

# Shoreline Best Practice Case Studies: What Nature-Based Tidal Shorelines Look Like & How They Work

Thursday June 14, 2018  
Virginia Institute of Marine Science  
Gloucester Point, VA



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*Dr. Carlton Hershner*  
Director

# Tidal Shoreline Workshops



Annual meetings for  
Virginia's tidal shoreline  
management community

*Since 1997*



# Workshop Agenda

Shoreline Best Practice Case Studies  
Thursday June 14, 2018  
Virginia Institute of Marine Science  
Gloucester Point, VA

## PLANNED AGENDA

8:00 - 9:00 am *Check-in & Coffee*

9:00 - 10:30 am **CASE STUDY REVIEWS** *Watermen's Hall auditorium*

**Workshop Objectives** *Karen Duhring, VIMS Center for Coastal Resources Management*

**Living Shoreline Ecology Case Studies**  
*Molly Mitchell, VIMS Center for Coastal Resources Management*

**Residential-Scale Case Studies: Examples from River Star Homes**  
*Barbara Gavin, River Star Homes Program Manager, Elizabeth River Project*

**Urban Estuary Restoration: Restoration of multiple habitats to provide great habitat quality**  
*Joe Rieger, Deputy Director of Restoration, Elizabeth River Project*

**Nature-Based Features for Coastal Resilience: Quantifying Wave Dissipation**  
*Maura Boewell, P.E. Old Dominion University & Virginia Sea Grant Graduate Research Fellow*

10:30 - 10:50 am *20-minute Break*

10:50 - 12:00 pm **CASE STUDY REVIEWS (continued)** *Watermen's Hall auditorium*

**Shoreline Management BMP Verification for Chesapeake Bay TMDL Credits**  
*Aaron Wendt, VA Department of Conservation & Recreation - Shoreline Erosion Advisory Service*

**Case Study Best Practices Review**  
*Moderated by Karen Duhring, VIMS Center for Coastal Resources Management*

12:00 - 1:00 pm **LUNCH** *Included for registered participants*

1:00 - 1:45 pm **SHORELINE PROGRAM UPDATES** *Watermen's Hall auditorium*

**VMRC Group 1 & Group 2 Living Shoreline General Permits**

**Funding Support Programs Update**

**2018 Virginia General Assembly Update**

**Other Tidal Shoreline News & Announcements**

1:45 - 2:00 pm *Break & transition to Indoor & Outdoor Sessions*

Case Study Review Presentations

Lunch Break

Shoreline Program Updates

# Workshop Agenda

## PLANNED AGENDA *continued*

2:00 – 3:15 pm **CONCURRENT INDOOR & OUTDOOR SESSIONS** *See map for locations*

*Choose between 5 stations for 30-minute sessions  
VIMS cart shuttles available to move between stations*

2:00 – 2:30 pm **Indoor • Outdoor Session 1**

2:30 – 2:45 pm *Transfer between stations*

2:45 – 3:15 pm **Indoor • Outdoor Session 2**

### **1 VIMS Offshore Breakwaters & Beach Nourishment Case Study**

*Scott Hardaway, VIMS Shoreline Studies Program & Bruce Pfirrmann, DCR-SEAS*

Preferred features in beach nourishment and offshore breakwater projects are demonstrated, including a wide, dynamic beach created with suitable sand, a stable planted dune area, and stable breakwater structures. This case study also illustrates how a bulkhead shoreline was converted to a nature-based feature & how submerged aquatic vegetation (SAV) can affect project designs.

### **2 VIMS Teaching Marsh Case Study** *Christine Tombleson & Julie Bradshaw, VIMS-CCRM*

Preferred features in living shoreline marshes are demonstrated at the Teaching Marsh. These features include wide planted marshes with both low and high marsh, gradual slopes, a low-profile marsh sill, salt- & flood-tolerant native plants in the riparian buffer, and an oyster restoration reef. The co-benefits of multiple habitats located in close proximity are also illustrated.

### **3 Drone Demonstration** *Kory Angstadt, VIMS-CCRM*

Learn how a Mavic Pro drone is being used for CCRM shoreline & wetlands research, including the steps required to create a flight plan, capture still & video images, collect elevation data, and the process of converting all of the collected images and data into meaningful analyses.

### **4 Hands-On Shoreline Management Tools** *Technology Classroom, Watermen's Hall*

*Molly Mitchell & Tamia Rudnicki, VIMS-CCRM*

This station provides an opportunity to learn about and practice using GIS mapping tools at individual computer stations. After a short introduction to various tools, CCRM staff will be present to provide guidance and answer questions while you practice using the tools. Please don't bring food or drinks into this computer classroom.

### **5 Wetlands Board e-Handbook** *Owens-Bryant Board Room, Davis Hall*

*Pamela Mason, VIMS-CCRM & Clay Bernick, Clay Bernick Environment & Sustainability, LLC*

This session will introduce a proposed e-Handbook for Wetlands Boards explaining what it is and what should be included. Participants will be asked about what contents are most needed to support best practice policies and efficient programs.

3:15 – 3:30 pm *Complete Workshop Evaluations & leave at Registration Table  
Visit VIMS Gift Shop*

## Concurrent Indoor & Outdoor Sessions

Choose between 5 stations  
30-minute sessions repeated twice

Choose 1<sup>st</sup> station for Session 1  
Choose 2<sup>nd</sup> station for Session 2

# After the Workshop



- **Participant List Distribution**

*opt out with Dawn Fleming*

- **Workshop Summary & Presentations**

*posted to a Workshop Web Site*

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# What is a Case Study ?

*A particular instance of something used or analyzed in order to illustrate a thesis or principle*

## Shoreline Best Practice Principles

- Risk avoidance
- Intercept & filter stormwater runoff
- Protect, restore & enhance natural shoreline habitats
- Provide erosion control & water quality benefits simultaneously
- Maintain coastal processes that support living resources

EXAMPLE 1

# VIMS Stormwater Management Case Study

Bio-Retention Area with native plants

Stormwater infiltration instead of runoff





# CCRM Riparian Buffer Case Study

April 2000



Converted a sloped lawn & bulkhead to.....

June 2018



....a restored riparian buffer  
with closed tree canopy

## Closed Tree Canopy

Rainfall interception & less stormwater runoff flowing down slope

Wind & storm surge buffer



Photo  
captured  
with Mavic  
Pro drone

# Workshop Objectives

- Learn about case studies from people directly involved
- Think about Shoreline Best Practice principles during case study reviews
- Think about your own case study examples & how principles are applied
- Experience VIMS beach & Teaching Marsh, hands-on tool demonstrations