

Rhode Island Regional Sediment Management

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Regional Sediment Management (RSM) is the effective utilization of littoral, estuarine, and riverine sediment resources in an environmentally effective and economic manner (Martin, 2004). The motivation behind Rhode Island RSM (RIRSM) is to identify the sediment pathways in a system at a regional scale for management of sediment based on a system approach. The goal of RIRSM is developing a management plan for sediments along the project study area that consists of the 38 km stretch of shoreline of the south shore of Rhode Island, stretching from Point Judith at the eastern extent to Little Narragansett Bay at the western.

The project site consists of a series of glacial outwash headlands, barrier islands, and lagoons (salt ponds). The salt ponds represent both critical wetlands habitat and also provide protection to the infrastructure built behind the ponds. While individual studies have been completed or are underway along the project site, a comprehensive regional approach has never been attempted here. Almost the entire southern shore of RI within Washington County is eroding with significant losses in many areas. The barrier beaches provide protection to the more highly developed areas along the interior shorelines of the ponds as well as areas of important marine wetland habitat. Therefore, it is critically important to better understand and manage sediment resources within the system. To accomplish this task, a significantly funded, multiple year study has been undertaken.

As part of this RSM study, a considerable data collection effort is underway for the site. The goal of the data collection effort is to gather sufficient data of the study area for both direct observation and for supporting a large scale numerical modeling effort. The data collection includes an offshore directional wave gauge (NDBC 44097) deployed and maintained by NAE, current and wave information at the depth of closure, current data within the inlets, tide data within the salt ponds, and meteorological data. Additionally, the entire region will be flown with Light Detection and Ranging (LIDAR) flights focusing on the salt ponds which have not been previously captured.

The presentation will cover a brief overview of the study including the significant data collection effort and numerical modeling approach. This represents the first regional numerical model to be performed on the area for the purpose of RSM. The Coastal Modeling System (CMS) is being used heavily in this effort. Initial results of the data collection effort and analysis will be discussed as well as direct field observations of the wave data collection effort, specifically looking at the sheltering effects of Block Island.

References:

Martin, L., and J. D. Rosati. 2004. Regional Sediment Management Primer. U.S. Army Engineer Research and Development Center, Institute of Water Resources. (<http://www.wes.army.mil/rsm/pubs/pdfs/rsmprimer.pdf>).

Biography:

Irene Watts serves as a coastal engineer for New England District USACE. Current work includes numerical modeling applied to habitat restoration, turning basin design and regional sediment management. Prior to joining the Corps, she completed a Masters of civil engineering (Coastal) from Oregon State University and a Bachelors of Science in Ocean Engineering from the University of Rhode Island.