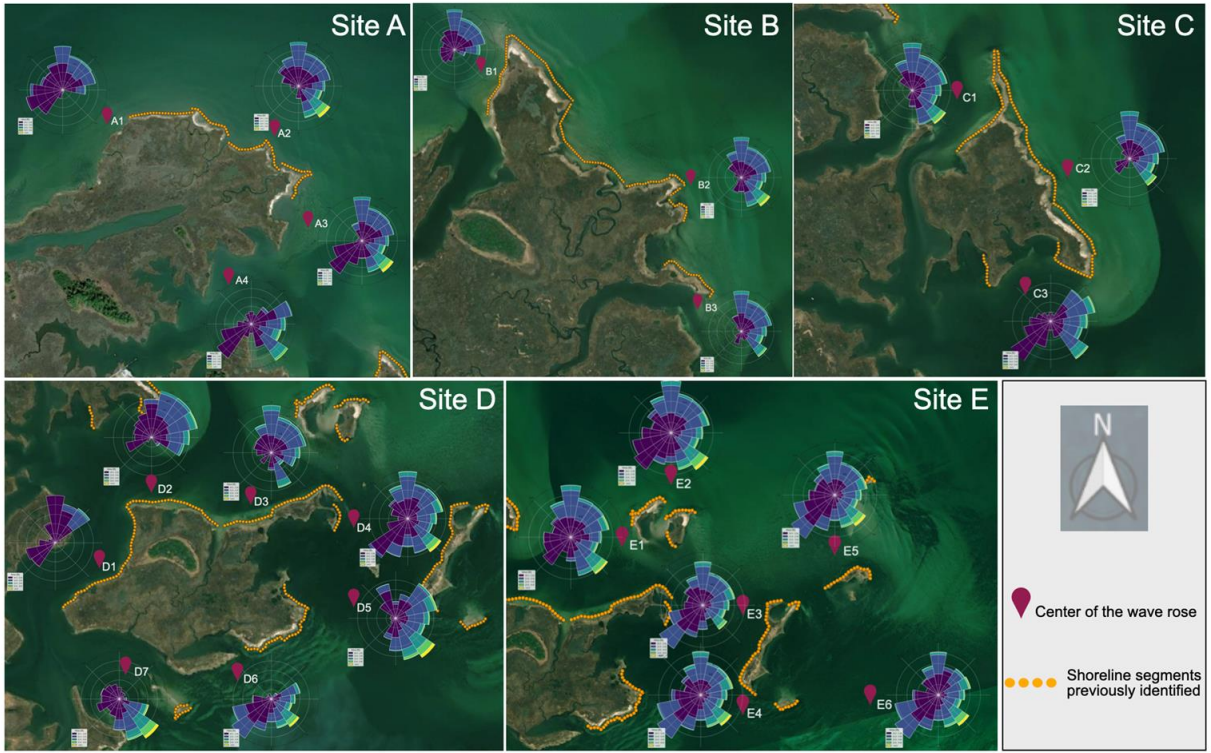
Mobjack Bay Project: Land Loss Analysis

Mobjack Bay Project: Wave Model

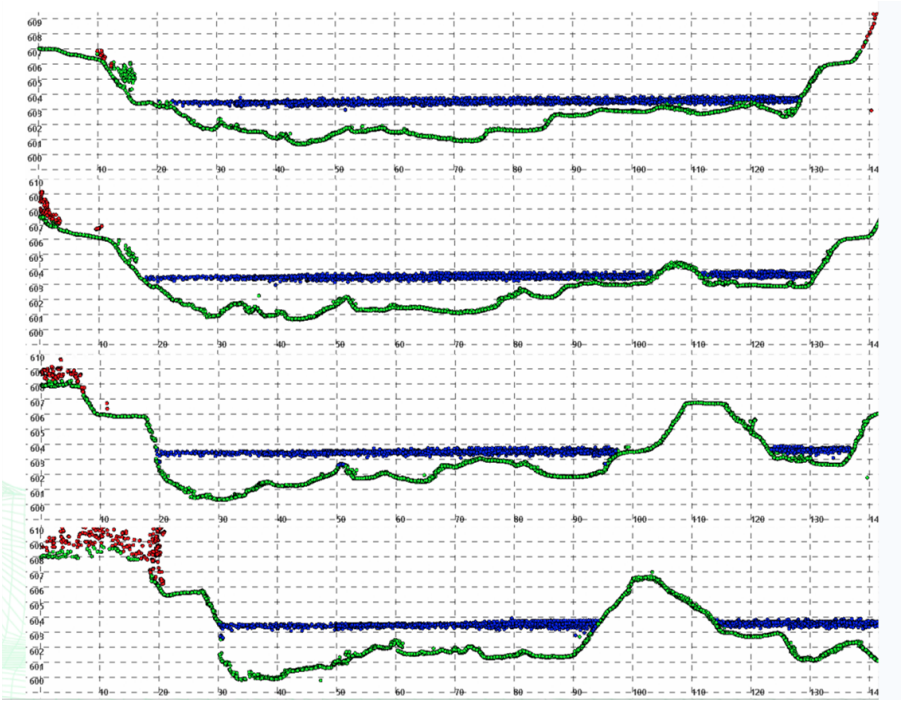
- Wave models derived from proximate NOAA wind stations.
- Estimate wind and fetch driven stress on lands in the project area.
- Example (right) shows intensity, frequency, and direction.

