



Chesapeake Bay Program
Science. Restoration. Partnership.

RESTORING THE WETLANDS OF THE CHESAPEAKE BAY WATERSHED

POST-WORKSHOP ACTION PLAN
JANUARY 2023

PREPARED BY:
THE CHESAPEAKE BAY PROGRAM
Habitat Goal Implementation Team Wetlands
Workshop Steering Committee

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Cover Photo: Nanticoke River, Hurricane Sandy Aerial Tour, 2014.

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Executive Summary

In August 2021, the Chesapeake Bay Program (Bay Program) Outcome Attainability Team (OAT) provided a verbal report on the status of the 31 outcomes associated with the 2014 Chesapeake Bay Watershed Agreement to the Bay Program Management Board (Management Board) and the Principals' Staff Committee (PSC). The OAT reported that two of the outcomes were considerably off target and needed serious attention by the Bay Program as a whole. These two outcomes were riparian forest buffers and wetlands. In response to the OAT, the Management Board/PSC recommended that the Bay Program bring together key people to identify actions to overcome the barriers to implementing riparian forest buffer and wetland projects in the watershed to help achieve their perspective outcomes. The Bay Program requested that the Forestry Workgroup in the Water Quality Goal Implementation Team (GIT) sponsor a workshop to address forest buffer outcomes and that the Habitat Goal Implementation Team sponsor a workshop to identify actions for nontidal and tidal wetlands. This Action Plan is the product of the Restoring Wetlands of the Chesapeake Bay Watershed Workshop which was held on August 2-3, 2022.

Workshop Outcomes:

- Understanding of the Barriers: Discuss current efforts to create, restore and enhance tidal and non-tidal wetlands across the watershed.
- Identification of Approaches: Discuss novel and innovative approaches in overcoming financial limitations to wetlands creation, restoration, and enhancement; explore project successes; and discuss ideas for how we can emulate and do more of these projects in the Bay watershed by 2025.
- Development of an Action Plan: Work with partners and workshop participants to develop an action plan that outlines steps and a timeline for dedicating resources to implementing these approaches.

Recommendations from the Workshop:

- Cohesive strategy for tidal and nontidal wetlands across the watershed for site selection and priorities that take into consideration 10 goals and 31 outcomes associated with the Chesapeake Bay 2014 Agreement.
- Dedicated increased long-term capacity is needed to accelerate efforts –because of the time and complexity to complete wetland restoration projects, grant funded capacity does not retain and grow expertise.
- Outreach and design are priority areas to grow capacity to increase the pipeline of projects and advance them to implementation.
- New and increased funding should be directed to the states to build wetland capacity. This is critical to be able to access and leverage increased federal funds that will be available.
- Management Board representatives meet formally with all the agencies within their jurisdictions to annually report out progress of the wetlands outcome attainment. Bay Program reports to PSC annually.

A long-term solution will require political will and would have to be developed through the partnership within the Bay Program and/or through legislative actions within the Bay Program partnership. In the interim, the Action Plan has identified stop-gap measures that will help move us closer to meeting the Chesapeake Bay Program Agreement wetlands outcome by 2025.

Even if we can adopt and implement all the recommendations outlined in this report, we must change the paradigm to recognize that the baseline for wetlands is not static, but, without intervention, wetlands will

continue to be lost. To be effective, any future agreements for the Chesapeake Bay partnership need to acknowledge climate change as a significant stressor on wetlands and take the continuing loss into account when establishing future outcomes.

Introduction

In August 2021, the Chesapeake Bay Program (Bay Program) Outcome Attainability Team (OAT) provided a verbal report on the status of the 31 outcomes associated with the 2014 Chesapeake Bay Watershed Agreement to the Bay Program Management Board (Management Board) and the Principals' Staff Committee (PSC). The OAT reported that two of the outcomes were considerably off target and needed serious attention by the Bay Program as a whole. These two outcomes were riparian forest buffers and wetlands. In response to the OAT, the Management Board/PSC recommended that the Bay Program bring together key people to identify actions to overcome the barriers to implementing riparian forest buffer and wetland projects in the watershed to help achieve their perspective outcomes. The Bay Program requested that the Forestry Workgroup in the Water Quality Goal Implementation Team (GIT) sponsor a workshop to address forest buffer outcomes and that the Habitat Goal Implementation Team sponsor a workshop to identify actions for nontidal and tidal wetlands. This Action Plan is the product of the Restoring Wetlands of the Chesapeake Bay Watershed Workshop which was held on August 2-3, 2022.

The wetlands workshop identified three outcomes for the workshop. The first outcome, understanding the barriers, involved discussing current efforts to create, restore and enhance tidal and non-tidal wetlands across the watershed and identifying the key barriers that prevent us from getting closer to the outcome expectations established in the 2014 Chesapeake Bay Watershed Agreement. The second outcome is to discuss novel and innovative approaches in overcoming financial limitations to wetlands creation, restoration, and enhancement; explore project successes, and discuss ideas for how we can emulate and do more of these projects in the Bay watershed by 2025. This involved identifying strategies to increase or redirect capacity and resources within the Bay Program partnership to efficiently use existing funding sources and programs and identifying strategies targeting new funding sources (e.g., Bipartisan Infrastructure Legislation; America's Conservation Enhancement Act; Chesapeake Watershed Investments for Landscape Defense (WILD); America the Beautiful). The third outcome is to work with partners and workshop participants to develop an action plan that outlines steps and a timeline for dedicating resources to implementing these approaches

The Chesapeake Bay watershed has lost over 1.5 million acres of tidal and nontidal wetlands to development and agricultural practices (Figure 1). To offset some of these losses, the 2014 Chesapeake Bay Agreement identified a wetlands outcome of 85,000 acres of created or restored tidal and nontidal wetlands in the watershed by 2025 (Chesapeake Bay Program, 2014). In addition to the 85,000 acres of created and restored wetlands the outcome targets, another 150,000 acres of wetlands would be enhanced by 2025 (Figure 1). The wetlands outcome was largely developed from commitments identified in the Watershed Implementation Plans developed by the Bay Program partners.

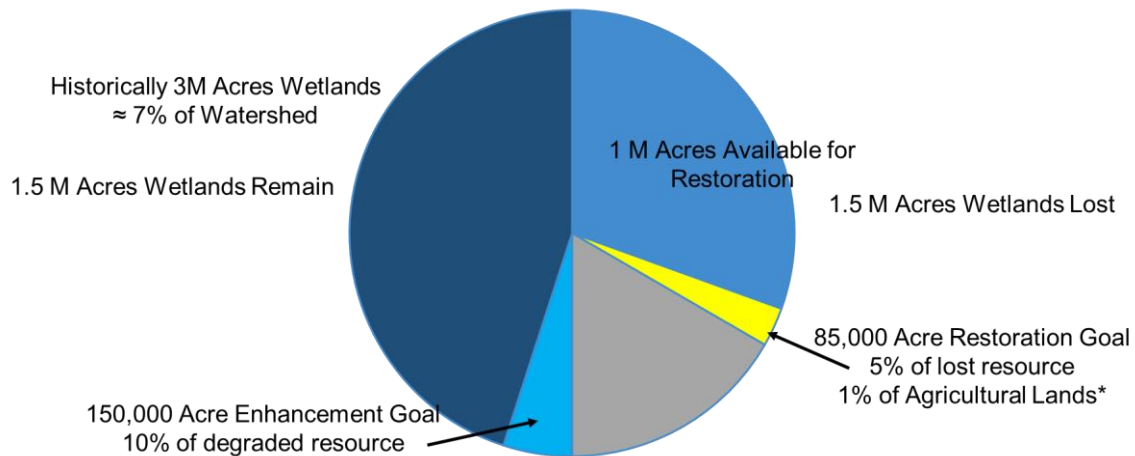


Figure 1. Historical Wetlands Loss and Chesapeake Bay Program Goals. Source: Amy Jacobs, The Nature Conservancy Appendix B.

The Clean Water Act (33 U.S.C. Code of Federal Regulations, title 40 (2002):694-697) prohibits the fill of wetlands without a permit. In addition, the Federal Government has had a national “no net loss of wetlands” policy in place since 1989. This has gone a long way to protect the remaining wetlands acreage in the Chesapeake Bay watershed. This protection coupled with voluntary efforts of the Bay Program partners were envisioned to restore much of the lost wetlands improving water quality and habitat across the watershed. The current paradigm used in the 2014 Bay Agreement for wetlands assumes that development and agriculture are the stressors on non-tidal wetlands and could be offset by the “no net loss” policy and permit mitigation. Tidal wetlands were assumed to be stable in the 2014 Bay Agreement. In this paradigm the wetlands baseline is assumed to be static and the rate at which the outcome is achieved is dependent on the rate at which funding is available for voluntary restoration.

The reality is that loopholes and failed mitigation in the “no net loss” strategy coupled with the severe effects of climate change are causing the Chesapeake Bay watershed to lose wetlands acreage faster than the current voluntary restoration efforts can restore them (Figure 2). Particularly vulnerable are tidal wetlands, which are not only susceptible to development and agriculture impacts but are extremely vulnerable to sea level rise due to climate change as well as the ongoing effects of glacial subsidence, which exacerbates the effects of climate change and increases the tidal wetland loss in the Chesapeake Bay watershed (Phillips, 2007). Without intervention, as much 161,000 acres of tidal marsh will be lost in the Chesapeake watershed by 2100 (National Wildlife Federation, 2008).

