

Tidal Wetlands Management Technical Support Grant

Center for Coastal Resources Management

Virginia Institute of Marine Science

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Virginia Coastal Zone
MANAGEMENT PROGRAM

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Product 1: Education / Outreach

Tidal Wetlands Workshop

Due to Covid-19 restrictions limiting in-person events, the VIMS Center for Coastal Resources Management hosted two Shoreline Management Webinars in August 2021. These sessions included presentations and live interaction with tidal wetland scientists and regulatory agency staff. There were a total of 278 webinar participants for both events representing a broad range of coastal stakeholders.

Webinar Programs

August 11 Tidal Marsh Ecology

Findings from two recent studies of tidal marsh ecology and living shorelines were presented. Shoreline management implications for living shoreline design and tidal marsh migration were examined.

- Living Shorelines Achieve Functional Equivalence to Natural Fringe Marshes Across Multiple Ecological Metrics [Robert Isdell](#), *VIMS Center for Coastal Resources Management*
- Ecological Equivalency of Living Shorelines & Natural Marshes for Fish and Crustacean Shoreline Communities [Amanda Guthrie](#), *VIMS Center for Coastal Resources Management*
- Saltmarsh Bird Trends [Bryan D. Watts](#), *Center for Conservation Biology*
- Shoreline Management & Living Shoreline Design Implications [Karen Duhring](#), *VIMS Center for Coastal Resources Management*

August 25 Integrated Shoreline Management

New guidelines and regulations were presented that incorporate sea-level rise and climate change into the management of tidal wetlands and riparian buffers, as mandated by the Virginia General Assembly and State Water Control Board. Guidance and modeling to assist localities with implementation of integrated shoreline management were also discussed by scientific and legal advisors.

- Virginia's Tidal Wetlands Guidelines Updates
[Rachael Peabody](#) & [Randy Owen](#), *Virginia Marine Resources Commission*
[Mark Luckenbach](#), *VIMS Office of Research and Advisory Services*
- Chesapeake Bay Preservation Area Designation and Management Regulations: Climate Adaptation Amendment [Justin Williams](#), *Virginia Department of Environmental Quality*
- Integrated Shoreline Management Guidance & Modeling
[Pamela Mason](#), *VIMS Center for Coastal Resources Management*
[Elizabeth Andrews](#), *Virginia Coastal Policy Center*

Tidal Wetlands Workshop Web Site <https://www.vims.edu/ccrm/outreach/workshops/index.php>

Includes 2021 webinar series with webinar recordings, presentations (pdf) and related links.

Webinar Attendance

| Webinar Date | Attendees |
|--------------|------------|
| August 11 | 118 |
| August 25 | 160 |
| TOTAL | 278 |

Webinar Participants

Local Governments and Regional Planning Agencies

17 localities and 4 regional planning agencies were represented from all coastal Virginia regions, including Northern Virginia, Northern Neck, Middle Peninsula, Peninsula, Hampton Roads, Metro Richmond, and the Eastern Shore.

- Accomack County
- Fairfax County
- Gloucester County
- City of Hampton
- King George County
- King & Queen County
- King William County
- Mathews County
- Middlesex County
- New Kent County
- City of Newport News
- City of Norfolk
- Richmond County
- City of Suffolk
- City of Virginia Beach
- Town of West Point
- Middle Peninsula Planning District Commission
- Hampton Roads Planning District Commission
- Northern Neck Planning District Commission
- PlanRVA

Local Wetlands Boards – Chesapeake Bay Preservation Act Boards - Planning Commissions

16 localities were represented by appointed members from Wetlands Boards, Planning Commissions, Board of Zoning Appeals and Chesapeake Bay Preservation Act Boards.

- Accomack County
- Town of Chincoteague
- Fairfax County
- City of Hampton
- City of Hopewell
- James City County
- Mathews County
- City of Newport News
- City of Norfolk
- Northampton County
- City of Portsmouth
- Prince William County
- Stafford County
- City of Virginia Beach
- York County

State and Federal Agencies

11 state agencies were represented from Virginia, Maryland and Delaware plus 6 federal agencies.