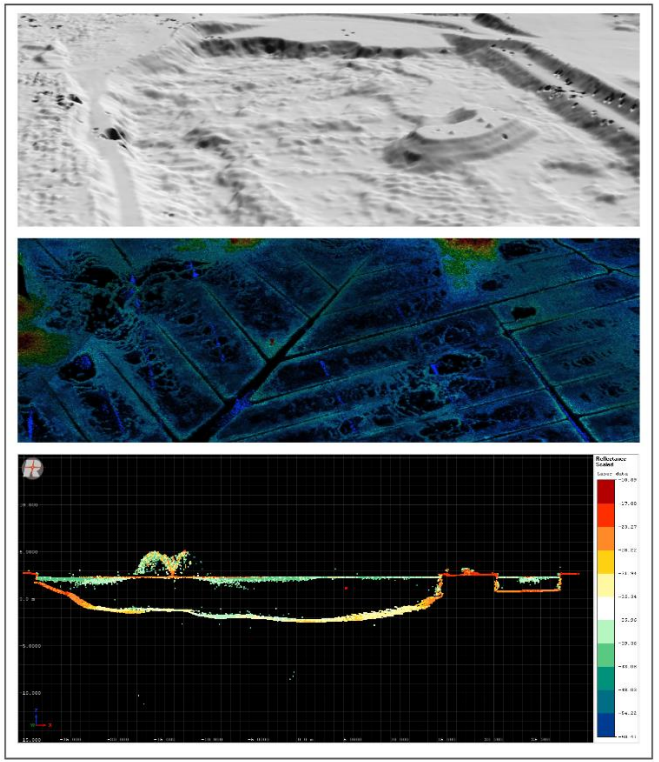


Mobjack Bay Project: Guinea Marsh Analysis



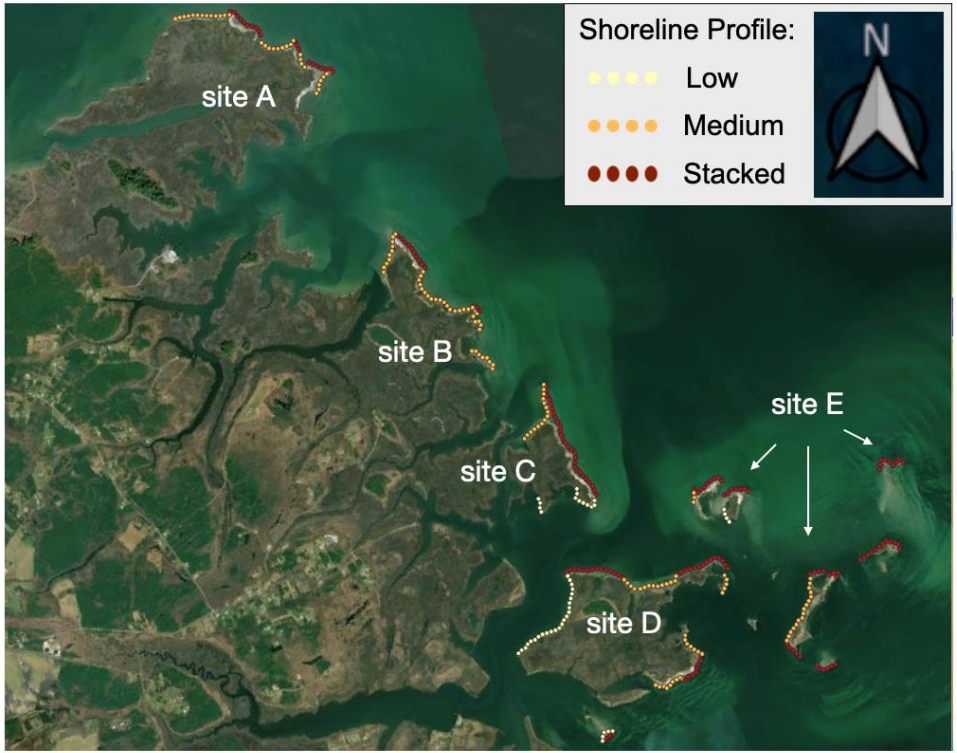
Advanced Technology for Data Collection