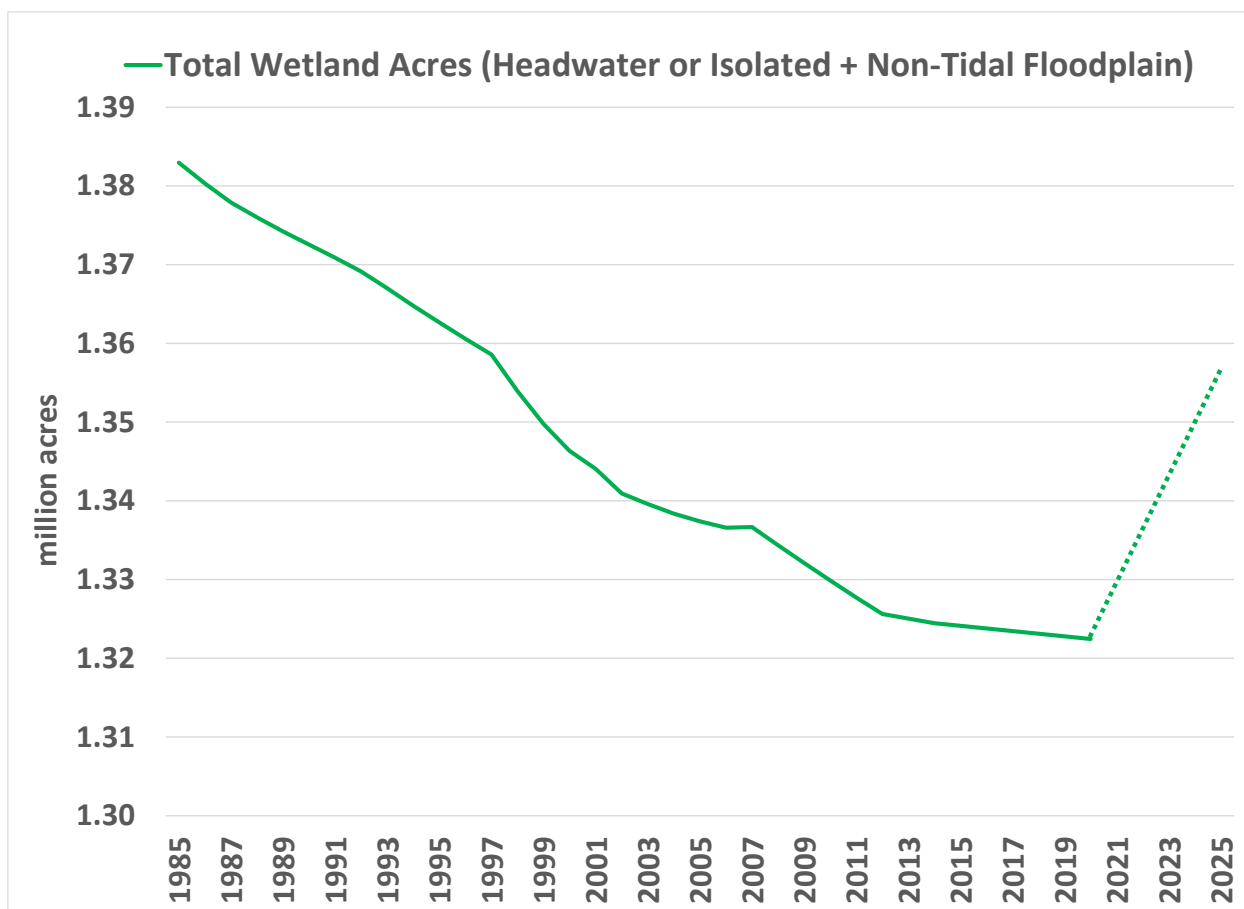


Figure 2. Trends in Headwater and Nontidal Wetlands over Time. The dotted line represents the restoration that would need to occur to achieve the wetlands outcome by 2025. Source: Jeff Sweeny, Chesapeake Bay Office Appendix B.

Using innovative wetland restoration, creation, and enhancement approaches; leveraging existing and new funding sources, and re-prioritizing by the Bay Program to address the lagging wetlands outcome provides an opportunity to change the trajectory. Specifically, this will require Bay Program partners to strategically prioritize wetlands efforts on the landscape; increase capacity towards the wetlands outcome; provide robust outreach and engage landowners; and develop sustainable resources to support this effort.

Barriers

There is a basic assumption that wetlands are protected by the Clean Water Act and therefore stable on the landscape. Because of this general misconception that wetlands are stable or increasing, voluntary restoration of wetlands has not had a sense of urgency. These simplified wetlands model largely ignores the effects of climate change, specifically increased and harder precipitation events as well as sea level rise and subsidence. Voluntary wetland restoration in the Chesapeake Bay watershed has largely been done through landowner incentive programs and competitive grant programs on nontidal agricultural lands. This ad-hoc method of funding has led to a diffuse network where voluntary wetland restoration is one of many competing interests for limited dollars. Federal funding is the largest source of wetlands funding with most of the funding coming through the Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) programs and Department of the Interior's (DOI) U.S. Fish and

Wildlife Service (FWS) Partners Program. Many of these programs and funding sources treat wetland restoration, creation, and enhancement as a co-benefit rather than the driver. In any given year, less than 3 percent of the USDA and DOI project money spent in the watershed went to wetlands creation, restoration, and enhancement (Table 1). Likewise, the jurisdictions are using very little money from their base funding on wetlands. A study by University of Maryland looking at jurisdiction funding across the watershed on wetlands found that it was difficult to find discrete wetlands funding and could only account for less than \$250,000 across all jurisdictions between 2016-2020 (Stephanie Dalke ([Appendix B](#) presentation)). The Jurisdictions largely depend on Federal programs or other grant funding to support this effort. Project proponents have focused on sediment and nutrient load reduction projects aimed toward achieving the Chesapeake Bay WIP. While both tidal vegetated wetlands and nontidal wetlands creation and restoration are approved as water quality BMPs, the practitioners are choosing practices based on agency priorities and a perceived “bang for the buck”, i.e., relative ease of less complicated practices. The consequence has been that resources and capacity within existing voluntary wetland restoration, creation, and enhancement programs have not had the priority necessary to successfully meet the outcomes under the current Chesapeake Bay Program Agreement, and don’t even begin to make a dent in the loss of wetlands when climate change models are considered in the stressor model.

	FY2016	FY2017	FY2018	FY2019	FY2020	TOTAL
U.S. Department of Agriculture (USDA)^[1]						
Farm Service Agency (FSA)	\$43,000,000	\$33,400,000	\$33,700,000	\$33,700,000	\$33,700,000	\$177,500,000
Natural Resources Conservation Service (NRCS)	\$94,800,000	\$95,000,000	\$97,600,000	\$110,500,000	\$101,000,000	\$498,900,000
U.S. Department of the Interior (DOI)^[1]						
U.S. Fish and Wildlife Service (FWS)	\$18,300,000	\$17,300,000	\$16,200,000	\$16,200,000	\$15,200,000	\$83,200,000
Total, USDA + FWS Funds	\$156,100,000	\$145,700,000	\$147,500,000	\$160,400,000	\$149,900,000	\$759,600,000
Estimated federal funding obligated for wetlands	\$4,141,671	\$3,037,737	\$2,122,080	\$1,177,007	\$1,588,607	\$12,067,103
Percent of total USDA + FWS funds	2.7%	2.1%	1.4%	0.7%	1.1%	1.6%

Table 1. Comparison with Some Federal Bay Spending. [1] Chesapeake Bay Restoration Spending Crosscut: Federal Data Source: Stephanie Dalke, University of Maryland ([Appendix B](#).)

Innovative Approaches

Novel and innovative approaches were discussed in Session 2 of the Wetland Workshop. The following are the thematic strategies for prioritizing wetland restoration; overcoming financial limitations; and developing new capacity or leverage existing capacity for wetland creation, restoration, and enhancement. Building on project successes, we recommend replicating these projects to help meet the wetlands outcome by 2025 ([Appendix B](#)).

Tidal wetlands

Key Themes: We need dedicated funding, with techniques for site selection and restoration to support tidal wetland restoration. Funding for tidal wetland restoration is often attached to projects that have other drivers, such that wetlands become a co-benefit. There were four projects that were held up as being innovative examples of tidal restoration– Lower Wicomico River Maintenance Dredging; Deal Island Wildlife Management Area (WMA) Marsh Restoration Site in Maryland; Hog Island WMA Shoreline Stabilization Project in Virginia; South Wilmington Wetlands Project in Delaware; and the Anacostia Corridor Restoration Plan in DC ([Appendix B](#)). While all these projects were different in technical complexities and solutions, they all had one thing in common: the wetlands were co-benefits to the project and not the main driver. The Wicomico project in Maryland is a dredging project using beneficial reuse of dredge material to restore the marsh. The Hogg Island project in Virginia is a shoreline stabilization project using green infrastructure. The South Wilmington Project was a brownfield project intended to create stormwater management area, create new green space, and restore the degraded marsh. The Anacostia Corridor Restoration is a tidal watershed restoration project to improve climate resiliency of the communities along the river, enhance public access and recreation; improve water quality, and restore habitat. The habitat includes freshwater mussel beds, submerged aquatic vegetation, living shorelines, and marsh restoration in Kingman Lake. To move closer to the wetlands outcome, under our present paradigm, using tidal wetlands, it will be necessary for tidal practitioners to focus on projects that can identify tidal restoration as part of the co-benefits such as water quality benefits, erosion control, open space in FEMA flood zones, natural spaces, recreational and commercial fisheries benefits and public access. Otherwise, it will be important to develop dedicated funding to tidal wetland projects.

