Narragansett Bay National Estuarine Research Reserve and RI Department of Environmental Management are awarded $500K to study salt marsh adaptation strategies in response to the effects of sea-level rise

Tidal marshes are one of the most productive ecosystems on earth, providing a number of important economic and environmental services. Because these marshes exist within a narrow elevation zone between the water and upland habitats, they are very sensitive to changes in water level. If they are inundated for too long, or too often, they will eventually drown. In many places, increasing rates of sea-level rise are outpacing marshes' natural ability to adapt, resulting in a loss of species diversity and resilience.

High tide on Nag Creek on Prudence Island in the Narragansett Bay National Estuarine Research Reserve.

One emerging strategy for helping marshes adapt is to raise their elevation through sediment addition. While thin-layer placement of dredged sediments has been (and is being) tested in a limited number of geographic locations, data from these projects has not been sufficient to guide the application of this technique in other marshes around the country which may be experiencing different conditions.

The project, titled **"*Thin-layer sediment placement: evaluating an adaptation strategy to enhance coastal marsh resilience across the NERRS*,"** will engage eight National Estuarine Reserve Reserves (NERRS) as well as a broad array of end users. Funded by the NERRS Science Collaborative, this project will support a national-scale experiment in thin layer sediment placement to help address data gaps and management needs. Novel aspects of the project include the broad geographic scale, the examination of effectiveness at different marsh elevations, standardized monitoring, and the incorporation of biochar as a soil amendment to enhance carbon sequestration. A key feature of this project is the use of a collaborative process that will engage end users throughout the project, ensuring that project outputs and outcomes will meet the overall project goal and identified needs and allow future thin-layer sediment placement projects to move forward more efficiently in places where they will be most effective.

PROJECT OUTCOMES

- Development of a national framework for enhancing coastal resilience through thin-layer sediment placement
- Enhanced effectiveness of future thin-layer sediment placement projects through improved site selection and standardized monitoring protocols
- Established performance measures to evaluate success