

## ABSTRACT

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Title: Migration Of East River Marsh: A Case Study Of Unmanned Aerial Systems Used to Monitor Salt Marsh Vegetation Changes in Guilford, CT  
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The mean global sea level is rising; this rise (a rate which is likely to accelerate) threatens infrastructure and habitats in coastal zones. Assessment, adaptation, and mitigation to these threats facing Connecticut's coastal zone is necessary. Rates of sea level rise (SLR) vary by location, but any of the predicted levels are expected to impact Connecticut's tidal salt marshes. These ecosystems can be viewed as a resource, one that provides ecosystem services and a habitat for a variety of species. Organizations focused on conservation, property owners, and local, state, and federal government all play a role as stakeholders in the management of these tidal wetland resources. Communication amongst these parties, using and managing this space, is necessary for the success of any project, for example, research, future development, or coastal retreat. Tools such as computational models using remote sensing data, on-ground field measurements and observation are common methods of assessment, planning and communication efforts to deal with SLR effects on coastlines. Adding additional data collected from Unmanned Aerial Systems (UAS) may serve as an effective tool to supplement these projects.

A collaborative ongoing project led by Menukatuck Audubon, based on results of a CT DEEP East River Marsh Resilience Assessment (ERMRA), seeks to monitor marsh characteristics over time. The ERMRA proposed strategies and steps to address threats to saltwater marsh of interest, including efforts to increase awareness of the marsh value and threats facing it, and to initiate dialogue with marsh-front property owners. One purpose of this research is to supplement this ongoing marsh migration project by providing additional data in the form of low altitude photography and 3D orthomosaic mapping. This research will also serve as a case study for the use of UAS in efforts to map marsh migration in Connecticut.