# Living Shoreline Contractor Training

# and

# Shoreline Management Plan Public Information Meetings

# Final Products Summary

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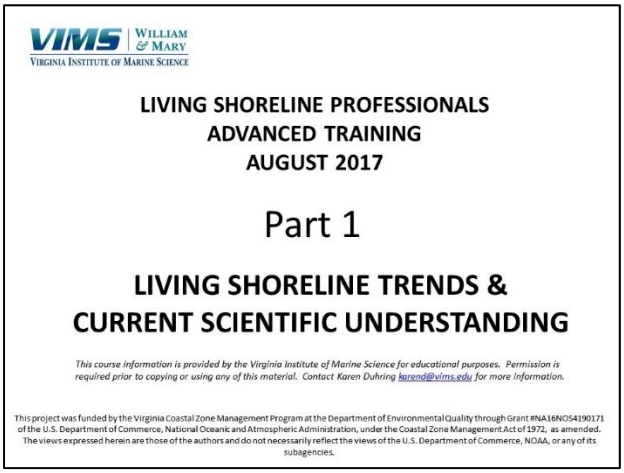
This project was funded by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA16NOS4190171 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended. The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Commerce, NOAA, or any of its subagencies.

**2017**

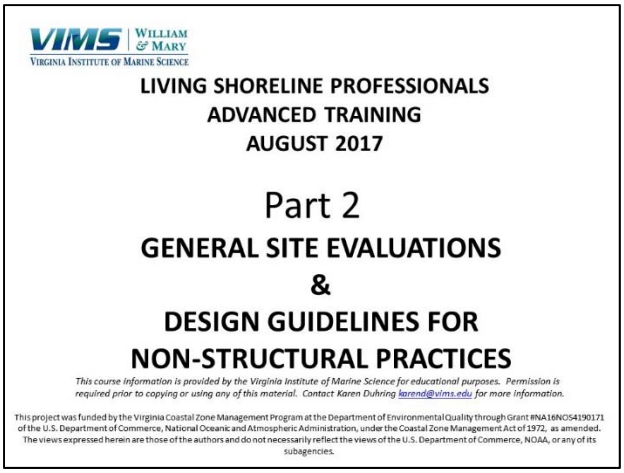
This project consisted of three different tasks: Living Shoreline Professional Advanced Training courses, Living Shoreline Design Guidelines for Shore Protection in Virginia's Estuarine Environments manual, and presentations of the Shoreline Management Plan to four Wetlands Boards.

## A. Living Shoreline Training


The two Living Shoreline Professionals Advanced Training courses, which were held at the Virginia Institute of Marine Science and in the Town of Colonial Beach, were huge successes. Nearly 60 attendees included marine contractors and designers as well as planners who came from many areas in the Chesapeake Bay watershed including Virginia, Maryland, and Pennsylvania.



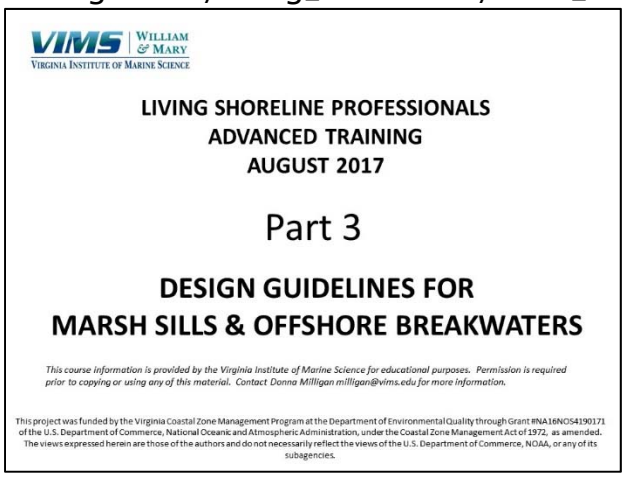

Presentations were made by Scott Hardaway, Donna Milligan, and Karen Duhring. The material covered in the full-day course included living shoreline trends and current scientific understanding; how to conduct general site evaluations; and design guidelines for non-structural practices, marsh sills, and offshore breakwaters. Additional material presented included the description of concept through construction of several marsh sill design case studies, and a hands-on group design exercise allowed attendees to apply the material presented throughout the course.




