

Building Tidal Wetland Capacity in the Chesapeake Bay Watershed: Capacity Issues, Goals, and Recommendations

Prepared by Green Fin Studio for the Tidal Wetlands Developing Capacity Small Group

May 2026



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Acknowledgements:

Thank you to the Tidal Wetlands Developing Capacity Small Group members who assisted on this project:

- Tess Danielson, D.C. Department of Energy and Environment (DOEE)
- Kevin Du Bois, Department of Defense, Chesapeake Bay Program Coordinator
- Chris Guy, United States Fish and Wildlife Service (USFWS)
- Pam Mason, Chesapeake Bay Program Wetlands Workgroup, Chair
- Tammy Roberson, Maryland Department of the Environment (MDE)
- Ben Sagara, Virginia Department of Wildlife Resources (DWR)
- Taryn Sudol, University of Maryland (UMD)/Maryland Sea Grant

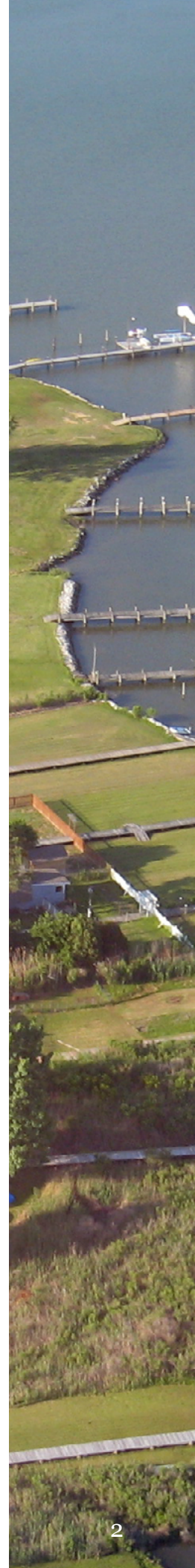
We also extend our gratitude to the individuals who lent their time to participate in the interviews and surveys that made this report possible.

Suggested citation: U.S. Environmental Protection Agency's Chesapeake Bay Program Office (2026). Building Tidal Wetland Capacity in the Chesapeake Bay Watershed: Capacity Issues, Goals, and Recommendations. Approved by the Chesapeake Bay Trust and Tidal Wetlands Developing Capacity Small Group in May 2026.

Title page photos (top to bottom): Adrian Jones/Integration and Application Network, Ben Longstaff/Integration and Application Network, Alicia Pimental/Chesapeake Bay Program

List of Abbreviations

CBNERR-VA – Chesapeake Bay National Estuarine Research Reserve – Virginia
CCRM – Center for Coastal Resources Management
CZM – Coastal Zone Management
DC – District of Columbia
DCSG – Tidal Wetlands Developing Capacity Small Group
DE – Delaware
DEQ – Department of Environmental Quality
DoD – Department of Defense
DOEE – Department of Energy and Environment
DU – Ducks Unlimited
DWR – Department of Wildlife Resources
EPA – Environmental Protection Agency
ERP – Elizabeth River Project
GIS – Geographic Information System
JRA – James River Association
MD – Maryland
MDE – Maryland Department of the Environment
MD DNR – Maryland Department of Natural Resources
MEE – Marsh Elevation Enhancement
NFWF – National Fish and Wildlife Foundation
NGO / NGOs – Non-Governmental Organization(s)
NOAA – National Oceanic and Atmospheric Administration
NRCS – Natural Resources Conservation Service
ODU – Old Dominion University
PDC – Planning District Commission
SAV – Submerged Aquatic Vegetation
STAC – Scientific and Technical Advisory Committee
SWCD – Soil and Water Conservation District
TLP – Thin Layer Placement
TMDL – Total Maximum Daily Load
TNC – The Nature Conservancy
TSP – Technical Service Provider
USACE – United States Army Corps of Engineers
USDA – United States Department of Agriculture
USFWS – United States Fish and Wildlife Service
VA – Virginia
VIMS – Virginia Institute of Marine Science
VMRC – Virginia Marine Resources Commission
W&M – William & Mary



Executive Summary

The Chesapeake Bay watershed has lost over 1.5 million acres of tidal and nontidal wetlands, and efforts to offset losses through wetland creation, restoration, and enhancement have been slower than expected. The Chesapeake Bay Trust and Chesapeake Bay Program Wetlands Workgroup identified a lack of capacity as a key challenge to achieving more tidal wetland gains. This report assesses the highest priority capacity issues, sets goals to address them, and offers recommendation steps to achieving them.

For the purposes of this assessment, capacity issues are defined as the barriers that prevent government agencies, non-governmental organizations, and the private sector from advancing voluntary tidal wetland restoration and enhancement at the scale needed to meet Chesapeake Bay watershed goals. The solutions to address them require strategic investment in the following areas:



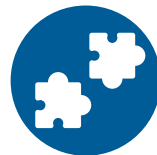
People & Staffing



Policy & Regulation



Training & Education



Coordination & Systems



Research & Monitoring



Funding & Finance

Across all four jurisdictions, the barriers to voluntary tidal wetland restoration are less technical than they are structural. The expertise, willing landowners, and in many cases funding exists, but they are fragmented, unevenly distributed, and insufficiently connected to one another. For example:

- Permitting systems were not designed for ecological restoration.
- Monitoring needs and maintenance obligations outlast the grants that fund them.
- Dredge sediment potentially supplies a source of restoration material, but dredging schedules and restoration timelines are asynchronous.
- Outreach connects with some landowner communities and misses others entirely.

The result is a field that has the potential for greater positive environmental impact but lacks the systems, staffing, and institutional continuity to realize it consistently across the watershed. In this document, 27 high priority capacity issues are identified that collectively limit the pace, scale, and effectiveness of voluntary tidal wetland restoration.

This report is intended to give partners a shared baseline of where the gaps are and what addressing them would look like in practice. **The proposed goals and recommendations will require the Wetlands Workgroup, federal and jurisdiction agencies, local governments, and NGOs to evaluate and prioritize these recommendations and identify pathways for implementation.**

Introduction

The Chesapeake Bay watershed has [lost over 1.5 million acres](#) of tidal and nontidal wetlands to development and agricultural practices, yet wetlands provide measurable benefits for water quality, coastal resilience, carbon sequestration, and fish and wildlife habitat. To offset wetland losses, the [2014 Chesapeake Bay Watershed Agreement](#) identified a Wetlands Outcome to create or reestablish 85,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025. It has been estimated that only 5% of the tidal and nontidal Wetlands Outcome goal has been met.

The [Chesapeake Bay Trust](#) and [Chesapeake Bay Program Wetlands Workgroup](#) identified a lack of capacity within government agencies, non-governmental organizations (NGOs), and the private sector as a challenge to achieving the Wetlands Outcome. The revised [2025 Chesapeake Bay Watershed Agreement](#) sets a tidal-specific goal to restore or create at least 3,000 acres and enhance 15,000 acres of tidal wetlands by 2040. The revised goal reflects a more targeted and achievable commitment, but it does not signal reduced urgency. Tidal wetlands remain a priority for the Chesapeake Bay watershed, and the capacity investments described in this report are essential to meeting the recalibrated targets.

[Green Fin Studio](#) worked closely with the Chesapeake Bay Trust to compile and assess the top capacity-related issues across four jurisdictions in the Chesapeake Bay watershed: Maryland (MD), Virginia (VA), Delaware (DE), and the District of Columbia (DC). The capacity issues documented in this report and the goals to address them draw on interviews with 25 tidal wetland practitioners, responses from 19 survey participants, and a prioritization exercise conducted by the Tidal Wetlands Developing Capacity Small Group (DCSG). The DCSG is composed of seven experts that have extensive experience in the tidal wetland space and represent the jurisdictions of interest, except Delaware. While this analysis reflects a broad cross-section of practitioners, responses were not evenly distributed across all jurisdictions, and findings may reflect stronger representation from Maryland and Virginia.

This report is intended to translate identified capacity constraints into clear, actionable goals and implementation pathways that can guide investment, coordination, and policy decisions across Chesapeake Bay jurisdictions.

Photo: Will Parson/Chesapeake Bay Program



Methodology

Information Gathering

To understand the capacity-related issues tidal wetland practitioners in each jurisdiction are experiencing, Green Fin Studio conducted interviews and distributed an electronic survey. The DCSG provided an initial list of people to engage as well as a list of possible interview questions. Green Fin Studio reviewed these materials, added additional contacts, and suggested a modified list of interview and survey questions. The DCSG and Green Fin Studio organized the engagement list by priority, with “1s” as the highest priority for interview, “2s” for interview backups, and “3s” for the survey. The prioritization aimed to give a representative sample across sectors and jurisdictions.

Twenty-five interviews were conducted between December 16, 2025, and January 30, 2026. The interview questions can be found in [Appendix A](#). The survey was sent via email to 108 contacts on February 2, 2026 and a reminder email was sent on February 9, 2026. Nineteen people responded to the survey with a response rate of 17.5%. This percentage is aligned with a “good” response rate according to standards in the field; email surveys typically have a response rate in the 10-30% range. The survey questions are in [Appendix B](#).

Interview participants and survey respondents and the organizations they work for represent multiple sectors of the tidal wetlands community including permitting, outreach, restoration, policy, monitoring, and funding. The number of interviewees and respondents skew towards MD and VA as these jurisdictions have more tidal wetland acreage in the Chesapeake Bay watershed and more practitioners working in the tidal wetlands space. Some participants represent multiple jurisdictions.

The distribution of interviewees and survey respondents across sectors and jurisdictions are detailed below.

Sectors Represented	Jurisdiction Partners Represented
<ul style="list-style-type: none">• Government - 19• NGOS - 19• Private - 4• Other - 2	<ul style="list-style-type: none">• Virginia - 21• Maryland - 22• District of Columbia - 8• Delaware - 5• Bay-Wide - 3

Information Synthesis

Interview and survey findings were compiled into a summary document organized by eight thematic capacity categories. The following categories and the sections that follow are ordered alphabetically, not in accordance with the magnitude of the capacity issue or the priority level to address the issue.

- I. Data + Science,
- II. Funding,
- III. Monitoring, Maintenance, and Adaptive Management,
- IV. Outreach,
- V. Regulatory and Permitting,
- VI. Sediment, Beneficial Use, and Marsh Migration,
- VII. Wetland Plant Availability, and
- VIII. Workforce.