- Virginia Coastal Zone Management Program
 - Virginia Department of Conservation & Recreation
 - Virginia Department of Environmental Quality
 - Virginia Department of Health
 - Virginia Department of Housing and Community Development
 - Virginia Department of Transportation
 - Virginia Marine Resources Commission
 - Colonial Soil & Water Conservation District
 - Maryland Department of Natural Resources
 - Maryland Critical Areas Commission
 - Delaware Department of Natural Resources and Environmental Control
-
- Chesapeake Bay Virginia National Estuarine Research Reserve
 - North Carolina National Estuarine Research Reserve
 - US Fish & Wildlife Service
 - National Oceanic and Atmospheric Administration
 - National Aeronautics and Space Administration
 - Joint Base Langley-Eustis

Non-Profits and Other Organizations

16 non-profit and other organizations were represented including local watershed groups, regional commissions, national and international programs.

- Elizabeth River Project
- Friends of Indian River
- Friends of the Lower Appomattox River
- Friends of Dyke Marsh
- James River Association
- Lafayette Wetlands Partnership
- Nansemond River Preservation Alliance
- Lynnhaven River NOW
- Wetlands Watch
- Mordecai Land Trust
- Interstate Commission on the Potomac River Basin
- Potomac Aquifer Recharge Oversight Committee
- Virginia Eastern Shore Clean Water Council
- Restore America's Estuaries
- The Nature Conservancy
- World Wildlife Fund

Virginia Master Naturalists

At least 11 chapters from the Virginia Master Naturalist program were represented.

- Tidewater
- Riverine
- Eastern Shore
- Historic Rivers
- Merrimac
- Peninsula
- Old Rag
- Middle Peninsula
- Northern Neck
- Arlington Regional
- Central Blue Ridge

Virginia Extension Master Gardeners

At least 5 chapters from the Virginia Extension Master Gardeners program were represented.

- Northern Neck
- James City County-Williamsburg
- Virginia Beach
- Newport News
- Eastern Shore

Academic Institutions

10 academic institutions were represented including 2 international schools.

- Virginia Institute of Marine Science
- William & Mary
- William & Mary Law School
- Virginia Tech Center for Leadership in Global Sustainability
- University of Virginia
- Hood College
- George Mason University
- National Academies of Science Gulf Research Program
- Bangor University School of Ocean Sciences, United Kingdom
- University of Aveiro Centre for Environmental and Marine Studies, Portugal

Publications

Center staff annually produces our *Rivers & Coast* newsletter. The *Rivers & Coast* covers one relevant topic in detail through the use of charts, graphs, maps and photos in an 8-page color publication. The newsletter was mailed to local wetlands boards, is available online and announced through CCRM's quarterly e-newsletter to approximately 3,000 email addresses which include local and state agency personnel, General Assembly members, and interested private citizens. *CCRM e-News* summarizes and communicates a variety of issues that support integrated management of coastal zone resources, announces pertinent publications, programs and events, and points the reader to more detailed information on our website (and others).

CCRM e-News

- **January 2021** – Crab Trap App, CCRM peer-reviewed publications, ADAPTVA updates, terrapin storymap, MARISA Community Climate Outlooks, GCA scholarship, and new social media <https://conta.cc/38pqOUE>
- **May 2021** – Marcia Berman retires, Locality Road Flood Tool, Oyster Aquaculture Tool, CCRM peer-reviewed publications, VMRC Wetlands Guidelines, DEQ CBPA Regulations, and events <https://conta.cc/3b618x0>
- **July 2021** – Shoreline Management Webinar registration, CCRM peer-reviewed publication, Nature-Based Solutions webpages, VA Coastal Resilience Master Plan, GCA Awards, and New Shoreline Guidelines. <https://conta.cc/3kvzrni>
- **September 2021** – Shoreline Management Webinar materials online, CCRM publications, new *Rivers & Coast*, Sustainability in Shorescapes webpage, Coastal Resilience Community Meetings and other events. <https://conta.cc/3vlx6ZB>