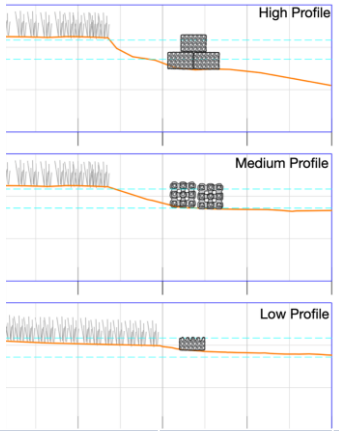




Mobjack Bay Project: Slope Profile

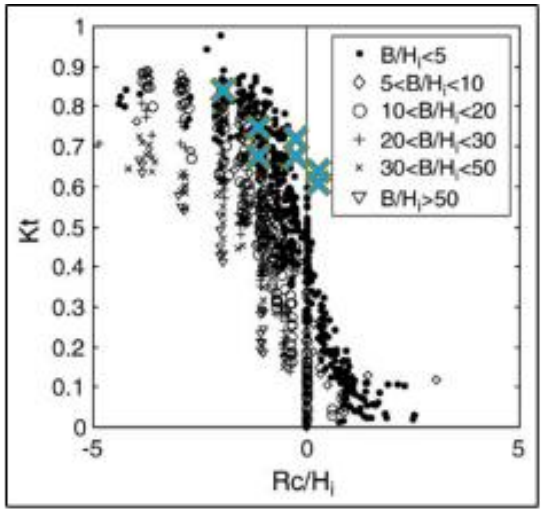
Mobjack Bay Project: Coastal Protection Typologies