Within each category, capacity concerns mentioned by two or more jurisdictions were grouped as cross-cutting issues, and jurisdiction-specific issues were detailed separately. DCSG members rated each identified issue on a scale of one to five based on its priority for action – how critical addressing the issue is to making meaningful progress towards tidal wetland restoration goals in the Chesapeake Bay watershed. Reviewers left scores blank if they did not feel their geography or expertise enabled them to evaluate the priority level. Reviewers also offered suggested solutions to address capacity issues they marked priority four or five.

Capacity issues with two or more votes and with a median score of four and above were considered high priority and form the primary basis for the capacity issues and goals presented in this report. The raw scores can be found in [Appendix C](#).

Photo: Will Parson/Chesapeake Bay Program



Capacity Issues

Each of the following eight sections presents a consistent framework for understanding the capacity issues and the path forward. For each capacity issue, the report outlines:

1. The core capacity issue (whether cross-jurisdictional or jurisdiction-specific),
2. A clear and measurable goal to address the issue,
3. A set of actionable recommendations and steps to achieve the goal, and
4. Potential funding sources that could support implementation.

Recommendations are designed to reflect a range of approaches and suggested implementation timelines – short-term (1-3 years), medium-term (3-5 years), or long-term (5-10+ years). Each recommendation is tagged using an icon system to indicate the primary type(s) of effort required. The following legend describes the six icons used in this report:



People & Staffing – hiring, position creation, workforce development



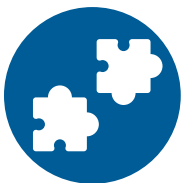
Training & Education – professional training, contractor certification, board member requirements



Research & Monitoring – pilot projects, long-term monitoring, applied science, data systems



Policy & Regulation – legislation, permit reform, regulatory guidance, ordinances



Coordination & Systems – multi-agency protocols, working groups, shared frameworks, supply chain coordination



Funding & Finance – program funding, cost-share, grant reform, stewardship funds

I. Data + Science

Effective tidal wetland restoration depends on accurate spatial data, long-term monitoring information, and applied research that informs design and adaptive management. Across jurisdictions, respondents indicated that data systems are fragmented or outdated, applied research on restoration performance is limited, and scientific uncertainty around emerging techniques slows regulatory decision-making and discourages innovation. Without stronger practitioner-science coordination, restoration remains reactive and project-by-project rather than adaptive and landscape-driven.

Cross-Cutting Issues




A **Limited applied research on the long-term performance of restoration activities, including living shorelines, sediment placement strategies, marsh migration processes, and innovative approaches.**
[combined two issues – median scores 4 and 4; 6 and 6 votes]

Respondents across jurisdictions consistently identified applied research gaps as a constraint on both project design and regulatory approval. There were few respondents from the research community, so this capacity issue may be more rooted in a lack of practitioner-science coordination. Some respondents indicated a lack of structured spaces to share project failures and lessons learned. Scientific uncertainty or lack of consensus slows regulatory decision-making and discourages innovative approaches to tidal wetland restoration that will be necessary to combat changing environmental conditions.

Some long-term marsh monitoring sites exist for different techniques (including: [Poplar Island](#), [Blackwater National Wildlife Refuge](#), and [Goodwin Islands](#)) and should be utilized.

Goal: Establish at least three long-term restoration performance monitoring sites across the Bay watershed spanning different project types and jurisdictions and create a recurring, structured practitioner-science exchange that documents both successes and failures, with findings disseminated in practitioner-accessible formats to inform project design and support regulatory confidence in innovative techniques.

Recommendations/Steps:

1.  Convene a regional science-practitioner forum to identify the top five applied research priorities, and develop a coordinated multi-institution research agenda that pooled grant applications can address.
1-3 years
2.  Establish a norm of documenting and sharing project failures with proposed corrective actions alongside successes. Create a structured annual forum (practitioner workshop) for sharing lessons learned from projects that did not perform as expected. (*Model: James River [Living Shoreline Collaborative](#)*)
1-3 years
3.  Use the existing United States Army Corps of Engineers (USACE) District designated “Proving Grounds” and their funding to initiate a series of pilot projects for marsh elevation enhancement and wetland island creation and restoration. The United States Department of Defense (DoD) can be a partner (providing sites and funding) with the USACE and other partners to test innovative strategies and conduct the long term monitoring necessary to identify ways to mitigate future impacts and streamline and improve the regulatory permitting process.
3-5 years

Potential funding sources:

- Scientific and Technical Advisory Committee (STAC) workshop (Step 1)
- USACE Engineering Research and Development Center for Proving Grounds pilots
- Department of Defense Readiness and Protection Integration program
- Sentinel Landscape Partnership program

II. Funding

Across Chesapeake Bay jurisdictions, funding instability and structural financing limitations are primary constraints to voluntary tidal wetland restoration. Interviews and survey responses found that programs rely heavily on federal funding sources that fluctuate year-to-year, which destabilizes staffing, contractor markets, and long-term planning and prioritization. Respondents describe funding programs to be restrictive, slow-moving, or misaligned with project realities. High project costs, including sediment transport, design, and permitting, were cited as creating significant barriers for private landowners and small organizations. Project delays further compound high project costs, as funds may no longer cover increased cost estimates. Most grants do not support long-term monitoring or maintenance which is a barrier to minimizing impacts and maximizing overall project success.

Without predictable, reliable, and diversified funding streams, jurisdictions struggle to build sustainable institutional capacity, retain skilled professionals, or scale restoration to watershed-level impact.


Cross-Cutting Issues



A **Tidal wetlands receive comparatively less funding than stormwater and stream restoration.** [median score 4, 5 votes]

Chesapeake Bay Total Maximum Daily Load (TMDL) and Municipal Separate Storm Sewer System (MS4) regulations prioritize stormwater and stream projects for their measurable, creditable nutrient and sediment reductions and water quality improvements. Comparatively, tidal wetland restoration scores lower for their water quality benefits despite providing nutrient and sediment reductions along with carbon sequestration, habitat, and resilience co-benefits.

Goal: Increase dedicated, sustained funding for voluntary tidal wetland restoration across all four jurisdictions by making the quantitative case to state budget decision-makers and Chesapeake Bay Program leadership that tidal wetland restoration delivers high-value returns in water quality, carbon sequestration, habitat, and coastal resilience.

Recommendations/Steps:

- **1.** Develop a cross-jurisdictional policy brief and data package that quantifies the benefits of tidal wetland restoration in terms that resonate within existing regulatory frameworks (e.g., N/P/S removal, carbon credits, resiliency), and that demonstrates cost-effectiveness. (Short-term 1-3 years)
1-3 years

2.  Document and publicise large-scale projects (e.g., the [Elizabeth River Project's Moneypoint project](#)) that demonstrate acres restored per dollar invested at a rate competitive with stormwater and stream restoration projects. (Short-term 1-3 years)
1-3 years
3.  Identify and cultivate advocates within state agencies, the Chesapeake Bay Program, and legislatures who can champion dedicated tidal wetland budget lines. Use the Chesapeake Bay Agreement Outcome commitments as a direct lever.
3-5 years

Potential funding sources:

- Regional Greenhouse Gas Initiative (RGGI)
- National Fish and Wildlife Foundation (NFWF) grants (Chesapeake Small Watershed, Innovative Nutrient and Sediment Reduction, Chesapeake Watershed Investments for Landscape Defense, National Coastal Resilience Fund)
- North American Wetlands Conservation Act (NAWCA)
- USFWS National Coastal Wetlands Conservation Grants Program
- National Oceanic and Atmospheric Administration (NOAA) Transformational Habitat Restoration and Coastal Resilience Grants





B


Funding sources rarely support long-term maintenance (5+ years), and urban wetland maintenance costs are high due to debris and trash. [combined two issues – median scores 3.5 and 4, 6 and 4 votes]

Funding for long-term maintenance is limited for most public and private projects. Some respondents indicated projects on public lands or community sites with no single lead steward face more barriers than private properties. Urban tidal wetlands face higher maintenance costs due to debris and trash accumulation. Funding for adaptive maintenance encourages long-term project success, functionality, and sustainability for the greatest water quality, habitat, and resilience benefits.

Goal: Establish a sustainable, multi-year funding mechanism and trained workforce for ongoing tidal wetland site maintenance, targeting a reduction in per-site maintenance costs and improving site conditions within three years of program launch.

Recommendations/Steps:

1.  Leverage existing community events (Clean the Bay Day, Earth Day, International Coastal Cleanup Day) as entry points for structured volunteer engagement with ongoing maintenance coordination.
1-3 years
2.  Collaboratively engage funders to lobby for long-term maintenance, which could start with the [Chesapeake Bay Funders Network](#). The argument is simple - why pay for restoration projects that will fail without longer term support?
1-3 years
3.  Partner with existing green workforce programs on maintenance training, such as [Living Classrooms](#) based in D.C. and Baltimore.
1-3 years
4.  Develop a low-cost community college 2-year certificate program to train individuals to maintain wetlands, potentially working with the [Chesapeake Bay Landscape Professional program](#).
3-5 years

- 5.**  **3-5 years** Establish a stewardship fund to meet maintenance needs for projects that no longer have grant funding. *Model: The James River Association (JRA) [Living Shoreline Stewardship Fund](#) (now defunct) that members of the Living Shoreline Collaborative could pull from to cover 75% of costs associated with maintenance and/or repairs.*

Potential funding sources:

- Chesapeake Bay Funders Network
- Virginia Environmental Endowment
- National Fish and Wildlife Foundation
- NFWF Five Star Wetland and Urban Waters Restoration Grants

C




Federal funding sources fluctuate year-to-year, which destabilizes staffing, contractor markets, and long-term planning. [median score 4, 7 votes]

Respondents emphasized that federal funding is the primary driver for tidal wetlands restoration, but its instability has major impacts to capacity. Several respondents noted the boom-bust cycle of federal grants is particularly damaging for workforce development and retention of skilled wetland professionals. While this issue is not a traditional capacity concern, the downstream effects on staffing, contractors, and planning make it a major constraint on the field's ability to scale up.

Reviewers were candid that this issue will require a legislative change for dedicated federal funding for tidal wetlands restoration and is, therefore, unlikely. The more actionable path forward is to reduce dependence on federal sources by deliberately building and maintaining non-federal funding streams that sustain core capacity through funding gaps.

Goal: Reduce dependence on year-to-year federal funding by identifying and cultivating non-federal, multi-year funding sources in each jurisdiction capable of sustaining at least one dedicated tidal wetland staff position and a baseline level of restoration project activity through federal funding gaps.

Recommendations/Steps:

- 1.**  **1-3 years** Build on the financing and funding research conducted in 2025 by the Environmental Policy Innovation Center (EPIC) under contract with the Chesapeake Bay Trust.
- 2.**   **3-5 years** Advocate to the MD, VA, and DE governors and D.C. mayor for state budget lines dedicated to tidal wetland restoration staffing.