Rivers and Coast

Summer 2021, Vol. 16 – Nature-Based Solutions for Coastal Resilience. This topic was chosen due to the current popularity and need for outreach information in various formats related to this subject. Several Virginia programs now emphasize the protection of natural features and the creation of nature-based features for flood mitigation, water quality improvement, and other valuable benefits for society and the environment. This issue highlights various nature-based solutions in the coastal plain, including forests, wetlands, beaches and living shorelines for erosion stabilization. Related web site links and resources, including a new CCRM web site dedicated to natural and nature-based features are provided. The R&C publication provides another delivery mechanism to link stakeholders with Natural and Nature-Based Feature resources and information at a critical time for Virginia’s effort to address coastal risks and resilience. <https://scholarworks.wm.edu/reports/2486>

Facebook

CCRM staff continued a social media campaign by posting content to the CCRM Facebook page to inform our followers about CCRM activities and coastal issues in Virginia. We initiated an effort to increase followers by posting three times each week, and started an Instagram page with content posted to both platforms concurrently. Facebook has changed data collection and access, so we have modified metrics to report. We ended the year with 589 followers (combined on Facebook and Instagram). CCRM Facebook page fans mostly live in the United States (477), although we reached another 112 people in 29 countries worldwide. Slightly more than half of our fans are women (59%). We continue to share posts from and tag other entities (mostly State Agencies) that are in the CZM networked program including VMRC, DEQ, DCR, Sea Grant, MPPDC as well as CCRM partners including Wetlands Watch, Virginia Coastal Policy Center, Master Naturalists, Master Gardeners and others and they have tagged CCRM. CCRM “Posted” statuses, photos, links, videos and more 170 times this grant period. Our highest post reach (unique users who had any of our posts enter their screen) was 967 on a post about high and low marsh communities. And our greatest engagement (unique users that interacted with our Facebook content – likes, shares, and clicks) was 75 on a post shared from Pew Trusts “11 facts about salt marshes and why we need to protect them”.

CCRM Facebook: <https://www.facebook.com/CCRM10/>

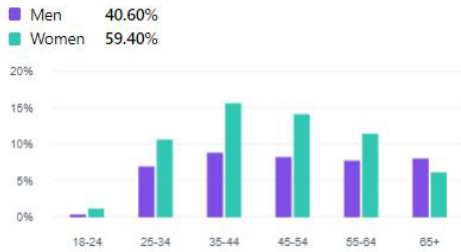


Center for Coastal Resources Management (CCRM)

Learn more about coastal resilience, coastal resources and eroding shorelines ... www.vims.edu/ccrm

Audience

Age and Gender



Location

Cities Countries

| | |
|----------------------|----|
| Virginia Beach, VA | 21 |
| Norfolk, VA | 19 |
| Richmond, VA | 18 |
| Chesapeake, VA | 16 |
| Newport News, VA | 15 |
| Williamsburg, VA | 14 |
| Gloucester, VA | 13 |
| Yorktown, VA | 13 |
| Gloucester Point, VA | 11 |
| Hampton, VA | 10 |

Location

Cities Countries

| | |
|----------------|-----|
| United States | 477 |
| Mexico | 5 |
| Philippines | 5 |
| Taiwan | 4 |
| Bangladesh | 2 |
| Ethiopia | 2 |
| India | 2 |
| Spain | 2 |
| Thailand | 2 |
| United Kingdom | 2 |

Facebook and Instagram

589 unique followers across apps

| | |
|-------------------------------------|-----|
| Following only on Facebook | 551 |
| Following only on Instagram | 23 |
| Following on Facebook and Instagram | 15 |