Nontidal wetlands or watershed

Key Themes: Develop a network of willing landowners, increase and maintain our capacity across programs, and improve access to funding on the ground. There were six nontidal wetlands projects including: Pocomoke River Floodplain Restoration Project in Maryland; Huntly Meadows Park Wetland Restoration Project in Virginia; Alger Park Upland LID, Stream, and Wetland Restoration site in the District of Columbia; Monitor Wetland for Improved Restoration Criteria in Delaware; Wetland Barriers and Opportunities in Pennsylvania; and Partnering to Expand Wetland Restoration in New York. The common theme was dedicated capacity to engage landowners, capacity to do the work within the partnership, program flexibility, and funding. In the case of Huntley Meadows, the county was the willing landowner and was able to use taxpayer money through a bond to pay for the project. In other projects U.S. Department of Agriculture and competitive private and public grants were the source of funding.

Funding Opportunities

Session 3 of the workshop by Federal, state, and non-governmental organizations presented the funding sources, amounts, and when these funding opportunities are available. [Appendix C](#) is a summary of all the funding sources, amounts, and time frames in which they would be available. The Action Plan is opportunity to match these funding with projects that need funding.

Recommendations

This section of the Action Plan is broken down into four themes that summarize the recommended actions from the workshop: strategic planning; capacity building; outreach (landowner/community engagement); and

sustainable funding to support consistent effort towards the wetlands outcome. Within each recommendation we have identified responsibility and, if appropriate, a timeline for the action. From these recommendations and the overall workshop discussion, each of the jurisdictions, Federal partners, and non-governmental organizations have developed a plan of action to move closer to the wetlands outcomes. These plans are summarized in [Appendix A](#).

General Recommendation

Each jurisdiction has more than one agency that is responsible for the wetlands outcome. Having the Management Board representatives meet formally with all the agencies within their jurisdictions once a year to discuss progress and ensure barriers are moved and remain out of the way will greatly increase the potential of meeting the wetlands outcome. The jurisdictions would report out annually to the Management Board and the Bay Program would report out annually to the PSC on outcome status and strategy revisions.

The Bay Program should continue to support and maintain the living resources outcome database so that we can more adequately track our progress towards the wetlands outcome.

Strategic planning

Recommendation: Scientific Technical Advisory Committee should provide recommendations on restructuring the wetland goal to incorporate restoration opportunities and wetland loss and consider developing a strategy to address this need. The wetlands outcome was developed from a commitment under the watershed implementation plans. A more meaningful outcome would be one that is based on an evaluation that considers where wetlands were historically in the watershed, where they have been lost, and where it is possible to restore wetlands considering the effects of climate change. With these sideboards we can create a fully functioning watershed relative to wetlands in a foreseeable time horizon. We could use this target to set and monitor reasonable outcomes for wetlands. There is no timeline for this action.

Recommendation: Develop a list of conservation ready projects. Even without funding, we should develop “conservation ready” projects. Often funding comes at the last minute. Opportunities are lost because projects are not ready to begin. We should develop a list of “conservation ready” projects across the watershed that can be matched up with funding sources as they become available. The Habitat GIT is compiling a list of “conservation ready” projects in response to this recommendation (see [Appendix D](#)). This Action is in progress and will be available by December 2022.

Recommendation: Climate Resiliency Workgroup can assist with identifying resilience metrics for tidal wetlands and identify marsh adaptation projects through GIT-funded project. This action is in progress and will be completed by September 2023.

Recommendation: Perform targeted outreach in identified priority areas to increase effectiveness of efforts. U.S. Geological Survey could work with partners to bring together existing targeting tools for wetlands into one place. We could also improve land characterization of wetlands to better track their change over time. There is no current timeline for this action.

Building capacity

Recommendation: Create state or regional restoration workshops to leverage partner capacity and expertise and access funding. For example, Delaware created the Delaware Wetland Restoration Workgroup (DWRG)

to coordinate leveraging resources. DWRG plans to use the influx of federal funding and better utilize State Revolving Funds (SRF) and partnering with local governments to get projects on the ground. It may work as a model for other states. There is no timeline on this action.

Recommendation: Joint training. Develop joint training meeting for regulators and practitioners to ensure that regulators and applicants understand the needs. This should be evaluated and prioritized by the Wetlands Workgroup and may be consideration for future GIT funding. There is no timeline on this action.

Recommendation: Update technical guidance on wetland restoration techniques, varying by physiographic province. The Wetlands Workgroup should evaluate this priority and determine a timeline for achieving this goal. There is no timeline on this action.

Recommendation: Hire specific outreach specialists within programs (Upper Susquehanna River Coalition, Ducks Unlimited (DU), and TNC) who can develop a list of willing landowners and projects that can be in the queue for restoration. Non-governmental organizations would have to evaluate this priority and work with funders, such as NRCS and National Fish and Wildlife Foundation (NFWF), to determine if this is feasible. There is no timeline on this action.

Recommendation: Pool research and monitoring of restored wetlands. This may be a function that STAR/STAC could prioritize. There is no timeline on this action.

Recommendation: Develop a comprehensive nuisance species plan including animals such as Canada geese and white-tailed deer. This may be another priority for STAR/STAC. There is not timeline for this action.

Recommendation: State and Federal legislatures could explore increasing buffer requirements on proposed development to slow/combat wetland loss. There is no timeline for this action.

Landowner/community engagement

Recommendation: Increased dedicated outreach capacity to engage landowners. Increase communicators and bridgers. Much of the success in achieving the wetlands outcomes has to do with landowner acceptance. Landowner acceptance requires “boots on the ground” working either directly with the landowners or working with those whose role is working with landowners (e.g., NRCS/ Farm Service Agency (FSA). Social marketing has identified neighbors as having greater influence than the government. Develop a peer-to-peer network marketing strategy. Wetlands Workgroup should prioritize and consider for future GIT funding. There is no timeline for this action.

Recommendation: Pay farmers to grow wetlands. Drought and sea level rise conditions are beginning to drive cropland conversion to wetlands. Capitalizing and expanding existing funding to convince farmers that wetlands are a “crop” that has value to people and society (just like food crops). If we paid farmers for growing wetlands (for water quality and climate resilience, etc.), we can unlock their expertise in cultivating plants and stewardship of the land. Using social science tools, change the messaging and paradigm that climate will not lead to a loss of production, but rather a change in the valuable “crop” they grow. Landowner incentives need to be tied to the value of the land to expand opportunities. In addition to providing funding to landowners to restore wetlands, maintenance of the buffers is important as well. Use social science in recognizing the pride that landowners (particularly farmers) have in making the land work to grow food as well as providing water quality benefit, habitat should be used as part of the landowner incentive (Hopkins, 2012). Building capacity for systemic programs that consider overlapping

riparian buffers with wetland restoration and edge-of-field and edge-of-stream practices. Linking soil health, climate resilience, and other direct benefits need to be incorporated into the current restoration programs, so that projects have a holistic ecological approach that will leverage both funding and capacity wetlands restoration. The time frame for this priority should be established by the Wetlands Workgroup in conjunction with climate resiliency. There is no timeline for this action.

Recommendation: Expand on existing and develop new specific outreach materials for landowners and community (such as WetlandsWorks.org). The Wetlands Workgroup should prioritize and develop a time frame for this product. There is no timeline for this action.

Recommendation: Identify specific funding that can be used for landowner easements outside Federal programs; practitioners' workgroup to brainstorm restoration options. Management Board should evaluate this priority and develop a strategy and timeline for this item. There is no timeline for this action.

Sustainable funding

Recommendation: Replicate the Maryland Conservation Finance Act, which incentivizes conservation and restoration activities using green and blue infrastructure, to other states. Expanding or mimicking the intentions of this Act across the watershed will leverage capacity and funding resources that will lead to more voluntary wetland creation restoration and enhancement. Management Board/PSC should evaluate this priority. There is no timeline for this action.

Recommendation: Ensure that the unprecedented amount of funding included in the Bipartisan Infrastructure Legislation and the Inflation Reduction Acts, and the grant programs associated with this money can be used for short- and long-term capacity-building, design, and implementation. Federal agencies working with granting agencies are already working on this; it is an ongoing process.

Recommendation: SRF should prioritize wetlands restoration. Currently money is often being left on the table because applicants would rather pursue grants over low interest or even no interest loans. Incentivizing landowners to consider SRF for Blue, Teal, or Green carbon projects in wetlands could help push more landowners in the SRF process. This would be a task delegated to the individual jurisdiction that has responsibility over SRF. There is no timeline for this action.

Recommendation: Use the weekly Bay Brief newsletter from the Bay Program to list active funding opportunities. This action is ongoing.

Recommendation: Work with funding sources to reduce or eliminate match requirements. EPA has already asked for a Waiver for Match for some of its funding. Other agencies should try to emulate this waiver process. Time frame is current and near-term grant cycles through 2025.

Recommendation: Develop Sentinel Landscapes with Department of Defense facilities that renew wetlands and provide long-term funding for wetlands restoration that will have a trickledown effect with Bay Program partners to support long term funding. This process is ongoing.

Recommendation: Leverage private funding to support organizations to continue to advance wetlands outcome. This requires a priority of commitment from PSC and EC to work with private corporations to donate to voluntary wetland creation, restoration, and enhancement. There is no timeframe for this action.

Recommendation: Wetlands workgroup coordinate with NFWF to encourage language in grants that promote wetland and forest buffer projects. NFWF programs have had wetland goals for years, but relatively little demand for wetland projects. This funding is exceedingly flexible, can absolutely support soft-money expansion of capacity, and represents a critical piece to unlock more traditional Federal and state programs. Since the Management board has identified wetlands and forest buffer as a priority outcome, this has become a higher ongoing priority.

Recommendation: EPA's Clean Water State Revolving Fund (CWSRF) has historically been used mostly for wastewater and regulated stormwater infrastructure, but wetland projects have long been eligible. This action is ongoing.

Recommendation: Use Clean Water Act Mitigation Bank/In-lieu Fee programs to build long-term capacity within programs. There is no timeline for this action.