Potential Funding Sources:

- State budget appropriations in MD, VA, DC, and DE
- Regional Greenhouse Gas Initiative (RGGI) proceeds
- Ideas from EPIC's Financing and Funding Tidal Wetland Restoration in the Chesapeake Bay report:
 - ◇ Blue carbon credit markets (not currently viable for tidal wetland restoration)
 - ◇ Pay for outcomes projects
 - ◇ Community-Based Public-Private Partnerships
 - ◇ State Revolving Funds, particularly the Clean Water SRF (CWSRF)




Jurisdiction-Specific Issues

D **Virginia Natural Resources Conservation Service (NRCS) lacks capacity to develop new easement, cost-share, and technical assistance programs for tidal wetlands on agricultural properties.** [median score 4.5; 4 votes]

Agricultural lands represent some of the largest and most cost-effective opportunities for tidal wetland restoration and enhancement, yet Virginia NRCS currently lacks the capacity, wetland expertise, and incentive programs needed to serve this audience. Maryland has technical service providers (TSPs) working with farmers on [saltwater encroachment](#) which could serve as a model for Virginia.

Goal: Within three years, add external TSP capacity to Virginia NRCS that enables agricultural landowners to access NRCS easement, cost-share, or technical assistance programs for tidal wetland restoration.

Recommendations/Steps:

1.  **1-3 years**
Support partnerships that authorize external entities to work on behalf of NRCS as TSPs, following existing successful models: the [Ducks Unlimited \(DU\)–VA NRCS agreement](#) under the Working Lands for Wildlife Black Duck Initiative, and the [Delmarva Wetland Partnership](#) (The Nature Conservancy (TNC), DU, NRCS, USFWS, and Maryland Department of Natural Resources (MD DNR)) as a multi-partner collaborative delivery model for tidal wetland work on agricultural lands.
2.  **1-3 years**
Explore submitting a [Regional Conservation Partnership Program \(RCPP\)](#) application, or supporting a partner organization to do so, that specifically targets saltwater intrusion on Virginia agricultural tidal wetlands, following the model of [Trout Unlimited's \\$2.9 million RCPP award](#) for producer assistance in the Upper James and Shenandoah watersheds (one of 85 public-private NRCS collaborations announced in 2021).
3.  **1-3 years**
Support the Friends of the Rappahannock model of embedding a position in a 2026 NFWF grant application that would support NRCS easements in Virginia through the [Wetland Reserve Easements \(WRE\)](#) program and other programs.

Potential funding sources:

- United States Department of Agriculture (USDA) NRCS RCPP: public-private partnerships for conservation on agricultural lands; strongest vehicle for NGO-delivered technical assistance alongside NRCS funding
- USDA NRCS Environmental Quality Incentives Program (EQIP) and Conservation Stewardship Program (CSP): practice standards for saltwater intrusion adaptation on farmland (may require new practice code development for tidal wetland contexts in VA)
- USDA NRCS Wetland Reserve Easements (WRE): permanent and 30-year easement options; explore non-permanent easement variants for marsh migration contexts
- USDA NRCS Conservation Reserve Enhancement Program (CREP): recently opened for rolling enrollment; explore tidal wetland and saltwater intrusion eligibility
- NFWF Chesapeake Bay Stewardship Fund: for NGO-hosted TSP positions and partnership coordination
- USFWS Working Lands for Wildlife: for species-based (black duck, saltmarsh sparrow) program development on agricultural lands

III.

Monitoring, Maintenance, and Adaptive Management

Interview and questionnaire results found that monitoring and maintenance responsibilities are often unclear or underfunded. In many cases, long-term stewardship falls to landowners without clear expectations, technical support, or financial assistance. Few programs provide dedicated funding for adaptive management beyond initial installation.

The absence of standardized monitoring protocols and coordinated performance tracking limits the ability to evaluate outcomes, share lessons learned, and adjust approaches over time.

Cross-Cutting Issues

A

Long-term stewardship often falls to landowners without clear expectations, technical support, or financial assistance. [combined issues median scores 4 and 4; 5 and 7 votes]

Across all jurisdictions, respondents described a consistent failure with project monitoring and maintenance obligations being left to landowners who do not have the knowledge or resources for long-term stewardship. For example, NRCS Wetland Reserve Easements (WRE) adds stipulations on easements that say invasive vegetation needs to be controlled by the landowner in perpetuity, which is not realistic. Inadequate stewardship capacity negatively impacts restoration quality, homeowner relationships, and public perception of wetland restoration.

Goal: Within five years, each of the four tidal wetland jurisdictions will have implemented a documented landowner stewardship support program modeled on the agricultural extension agent approach that provides at least one on-site consultation per year for the first five years post-installation for all newly completed tidal wetland restoration projects.




Recommendations/Steps:

1.



1-3 years

Pilot a regionally deployed wetland stewardship coordinator role—one per major region in each jurisdiction—funded by a combination of state and foundation sources, with an explicit mandate to follow up on installed projects and support landowners through the monitoring and maintenance period. *Model positions after USDA NRCS field agents to help farmers, and create similar field agents for wetlands to educate homeowners about the value of wetlands, provide free delineations, and provide info on funding programs available.*

2.  **1-3 years** Develop a standard landowner stewardship guide for each jurisdiction covering: what monitoring is required and how to do it, what maintenance activities to expect, who to contact for technical assistance, and what financial support is available. This guide should be given to all landowners at or before project completion.
3.  **1-3 years** Engage [AmeriCorps](#) and university partnerships (Virginia Institute of Marine Science (VIMS), William & Mary (W&M), Old Dominion University (ODU)) to provide monitoring labor for completed restoration projects, reducing the burden on landowners while generating scientific data.
4.  **3-5 years** Establish or restore a stewardship fund mechanism (modeled on JRA’s former stewardship fund) that practitioners and NGOs can access for post-project maintenance on sites where landowners lack capacity.

Potential funding sources:



- JRA Stewardship Fund model — explore replication across jurisdictions
- Work with NRCS and other incentive programs to clarify and adjust expectations of landowners.
- EPA Wetland Program Development Grants (monitoring and assessment is a core element)



B **Lack of standardized monitoring protocols and coordinated performance tracking limits the ability to evaluate outcomes and adjust approaches over time.** [median score 4; 6 votes]

Despite years of conversation about the need for standardized monitoring, no shared protocol has been adopted across Chesapeake Bay tidal wetland jurisdictions. The result is that performance data from completed projects is incomparable across programs and time periods, making it impossible to assess what is working, where, and how. Adaptive management at a system level requires this data foundation, and without it, each project effectively starts from scratch rather than building on the collective experience of the field. Virginia has [ShoreWatch](#), a geographic information system (GIS) application used to collect standardized monitoring data on living shorelines, that does not require much equipment.

Goal: At least three state agencies or major funders adopt a shared tidal wetland restoration monitoring protocol, with all newly funded projects required to use the protocol and report outcomes to a centralized tracking system.

Recommendations/Steps:

1.  **1-3 years** Convene a focused, decision-oriented working session bringing together agency staff, NGO practitioners, and researchers to finalize and adopt a shared monitoring protocol.
2.  **3-5 years** Require adoption of the shared monitoring protocol as a condition of Chesapeake Bay Trust and NFWF grants for tidal wetland restoration, creating an immediate adoption pathway through funding requirements rather than waiting for voluntary uptake.

3.  Partner with universities (VIMS, W&M, ODU, UMD) to embed monitoring capacity within active restoration projects, providing academic teams with field sites and providing practitioners with scientific rigor at reduced cost.
3-5 years
4.  Develop a centralized, publicly accessible database for reporting and accessing monitoring outcomes across projects and jurisdictions — building on existing tools ([VIMS Coastal Viewer](#), [MD Coastal Atlas](#)) rather than creating new infrastructure from scratch.
3-5 years

Potential funding sources:

- Chesapeake Bay Trust
- NFWF grants

Jurisdiction-Specific Issues





The Virginia Department of Wildlife Resources (DWR) has historically relied on a passive management approach on publicly owned tidal wetlands.

[median score 4.5; 2 votes – included despite two votes because of the potential for major acreage gains with the large-scale nature of publicly owned sites]

Without assessing site conditions and establishing wetland management plans, there are significant unrealized proactive restoration opportunities and do not account for changing environmental conditions.

Goal: Develop large-scale tidal wetland management plans for five of DWR’s highest priority publicly owned sites to inform existing conditions and future management considerations.

Recommendations/Steps:

1.  Work with the Statewide Wetlands Technical Team and Wetlands Policy Taskforce to establish a process for conducting statewide assessments, identifying priority publicly owned marsh sites, and developing management plans. *Use the Chesapeake Bay National Estuarine Research Reserve - Virginia (CBNERR-VA) [Catlett Island Reserve Component Resource Management Plan](#) as a model.*
1-3 years
2.  Develop specific restoration funding asks for each site based on the management plan findings. Target NOAA, USFWS, and Environmental Protection Agency (EPA) restoration programs with site-specific proposals.
3-5 years

Potential funding sources:

- NOAA Transformational Habitat Restoration and Coastal Resilience Grants
- USFWS North American Wetlands Conservation Act funding
- EPA Climate Pollution Reduction Grant
- NFWF Chesapeake Bay Grants

IV. Outreach

Voluntary tidal wetland restoration depends on informed and motivated landowners. Across jurisdictions, respondents highlighted that many landowners lack awareness and clarity about available services, funding pathways, regulatory steps, and long-term implication of restoration. Current messaging strategies may fail to align with landowner motivations, particularly where wetlands are perceived as undesirable, economically unproductive, or permanently restrictive. Many jurisdictions desire more demonstration sites or local examples of successful wetland restoration to aid outreach efforts.

Interview and questionnaire results indicated that organizational outreach capacity is limited relative to need, particularly for sustained, face-to-face engagement and relationship building. Reported distrust of government agencies in some communities further constrains participation. Without expanded outreach capacity and more effective communication strategies, restoration opportunities remain under-realized.

Cross-Cutting Issues



A


Many landowners lack clarity about available services, funding pathways, regulatory steps, and long-term implication of restoration. [median score 4; 6 votes]

Across all jurisdictions, landowners do not know what services exist and who to contact. Landowners with shoreline concerns may ask for help but quickly disengage if they encounter complexity, permitting jargon, or cost uncertainty. Contractors reported client turnover because landowners don't understand the long permitting-to-installation timeline.

Goal: Develop plain-language, jurisdiction-specific landowner guides for each of the four jurisdictions, covering available services, funding sources, regulatory pathways, and long-term expectations, and equip practitioners with these materials during face-to-face outreach.