Site evaluation tools created for the class were demonstrated. These included the site evaluation worksheet and Google Earth applications. These applications are useful to determine the mean tide range, spring tide range, convert data from NAVD88 datum to MLW, and plot the nearshore bathymetry.

As an added benefit to attendees, members of the Virginia Department of Conservation and Recreation's Shoreline Advisory Service were on hand to describe the work they perform. The course materials and video taken of the training course presentations can be found at this website.

http://www.vims.edu/research/departments/physical/programs/ssp/shoreline_management/living_shorelines/class_info/index.php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LIVING SHORELINE PROFESSIONALS
ADVANCED TRAINING
AUGUST 2017

Part 3

DESIGN GUIDELINES FOR
MARSH SILLS & OFFSHORE BREAKWATERS

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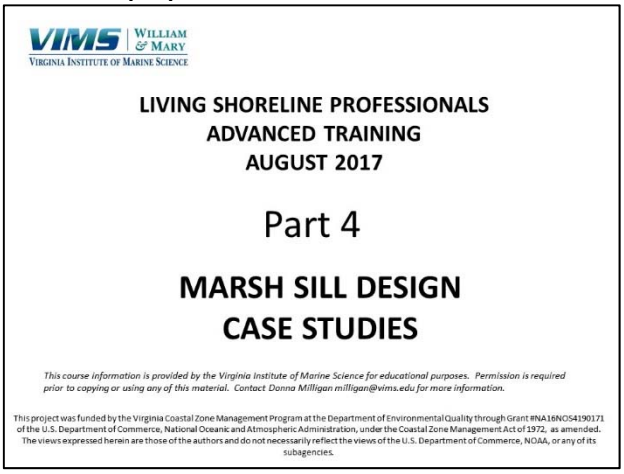
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Part 4

MARSH SILL DESIGN
CASE STUDIES

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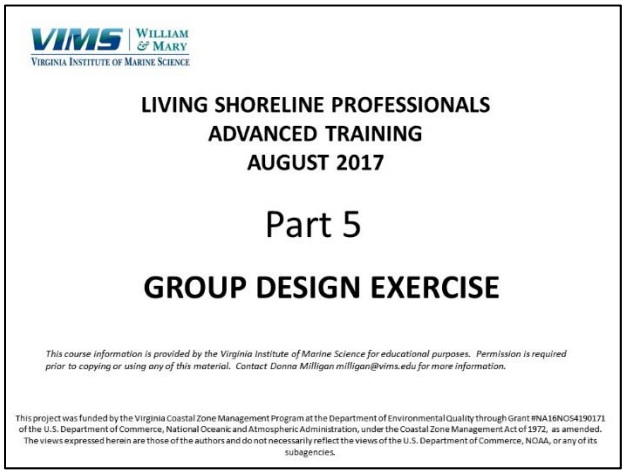
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Part 5

GROUP DESIGN EXERCISE

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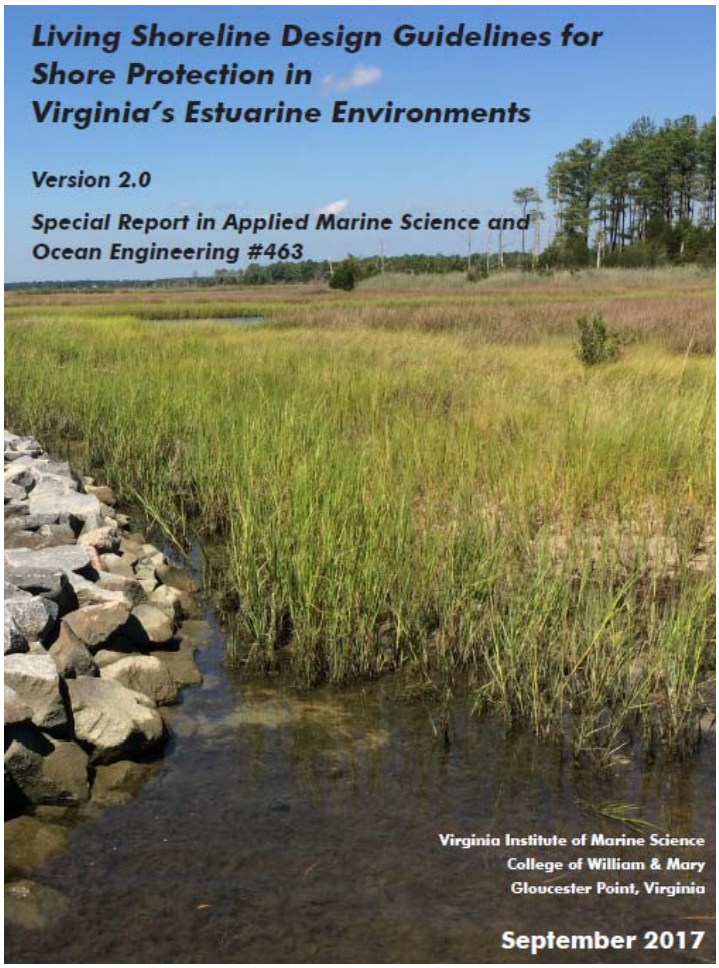
## B. Living Shoreline Design Guidance Manual