Recommendation: Explore ways to use NRCS Agricultural Conservation Easement Program (ACEP)-WRE, CRP/CREP for long term capacity building and landowner outreach work in tidal wetlands. There is no timeline for this action.

Recommendation: Explore access to Chesapeake Trust Fund for sustainable capacity building. This action is ongoing.

Summary and Conclusion

Four themes remained consistent throughout the workshop:

- Cohesive strategy for tidal and nontidal wetlands across the watershed for site selection and priorities that take into consideration 10 goals and 31 outcomes associated with the Chesapeake Bay 2014 Agreement.
- Dedicated increased long-term capacity is needed to accelerate efforts –because of the time and complexity to complete wetland restoration projects, grant funded capacity does not retain and grow expertise.
- Outreach and design are priority areas to grow capacity to increase the pipeline of projects and advance them to implementation.
- New and increased funding should be directed to the states to build wetland capacity. This is critical to be able to access and leverage increased federal funds that will be available.
- Management Board representatives meet formally with all the agencies within their jurisdictions report out progress of the wetlands outcome attainment annually. Bay Program reports to PSC annually.

Because voluntary creation, restoration, and enhancement projects are under diffuse multifunctional programs, each individual project must recreate the process of identifying and engaging landowners, finding and developing capacity through partnership, and exploring and applying for funding to support the project. The long-term solution to this problem would be to develop Federal, state, and local programs that have dedicated staff and funding to work with landowners, develop voluntary projects, and fund implementation. This solution will require political will and would have to be developed through the partnership within the Bay Program and/or through legislative actions within the Bay Program partnership. In the interim the Action Plan is identifying stop-gap measures that will help move us closer to the Chesapeake Bay Program Agreement

wetlands outcome by 2025. [Appendix D](#) is a summary of projects with willing landowners that need either technical capacity or funding resources and represent the current strategic thinking for the wetlands outcome. [Appendix E](#) is a list of self-identified experts who may be able to help for those who have projects but may need some additional capacity. These experts have expressed interest in sharing their expertise cross-programmatically to help meet the outcome. Finally, [Appendix C](#) is a compilation of funding sources that would be available to pair with the identified projects in [Appendix D](#) with the technical experts in [Appendix E](#).

Even if we can adopt and implement all the recommendations outlined in this report, we must change the paradigm to recognize that the baseline for wetlands is not static and that without intervention, wetlands will continue to be lost. To be effective, any future agreements for the Chesapeake Bay partnership need to acknowledge climate change as a significant stressor on wetlands and take the continuing loss into account when establishing future outcomes.

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Appendix A: Participating Partnership Individual Strategies

US Army Corps of Engineers

Aquatic habitat restoration and protection is a primary mission area for the US Army Corps of Engineers (USACE). Jurisdiction for the Chesapeake Bay watershed is divided between the Baltimore District, which is responsible for the Susquehanna and Potomac Watersheds, and the Bay proper and other tributaries above the Maryland-Virginia state line, and the Norfolk District, which is responsible for the Rappahannock, York, and James River watersheds and the Bay and tributaries below the state line. USACE has many authorities under which partnerships can be formed to assess and develop watershed plans and improve habitat in the Bay watershed; however, USACE does not provide grant funding. Below is more detail on activities and authorities that address the main themes from the Wetland Outcome Attainability Workshop; strategic planning, capacity building, outreach, and funding.

Strategic Planning

Since USACE is a project focused and project funded agency, strategic planning focused on meeting given Chesapeake Bay goals or agency-specific habitat plans have not been developed. However, USACE does have significant experience in watershed planning in cooperation with our state and local partners. In recent years, USACE has partnered with:

The Susquehanna River Basin Commission to develop new habitat-based stream flow pass-by requirements;

The Metropolitan Washington Council of Governments, Prince Georges County, MD, and Montgomery County, MD to develop the Anacostia Restoration Plan; and

The State of Maryland through the Department of the Environment to analyze the impact and potential impact of sediment trapped behind the Conowingo Reservoir on Chesapeake Bay, as well as potential mitigation measures.

Most recently, USACE partnered with the National Fish and Wildlife Foundation to complete a Chesapeake Bay Comprehensive plan as directed by Congress in Section 4010(a) of the Water Resources Reform and Development Act (WRRDA) of 2014. This plan identifies ecosystem restoration projects in the Bay watershed overall, as well as defining a focus watershed in each state and Washington DC. Analyses conducted show where optimum restoration could occur through co-benefits.

USACE has standing authorities and programs under which such strategic planning can be conducted in partnership with state and local partners. Section 729 of the Water Resources Development Act (WRDA) of 1986 allows for watershed planning studies of up to \$3M (potentially larger with Headquarters level approval) cost shared 75% federal and 25% non-federal. The examples cited above were conducted under Section 729. USACE can also conduct smaller level watershed planning through the Planning Assistance to States (PAS) program (Section 22 of WRDA 1974, as amended). Whereas Section 729 studies must be specifically funded by Congress, PAS is funded annually by Congress as a program and so is controlled within the agency and funding is more readily available.

Capacity Building

In addition to the talented staffs at the Baltimore and Norfolk Districts, USACE has a large national workforce that can be called upon to help conduct studies or implement projects in support of the local Districts. There

are also research and modeling experts at various labs, including the Engineer Research and Development Center in Vicksburg, MS who have been very active in the development and use of Chesapeake Bay models since the earliest days of the Chesapeake Bay Program.

USACE has the ability to contract with the private sector and academia in support of projects and studies. Therefore, USACE is able to surge to meet any requirement.

Outreach

Outreach is conducted for specific projects based on sound methodology for problem identification, plan formulation, and analysis. Outreach is a critical piece of any study that will result in a recommendation for construction as mandated by the National Environmental Policy Act of 1969, as amended (NEPA).

USACE Districts do have some limited coordination funding available within programs to conduct outreach to educate local jurisdictions and the public about specific programs and capabilities. There is also funding available to participate in events, workgroups, and programs coordinated by others.

Funding

USACE has ongoing projects that have been approved for funding that will contribute toward the goal for wetlands restoration in the Chesapeake Bay watershed. The largest of these are the Poplar Island and Mid-Bay Island projects being conducted in partnership with the Maryland Port Administration. Both projects employ the beneficial use of dredged material to create remote island habitat in the Bay proper. Poplar Island, in Talbot County, MD, was authorized by Section 537 of WRDA 1996 and was amended most recently by Section 7003 of WRRDA 2014. Construction began in 1998 and is estimated to continue through 2044. To date 382 acres of tidal wetlands have been created. Ultimately, there will be 776 acres of wetlands on the completed island at an estimated cost of \$1.4B.

The Mid-Bay project consists of restoration of Barren and James Islands in Dorchester County, MD. The project was authorized by Section 7002 of WRRDA 2014. Construction of the Barren Island component will commence in 2023 and consist of 72 acres of wetlands once complete. The James Island component is scheduled for award of its first construction contract in 2024. Upon completion, James Island will include 1140 acres of wetlands. The project is estimated to be complete in 2058 at a cost of \$4.03B.

USACE does not have granting authority, but standing authorities exist for the conduct of studies and the implementation of projects in the interest of aquatic ecosystem restoration. The Continuing Authorities Program (CAP) is a set of authorities for USACE study and construction that are funded on an annual basis by Congress. Potential projects with documented support from a non-federal partner can compete for funding to conduct feasibility studies that ultimately lead to project implementation. The most relevant CAP authorities for the restoration and protection of wetlands are:

Section 206 of WRDA 1996, as amended, Aquatic Ecosystem restoration. Allows for restoration of degraded ecosystems. This program has a maximum federal contribution cap of \$10M and requires a 35% non-federal cost share;

Section 103 of the River and Harbor Act of 1962, as amended, Beach Erosion, Hurricane and Storm Damage Reductions. This authority can be used to protect eroding coastal habitats. The cost share and cap are the same as Section 206, above;

Section 1135 of WRDA 1986, as amended, Project Modifications to Improve Environment. This authority allows for modifications to existing USACE projects for the purpose of realizing

environmental improvements. The federal cost share cap is \$10M, with 25% contributed by the non-federal partner; and

Section 204 of WRDA 1992, as amended, Beneficial Use of Dredged Material. This authority allows for the use of dredged material for authorized navigation projects to be used to create aquatic or wetland habitats. The study phase is 100% federal, but implementation is shared 35% by the non-federal partner for all costs above the least cost dredged material placement method. The federal cap is \$10M.

The Section 22, Planning Assistance to States, technical assistance authority discussed above can be used to conduct assessments, including appropriate modeling and analysis, that do not lead to construction. These assessments can be in the interest of, among other things, stream assessments, hydrology and hydraulic modeling, water quality, environmental restoration, wetland delineation, and watershed planning. This program is nationally funded and has been growing in recent years including some funding from the Bipartisan Infrastructure Law. This program is cost shared 50/50 with a non-federal partner.

Exclusive to the Chesapeake Bay watershed, Section 510 of WRDA 1996, as amended, provides for assistance to local partners in the restoration and protection of habitat. This can include but is not limited to stream and wetland restoration, sediment and erosion control, and beneficial uses of dredged material. Funding varies by fiscal year, and individual projects must not exceed \$15M. Cost share is 75% federal, 25% non-federal.

USACE can conduct studies and implement projects at larger scales through the General Investigations program. These projects require a Congressionally authorized feasibility study and specific appropriations in the federal budget. Studies are typically 3 years in duration at a cost of \$3M, which is shared 50/50 with a non-federal partner. There is no limit to the size of the recommended construction project that results from the study, but upon approval of the plan by USACE, construction must be authorized by Congress and funding provided under the Construction General program in the annual budget. Construction cost share is typically 65% federal and 35% non-federal.