Recommendations/Steps:

- 
1-3 years
Develop a single-page, plain-language tidal wetland restoration “roadmap” for each jurisdiction available through multiple channels (NGO websites, county offices, Soil and Water Conservation District (SWCD) contacts, Cooperative Extension) on what to expect from project initiation, installment, and monitoring.
- 
1-3 years
Create an accessible, searchable online resource hub (or strengthen existing hubs like [Chesapeake Bay Landscape Professional](#) or [Wetlands Work](#)) that connects landowners to available services, funding programs, and contacts in each jurisdiction, organized by landowner type (private residential, agricultural, homeowners association, municipal).

3.  Document the James River [Living Shoreline Collaborative](#) model and explore replicating it in MD, DE, and DC as a centralized hub that can answer landowner questions and make referrals to appropriate service providers.
3-5 years

Potential funding sources:

- Chesapeake Bay Trust capacity-building and outreach grants
- Virginia and Maryland CZM Section 306A funds







B

Organizational outreach capacity is limited relative to need, particularly for sustained, face-to-face engagement and relationship building. [median score 4.5; 6 votes]

Interviewees across all jurisdictions described a fundamental gap between the sustained, relationship-based engagement that drives landowner participation and the episodic, grant-funded outreach that most organizations can actually deliver. On the Delmarva Peninsula, The Nature Conservancy (TNC) deployed a successful outreach model involving a mailed survey with a \$2 bill incentive, but following through on landowner interest at scale requires consistent, on-the-ground relationships that TNC doesn't have the capacity to maintain everywhere. VA DWR has two Sea Grant Fellows (housed at TNC/DWR) to conduct landowner outreach and training. Tidal wetland restoration opportunities are lost without adequate follow-through capacity.

Goal: Establish a network of at least four dedicated tidal wetland outreach coordinators (one per jurisdiction) regionally embedded and funded through multi-year (3+ year) commitments, delivering face-to-face engagement with landowners on a consistent basis.

Recommendations/Steps:

1.   Develop a TNC-style trusted messenger strategy for agricultural communities: identify and train trusted intermediaries (agrobusiness representatives, cooperative extension agents, SWCDs) to deliver tidal wetland program information rather than sending government or NGO staff directly.
1-3 years
2.  Train local or state regulatory staff to serve in dual outreach functions during site visits to use those touchpoints as direct service and education opportunities rather than purely administrative interactions.
1-3 years
3.    Design an outreach coordinator position based on the agricultural extension agent model: geographically assigned, relationship-based, and supported by multi-year funding rather than project-based grants. Work with Sea Grant, Cooperative Extension, or state agencies to host and sustain these positions.
3-5 years

Potential funding sources:

- NOAA Sea Grant Extension programs
- USDA Cooperative Extension programs
- NFWF Chesapeake Bay Stewardship Fund
- State budget lines at DNR, DOEE, and DWR (for outreach coordinator positions hosted at state agencies)
- Chesapeake Bay Trust Capacity Building Program

C




Messaging often fails to align with landowner motivations, particularly where wetlands are perceived as undesirable, economically unproductive, or permanently restrictive. [median score 4; 6 votes]

Across all jurisdictions, practitioners described a persistent mismatch between how tidal wetland restoration is communicated and what actually motivates landowners to participate. There are also multiple tidal wetland landowner audience types, such community type (urban, suburban, rural) and land use (residential, agricultural), that require tailored messaging.

Work has been done to understand landowner behavior and develop targeted messaging strategies. In 2020, Action Research worked with the Chesapeake Bay Program to conduct a [behavior survey](#) of Maryland and Virginia shoreline property owners, which provides a baseline understanding of landowner motivations. In 2022, researchers [examined](#) property owner perceptions and decision-making pathways around shoreline modifications. In 2025, Green Fin Studio worked with the Chesapeake Bay Trust to develop a Tidal Wetlands Private Landowner Community Engagement Outreach & Education Program with recommended communication strategies, a customizable outreach toolkit, and other resources for practitioners to more effectively reach private homeowners.

Goal: Develop and deploy audience-specific communication materials for at least three distinct landowner profiles across the four jurisdictions and integrate these materials into active outreach programs, measurably improving landowner engagement rates compared to current generic messaging approaches.

Recommendations/Steps:

1.  **1-3 years**
Develop messaging frameworks for at least three distinct audiences with each framework centered on the landowner's own objectives: property protection, farm resilience, erosion cost avoidance, liability reduction, or legacy stewardship. Target audiences could include rural agricultural producers, suburban shoreline homeowners, and local decision-makers such as wetlands board members and county officials.
2.  **1-3 years**
Train conservation practitioners and regulatory staff in motivational interviewing and audience-centered communication techniques, so that individual landowner interactions are as effective as the materials being delivered.
3.  **3-5 years**
Invest in peer-to-peer and neighbor-to-neighbor outreach models. Neighbor referral is one of the most powerful drivers of living shoreline adoption, which recognizes that trusted community voices carry more weight than organizational messaging for many landowner audiences.

Potential funding sources:

- USDA NRCS Conservation Outreach
- EPA Wetland Program Development Grants

Jurisdiction-Specific Issues

D





MD

In Maryland, many landowners do not understand the permanence of wetlands, are unsure about saltwater intrusion, wetland migration, and erosion's impact to their property/shoreline. [median score 4; 3 votes]

Maryland practitioners identified a foundational education gap around tidal wetland dynamics that creates a persistent barrier to voluntary participation. Landowners are reluctant to convert land to wetland, even if they understand the situation is inevitable. Economic considerations drive near-term decision making, especially for agricultural landowners who do not want to lose productive acreage.

Goal: Within two years, develop and deploy a targeted MD landowner education program on tidal wetland dynamics, available assistance programs, and realistic project expectations.

Recommendations/Steps:

1.  **1-3 years** Develop plain-language educational materials specifically tailored to MD shoreline and agricultural landowners on: what tidal wetland permanence means for their property rights, how saltwater intrusion and marsh migration work and what their timelines look like, what restoration and protection options exist, and what realistic costs and financial assistance are available.
2.  **1-3 years** Partner with Cooperative Extension, SWCD contacts, and Farm Bureau networks to deliver agricultural landowner education, framing wetland conservation as a farm resilience strategy rather than a land-taking.
3.   **3-5 years** Engage MD Sea Grant Extension in developing and delivering regional workshops on marsh migration, saltwater intrusion, and erosion dynamics for property owners.

Potential funding sources:

- NOAA Maryland Sea Grant Extension
- NRCS Conservation Outreach
- Maryland CZM Section 306A funds

V.

Regulatory and Permitting

Permitting processes were the single most frequently cited operational bottleneck for growing tidal wetlands capacity. Respondents feel that current frameworks are designed for construction and development, not ecological restoration. In some jurisdictions, living shoreline and marsh restoration projects face longer, more complex permitting pathways than hardened shoreline alternatives, creating disincentives for adoption. These constraints discourage landowner participation, increase project costs, and limit the ability to test innovative techniques.




Cross-Cutting Issues



A **Permitting processes for tidal wetland restoration are often complex and lengthy due to multi-agency coordination and are designed around traditional construction activities rather than ecological restoration.** [combined two issues – median scores 4 and 3.5; 7 and 4 votes]

Permitting is complicated and slowed down by multi-agency coordination and compliance redundancies (e.g., National Environmental Policy Act). In Maryland, respondents indicated that multi-agency coordination between USACE, MD DNR, and MDE create cumulative delays and confusion. In Virginia, federal agencies were cited as the most capacity limited and, therefore, the slowest part of the process.

Goal: Within five years, each of the four tidal wetland jurisdictions adopts at least one restoration-specific streamlining measure for living shoreline and tidal wetland restoration permitting, whether a new general permit category, a pre-approved best management practice pathway, or a joint agency fast-track protocol.

Recommendations/Steps:

-  1. **1-3 years** Align grant timelines with permitting realities by asking funders to build 18-36 month permitting windows into grant program designs, or create “pre-permitting” grants that fund the design-to-permit phase separately from construction.
-  2. **3-5 years** Develop a tiered, restoration-specific permit pathway in each jurisdiction that allows standard living shoreline and marsh enhancement projects (below defined thresholds of scale and complexity) to be processed on an expedited timeline, separate from construction and development permit tracks.
-  3. **3-5 years** Engage USACE Baltimore and Norfolk Districts in developing a programmatic agreement for restoration projects (modeled on [PASDO](#) in VA) that allows qualifying projects to receive expedited USACE authorization.

4.   Fund at least one professionally-credentialed restoration-specialist position at USACE Norfolk and Baltimore Districts, whose role is to process ecological restoration permits with an understanding of restoration science rather than construction review protocols.
- 3-5 years

Potential funding sources:

- State budget lines (VMRC, MDE, DOEE — dedicated restoration permitting staff)

B



Regulatory frameworks generally do not account for dynamic processes such as marsh migration under sea level rise, leaving agencies without clear guidance on shifting property boundaries, habitat tradeoffs, or proactive restoration. [median score 3; 7 votes – despite reviewers having vastly different priority scores, this issue was included as the necessity to address this issue will only grow with time.]

As sea levels rise, tidal marshes are migrating upslope onto adjacent upland areas. Regulatory frameworks across all four jurisdictions provide little or no clear guidance, and agencies lack authority to manage shifting property boundaries, resolve tradeoffs between protecting existing wetlands and enabling migration into adjacent habitats, or facilitate proactive restoration in migration corridors before existing marshes are lost.

Several promising developments are underway. [Virginia's HB390](#) passed in April 2026 and established the Habitat Policy Oversight Committee within the Virginia Marine Resources Commission (VMRC) to advise the Commission on policies and support the Commission's coastal resilience efforts. Maryland's [Coastal and Watershed Resources Advisory Committee](#) now includes climate resiliency as a focus area after a recent pivot. DOEE was recently awarded funding to create a wetland regulations guidance document that will consider dynamic processes.

Goal: Each of the four tidal wetland jurisdictions has adopted or is actively piloting regulatory guidance or legal tools that explicitly address marsh migration, including provisions for shifting property boundaries, habitat tradeoffs, and proactive upslope restoration, informed by a shared cross-jurisdictional policy framework developed with input from practitioners, scientists, and regulators.