Sample Post

Center for Coastal Resources Management (CCRM)
★ Favorites · April 15 · 🌐

Attention Boaters in Gloucester County - New No Discharge Zones Adopted

Yesterday, April 14, 2021, at its quarterly meeting, the Virginia State Water Control Board (SWCB) adopted regulations establishing two No Discharge Zones (NDZs) in Gloucester County, one in Sarah Creek and one in Perrin River. An NDZ is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, boat operators are required to retain their sewage was... See More

Performance for Your Post

451 People Reached

25 Reactions, Comments & Shares

| | | |
|------------|-----------|--------------|
| 16 Like | 5 On Post | 11 On Shares |
| 1 Wow | 0 On Post | 1 On Shares |
| 4 Comments | 0 On Post | 4 On Shares |
| 4 Shares | 4 On Post | 0 On Shares |

32 Post Clicks

| | | |
|---------------|---------------|-----------------|
| 1 Photo Views | 0 Link Clicks | 31 Other Clicks |
|---------------|---------------|-----------------|

Product 2: General Technical Guidance

Summary

The Center for Coastal Resources Management (CCRM) continues to provide technical advice to the general public, regulatory and non-regulatory authorities. We provide general advice on shorelines and marine issues via phone, email, and/or when feasible on-site. In order to maximize the efficacy of site visit efforts, we focus on requests that involve living shoreline suitability assessments, proposed living shoreline projects and those from more rural localities. Advice draws from routinely used data and tools including on-line resources at CCRM/VIMS, from other coastal partners and agencies, aerial imagery, decision tools and decision models. All general technical guidance is tracked in the Advisory Database and all projects associated with a Joint Permit Application (JPA) are tracked in the Shoreline Permit Database.

Advisory Database: The Center continues to populate an advisory database to track our provision of technical advice outside of the joint permit application process so that we can adapt CCRM's guidance development and outreach program to address issues identified through data analysis.

- Technical Advisory and General Information – 85

Shoreline Permit Database: This database is continuously updated to track Virginia tidal shoreline erosion control projects. Permitted projects and decisions made by regulatory officials are compared with the preferred shoreline best management approach derived from the Shoreline Management Model v.5.1, which is also displayed in the AdaptVA Comprehensive Map Viewer, and located in the Virginia coastal zone locality portals. During this review, projects are categorized into CCRM-defined types, the location of the projects are geo-referenced, and project information is collected and entered into the database. This information is used to support various CCRM coastal resources management activities.

- Preferred Shoreline Management Approach Reviews – 196
- Shoreline Management Model v.5.1: www.vims.edu/ccrm/ccrmp/bmp/smm/
- AdaptVA Comprehensive Map Viewer: http://cmap2.vims.edu/AdaptVA/adaptVA_viewer.html
- Locality Portals: www.vims.edu/ccrm/ccrmp/portals/

Historical Permit Records Database: The Center for Coastal Resources Management also serves the historical records for tidal wetland Joint Permit Applications (JPA) in a searchable database online. These records include 31,130 original JPAs and all associated photos, public hearing notices, additional information, and VIMS Reports. All records prior to January 1, 2010 as well as a link to current records can be found on CCRM's website.

- Shoreline Permit Records: www.vims.edu/ccrm/wetlands_mgmt/permits/

Information concerning the data collected and extracted from these databases is provided in detail in the next section.

Details of Advisory Requests (extracted from the Advisory Database):

Type of Advice Requested:

| | |
|---|----|
| • Living Shorelines (Erosion control/shoreline advice, cost, design, plant recommendations, tools/resources, funding, training, effectiveness, regulatory guidance, suppliers, locations, contractor information) | 29 |
| • Wetlands (regulations, guidelines, marsh migration, jurisdiction) | 6 |
| • Sea Level Rise (storm surge, flooding, marsh migration, Intermediate High Curve) | 6 |
| • Erosion Control (not Living Shorelines advice, contractor info) | 4 |
| • Invasive Species/Phragmites | 5 |
| • Planting Id/Recommendations (how to plant, where to buy, identification) | 5 |
| • Social Vulnerability Data | 5 |
| • Shoreline Inventory | 4 |
| • Chesapeake Bay Preservation Act (permitting, WQIA, tree removal, mitigation) | 4 |
| • Oysters (reefs, habitat, data) | 4 |
| • Beaches and Dune (design, mitigation fees, legal use) | 3 |
| • Marine Fishing (turtle excluders, biodegradable crab trap panels, marine debris) | 3 |
| • Other (training, permit website, NNBFs, clean energy, climate change, sediment) | 3 |