As discussed previously, a Section 729 study can be conducted under the General Investigations program. As with the General Investigations studies, a 729 study requires Congressional authorization and funding. Watershed assessments under Section 729 can be up to \$3M and require a 25% non-federal cost share.

A new authority, Section 125(a) of WRDA 2020 allows for the beneficial use of material dredged from federal navigation channels during maintenance of those channels using Operations and Maintenance funding, not construction funding. A non-federal partner is required to provide 35% of the cost above the cost to place that material in a traditional, lowest cost manner.

District of Columbia

Four major themes emerged during discussions on a state plan of action to move closer to the wetlands outcomes: Strategic planning; Capacity Building; Outreach (landowner/community engagement); and Sustainable Funding. Within each recommendation, we have identified the state's new approaches/ideas and how to address them.

Strategic planning

The District of Columbia has included strategic planning for wetlands restoration in the following existing documents:

- [Wetland Program Plan](#) (WPP): In 2021, DOEE published the 2021-2025 Wetland Program Plan under a Region 3 Wetland Program Development Grant. Following the EPA's Core Element Framework, Program Element 2 identified goals, objectives, and activities aimed at restoration and protection of wetlands in the District, which are outlined in the tables below. The WPP, including the projected timeline, is subject to the availability of staff and financial resources and coordination with other District and Federal agencies. This voluntary plan is a working program plan that will be revisited and revised as needed.

Goal: Increase wetland acreage and improve wetland function through effective restoration action and promote sound wetland stewardship.

2.1 Objective: Identify restoration/enhancement priority areas and create management recommendations.					
Activity	2021	2022	2023	2024	2025
a. Update and maintain a database of District, federal, or private properties with wetlands or streams that could benefit from restoration or enhancement or present opportunities for wetland creation (ongoing, part of Monitoring and Assessment program).		x	x	x	x
b. Develop agreement/MOU with National Park Service (NPS) to allow for restoration projects within park boundaries.		x	x		
c. Work with NPS to develop catalog of potential wetland and stream restoration projects within the District (ongoing, concurrent with Monitoring and Assessment program).		x	x	x	x
d. Investigate and pursue additional funding sources for creation, restoration, or enhancement projects (ongoing).		x	x	x	x
e. Work with DOEE's Fisheries and Wildlife Division (FWD) to target conservation opportunity areas for wetland restoration.			x	x	
f. Create list of areas that could benefit from volunteer enhancement efforts (e.g., trash clean-up, invasive removal) to share with environmental stakeholder partners.			x	x	x
g. Share restoration and protection priorities with partners.				x	x

2.2 Objective: Increase wetland acreage and function through creation, restoration, or enhancement					
Activity	2021	2022	2023	2024	2025
a. Use In-lieu Fee (ILF) funds to implement creation, restoration, and enhancement projects.		x	x	x	x
b. Provide technical assistance to creation, restoration, and enhancement projects as needed (ongoing).	x	x	x	x	x

2.3 Objective: Monitor and track restoration progress over time and document results.					
Activity	2021	2022	2023	2024	2025
a. Track creation, restoration, and enhancement projects.	x	x	x	x	x
b. Monitor creation, restoration, and enhancement sites to ensure that they are implemented and managed correctly.			x	x	x

- [Wetland Conservation Plan](#) (WCP): In 2020, DOEE published an update to the District's 1997 WCP. The original 1997 WCP established the goal of no net loss and eventual net gain of wetland acreage and function and provided a large-scale wetland inventory. The 2020 update to the WCP included the following substantial updates:
 - Detailed mapping of 92% of potential District wetlands (areas determined to have wetland characteristics via a desktop analysis);
 - Baseline data on wetland conditions including soils, hydrology, vegetation, percent cover of invasive species, photographs, and functions and values assessments;
 - A publicly available Wetland Registry geodatabase that houses all of the data collected for this update;
 - Updated methodology to assess wetland restoration and enhancement opportunities; and
 - Guidance to select candidate sites to create new wetlands.
- The [Sustainable DC 2.0 plan](#) (2019) outlines the Mayor's vision for a sustainable city and strategic action to achieve goals related to the environment, energy, food, nature, transportation, waste, and water, as well as the economy. The District's priority for the natural environment is to protect, restore, and expand aquatic ecosystems. Sustainable DC 2.0 set the following targets to protect, restore, and expand aquatic ecosystems:
 - Target NA1.1: Develop a Wetland Registry to facilitate restoration or creation of wetland habitat.
 - Target NA1.2: Plant and maintain an additional 150 acres of wetlands in targeted Conservation Opportunity Areas.
 - Target NA1.3: Partner with developers to incorporate living shorelines in waterfront developments.
 - Target NA1.4: Reduce threats to 75 aquatic species of greatest conservation need.
 Target NA1.2 is described as a long-term goal in the Sustainable DC plan, with a projected timeline of 10-15 years. This timeline is subject to the availability of staff and financial resources and coordination with other District and Federal agencies.
- [DC State Wildlife Action Plan](#) (SWAP): The DC SWAP (2015) outlines goals for DOEE's Fisheries and Wildlife Division (FWD) to seek grants and other funding to plan and implement new tidal wetland

restoration projects, focusing especially on locations where native, natural soils may remain beneath areas filled from the 1890s to the 1940s.

Additionally, the District of Columbia is developing the Anacostia River Corridor Restoration Plan. The Anacostia River Corridor Restoration Plan is a two-year restoration planning project for the Anacostia River corridor 500-year floodplain within the District of Columbia. The plan will identify and prioritize specific strategies for restoring the fish and wildlife habitat, improving water quality, adapting to climate change, and increasing equitable public access to the river corridor. The project will include robust engagement efforts to foster strong community consensus around the plan for the river corridor's future. In the final phase of the project in 2023, the planning team will prepare a final document that provides final restoration recommendations as well as an implementation plan and suggestions for future studies to support these efforts. The master plan draft will be presented to the public between the development of the draft and final document to continue transparency and engagement with the public.

Capacity Building

Several activities related to the objectives in the WPP are intended to build capacity for wetland restoration and enhancement in the District of Columbia. This includes building partnerships for restoration and enhancement, such as non-profit partners to help organize invasive removal events and trash pickups for wetland enhancement and National Park Service partners to develop a catalog of potential restoration sites to target with future funding opportunities. Building capacity also requires increased cooperation between divisions within DOEE, including between Regulatory Review Division (RRD), Watershed Protection Division (WPD), and Fisheries and Wildlife Division (FWD) to target areas most appropriate for conservation action, explore funding opportunities, maximize technical expertise, and implement restoration projects. To that end, the management board representative for DOEE should be updated at least annually on progress towards wetlands outcomes.

Outreach (landowner/community engagement)

The majority of mapped wetlands in the District (~72%) and most opportunity areas for wetland restoration are located on land owned by the National Park Service (NPS). Nearly the entire seven miles of the Anacostia River is armored by a seawall that is considered historic. Historic preservation requirements for the seawall have nearly prohibited wetland and stream restoration efforts. Outreach efforts will be aimed at achieving federal buy-in for restoring marsh communities that existed before the seawalls were built and meeting regularly with NPS partners.

Additionally, DOEE included several objectives around education and outreach in the WPP, including:

- 5.1 Objective: Directly engage with environmental stakeholder groups to share local knowledge and expertise, and to collaborate on wetland stewardship events and activities.
- 5.2 Objective: Educate and raise awareness of the value and benefits of healthy wetlands, and as a result, increase advocacy for the protection of wetlands.
- 5.4 Objective: Utilize regional networks of wetland professionals to enhance collective understanding of wetland program best practices.

Objectives 5.1 and 5.4 should also contribute to capacity building for wetland enhancement and restoration in the District. Objective 5.2 includes tasks to send outreach to private landowners with mapped wetlands to inform them of wetland benefits and regulatory protections, as well as activities intended to use social media and public events to spread awareness of the benefits of healthy wetlands. These activities are intended to create advocates for wetlands in the District and promote support for wetland creation, restoration, and enhancement activities. Many of these activities were begun in 2022, such as increased social media presence,

and activities are expected to continue over the next few years. DC will also have to get public and partner buy-in related to living shoreline maintenance.

Sustainable Funding

The District of Columbia will explore additional funding opportunities. Shorter term grants are meeting some of the needs currently, but a longer-term approach (longer term funding) is needed. NFWF and Chesapeake Bay Trust are prime funding opportunities. DC also will explore funding opportunities at USFWS and other federal agencies.

The District of Columbia needs funding for maintenance in particular. Phragmites control is a major maintenance concern. Establishing a medium/long term maintenance plan/budget and developing a map of sea level rise to plan for maintenance would prove beneficial.

Delaware

Four major themes emerged during discussions on a state plan of action to move closer to the wetland's outcomes: Strategic planning; Capacity Building; Outreach (landowner engagement); and sustainable funding to support consistent effort towards the wetland's outcome. Within each recommendation we have identified the state's new approaches/ideas and how to address them.

Strategic planning

Delaware will use the newly formed Delaware Wetland Restoration Workgroup to leverage funding, coordinate existing staff capacity, identify additional capacity needs and partners, and increase projects and efficiencies. The State will also increase or build on other efforts, such as the Delmarva Restoration Team/DRCN and Envision the Choptank, and coordinate with external partners such as Ducks Unlimited, Delaware Wildlands, and the Nanticoke Watershed Alliance.

Delaware will determine an approach to breaking down silos to help meet its wetland goal and develop an organized structure that sustains progress, guides efforts, and keeps momentum over time and through staff changes. Additionally, the State will meet annually with the Chesapeake Bay Program Management Board to report out on progress on wetland outcome attainment.