Recommendations/Steps:

1.  Convene a cross-jurisdictional science-policy working group that brings practitioners into direct conversation with regulators on marsh migration to develop shared frameworks rather than four parallel, disconnected efforts.
 2.  Develop landowner education materials specifically addressing migrating wetland boundaries—what they are, what they mean for property rights and management (particularly mowing practices), and what assistance is available.
- 1-3 years
- 1-3 years

Potential funding sources:

- STAC Workshop

Jurisdiction-Specific Issues





In Virginia, ambiguous regulatory guidance in permitting handbooks and general permits slow progress. [median score 4; 4 votes]


Multiple respondents expressed frustration with Virginia’s permitting process. The overlap of USACE, VMRC, Local Wetlands Boards, the Chesapeake Bay Preservation Act, and other tidal wetland regulatory program jurisdiction adds significant complexity. North Carolina and Maryland’s general permit processes could be used as a model for Virginia since they were commonly perceived as easier to navigate.

Goal: VMRC convenes a practitioner advisory group to review and substantially update VA tidal wetland permitting handbooks and general permits, producing revised, plain-language guidance that resolves the top documented points of ambiguity and expands the universe of projects eligible for general permit review.

Recommendations/Steps:

- 1.**  **1-3 years**

Convene a formal practitioner advisory group — including VMRC staff, NGO practitioners (e.g., Elizabeth River Project, Wetlands Watch, the Living Shoreline Collaborative), VIMS Center for Coastal Resources Management (CCRM), private engineers (e.g., Anchor QEA), and Planning District Commission (PDC) representatives — to systematically review current guidance documents and identify points of ambiguity.
- 2.**  **3-5 years**

Expand the general permit pathways (GP 1 and 2) to cover a broader range of standard living shoreline and restoration project types, reducing the volume of projects requiring full joint permit application review and allowing more detailed, expert review of more complicated or wetland-impacting projects.
- 3.**  **5-10 years**

Explore the feasibility of consolidating the [Chesapeake Bay Preservation Act](#) and Tidal Wetland regulatory programs into a more unified ecosystem-based framework — a longer-term legislative goal that could significantly reduce duplicative regulatory processes.

Potential funding sources:

- Coastal Zone Management (CZM) funding to address policy issues every five years



In Maryland, there are regulatory hurdles for installing living shorelines (e.g., it is complicated to do channel work due to impacts to submerged aquatic vegetation (SAV) and it is difficult to do work on land due to the buffer).





[median score 4; 3 votes]

Channel work is complicated by requirements to protect SAV, while upland work is constrained by critical area buffer requirements, leaving practitioners caught between two sets of restrictions simultaneously. The practical result is that some sites where living shorelines are ecologically viable and legally required under [Maryland's Living Shoreline Protection Act](#) become operationally difficult or impossible to permit without design compromises that undermine restoration outcomes.

Some respondents noted that the number of projects actually stalled by this interaction is relatively small, but addressing them proactively would remove friction for an important category of projects and send a signal to practitioners that the regulatory system is designed to enable restoration, not impede it.

Goal: MDE, MD DNR, and Critical Area Commission jointly develop explicit guidance addressing the SAV channel work constraint and critical area buffer interactions for living shoreline projects, including a framework for weighing SAV habitat tradeoffs at the site scale, reducing ambiguity for practitioners and measurably decreasing the number of living shoreline projects modified or denied on these grounds alone.

Recommendations/Steps:

1.  **1-3 years** Convene a focused technical working group, including MDE, MD DNR Critical Area Commission, MD DNR Resource Assessment Service, SAV researchers (VIMS, University of Maryland Center for Environmental Science), and experienced practitioners, to develop a SAV mitigation and tradeoff framework for living shoreline permitting. (Short-term 1-3 years)
2.  **1-3 years** Weigh the no-action alternative explicitly in feasibility and impact assessments: a shoreline that is actively eroding will eventually eliminate both the SAV and the wetland it fronts, making the living shoreline the ecologically preferable long-term outcome even where short-term SAV impacts occur. (Short-term 1-3 years)
3.  **3-5 years** Develop SAV mitigation pathways for living shoreline projects with unavoidable SAV impacts to allow projects to proceed where the net ecological benefit is demonstrably positive, with appropriate mitigation or monitoring conditions attached. (Medium-term 3-5 years)
4.  **3-5 years** Clarify the interaction between the Living Shoreline Protection Act requirements and Critical Area buffer restrictions for upland work — developing written guidance that helps practitioners navigate both sets of requirements simultaneously rather than treating them as independent hurdles. (Medium-term 3-5 years)

Potential funding sources:

- NOAA Maryland CZM Section 309
- VIMS SAV monitoring program (for the research component of SAV impacts)

VI.

Sediment, Beneficial Use, and Marsh Migration

Sediment can be one of the most expensive supplies for restoration projects due to high transport costs. Interview and questionnaire responses pointed at beneficial use of dredged material for marsh elevation enhancement as one of the most scalable restoration opportunities in the Bay watershed, but realizing it requires coordinating two systems that currently operate on entirely different timelines and with different institutional incentives. Simultaneously, respondents highlighted the need for the scientific and policy consensus to guide proactive marsh migration facilitation.

There are multiple agencies, organizations, and academics working on guidance around these topics. A non-exhaustive list includes:

- MDE – 2019 [Innovative Reuse and Beneficial Use of Dredged Material Guidance Document](#)
- Resilience Implementations for Salt-INtruded Geographies (RISING) Mid-Atlantic funded through the National Science Foundation Regional Resilience Innovation Incubator.
- Virginia is set to release a report on Beneficial Use Options and Considerations for Dredged Material in Coastal Virginia.
- The University of Virginia Institute for Engagement & Negotiation (UVA IEN) is working on a comprehensive assessment.
- Research through Old Dominion University’s Department of Biology/Institute for Coastal Adaptation and Resilience (ODU ICAR).
- CBNERR-VA/VIMS – January 2026 [Improved Reporting Needed for Comprehensive Analysis of Thin Layer Placement of Dredge Materials in Salt Marshes: A Review.](#)
- Elizabeth River Project (ERP) recently released a new guide in partnership with Anchor QEA called [Wetland Restoration Using Thin Layer Placement: Best Management Practices for the Commonwealth of Virginia](#). ERP is also convening a new Community of Practice around thin layer placement (TLP), and the next meeting will take place in summer 2026 “TLP Regulation: A Working Session on Policy and Permitting.”
- VA CZM and Middle Peninsula PDC are developing a report titled Public Financing Options for Dredging and Coastal Resilience Activities.
- VIMS held a workshop on marsh migration facilitation April 15-16, 2026.
- One respondent said New Jersey is at the cutting edge of addressing wetland losses with dredge material, and could be a model applied to the Chesapeake Bay region.
 - ◇ 2020 – [The Status And Future Of Tidal Marshes In New Jersey Faced With Sea Level Rise](#)
 - ◇ 2025 – [A Framework for Managing Sediment in the Back Bays of New Jersey.](#)
 - ◇ [Seven Mile Island Innovation Lab](#) – partnership between USACE, the State of New Jersey, and The Wetlands Institute.
- EcoShape’s [Living Lab for Mud](#)

Cross-Cutting Issues




A

Dredging timelines rarely align with restoration needs, and there is limited advance identification of suitable placement sites. [combined two issues – median scores 3.5 and 4; 6 and 7 votes]

The coordination mismatch was identified by nearly every respondent that mentioned beneficial use. The USACE dredges channels in accordance with shipping and navigation needs, not ecological restoration windows. Practitioners commented that beneficial use coordination could require up to five years advance notice to work, given permitting processes, funding cycles, dredge timelines, and sediment transport logistics.

Goal: Establish formal coordination protocols between tidal wetland restoration practitioners and dredging program managers in each jurisdiction, including pre-screened candidate placement sites identified.

Recommendations/Steps:

1.  **1-3 years** Establish a multi-agency beneficial use coordination working group in each jurisdiction, including USACE, state agencies, NGOs, and county/locality representatives, meeting on a defined schedule (at minimum quarterly) with a mandate to plan beneficial use pairings 2–5 years in advance of scheduled dredging.
2.  **3-5 years** Build a pre-screened, pre-permitted placement site inventory for each jurisdiction with characteristics for potential marsh enhancement sites by location, condition, sediment needs, and landowner willingness, so that when dredging opportunities arise, placement sites are ready. *Use existing models ([MD DNR's Beneficial Use: Identifying Locations for Dredge \(BUILD\) database](#), or "[Beneficial Use: Identifying Locations for Dredge](#)", ERP's [thin layer placement guide](#), TNC's [Sediment Strategies Report](#)) as starting points for each jurisdiction's inventory, and make these resources publicly accessible and regularly updated.*
3.  **3-5 years** Characterize potential sediment sources for grain size analysis and toxicity so that their potential project uses are known in advance.

Potential funding sources:

- USACE Civil Works Navigation program
- USACE Engineering Research and Development Center for Proving Grounds pilots
- NOAA Maryland and Virginia CZM programs
- State navigation and dredging program budgets








B

Confusion persists around marsh elevation enhancement (MEE) standards, sediment volumes, and regulatory expectations. [median score 4; 6 votes]

Practitioners, researchers, and regulators are working to understand and implement MEE strategies. Another term for this approach is thin layer placement (TLP) but commonly causes confusion on what is deemed ‘thin’ (e.g., when a foot of material is used). Hesitancy in Maryland comes from limited local precedent and negative public perception from earlier projects with poor containment (e.g., hay bales floating away).

Goal: Develop and disseminate a consolidated, plain-language marsh elevation enhancement and beneficial use guidance document for Chesapeake Bay jurisdictions harmonizing existing MD and VA guidance endorsed by USACE, state regulators, and practitioners, and accompanied by hands-on training delivered at at least two demonstration sites.

Recommendations/Steps:

1.   **1-3 years** Convene a technical working group (USACE, VA – DEQ/CZM/VMRC, MD – DNR/MDE, DC – DOEE, practitioners, academic partners) to develop a consolidated MEE guidance document that standardizes terminology, defines sediment volume parameters, and establishes regulatory review expectations across jurisdictions.
2.   **1-3 years** Host at least two hands-on field workshops at existing MEE sites like Maryland’s Poplar Island bringing permittees, regulators, local government officials, and practitioners together to observe and discuss MEE practice and standards directly.
3.  **3-5 years** Use the existing USACE District designated “Proving Grounds” and their funding to initiate a series of pilot projects for marsh elevation enhancement and wetland island creation and restoration. The DoD can be a partner (providing sites and funding) with the USACE and their partners to test innovative strategies and do the long term monitoring necessary to identify ways to mitigate future impacts and streamline and improve the regulatory permitting process.
4.   **3-5 years** Create regulatory sandboxes and designate specific sites as experimental to allow us to learn from innovative practices.