Advice Requested From:

| | |
|--|----|
| • Citizen/Property Owner | 37 |
| • Community/Non-Profit/NGO/Master Gardener/Master Naturalist | 7 |
| • Local Government/Wetland Board Staff or Member/Elected Officials | 8 |
| • Federal Agencies | 6 |
| • Academic/Research | 6 |
| • State Agencies (including VIMS) | 8 |
| • Contractor | 6 |
| • Consultant | 6 |
| • Journalist | 1 |

Living Shoreline Requests: Of all categories of advisory service requested this grant period, advice related to Living Shorelines topped the list and included a variety of topic areas about living shorelines (i.e. Erosion control/shoreline advice, cost, design, plant recommendations, tools/resources, funding, training, effectiveness, regulatory guidance, suppliers, locations, contractor information).

Of the advisory requests associated with *shoreline erosion control*, 60% were related to the living shoreline management approach (6 out of 10). Citizens and property owners were the largest group (48%) requesting any information on living shorelines followed by a tie with Consultants and Marine Contractor groups. During the last grant period citizens and property owners were also the largest group requesting information on living shorelines, however coming in second were Academic/Research/Students.

Locality Type of Living Shoreline Advice Requested: The percent of living shoreline requests from citizens/property owners living in rural localities this grant period was 28%, up from 20% last year. The percent of living shoreline advisory requests from citizens/property owners from suburban localities reduced from 53% last year to 21% this year. Requests in urban designated localities decreased from one last year to none this grant period. 14% of requests for living shoreline information came from out of state. Local governments (represented by local government staff, wetlands board, and elected officials) comprised 7% of requests for living shoreline advice this grant period.

Living Shoreline Advisory Request Summary: 34% of all advisory requests received during this grant period were in reference to living shorelines, increasing from last grant period, at 26%. The total number of living shoreline related requests from citizen/property owners and local governments increased from last grant period, as well as other groups with the exception of living shoreline related requests from Community/Non-Profit/NGO groups, which decreased slightly. Site visits were conducted for five living shoreline advisory requests this grant period. Not all requests warrant a site visit. One site visit was conducted for a non-living shoreline advisory request.

Living Shoreline Advice Requested By:

| LOCALITY | CITIZEN | LOCAL GOV'T | OTHER | TOTAL | LOCALITY TYPE * |
|-----------------|-----------|-------------|-----------|-----------|-----------------|
| Out of State | | | 4 | 4 | NA |
| Accomack | 3 | | | 3 | Rural |
| Charles City | | | 1 | 1 | Rural |
| Gloucester | 4 | | 1 | 5 | Suburban |
| King George | 2 | | | 2 | Rural |
| Lancaster | 1 | | | 1 | Rural |
| Mathews | 2 | | | 2 | Suburban |
| Norfolk | | | 1 | 1 | Urban |
| Northampton | 1 | | | 1 | Rural |
| Northumberland | 1 | | | 1 | Rural |
| Poquoson | | 1 | 1 | 2 | Suburban |
| Portsmouth | | 1 | | 1 | Suburban |
| Richmond (City) | | | 1 | 1 | Urban |
| Virginia Beach | | | 1 | 1 | Suburban |
| York | | | 1 | 1 | Suburban |
| Multi-Locality | | | 2 | 2 | NA |
| TOTAL | 14 | 2 | 13 | 29 | |

*Locality designation was defined by housing unit density; Rural tracts = less than 64 units per square mile, Suburban tracts = 64 to 1,600 housing units per square mile, and urban tracts = greater than 1600 housing units per square mile. Housing density information obtained from the U.S. Census.

