Building Better Habitat on Delaware Bay

American Littoral Society

Wildlife Restoration Partnerships

Stockton University Coastal Research Center

Background

- Continuous restoration since Sandy
- Core Project Team
- Projects for restoration specifically
- Building upon previous projects
- Consistent monitoring

Monitoring

Biological

Horseshoe crab tagging, spawning, & resighting
Horseshoe crab impingement survey
Horseshoe crab shallow egg abundance survey
Horseshoe crab egg cluster survey
Avian usage monitoring
Encrusting organisms monitoring
Finfish and mobile organisms monitoring – fish traps
Finfish and mobile organisms monitoring – seining
Marsh vegetation coverage & density

Physical

Shoreline changes –preconstruction, as-built, 6 & 12 month
Structure elevation
Drone based orthoimagery & LiDAR
DBSTAT
Wave attenuation

Beaches

Slope
Sand Depth
Grain Size
Berms

Beach Slope

Gentle, usually 15:1, mimics natural bay beaches

Sand Depth

sand depth less than 40 cm impair egg development

Sand Grain Size

Coarse sand 0.5 mm to 0.8 mm

Beach Berms

Berms 2-3’ most typical. Planted if possible.

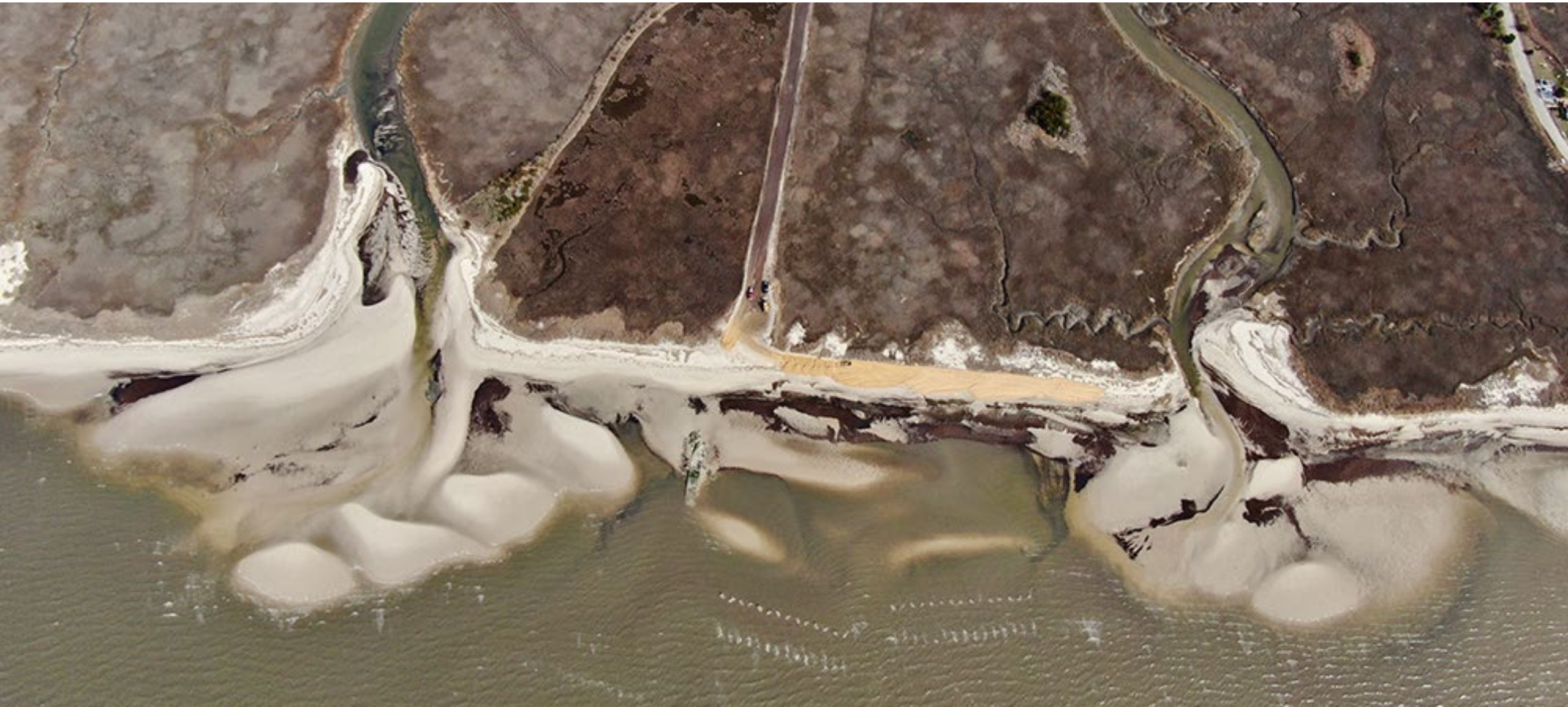
Shell Bags

Integrating Oyster Recruitment Dynamics with Alternative Materials for Shellfish-Based Living Shorelines in Delaware Bay

Jessica Klinkam, PDE

Creek Mouth Shoals

Great foraging habitat for birds.



Breakwaters

Uniform rock placed on marine mats.

Marsh Restoration

Breakwaters and Marsh Restoration

Fortescue – Beach Restoration & Breakwaters

Beach Restoration

DOT beneficial reuse & trucked-in sand. Appx 35,000 cu/yd

Building Breakwaters

3 breakwaters 100’ long. Built to MHW level.

Resources

- Best management practices for constructing Delaware Bay Beaches
- Smith, Joseph & Niles, LJ & Hafner, S & Modjeski, Alek & Dillingham, T. (2020). Beach restoration improves habitat quality for American horseshoe crabs and shorebirds in the Delaware Bay, USA. Marine Ecology Progress Series. 645. 10.3354/meps13371.
- Burger, Joanna & Niles, Larry. (2017). Habitat use by Red Knots (Calidris canutus rufa): Experiments with oyster racks and reefs on the beach and intertidal of Delaware Bay, New Jersey. Estuarine, Coastal and Shelf Science. 194. 10.1016/j.ecss.2017.04.025.

Thank You

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