The second task was the update of the Living Shoreline Design Guidelines for Shore Protection in Virginia's Estuarine Environments manual. Originally written in 2010 with funding support by Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA08NOS4190466 of the U.S. Department of Commerce, this manual includes information on Chesapeake Bay shorelines, site evaluation information, design considerations, living shoreline performance case studies, and living shoreline design examples. The 2017 manual includes newer research pertaining to the

variables that affect the coastal zone as well as additional information on what affects a living shoreline design such as upland runoff, riparian buffer vegetation, and boat wakes.




To provide background information on Chesapeake Bay shorelines that may impact the functionality of shore protection structures, material on shoreline evolution, sea-level rise, and the hydrodynamic impacts of wind, waves, and storms are described. Site evaluation is crucial step in designing living shorelines that are suited to their environment so that they will be successful at both shore protection and habitat creation. The considerations are segmented into map parameters which are available from a desktop evaluation and site parameters which are collected during a visit to the site. Information on the 10 map parameters as well as links to where to find data online are presented in the report. Twelve site visit parameters are discussed and evaluation considerations described. The site evaluation worksheet is included in the report as a guide.

Design considerations are provided for both structural and non-structural best management practices. New to this updated version are non-structural methods including coir logs and oyster bag shell reefs, and the guidelines range from storm water management to the design of breakwater systems. Also included are considerations such as the level of protection, encroachment issues, costs, and permits.

The performance case studies presented in the report describe on-the-ground applications of marsh management, marsh toe revetment/sill, sills with planted marsh, and breakwaters. The design examples in the manual were updated to provide examples of existing living shoreline demonstration projects from the design stage through construction and post-construction monitoring. They

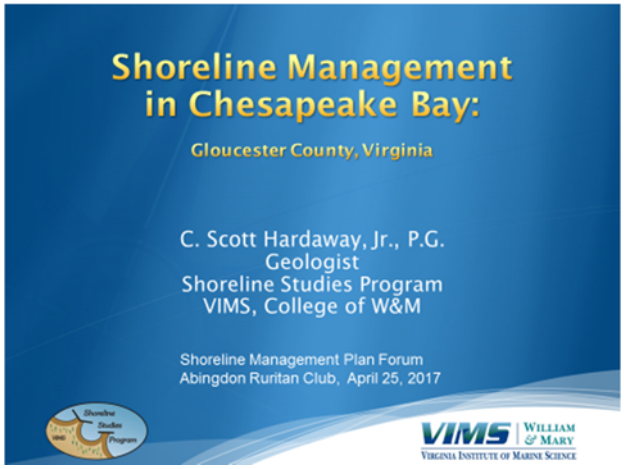
describe how the site and map parameters are integrated into a design, discuss permitting and construction issues, and provide actual costs and performance. The "Living Shoreline Design Guidelines for Shore Protection in Virginia's Estuarine Environments" manual is available at http://www.vims.edu/research/departments/physical/programs/ssp/shoreline_management/living_shorelines/class_info/index.php

### C. Shoreline Management Plan Talks

The third task was presentations of the Shoreline Management Plan to four Wetlands Boards. For the last several years, Shoreline Management Plans have been developed with support by Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grants #NA11NOS4190122, NA12NOS4190168, NA13NOS4190135, NA14NOS419041, and NA15NOS4190164 of the U.S. Department of Commerce. In an effort to ensure the people who could best make use of the reports received the information, County specific presentations were made to County Wetlands Board members.