Potential funding sources:

- USACE Engineering Research and Development Center for Proving Grounds pilots
- DoD provide pilot sites and Readiness and Protection Integration cost-share funding
- Sentinel Landscape Partnership Program
- STAC Workshop




C

Limited scientific and policy consensus around marsh migration strategies, including tradeoffs between protecting existing wetlands and enabling upslope movement. [median score 4.5; 6 votes]

Marsh migration will only become more urgent with time, so practitioners and policymakers need to develop guidance now.

Goal: Complete a multi-partner scientific synthesis study on marsh migration tradeoffs in the Chesapeake Bay, with actionable policy recommendations delivered to Bay Program and jurisdictional decision-makers, and a practitioner-accessible summary published to inform project design and regulatory guidance.

Recommendations/Steps:

1.  **1-3 years** Convene a science-policy working group (building on the Chesapeake Bay Program Wetlands Workgroup) specifically tasked with translating the emerging scientific consensus into regulatory guidance — addressing property boundary issues, wetland mowing, habitat tradeoffs (SAV, upland habitats), and proactive restoration authorities.
2.  **3-5 years** Engage the USACE Technical Assistance Program for a Bay-wide study on beneficial use and marsh migration, leveraging federal technical and financial resources for a regional synthesis.
3.  **5-10 years** Explore legislative tools that provide localities with legal authority and guidance for proactively facilitating marsh migration onto upland areas before existing wetlands are lost.

Potential funding sources:

- STAC workshop
- USACE Technical Assistance Program

Jurisdiction-Specific Issues

D




MD

In Maryland, there are disagreements between USACE, private dredgers, and counties on where and when to place material. [median score 5; 3 votes]

Maryland's beneficial use landscape involves coordination among multiple parties whose interests, timelines, and authorities do not naturally align. The result is a coordination vacuum in which beneficial use opportunities are missed not because the material doesn't exist or the restoration sites aren't there, but because no entity has the authority, mandate, or capacity to broker the match before the dredging window closes.

Goal: Establish a formal Maryland beneficial use coordination committee with USACE Baltimore District, MD DNR, MDE, county representatives, and private dredging contractors.

Recommendations/Steps:

1.  **1-3 years**
Convene a Maryland beneficial use coordination committee with representation from USACE Baltimore District, MD DNR, MDE, county dredging programs, private dredging contractors, and restoration practitioners. Charge the committee with developing a shared placement decision framework that clarifies each party's authorities, responsibilities, and decision-making criteria. *MD DNR's beneficial use planner, Maggie Cavey, could serve in a coordination role.*
2.  **3-5 years**
Pair dredging projects with pre-permitted and long-duration living shoreline, marsh elevation enhancement, beach nourishment, and island restoration or creation projects so that placement sites are ready when dredging windows open. This requires planning restoration projects years in advance of anticipated dredging — a significant shift from current practice.
3.  **3-5 years**
Explore financial incentives for private and county dredgers to choose beneficial reuse over upland containment, potentially including reduced disposal costs, permit fee reductions, or direct payment for beneficial use placement that distributes value across parties rather than placing the full cost burden on restoration programs.

Potential funding sources:

- USACE Civil Works Navigation program
- DoD Readiness and Protection Integration (REPI) cost-share funding
- Sentinel Landscape Partnership program
- County navigation and dredging budgets
- Maryland Port Administration

VII. Wetland Plant Availability

Many practitioners discussed coastal plant production as a barrier to wetland projects. They cited local nurseries not having the quantity of wetland plants needed to align with project installation timelines. Nurseries require proper advanced notice to provide the types of plants needed.

In March 2026, the Living Shoreline Collaborative hosted small group discussions on ways to expand wetland plant production. Erik Yando, Department of Biological Sciences at ODU, introduced [Virginia's Coastal and Wetland Plant Production Hub](#), an online portal designed to connect Virginia-based plant suppliers with project requestors, helping to address the supply and networking challenges. The [meeting notes](#) summarize strong ideas to expand wetland plant production through funding support, partnerships and coordination, production and sourcing, outreach, and planning and research.

Cross-Cutting Issues







A

Many states face challenges with inadequate native wetland plant supply chains due to limited seed sourcing and propagation capacity, inconsistent demand year-to-year, and long lead times for plant growth. [issue added after scoring was complete, no median score]

Plant availability is a supply and demand problem. Inconsistent, grant-funded wetland restoration and enhancement project timelines often do not give growers enough advance notice to have the quantity and ecotypes required for the project. Practitioners must choose to delay the project, reduce planting density, or purchase plants from other regions.

Goal: Establish a functional, cross-jurisdictional native coastal wetland plant supply coordination system building on Virginia's Coastal and Wetland Plant Production Hub that connects practitioners with regional suppliers at least one year in advance of planned installation, reduces reliance on out-of-state plant material, and supports nursery financial sustainability through improved grant structures and state agency partnerships.

Recommendations/Steps:

1.  **1-3 years** Expand and promote Virginia's Coastal and Wetland Plant Production Hub as a regional coordination tool, working with MD, DC, and DE partners to extend its reach beyond Virginia and build it into standard project planning workflows so that practitioners are connecting with suppliers at the design stage, not after permits are in hand.
2.  **1-3 years** Require or strongly incentivize early nursery engagement at least one year before planned installation as a standard component of restoration grant planning. Funders should build plant procurement timelines into grant program requirements and allow pre-award nursery coordination costs to be eligible expenses.
3.  **1-3 years** Engage each jurisdiction's agriculture and forestry departments to expand native coastal plant production.
4.  **3-5 years** Expand community-based propagation capacity through volunteer and workforce development networks: Virginia Master Naturalists, Virginia Master Gardeners, municipality grow-out areas, community gardens, and farmers willing to lease or volunteer growing space. Seed collection volunteer programs and adopt-a-wetland initiatives can supplement commercial production while building public engagement.
5.  **3-5 years** Support research on seed viability, disease resistance, and ecotype performance, particularly for *Spartina alterniflora*, to reduce production risk for growers and provide practitioners with better guidance on when out-of-state material is an acceptable substitute for local ecotypes.
6.  **3-5 years** Offer state-supported "crop-insurance" to purchase any un-used wetland plants to ensure annual grower output. Plants covered by wetland crop insurance could be used to enhance public/state restoration site density or accelerate regrowth of MEE projects.

Potential funding sources:

- USDA Regional Conservation Partnership Program (RCPP)
- NFWF Chesapeake Bay Stewardship Fund
- Virginia Tech Agricultural Research and Extension Centers (for research activities)
- State Departments of Agriculture
- AmeriCorps (for volunteer seed collection and propagation labor)

VIII. Workforce

Respondents indicated a shortage of technical professionals and insufficient staffing within agencies and partner organizations constrains tidal wetland implementation across the region. State agencies reportedly lack permanent wetland-focused technical staff and rely heavily on NGOs or short-term, grant-funded positions. Qualified staff require a commensurate salary to compete with private sector firms. Turnover in regulatory roles creates ongoing training needs and inconsistent interpretation of policies. The contractor market for wetland design, engineering, and installation remains thin in several jurisdictions.

These workforce gaps slow permitting and design review, limit proactive landowner engagement, and reduce the ability to scale projects. Without stable technical capacity, jurisdictions cannot consistently implement, monitor, and adapt restoration efforts.

Cross-Cutting Issues



A **State agencies and localities lack permanent wetland restoration and enhancement-focused technical staff and rely heavily on NGOs or short-term grant-funded positions.** [combined two issues – median scores 5 and 4.5; 7 and 4 votes]





Without adequate staffing, agencies and localities lack the knowledge and expertise to restore wetland areas to meet goals. Staff turnover, especially in regulatory roles, creates ongoing training needs and inconsistent interpretation of policies. Positions are often not compensated at a commensurate wage with the knowledge and expertise required compared to private sector salaries.

In Virginia, there is no state biologist for NRCS, and only one state wetland biologist at DWR and three additional wetland staff members for the next 4-5 years. In Virginia, CZM staff highlighted the need for more capacity and training for on-the ground survey work and site identification, as opposed to relying heavily on remote sensing as a capacity work-around.

Goal: Fund permanent state-level technical positions at a commensurate salary and create shared technical assistance roles.

Recommendations/Steps:

-   Where permanent positions are not immediately achievable, pursue multi-year (5+) grant-funded positions through federal programs (NOAA, EPA, USFWS) as a bridge, **1-3 years** while continuing to advocate for state budget lines.

2.  Engage the MD, VA, and DE governors and the D.C. mayor who signed the revised Chesapeake Bay Agreement undertaking tidal wetland restoration goals to fund more dedicated positions.
1-3 years
3.  Fund and hire a Virginia NRCS state biologist. Advocate for NRCS to rehire and restaff critical easement and biologist positions in Virginia.
1-3 years
4.  Host an site identification training workshop with a field component and a classroom based component. Training should focus on what to look for during field visits and how to identify the particular stressors to each wetland.
1-3 years
5.  Pursue workforce development programs in partnership with universities on restoration or adaptation projects and for more training for interested engineering and wetland science students.
3-5 years

Potential funding sources:

- State budget appropriations (primary target)
- NFWF Chesapeake Bay Stewardship Fund (for NGO-hosted positions)
- University Sea Grant programs (extension-style roles at the state-NGO interface)



Jurisdiction-Specific Issues

B In Virginia, there are no training requirements for wetlands board members.
VA [median score 4; 3 votes]

Virginia manages tidal wetland resources through local (town/city/county) wetlands boards composed of volunteer citizens who are responsible for decisions regarding the use, alteration, on-site restoration or mitigation, development of off-site tidal-wetlands, and in some cases coastal primary sand dunes and beaches. VMRC acts as the wetlands board for localities that do not elect the local option.

Goal: By 2029, Virginia establishes a minimum training requirement for all new wetlands board members covering wetland science fundamentals, state regulatory framework, and ethics.

Recommendations/Steps:

1.  Coordinate with the Virginia Institute of Marine Science Center for Coastal Resources Management (VIMS CCRM), Wetlands Watch, and the Living Shoreline Collaborative (LSC) organizations on training content development. Design the training to be accessible to volunteer board members in an online or hybrid format, reasonable time commitment, and available on a rolling basis. To solidify understanding and retention, include one mandatory field learning component.
1-3 years
2.  Pursue a legislative or regulatory pathway to make training a condition of board service for new appointees — engage the VA General Assembly and work with VMRC to identify the appropriate regulatory vehicle. (Medium-term 3-5 years)
3-5 years

Potential funding sources:

- Chesapeake Bay Trust capacity-building grants



In Maryland, there is a lack of technical expertise and criteria to evaluate living shoreline feasibility and limit unnecessary waivers.