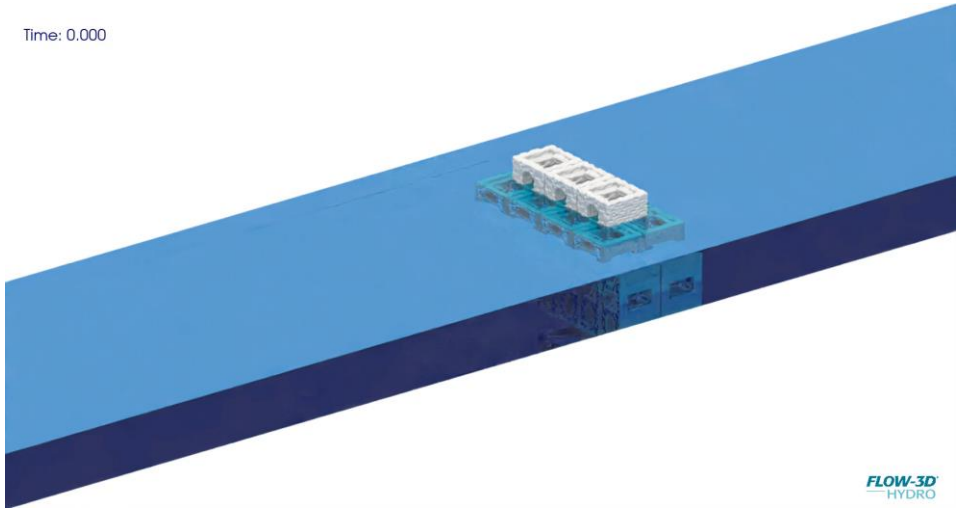


Shoreline Profile	Total length (m)	Number of ExoForms	Total benthic surface Area (m^2)
Low	1,374	1,245	2,739
Med	4,170	7,575	52,268
Stacked	4,627	12,608	64,301
Grand Total	**10,171**	**21,428**	**119,307**

Advanced Technology for Design Analysis

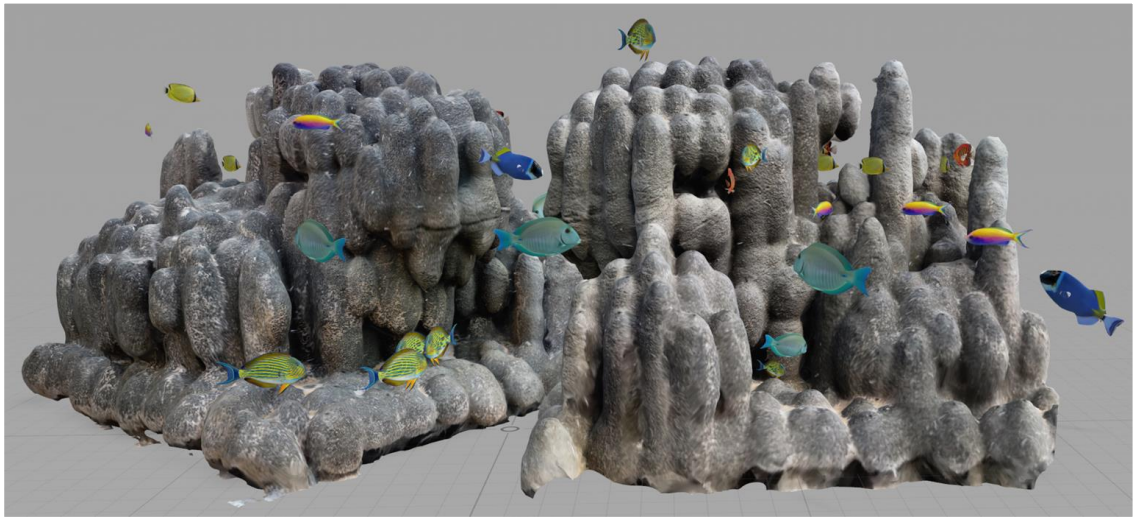


Transmission coefficient (K_t) from CFD (blue) vs. normalized crest height, compared against Van Der Meer plot for short crested breakwaters



Advanced Technology for Coastal Structures

- Project Specific Design
- Reduced Carbon Footprint
- Resilient to Storms
- Safe & Efficient Install
- Habitat Positive



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