Capacity Building

Delaware must increase staff capacity to leverage staff for outreach and implementation. The State could build project capacity within the CWSRF that incorporates wetland restoration and enhancement additions to traditional loan projects. Additional funding for staffing will be crucial for making progress in restoration project establishment.

Outreach (landowner/community engagement)

Delaware will have restoration-specific outreach materials at events where DE wetlands staff/ conservation staff will be present (e.g., State Fair, Water Family Fest, Blackbird Fall Fest). Additional outreach materials addressing how to deal with competing influences for lands (e.g., agricultural economy and production; development pressures) will be produced.

Sustainable funding to support

Delaware will revisit and update the comprehensive list of funding and landowner incentive programs. Subsequently, the State will evaluate how all funding sources - and new funding -- interact and can be used efficiently. This may include leveraging/coordinating NRCS, FSA, NGO, and State funding sources. A point-person will be assigned who is knowledgeable about the requirements and eligibilities for the different funding sources.

The State will explore how to connect wetland projects with flood plain management and restoration to coordinate with flood funding sources, such as flood hazard mitigation.

Delaware will consider the economic benefits of acquiring large parcels to bring about significant wetlands restoration and enhancement projects, as securing an adequate number of landowners to sign up for easement programs has become increasingly difficult.

U.S. Environmental Protection Agency: Wetlands Action Plan

Chesapeake Bay Program Office:

Coastal wetlands are key habitats for migrating birds, important nursery grounds, important for climate resiliency and water quality improvements so they are an important focus area regardless of the Agreement commitment of 85,000 acres by 2025. The August 2022 wetlands workshop identified four key strategies to help overcome the existing barriers. These strategies include strategic planning, developing capacity, landowner/community engagement and sustainable funding for tidal and nontidal wetlands. EPA plans to use IJA funds to help overcome some of the identified barriers as well as on-the-ground implementation dollars for wetland restoration, creation, and enhancement. EPA is working with partners to develop a workplan that will help initiate these four strategies in the coastal wetlands portion of the Chesapeake Bay watershed. In addition, EPA is working with recipients of the Small Watershed and Innovative Nutrient and Sediment Reduction grant programs to prioritize on the ground restoration projects. Areas EPA will support for coastal wetlands include:

Strategic Planning:

There are many complications with ensuring we are targeting appropriate locations for large scale coastal wetland restoration, including consideration of migration corridors, avoiding shallow water conflicts, ensuring low energy fetch, etc. Where wetlands were historically in the watershed, where they have been lost, and where it is possible to restore wetlands considering the effects of climate change, will be taken into consideration when planning for landscape-level restoration. Many organizations (MD DNR, NOAA/Middle Peninsula, TNC, VIMS) have conceptual models, criteria, data, or other important pieces but they need to come together to develop consensus siting criteria. The CBPO will provide support to work with the Habitat Goal Implementation Team (HGIT), with close coordination with the Wetland Workgroup, and the Climate Resiliency Work Group; as well as other interested parties to compile the tools and plans that have been developed across current efforts to plan and restore coastal wetlands. We will also facilitate a dialog across practitioners to establish consistent coastal marsh restoration priorities, techniques, and ultimately coastal marsh restoration siting criteria.

Developing Capacity of Wetland Restoration Practitioners:

States have difficulty hiring and retaining wetland restoration practitioners. There is a shortage of specialists in the states to conduct outreach, and develop designs and implement restoration actions. Developing standardized tidal wetland restoration techniques and monitoring will allow continuity within and between the jurisdictions and help maintain expertise through changing staff. The CBPO will work with the Bay program partnership through the Habitat GIT to develop “how to” manuals and guidance for coastal wetlands restoration and monitoring.

Landowner/Community Engagement:

Much of the success in achieving the wetlands outcomes has to do with landowner acceptance. We have been told many times that this requires “boots on the ground” working either directly with the landowners or working with those whose role is working with landowners (e.g., NRCS/FSA). All current social marketing has identified neighbors as having great influence- more than the government. The CBPO will investigate developing plans, including a peer to peer marketing strategy, for each of the coastal jurisdictions that incorporates social marketing to sustain landowner engagement long term.

Sustainable Funding:

Once there is strategic plan and well-developed capacity in place, we want to ensure that the work can be implemented beyond the scope of currently available funds. The CBPO will identify innovative financing practices that can generate funds that can build sustainable programs to maintain capacity.

Grants:

The CBPO is continuing to fund the Innovative Nutrient and Sediment and Reduction (INSR) and Small Watershed Grants (SWG), administered through NFWF, which support restoration and protection actions that help restore healthy waters, habitats and wildlife in the Chesapeake Bay region, including wetland creation, restoration and protection projects.

Clean Water Act Section 404:

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. It requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation.

The basic premise of the program is that no discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded. In other words, applicants must first show that steps have been taken to avoid impacts to wetlands, streams and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts.

The program is jointly administered by the U.S. Army Corps of Engineers (Corps) and EPA in states that have not assumed the program. The Corps administers the day-to-day program including issuing permits, enforcing permit conditions, and regulating unpermitted activities in waters of the U.S. EPA reviews and comments on permit applications to ensure that the project will comply with the CWA Section 404(b)(1) Guidelines (Guidelines) and enforces provisions of Section 404.

For potentially significant impacts, individual permits are reviewed by the Corps, which evaluated applications under a public interest review, as well as the environmental criteria set forth in the Guidelines promulgated by EPA. For discharges that only have minimal adverse affects a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities. The general permit process eliminates individual review and allows certain activities to proceed with little or no delay, provided that the general or specific conditions for the general permit are met. States also have a role in Section 404 decisions, through State program general permits, water quality certification, or program assumption.

In 2008, EPA and the Corps jointly promulgated regulations revising and clarifying requirements regarding compensatory mitigation for unavoidable impacts to waters of the United States. According to these regulations, compensatory mitigation means the:

- restoration (re-establishment or rehabilitation),
- establishment (creation),
- enhancement, and/or
- in certain circumstances, preservation of wetlands, streams and other aquatic resources.

Under the regulations, there are three mechanisms for providing compensatory mitigation:

- mitigation banks,
- in-lieu fee (ILF) programs, and
- permittee-responsible mitigation.

This regulation also establishes an Interagency Review Team (IRT) composed of multiple federal and state agencies and chaired by the Corps in most instances. The purpose of the IRT is to facilitate third party mitigation through review and/or approval of mitigation banks or ILFs, monitoring reports, credit releases, modifications, and adaptive management measures.

Strategic Planning:

When invited and resources allow, EPA actively participates in Section 404 pre-application process in hopes that it will result in more effective and efficient regulatory review. Any applicant for a Section 404 permit can engage in pre-application consultation with the Corps and, in some cases, other federal agencies, states, and tribes. The pre-application process occurs under the Corps' direction with the involvement of other federal and state agencies, as appropriate.

The primary purpose of such meetings is to provide for informal discussions about a proposed activity before an applicant makes significant resource commitments (e.g., funds and detailed designs). In some cases, the pre-application process provides an opportunity to assess the viability of various alternatives available to accomplish the project purpose, to discuss measures for avoiding, minimizing, and mitigating the impacts of the project.

The applicant has the responsibility of demonstrating that all requirements of the Guidelines have been satisfied and providing sufficient information to allow a determination of compliance or non-compliance with the Guidelines. Developing an adequate information base may be an iterative process that involves some degree of back and forth between the involved agencies and the applicant. This allows all parties to identify information needs (e.g., location and design options, resource characterization) early in the process, resulting in a smoother decision-making process later, highlighting the importance of pre-application meetings. Generally speaking, more significant impacts on the aquatic environment will require greater scrutiny on issues related to project alternatives and the adequacy of compensatory mitigation. Note that, pursuant to the regulations, should there be insufficient information upon which to make findings of compliance, a permit cannot be issued. Therefore, it is in the interest of all parties involved in the Section 404 permit review process to understand what issues may be of concern and clarify the level of information needed for a permit decision.

Capacity Building; Landowner/Community Engagement – Outreach:

Tools for Additional Information:

Regulatory In-lieu fee and Bank Information Tracking System (RIBITS):

RIBITS was developed by the U.S. Army Corps of Engineers with support from EPA and the U.S. Fish and Wildlife Service to provide better information on mitigation and conservation banking and in-lieu fee programs across the country. RIBITS allows users to access information on the types and numbers of mitigation and conservation bank and in-lieu fee program sites, associated documents, mitigation credit availability, service areas, as well information on national and local policies and procedures that affect mitigation and conservation bank and in-lieu fee program development and operation.

Watershed Resources Registry (WRR):

WRRs are state-specific interactive online mapping tools that host consensus-based restoration and preservation analyses and other publicly available data for regulatory and environmental planning purposes. Designed for people of all levels of GIS experience, WRRs allow users to examine data on an interactive map,

run reports, connect with external, third-party tools (e.g. NEPAssist), and create printable maps. The interactive online map provides easy access to GIS data layers, such as wetlands, land use/cover, 404 permits from the Corps' ORM database, third party mitigation projects from the Corps' RIBITS database, impaired waters, waters of special concern, historic aerial imagery, etc. that are of key importance in implementing aspects of the Clean Water Act (CWA) Section 404 program.

Sustainable Funding:

EPA also has a competitive Wetland Program Development Grants (WPDG), which are assistance agreements to support state, tribal, local government agencies and interstate/intertribal entities in building programs to protect, manage and restore wetlands. The statutory authority for WPDGs is Section 104(b)(3) of the Clean Water Act (CWA), 33USC § 1254(b)(3). Section 104(b)(3) of the CWA restricts the use of these funds to improving wetland programs by conducting or promoting the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies related to the causes, effects (including health and welfare effects), extent, prevention, reduction, and elimination of water pollution.