[median score 4; 5 votes]

Maryland's Living Shoreline Protection Act (2008) requires applicants to demonstrate that a living shoreline is not feasible before receiving a waiver for a hardened alternative, however, evaluating these waiver rigorously is a highly complex task, and permitting staff would greatly benefit from more consistent technical criteria and specialized technical support. The problem is compounded by perceptions within the marine contractor community that living shorelines are not successful and actively advise clients to seek waivers for hardened alternatives.

MDE has a [Maryland Shoreline Stabilization Mapper](#) (MSSM) tool that delineates areas where living shorelines are a suitable treatment option for shoreline erosion control, and where waivers for traditional hardened erosion control structures should be permissible given current shoreline conditions and energy regimes.

Goal: Train all Maryland permit review staff in the science-based technical criteria for living shoreline feasibility assessment and engage the marine contractor community through targeted trainings.

Recommendations/Steps:

1.  Invest in training for MDE permitting staff on living shoreline feasibility assessment. Compensation must be commensurate with the technical expertise being asked of reviewers – underpaid staff with high turnover cannot sustain this knowledge.
1-3 years
2.  Form an Advisory Board to review living shoreline waiver denials that are being “challenged.”
1-3 years
3.  Engage the marine contractor community directly through training and education – working through Chesapeake Bay Landscape Professional, MD DNR, MDE, and contractor associations – to address misconceptions about living shoreline performance, the legal standards of the Living Shoreline Protection Act, and how to use the MSSM tool.
1-3 years
4.  Hire an economist to develop a business case or model to show contractors how wetland restoration can be profitable and/or perhaps less onerous or dangerous than other types of marine construction.
1-3 years
5.  Explore incentive structures that reward contractors who obtain Chesapeake Bay Landscape Professional certification or equivalent training – for example, preference on state-funded projects – to shift market norms over time.
3-5 years

Potential funding sources:

- Maryland state budget – MDE technical staffing and competitive compensation




In Maryland, organizations have insufficient staff for easement monitoring, grant writing, and permitting. [median score 5; 4 votes]

Maryland land trusts, conservation districts, and smaller NGOs working on tidal wetland conservation and restoration consistently report being unable to serve all interested landowners. The combination of easement monitoring obligations, grant writing and compliance requirements, and permitting support demands exceeds current organizational capacity. These essential functions are often difficult to fund through competitive grants.

Goal: Maryland conservation organizations working on tidal wetlands collectively add three full-time staff members dedicated to easement stewardship, grant management, and permitting support with at least one position structured as shared or circuit-rider roles serving multiple organizations or counties.

Recommendations/Steps:

- 

1-3 years

Replicate and expand the Envision the Choptank circuit-rider model—a regionally deployed position that provides shared technical assistance across multiple organizations and landowners—in at least two additional Maryland regions, prioritizing the Lower Eastern Shore where NGO capacity relative to opportunity is most limited.

Potential funding sources:

- NOAA Maryland Sea Grant Extension (circuit rider and technical assistance roles)
- Chesapeake Bay Trust Capacity Building Initiative (CBI)




In Maryland, there is a lack of technical expertise and criteria to evaluate living shoreline feasibility and limit unnecessary waivers. [median score 4; 5 votes]


Maryland conservation organizations and state agencies consistently reported that outreach capacity is a constraint on the pipeline of voluntary tidal wetland projects. There is insufficient staff to sustain face-to-face, relationship-based engagement that converts initial interest into completed projects. Agricultural landowners were identified as a largely untapped audience.

Goal: Increase dedicated tidal wetland outreach capacity in Maryland by at least three full-time employees across NOG partners and state agencies, with explicit strategies for agricultural landowner engagement.

Recommendations/Steps:



- 

1-3 years

Train local or state regulatory staff in to serve dual outreach functions during site visits to use those touchpoints as direct service and education opportunities rather than purely administrative interactions.
- 

1-3 years

Develop a shared engagement and marketing strategy that practitioners apply consistently, so that outreach messaging, materials, and follow-up protocols are standardized and don't depend on individual staff knowledge. *Note: The Chesapeake Bay Trust contracted Green Fin Studio to develop a Tidal Wetlands Private Landowner Community Engagement Outreach & Education Program.*

1.  1-3 years Host tidal wetland restoration and management planning workshops for land managers and staff who interface with land managers. (Short-term 1-3 years)
2.  1-3 years Engage Sea Grant Extension, Cooperative Extension, and university programs as outreach delivery partners with existing trusted relationships in agricultural communities.

Potential funding sources:





- NFWF Chesapeake Bay Stewardship Fund
- NOAA Maryland Sea Grant Extension
- Maryland NRCS Conservation Outreach

F **There are few contractor firms in DC that specialize in living shorelines and a lack of capacity for manual labor.** [combined two issues – median scores 4 and 4; 4 and 3 votes]
DC

DC-based respondents indicated that there are a limited number of specialized firms for all design, construction, and biological monitoring work. The Anacostia Watershed Society relies on volunteers and existing staff for most of its manual labor-intensive restoration work (seed collection, plant bagging, fencing removal) rather than contractors, in part because no local contractor base exists for this type of work.

Goal: By 2029, at least two firms or contractor teams with tidal wetland restoration capabilities are actively operating in the DC market, and at least one workforce development pathway for entry-level restoration labor exists within DC, measurably expanding the pool of available contractors and reducing reliance on a single-firm market.

Recommendations/Steps:

1.  1-3 years Explore whether the Chesapeake Bay Landscape Professional program can be adapted or marketed specifically within the DC-area contractor community.
2.  1-3 years Hire an economist to develop a business case or model to show contractors how wetland restoration can be profitable and/or perhaps less onerous or dangerous than other types of marine construction.
3.  1-3 years Work with DOEE to develop a pre-qualified vendor list for DC tidal wetland work, reducing procurement friction and making the market more visible to potential new entrants.
4.  3-5 years Develop a workforce development partnership between at least one DC community college or workforce program and a tidal wetland NGO to train residents in entry-level restoration tasks, creating a local labor supply that makes DC projects more viable for contractors.

Potential funding sources:

- EPA Wetland Program Development Grants
- DC Department of Employment Services workforce development funds
- NFWF Five Star Wetland and Urban Waters Restoration Grants

Conclusion

This report documents what tidal wetland practitioners across Maryland, Virginia, DC, and Delaware have learned from years of experience: the gap between the Chesapeake Bay Watershed Agreement’s Wetlands Outcome goal and current achievement is not primarily a problem of knowledge or landowner interest. It is a problem of systems – fragmented institutions, misaligned timelines, underfunded positions, and the absence of coordinated infrastructure needed to turn existing expertise and opportunity into completed and durable restoration outcomes at scale.

The 27 capacity issues documented here vary in their scope, urgency, and the actors required to address them. Some recommendations may be achievable within one to three years by organizations already working in this space. Others will require sustained advocacy, legislative engagement, and multi-year commitments from agency leadership and funders.

The critical next phase is transitioning this report from a shared assessment into a shared work plan. This will be a two step process:

1. Focusing effort: Agencies and organizations working on tidal wetlands need to prioritize the recommendations outlined in this report.
2. Move from planning to action: Leverage existing conferences, committees, and workgroups to bring together the practitioners, agency staff, and decision makers who can act on these recommendations. Examples include:
 - a. The Chesapeake Bay Program Wetlands Workgroup.
 - b. Virginia’s [Wetlands Policy Task Force](#) and Technical Wetlands Work Group
 - c. The new VMRC Habitat Policy Oversight Committee established in April 2026 by [Virginia’s HB390](#).
 - d. Maryland’s [Coastal and Watershed Resources Advisory Committee](#) which now includes climate resiliency as a focus area after a recent pivot.

Identifying the capacity issues that are limiting the restoration of tidal wetlands in the Chesapeake Bay watershed was a vitally important process. Acting on this information is equally important.

Photo: Will Parson/Chesapeake Bay Program



Appendix A - Interview Questions

1. Introduction (organization, role/hats)
 - a. What types of tidal wetland projects or activities are you most involved in (i.e., conservation, restoration, construction, material supply (plants, coir logs, etc.) monitoring, permitting, policy, outreach)?
 - b. What geographic area(s) do you work in?
2. What drives your organization's wetlands work (e.g., Chesapeake Bay Program goal, local funding, capacity, organizational goals, profit, etc.)?
3. For government agencies, what initiates your involvement in tidal wetland projects? For NGOs and the private sector, what drives interested landowners to you?
 - a. Are you able to serve the entirety of interested landowners? If not, what is the remaining gap of those who could be served?
 - b. Is there sufficient landowner interest in your service area? More public or private interest?
 - c. Are there publicly accessible wetland restoration projects you can point to as examples of successful implementation?
 - d. Are there types of landowners or areas that have not been engaged and/or represent a ready audience for outreach? (i.e., tidal wetlands parcels on vacant lands)
4. Do you feel that you're understaffed in regards to assistance to move voluntary tidal wetland restoration/creation/enhancement projects forward?
 - a. Are there any open positions that could be filled in your department? If so, what is the interest in the position– are candidates applying qualified?
5. What can be done to move voluntary tidal wetland conservation/restoration/creation/enhancement projects forward?
 - a. Are there efficiencies in processes, hands on/face-to-face assistance, sharing of data, or other strategies that could reap benefits?
 - b. Where do you hit dead ends?
 - c. What is your #1 highest priority need?
6. Are there training needs or systemic obstacles (e.g., permit process doesn't allow for inclusion of some innovative techniques) to moving the work forward?
7. What people, tools, expertise, and resources do you use in supporting your work around tidal wetlands in your jurisdiction?
 - a. Are there gaps in what is available?

Appendix B - Questionnaire Questions

1. Name
2. Email
3. Organization
4. Organization Type
5. Job Title
6. Briefly describe your organization's involvement in tidal wetland restoration and your specific role.
7. Do you work in tidal wetlands, non-tidal wetlands, or both?
8. In which jurisdictions do you work on tidal wetland restoration?
9. Please add any other details on your tidal wetland geographic focus area(s) (i.e., subwatersheds, counties)
10. Which of the following best describe your organization's focus areas for wetland restoration?
11. Describe your top capacity concern
12. What solutions would you suggest to address this capacity concern?
13. Describe another top capacity concern
14. What solutions would you suggest to address this capacity concern?
15. Describe another top capacity concern
16. What solutions would you suggest to address this capacity concern?
17. If you have additional tidal wetland capacity concerns and suggested solutions, use the space below.

