

Developing more effective CAPS metrics for assessing ecological integrity of salt marshes

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December 5, 2018

Category: Research

Why: Project Purpose/Identified Need

- Need to be able to comprehensively assess salt marsh health across the entire coastline
 - Identify marshes that are likely to keep up with SLR
 - Identify marshes that are likely to keep up with SLR with practical interventions
 - Identify marshes that are unlikely to keep up with SLR without extensive interventions
- Conservation Assessment & Monitoring System (CAPS) is designed to assess ecological integrity for a variety of ecosystems in the northeastern U.S.
- So far, we have low confidence in our integrity model for salt marshes

What: Project Goals and Desire Outcomes

Ultimate goal is to use remotely sensed data and landscape-scale models to assess salt marsh condition and vulnerability

Approach:

- Use UAS with on-the-ground data collection to map vegetation, water features, bare ground, and indicators of stress
- Create a model for UAS classification of salt marsh cover, condition assessment, and identification of vulnerabilities
- Use UAS data and model to create Landsat-based models for comprehensive assessment of salt marshes
- Use Landsat assessments of condition and vulnerability to create land use/land cover models that can be used to anticipate future vulnerability
- Combine land use/land cover modeling with landscape-scale sediment modeling to better understand salt marsh integrity and vulnerability over time.

Where are you working

Phase 1 Goal is to collect data at 25 sites along the Massachusetts coast

Site size ranges from 100 to 250 acres

Hope for future phases to expand work to 50 sites along the MA coast

Who is doing the work and **When** are you doing it

Project leads: Scott Jackson, Charlie Schweik & Kevin McGarigal, UMass Amherst

Other UMass Researchers: Jon Woodruff, Kate Fickas, Amanda Davis, & Ryan Wicks

Partners: Marc Carullo & Adrienne Pappal (MA CZM)

Landowner/partners: The Trustees and MA Audubon Society

Dates: January 1, 2018 – December 31, 2019 (likely to be extended)

How

Funded by US EPA via a Wetlands Program Development Grant

Communication

- One-on-one communication with other researchers and salt marsh experts
- Collaboration with municipalities, conservation organization and agencies that own and manage salt marshes
- Salt Marsh Work Group
- Expect to share results via regional and national conferences