Details of Data Requests (extracted from the Shoreline Permit Database):

CCRM developed a comprehensive database using Microsoft Access with fillable forms to store Virginia tidal shoreline erosion control permit and associated project information. The CCRM Shoreline Permit Database integrates Virginia project and permit information from a variety of existing sources into one master, searchable database. Center staff continues to populate the database with new information collected from a subset of Joint Permit Applications (JPAs) submitted to the Virginia Marine Resources Commission (VMRC), project shoreline site characteristics from local government websites, Google Earth and Bing maps; and preferred shoreline management recommendations derived from the Shoreline Management Model v.5.1, which are displayed in the AdaptVA Comprehensive Map Viewer and located in the Virginia coastal zone locality portals.

Data has been collected on 20,372 shoreline erosion control projects to date, including 196 projects during this grant period. This includes the following information:

- VMRC number
- applicant name and contact information
- property owner information
- contractor
- project type
- length
- impacts
- wetlands board decision
- board minutes
- year built
- project location (site address, locality, parcel ID, and lat., long.)
- fetch and waterway

And specific information that is required to support various aspects of CCRM projects, such as field site selection, comparative assessments, and a variety of surveys and analyses of social and natural systems.

Preferred Shoreline Management Approach Reviews:

CCRM selected and reviewed a subsample of 196 Joint Permit Applications (JPA) from all submitted shoreline erosion control applications this grant year. Each approved project and permit decision is compared to the recommended preferred management approach derived from the Shoreline Management Model v.5.1 to evaluate the agreement between decisions made and the VIMS comprehensive coastal resource management guidance. The goal of the recommended preferred approach is to foster the sustainability of shoreline resources using living shoreline designs where appropriate and applying traditional shoreline hardening only in areas where site conditions make them necessary. These recommendations reflect the Commonwealth’s preferred approach for shoreline stabilization using living shoreline treatments whenever adequate erosion control can be achieved.

JPAs Reviewed for Agreement with the Guidance:

| LOCALITY | TOTAL PROJECTS REVIEWED | YES | NO | N/A |
|-----------------|-------------------------|-----|----|-----|
| Accomack | 6 | - | 3 | 3 |
| Charles City | 5 | 2 | 3 | - |
| Chesapeake | 7 | - | 5 | 2 |
| Gloucester | 1 | - | 1 | - |
| Hampton | 2 | - | 2 | - |
| James City | 2 | 2 | - | - |
| King George | 5 | - | 5 | - |
| Mathews | 99 | 22 | 67 | 10 |
| Middlesex | 3 | - | 3 | - |
| New Kent | 1 | - | 1 | - |
| Newport News | 3 | - | 3 | - |
| Norfolk | 2 | - | 2 | - |
| Northampton | 6 | 4 | 2 | - |
| Northumberland | 3 | 1 | 2 | - |
| Poquoson | 4 | - | 3 | 1 |
| Portsmouth | 2 | - | - | 2 |
| Richmond County | 2 | 2 | - | - |

| LOCALITY | TOTAL PROJECTS REVIEWED | YES | NO | N/A |
|----------------|-------------------------|-----------|------------|-----------|
| Suffolk | 1 | - | 1 | - |
| Virginia Beach | 33 | 4 | 23 | 6 |
| Westmoreland | 9 | 2 | 7 | - |
| TOTAL | 196 | 39 | 133 | 24 |

Yes – The number of projects consistent with the guidance recommendation.

No – The number of projects NOT consistent with the guidance recommendation.

N/A – A review of these project locations determined shoreline conditions to be highly modified, containing special geomorphic features or having submerged aquatic vegetation (SAV) present. For these special shoreline conditions, a recommendation is not provided.