U.S. Fish and Wildlife Service

Four major themes emerged during discussions on a plan of action to move closer to the wetlands outcomes: strategic planning; capacity building; outreach (landowner/community engagement); and sustainable funding to support consistent efforts towards the wetlands outcome. Within each recommendation we have identified the agency's new approaches/ideas and how to address them.

Strategic planning

U.S. Fish and Wildlife Service (FWS) Northeast Region Coastal and Partners for Fish and Wildlife (PFW) programs both have completed strategic plans for 2022-2026. The plans highlight how and where FWS will target landscape conservation priorities for listed and at-risk species, aquatic connectivity, coastal resilience, and climate change. Between 2022 and 2026, the Northeast Region's PFW Program will restore 6,000 acres of wetland habitat and reconnect 4,000 acres of wetland habitat, while the Coastal Program will protect 2,000 acres of wetland habitat, restore 800 acres of wetland habitat, and reconnect 1,000 acres of wetland habitat within the Region. Protecting and restoring high quality habitat for coastal dependent species, such as the saltmarsh sparrow, and providing technical assistance are priority actions of the Coastal Program. The PFW Program offices in coastal states will restore high priority coastal wetland habitats to increase the survival and abundance of saltmarsh sparrow, black rail, and American black duck.

FWS released the Climate Change Action Program in October 2021, which outlines seven implementation elements. Over the next five years, Coastal and PFW will focus on Element #5: enhance the Service's role in climate mitigation by achieving zero net emissions by 2050 and working with partners to increase our carbon sequestration capacity to benefit fish, wildlife, plants, and their habitats. The Coastal and PFW Programs have a long history of working with partners to restore fish and wildlife habitats that simultaneously sequester carbon. Restoration examples include tidal marshes and freshwater wetlands. Over the next five years, Coastal and PFW Programs will also look at innovative ways to implement nature-based solutions and nature-based infrastructure projects.

More specifically, within the Delmarva focus area, the Chesapeake Bay Field Office (CBFO) Coastal Program's 2022-2026 conservation targets include 1,000 wetland acres protected and 100 wetland acres restored. CBFO Coastal Program is working with CBFO PFW, Refuges, among others to restore and build resiliency within salt marshes of the Delmarva to combat climate change, as part of the Salt Marsh Adaptation and Resiliency Teams (SMART) planning and implementation efforts.

Within New York, PFW's 2022-2026 conservation targets include 650 wetland acres restored in the Upper Susquehanna River Basin.

Within Pennsylvania, PFW's 2022-2026 conservation targets include 40 wetland acres restored in the Middle Susquehanna River Basin.

Within Maryland and Delaware, PFW's 2022-2026 conservation targets include 1,000 wetland acres restored within the Eastern Coastal Plain. Many of these projects are enrolled in Natural Resources Conservation Service's (NRCS) Wetland Reserve Easement Program and are under permanent conservation easements. Additionally, 10 wetlands acres will be restored in Western Maryland and 10 in the North/Central Piedmont.

Within Virginia, PFW's 2022-2026 conservation targets include 10 wetland acres restored in the James River Watershed.

Within West Virginia, PFW's 2022-2026 conservation targets include 5 wetland acres restored in the Potomac and Upper James River Watersheds.

Capacity Building

Supporting its workforce is the priority of the FWS Northeast Region Coastal and PFW Programs. To maintain an effective, diverse, and talented workforce, FWS will finalize a comprehensive workforce plan for the Coastal and PFW programs. FWS strives to recruit, retain, and train people that understand the importance of partnering and building relationships. For example, SMART will look to build capacity and expertise to facilitate projects that identify and restore important marshes over the next five years. To further develop and support the existing workforce, the Coastal and PFW Programs staff will engage in 500 developmental activities each. FWS strives to provide partner groups and outside agencies with state-of-the-art training in restoring and managing wetlands. For example, the National Conservation Training Center offers a "Wetland Assessment, Restoration and Management" course.

Outreach (landowner/community engagement)

FWS will engage and facilitate key partnerships that will restore and protect important habitats for fish and wildlife. For example, within West Virginia, PFW's school yard habitat projects involve restoration of wetlands. FWS Northeast PFW Program will work with 700 partners to achieve successful conservation on private lands. These partnerships will include 350 private landowner agreements.

FWS will engage with communities to increase program awareness, share success stories, and connect people to nature. FWS Northeast Coastal Program will engage in 100 activities supporting communications and outreach between 2022-2026. FWS Northeast PFW Program will engage in 250 activities supporting communications and outreach between 2022 and 2026.

Private landowners are the cornerstone of the PFW Program. FWS Northeast PFW will work diligently to write grants, secure funds, and cooperate with the private landowners and other groups to deliver high-quality on-the-ground projects on private land.

Sustainable funding to support

FWS Coastal and Partners programs are driven to deliver high-quality financial assistance. USDA's Farm Bill provides billions of dollars annually for voluntary habitat conservation on working lands, including tidal marshes. FWS will continue working with the Natural Resources Conservation Service to restore and protect priority habitats. FWS Northeast Coastal and PFW Programs will leverage their funding at least four times each.

The National Coastal Wetlands Conservation Grant Program supports long-term wetland conservation by awarding up to \$1 million for wetland conservation projects. Between \$18 million and \$23 million are available for projects annually. The grant program is co-administered by FWS's Wildlife and Sport Fish Restoration Program and Coastal Program.

The Conservation Enhancement Act (the Act) became law (Public Law No: 116-188). In Title 1, section 111, Congress required the FWS to establish a nonregulatory program to be known as the "Chesapeake Watershed Investments for Landscape Defense program," or Chesapeake WILD, which will administer a grant program that will target funding to the most strategic priorities, including those that aim to conserve, restore, and increase the resiliency of nontidal wetlands and tidal marshes.

The North American Wetlands Conservation Act (NAWCA) authorizes grants to public-private partnerships in Canada, Mexico, and the U.S. to protect, enhance, restore, and manage waterfowl, other migratory birds and

other fish and wildlife, and the wetland ecosystems and other habitats upon which they depend. The NAWCA program provides matching grants to wetlands conservation projects in the United States, Canada, and Mexico and includes a Standard and a Small Grants Program. Since 1989, \$2 billion in grants have gone to 3,262 projects in the U.S., Canada, and Mexico. Over 6,700 partners have contributed \$4.1 billion in matching funds, affecting over 31 million acres of wetlands and associated uplands.

Maryland

During the discussions on the state plan of action to move closer to the **Wetlands Outcome**, four major themes emerged: Planning, Capacity Building, Outreach (landowner engagement), and Sustainable funding and financing to support consistent effort towards the **Wetlands Outcome**. Maryland has additionally identified several basic science needs and actions by the Chesapeake Bay Program that would further wetland restoration efforts. Each theme identifies the state's current actions, proposes new approaches, and suggests how to advance them.

Planning

Planning for large-scale wetland restoration should seek to build capacity, increase outreach, and generate actions necessary to meet the goal while maximizing co-benefits. Throughout the implementation of Maryland's Wetlands Plan the state will consider lessons learned and adaptive management opportunities along with appropriate policy, regulatory, or legislative recommendations to achieve program goals. The state and key partners will develop strategies that promote wetland restoration projects as actions that support the Wetlands Outcome while aligning with other statewide initiatives. This includes efforts like updating local agriculture conservation plans to allow wetland restoration, which was recently begun by the [Maryland Agricultural Land Preservation Foundation](#), and aligning wetland restoration plans with striped bass habitat protection plans to expand juvenile fish habitat. The state could promote broader implementation by connecting tidal and non-tidal wetland goals with state agency and commission work plans. Examples include: a) [Climate Change Commission](#), including the Adaptation and Resiliency Working Group's Adaptation and Resilience Framework b) [Green and Blue Infrastructure Policy Advisory Commission](#), with its pay-for-success procurement goals, and c) priorities of the new Maryland Department of Emergency Management's Office of Resilience.

Planning efforts should engage non-traditional partners being developed through efforts with a focus on underserved communities such as those identified in the 5 Million Trees Initiative and minority-focused organizations such as Black in Marine Science and Minorities in Agriculture, Natural Resources and Related Sciences.

Planning should build on existing partnerships between state, non-governmental organizations (NGO), and federal administrations. The [Delmarva Wetlands Partnership](#), a multi-agency initiative with The Nature Conservancy (TNC), Ducks Unlimited, the Natural Resource Conservation Service (NRCS), the U.S. Fish and Wildlife Service (USFWS), among other agencies, focused on increasing wetland restoration across the Delmarva Peninsula. Other strategic partnerships include the Maryland Coastal Bays and USFWS working with Audubon Mid-Atlantic to do tidal wetland restoration work that furthers Saltmarsh Sparrow Conservation efforts. An observation from these efforts is that many landowners are willing to participate, but need technical assistance and funding. A primary challenge observed was the permitting of restoration efforts, due to the multiple stages of review by multiple levels of government. Additional challenges included how best to design, implement, and support adaptive wetland restoration to maintain resilience in the face of a changing climate.

Existing groups like the Delmarva Wetlands Partnership and the [Delmarva Restoration Conservation Network](#) can help expedite project planning. The Targeted Resilience Area Initiative, an effort at DNR to direct restoration efforts to priority regions, will support restoration of tidal and non-tidal restoration in

the lower Pocomoke area and in Antietam Creek/Hagerstown area. This initiative will generate projects and engage other agencies and organizations in a collaborative network to enhance climate change resiliency. Opportunities for wetland restoration on state lands are being assessed and prioritized for implementation as funding and capacity allow.

