

# NORTH ATLANTIC LANDSCAPE CONSERVATION COOPERATIVE GRANT 2015 PROGRESS REPORT

Quarter: 1st, 2015

Grant Number and Title: F14AC01068 “ Parametric Modeling of Marshes”

Organization: University of South Carolina

Project Leader: James Morris, Professor

Abstract: The objective of this study is to parameterize the coupled marsh and hydrodynamic models MEM and ADCIRC for estuaries in New England affected by Hurricane Sandy. The coupled model will forecast the abatement of storm surge afforded by coastal wetlands with and without acceleration in rising sea level, and with and without wetland restoration. The model will be applied to Plum Island Sound, MA in the first year and elsewhere in Sandy-affected states (Virginia-Maine) during the second year, with choices dictated by availability of data and a priority ranking.

Were planned goals/objectives achieved last quarter? Yes

Progress Achieved:

- LiDAR data covering the Plum Island Sound landscape has been obtained and processed
- A digital mesh of Plum Island estuary, tributaries, and intertidal marsh has been created for the ADCIRC model
- Bathymetric data have been obtained
- RTK data have been obtained for a small area to ground truth the LiDAR data
- A presentation of the project was made at a kickoff meeting in Hadley, MA in Dec. 2014
- Presentations of the project were made at the SWS meeting in Providence, RI in June 2015
- Have tentatively selected four other sites for the modeling study: Cape May, NJ; Forsythe, NJ; Prime Hook, DE; and Chincoteague, VA.
- Have advised on sites and practices for collection of TSS, RTK, and water level data.

Task	Task Description	% Done	Progress Narrative
1	Set up subcontract with LSU	100%	
2	Survey of data Plum Island needs: LiDAR and bathymetric	80%	Most data sources have been located. TSS data are still limiting, water level data are needed for model validation and calibration
3	Construct an ADCIRC mesh	95%	A grid has been constructed. It may need some tweaking

4	Fine tune the MEM model	90%	MEM is undergoing some modifications as new data become available.
5	Site selection	80%	A tentative group of sites has been identified. The availability of data must be assessed before final selection is possible.
6	Identify data gaps	60%	Still working with partners on various bits of field data

Difficulties Encountered: None.

Activities Anticipated Next Quarter:

- Continue to mine Parker River data
- Conduct preliminary runs with ADCIRC
- Continue to refine the combined ADCIRC-MEM model
- Investigate data available in other potential sites of modeling studies
- Confer with agency partners about site selection and field data collections

Expected End Date: 24 months from contract finalization between USC and USFWS

Signature:



James T Morris

Date: 7-30-2015