In addition to including general background information on the physical setting of shorelines within Chesapeake Bay, Scott Hardaway created individualized presentations for each locality that highlighted components of the Shoreline Management Plans and described their usefulness to Wetlands Board members. The Shoreline Management Model was described as were the types of structures that could be used along the County's shoreline. Because some of the reports were almost five years old, some GIS information was updated for the County in order to create these personalized presentations

The presentations were given to the Westmoreland Wetland Board on June 19, 2017, the James City County Wetlands Board on August 9, 2017, and the York County on September 12, 2017. In Gloucester, the Wetlands Board presentation was held in conjunction with the Abingdon Ruritan Club. The Club's environmental committee hosted an informational evening on April 25, 2017 with presentations by Karen Duhring, Donna Milligan, and Scott Hardaway. Topics included living shoreline design considerations as well as the Shoreline Management Plan for Gloucester. Information also was presented on the Living Shoreline loan program created by the Middle Peninsula Planning District Commission. In addition to the Wetlands Board members, the general public was invited; overall approximately 25 people attended.




## *Gloucester County*
## *Shoreline Management Plan*

***Prepared for***
***Gloucester County and***
***Virginia Coastal Zone Management Program***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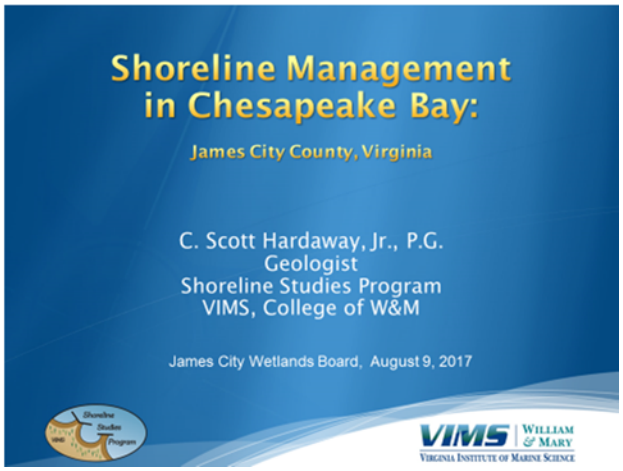
***October 2016***




## *James City County*
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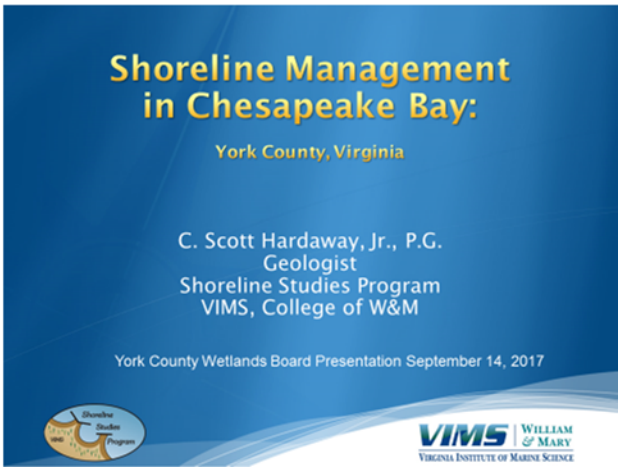
***October 2015***




## *York County*
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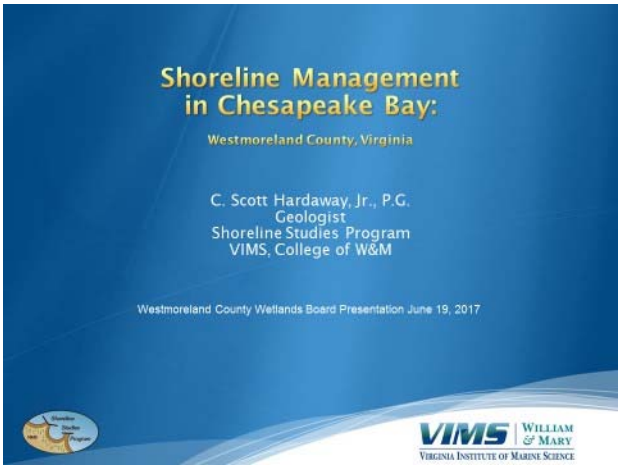
*January 2014*




## *Westmoreland County*
## *Shoreline Management Plan*

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*February 2013*