Appendix C - Prioritization Exercise Results

Capacity Category	Jurisdiction	Capacity Issue	Priority to Address 1=low priority 5=high priority							Median Score	Number of votes
			Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Reviewer 6	Reviewer 7		
Data & Science	Cross-cutting	Data systems are fragmented, outdated, or inconsistent.	4		5	3	3	2	4	3.5	6
	Cross-cutting	Lack of climate projection data availability limits informed resilience planning.		2	3		3	2	3	3	5
	Cross-cutting	Limited applied research on the long-term performance of restoration activities, including living shorelines, sediment placement strategies, and marsh migration processes.		4	4	4	3	4	3	4	6
	Cross-cutting	Scientific uncertainty or lack of consensus slows regulatory decision-making and discourages innovative approaches.		4	5	2	3	5	4	4	6
	VA	Outdated LIDAR data for shoreline retreat analysis.			5			3		4	2
	VA	A lack of structured spaces to share project failures and lessons learned.	3		5	4		2		3.5	4
	MD	Limited tools for identifying priority restoration parcels.			3		3		2	3	3
	DC	Limited urban living shoreline case studies.	3	4	3					3	3
	Funding	Cross-cutting	Federal funding sources fluctuate year-to-year, which destabilizes staffing, contractor markets, and long-term planning.	3	3	5	4	4	2	4	4
Cross-cutting		Funding programs are often restrictive, slow-moving, or misaligned with project realities.	3	3	4	3	4	3		3	6
Cross-cutting		High project costs, including sediment transport, design, and permitting.	1	4	3	3	4	1		3	6
Cross-cutting		Most grants do not support long-term monitoring or maintenance.	4	3	5	5	3	1		3.5	6
VA		VCAP funding is difficult to obtain due to restrictive parameters and the application process.				2		4		3	2
VA		Virginia NRCS lacks capacity to develop new easements, cost-share, and technical assistance programs for farmers facing saltwater intrusion.		2	5	4		5		4.5	4
MD		Tidal wetlands receive comparatively less funding than stormwater and stream restoration.	5	4	4			2	3	4	5
MD		Funding limitations contribute to significant backlog (3-5 years) for restoration projects.			5			3		4	2
MD		Lack of funds for individual homeowners to install living shorelines.	3	5	3		4	2	4	3.5	6
MD		Funding programs may be restricted to certain geographies.					2	2	2	2	3
DC		Competing urban infrastructure priorities – wetlands projects compete with transportation, housing, and utility investments.	2	3	4			2		2.5	4
DC		High maintenance costs due to debris and trash in urban environments.	4	4	5			1		4	4

Capacity Category	Jurisdiction	Capacity Issue	Priority to Address 1=low priority 5=high priority							Median Score	Number of votes
			Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Reviewer 6	Reviewer 7		
Monitoring, Maintenance and Adaptive Management	Cross-cutting	Monitoring and maintenance responsibilities are often unclear or underfunded.	5		4	4	3	3		4	5
	Cross-cutting	Long-term stewardship falls to landowners without clear expectations, technical support, or financial assistance.	4	5	5	4	3	4	5	4	7
	Cross-cutting	Lack of standardized monitoring protocols and coordinated performance tracking limits the ability to evaluate outcomes and adjust approaches over time.	4		4	4	3	3	5	4	6
	VA	DWR's current passive management approach does not account for climate change or allow for proactive restoration.				4			5	4.5	2
	MD	Lack of dedicated wetland stewardship programs.									0
Outreach	Cross-cutting	Many landowners lack clarity about available services, funding pathways, regulatory steps, and long-term implication of restoration	4	5	5	3		4	3	4	6
	Cross-cutting	Messaging often fails to align with landowner motivations, particularly where wetlands are perceived as undesirable, economically unproductive, or permanently restrictive.	4	5	5	3		3	4	4	6
	Cross-cutting	Many jurisdictions lack demonstration sites or local examples of wetland restoration to aid outreach efforts.	3	5	5	2	3	4	3	3	7
	Cross-cutting	Organizational outreach capacity is limited relative to need, particularly for sustained, face-to-face engagement and relationship building.	3	5	5	4		4	5	4.5	6
	Cross-cutting	Distrust of government agencies in some communities further constrains participation.	3	4	5			3	3	3	5
	VA	Landowners are often hesitant to engage with VMRC or state officials due to desire to avoid unwanted scrutiny or punishment (if an agency finds a fineable issue on property, for example).		3	5	3		2		3	4
	VA	Unclear mitigation requirements discourage landowner participation.		3	NA			1		2	3
	VA	Lack of tailored messaging for rural landowners, agricultural producers, and local decision-makers (e.g., wetlands boards, local officials).		4	5	3		3		3.5	4
	MD	Many landowners do not understand the permanence of wetlands, are unsure about saltwater intrusion, wetland migration, and erosion's impact to their property/shoreline.		4	5				4	4	3
	MD	Public relations challenges with Thin Layer Placement (TLP)/marsh elevation due to visible failures (e.g., hay bales floating away) or poor containment examples.			5				3	4	2
MD	Poor outreach to agricultural landowners, so agricultural lands are underutilized despite large parcel sizes, existing stewardship ethic, and cost efficiencies.			5				4	4.5	2	
DC	Low public awareness of wetlands and negative perception of wetlands.*	2	5	5					5	3	

*This issue was not included in the report because there are few privately-owned tidal wetlands in DC.

Capacity Category	Jurisdiction	Capacity Issue	Priority to Address							Median Score	Number of votes
			Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Reviewer 6	Reviewer 7		
Regulatory & Permitting	Cross-cutting	Permitting processes for tidal wetland restoration are often complex, lengthy, and designed around traditional construction activities rather than ecological restoration.	4	5	2	4	3	5	5	4	7
	Cross-cutting	Inconsistent interpretation of regulations across agencies and jurisdictions adds uncertainty and delays.	3	5	1		2	3	5	3	6
	Cross-cutting	Regulatory frameworks generally do not account for dynamic processes such as marsh migration under sea level rise, leaving agencies without clear guidance on shifting property boundaries, habitat tradeoffs, or proactive restoration.	3	5	3	5	3	1	5	3	7
	VA	Ambiguous regulatory guidance – permitting handbooks and general permits lack clarity.		4	2	4		4		4	4
	VA	Inconsistent information on mitigation from VMRC staff.		3		5		3		3	3
	VA	Lack of tidal wetland banks in Virginia necessary to compensate for permissible wetland impacts.		3		4		2		3	3
	MD	Regulatory-driven design changes can undermine restoration outcomes.			4		3	3	5	3.5	4
	MD	There are regulatory hurdles for installing living shorelines (e.g., it is complicated to do channel work due to impacts to SAV and it is difficult to do work on land due to the buffer).					3	4	5	4	3
	MD	Multi-agency coordination including USACE, DNR, and MDE processes create cumulative delays and confusion.			1		4	3	5	3.5	4
	MD	Species protections (e.g., SAV, saltmarsh birds) limit work windows during certain seasons.			1		4	3	2	2.5	4
	DC	Limited ownership and permission – Very few opportunities to work with private land; most projects occur on public and federal land.									0
	DC	Historic Preservation Act constraints.	4							4	1
	DC	Fragmented interagency governance, including multiple overlapping jurisdictions, inconsistent priorities across governmental agencies, and no shared performance metrics or shared framework for success.	3		2					2.5	2
	Sediment, Beneficial Use, and Marsh Migration Capacity	Cross-cutting	Dredging timelines rarely align with restoration needs.	3	5	3	4	3	5		3.5
Cross-cutting		Limited advance identification of suitable placement sites.	3	4	4	4	3	5	4	4	7
Cross-cutting		Confusion persists around Thin Layer Placement (TLP) standards, sediment volumes, and regulatory expectations.		5	5	4	2	4	3	4	6
Cross-cutting		Limited scientific and policy consensus around marsh migration strategies, including tradeoffs between protecting existing wetlands and enabling upslope movement.	5		5	5	3	4	3	4.5	6
MD		Long standing upland containment contracts create hesitancy for practitioners to make changes which can make it difficult to get projects done.							4	4	1
MD		Confusion around USACE responsibilities and processes.			1				4	2.5	2
MD		Disagreements between USACE, private dredgers, and counties on where and when to place material.		5	5				4	5	3
DC		Limited beneficial reuse data – there is no centralized database of dredging projects for fill.		5	5					5	2
DC		Contaminated sediments constrain options and there are few case studies on how it has been treated and successfully reused.		4	3					3.5	2

Capacity Category	Jurisdiction	Capacity Issue	Priority to Address 1=low priority 5=high priority							Median Score	Number of votes	
			Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Reviewer 6	Reviewer 7			
Workforce	Cross-cutting	State agencies often lack permanent wetland-focused technical staff and rely heavily on NGOs or short-term grant-funded positions.	5	5	5	5	3	5	5	5	7	
	Cross-cutting	Turnover in regulatory roles creates ongoing training needs and inconsistent interpretation of policies.	3		2	4	3	2	4	3	6	
	Cross-cutting	The contractor market for wetland design, engineering, and installation remains thin in several jurisdictions.	4	4	5	3	2	3	3	3	7	
	Cross-cutting	Lack of professionals with expertise in tidal freshwater systems.			5				3	3	3	
	Cross-cutting	Modeling, GIS, and resilience planning expertise are unevenly distributed.			2				3	4	3	
	VA	No state wetland biologist.	5	3	5	3			4		4	5
	VA	High demand for marine contractors.		4	5	3			1		3.5	4
	VA	Contractor capacity is stronger for private land projects than for public land projects.		3		3					3	3
	VA	State (DWR, VMRC) and local (PDCs) are understaffed and have training needs (site identification, permitting).		5	5	4			4		4.5	4
	VA	Limited capacity for on-the-ground survey work and proactive identification of priority properties.**		3	4				4		4	3
	VA	No training requirements for wetlands board members.		5	3	4			3		3.5	4
	MD	Unable to serve all interested landowners.			3			2	3		3	3
	MD	Limited outreach staff to engage a broader audience.		4	4			3	4	3	4	5
	MD	Insufficient staff for easement monitoring, grant writing, and permitting.		2	5				5	5	5	4
	MD	Lack of technical expertise and criteria to evaluate living shoreline feasibility and limit unnecessary waivers.		4	3			4	3	5	4	5
	MD	Limited grant management capacity (i. e., volunteer-led organizations struggle with paperwork and compliance).		3	3				4	4	3.5	4
	DC	Weak capacity for manual labor (e.g., seed collection, bagging, fence removal), monitoring, and maintenance.		4	4				2		4	3
	DC	Limited contractor market – there are few firms in DC that specialize in living shorelines.	4	4	4					3	4	4

**This issue was addressed with the cross-cutting issue of lack of staff at state agencies and localities (see the Workforce section).