Agency staff can identify better designs, prioritize sites, and be more responsive when they have tracking and prioritization tools that make project objectives more transparent. The information and tracking needs to be more accessible by the public and other agencies to support broader planning goals, and build from existing tools such as the Watershed Resources Registry. An outreach plan will be necessary for the restoration effort to continue to grow. This should include use of the [Chesapeake Bay Program Living Shoreline Outreach Implementation Plan](#).

Maryland recently became one of the first states to include the blue carbon sink in its [greenhouse gas \(GHG\) inventory](#). This inclusion of best-available science has increased the state's ability to track carbon-related outcomes related to wetland restoration and recognizes the role of these systems in climate change mitigation which will ensure restoration efforts are part of the state's plan to reach net zero emissions by 2045. In 2019 Maryland completed a saltwater intrusion plan that recommends development of a state wetland adaptation plan. Wetland adaptation planning is needed to: (a) maximize the percent of migrating wetlands that successfully migrate as climate changes; and to (b) increase the resiliency of the few wetland complexes that have a high potential to survive in-place as climate changes, together reducing the future loss of wetlands.

Capacity building

While current networks and partnerships exist around wetland restoration in Maryland and neighboring states, a broader coalition must be built to reach the scale and speed that addressing capacity demands. The Maryland Department of Natural Resources (DNR) and the Chesapeake Bay Trust have partnered on the [Community Based Organization Capacity Building Initiative](#) to help historically under-engaged community organizations participate in water quality and resilience project design and proposal development. A state wetland team should be established to work through issues around site prioritization, permitting, maintenance and monitoring and to track progress towards the Wetlands Outcome. Within the Chesapeake Bay Program, an action team should be established to bring together decision makers at the state and federal level to work through regulatory challenges. In particular, the team could support access to new federal funds in the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) for large-scale wetland restoration.

Supporting established networks of scientists and land managers (e.g., [Chesapeake Bay Sentinel Site Cooperative](#)) would provide project linkages to technical expertise. The state may also consider a federal, NGO, or university coordinator to span jurisdictions and act as a field liaison to help smaller entities or private landowners navigate funding, potentially expanding on existing roles like the University of Maryland regional Watershed Restoration Specialist and NRCS technical assistance providers. One obvious challenge is that NRCS requires engineering qualifications to design a wetland restoration project. This challenge could be addressed by better communicating this need to restoration firms and establishing a multi-agency partnership to share staffing or resources. Capacity building should additionally address supply chain and contractor labor force needs for construction and maintenance and engage new avenues for developing a skilled workforce, such as certification through the Chesapeake Bay Landscape Professionals Program or Spanish language training via Defensores de la Cuenca.

Outreach

Landowner interest is a crucial component of increasing wetland restoration in Maryland, with additional outreach being necessary. The Chesapeake Bay Program and neighboring states have excellent communication resources around wetlands that can be leveraged. Aligning efforts with [World Wetlands Day](#) (February 2nd) or [American Wetlands Month](#) (May) would help synergize Maryland's campaign with the larger awareness effort. Grant funding focus areas, like the Targeted Resilience Area effort, can drive awareness in targeted locations. Maryland agencies will likely need additional staff resources to fully expand on outreach efforts.

Outreach efforts to establish priority areas and project needs should be coordinated with local government, community groups or economic development groups to reflect diversity in awareness of restoration needs, capacity, and project options. Potential partners include Maryland Association of Counties, Maryland Municipal League, Rural Maryland Council, Interfaith Partners for the Chesapeake, Taking Nature Black Conference, and agency DEIJ efforts.

To reach beyond the current audience of stakeholders, partners need to link ecosystem services to people's quality of life. Maryland will continue to identify areas that are conservation/restoration priorities and existing decision-support tools to support outreach efforts. Tools such as the [Maryland Watershed Resources Registry](#) and a new tool in development from DNR, in partnership with the Chesapeake Conservancy and other relevant agencies will better identify restoration opportunities at a landscape scale, and estimate the ecosystem service benefits that could be created if restoration occurs. This DNR tool will be integrated into the project selection process for the [Chesapeake and Atlantic Coastal Bays Trust Fund \(Trust Fund\)](#).

Maryland will build on existing collaborative networks in geographic focus areas to work with landowners, generate projects, apply for grants, and manage paperwork. This could include a strategy to assist partners in utilizing state funds for match in the development of grant proposals. A stakeholder engagement plan would help collaborative networks build capacity (e.g., for distressed properties, agricultural fields experiencing saltwater intrusion, ecologically important areas etc.). Agencies that frequently engage with the farming community, such as university extension agents, NRCS, and the Maryland Department of Agriculture have a tremendous potential to direct landowners that are currently or will be experiencing saltwater intrusion or climate driven flood issues on their land to programs that compensate for the loss of productive land.

Sustainable funding

One of the main funding mechanisms for ecological restoration in Maryland is the Trust Fund which supports wetland restoration on public and private land. To date the Trust Fund has supported the restoration or enhancement of 3,271 acres of wetlands that have been almost entirely non-tidal. Tidal wetlands are rarely funded through this mechanism due to their high cost and perhaps a failure to recognize them as a shoreline BMP under the current crediting, rather than as a wetland BMP. Wetland restoration can be seen as a priority for funding through highlighting the many co-benefits that wetland restoration accomplishes.

Shoreline management practices that incorporate vegetation establishment are approved BMPs that can result in removal of nitrogen, phosphorus and/or sediment. Marsh enhancement and living

shoreline projects are examples of these practices. The shoreline erosion control program is a revolving loan program that may be transitioned to a loan-grant approach to expand enrollment and make it self-sustaining, while prioritizing communities impacted by environmental justice concerns. In addition, the BIL has included nearly \$1 billion in funding for loans and grants to improve the resilience of coastal communities to flooding and inundation by restoring or expanding natural ecosystems, while enhancing fish and wildlife habitats, and increasing protection for communities from coastal erosion, structural hazards, and flooding.

Beneficial use of dredge material for wetland restoration represents an opportunity to fund restoration projects while reducing costs for entities doing the dredge, in some cases. The Beneficial Use: Identifying Locations for Dredge tool was created to help match restoration sites and upcoming dredge projects. This tool integrates MDE's online permitting portal of approved and pending projects.

Carbon markets represent an opportunity for wetland funding or finance. The current price of carbon offsets is not nearly high enough to completely fund a project, but it could form a piece of the funding puzzle. DNR has partnered with the MD/DC chapter of TNC to solicit a blue carbon feasibility study for the state, to be completed by the end of 2023. Upon completion, Maryland will have a better understanding of the role carbon offsets can play in wetland restoration and will have identified specific projects suitable for generating these offsets. Additionally, the state is committed to strategically engaging carbon markets to pursue high quality projects, provide transparent quantification, verification, and registration of carbon outcomes, and ensure alignment with state climate goals. An initial framework for market engagement was proposed in the [state's plan](#) to grow 5 million native trees by 2031.

Implementing [Maryland's Conservation Finance Act](#) will open state revolving loan funds for green and blue infrastructure projects and leverage private sector funding. It could also promote more collaborative effort between the State Revolving Fund and DNR's Chesapeake and Atlantic Coastal Trust Fund. The Conservation Finance Act allows for state agencies to base procurement on ecological outcomes, opening the door for these opportunities.

The Maryland Department of Transportation may have available funding to include wetland and marsh restoration into their projects through federal legislation changes and newer targeted funding for resilience improvements. The Surface Transportation Reauthorization Act of 2021 modified the definition of the term "transportation systems management and operations" to include consideration of incorporating natural infrastructure and adds definitions for the terms 'resilience' and 'natural infrastructure' to the list of defined terms under 23 U.S. Code §101. The BIL also established the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Program to help make surface transportation more resilient to natural hazards, including climate change, sea level rise, flooding, extreme weather events, and other natural disasters. A PROTECT funded project may include the use of natural infrastructure or the construction or modification of storm surge, flood protection, or aquatic ecosystem restoration elements that are functionally connected to a transportation improvement.

Science

While the Chesapeake Bay is one of the longest and best studied estuaries in the world, several questions remain that need to be addressed by the scientific community. The state recently completed modeling of future wetland migration areas and has created a blue carbon inventory. These efforts will

be enhanced with field measurements and monitoring of carbon and other GHGs in wetlands. Saltwater intrusion is likely to be a leading indicator for wetland migration but should be confirmed through field data, mapping, and modeling projections. Improved model inputs (monitoring metrics) that focus on GHG emissions and marsh health are needed to predict wetland migration and carbon sink potential. Improving metrics to measure marsh health should be expanded by the scientific community. Improved model inputs will enhance the predictive power of wetland migration and carbon sink potential. Better understanding of methane emissions in wetlands is another important component needed to understand the blue carbon sink. Saltwater intrusion is likely to be a leading indicator for wetland migration, but confirming intrusion through field data, mapping, and modeling projections are remaining needs. Under state law, Maryland's Plan to Adapt to Saltwater Intrusion and Salinization must be updated every 5 years (next due in 2024), so state agencies and university researchers will be consulted on the current state of the science to inform the development and/or modification of a statewide wetland adaptation plan.

Maryland's Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island project site has become an international model for the beneficial use of dredged material to restore remote island habitat. Upon completion, Poplar Island will include approximately 776 acres of tidal wetlands, including low marsh and high marsh habitat, bird nesting islands, and open water ponds, and an upland portion of approximately 829 acres. However, beneficial use of dredged material for marsh enhancement needs further study to understand its potential to extend marsh lifespans and impacts on marsh dwelling species. Maryland should partner with nearby states with a longer history of this practice, such as Delaware and New Jersey, to pool restoration monitoring studies.

Wetland migration corridors have been mapped through predictive modeling, but field verification of how wetlands are migrating and experimentation on effective management to facilitate migration is needed. While wetlands are mapped on five-year increments through federal efforts, mapping change at more frequent intervals and at a finer spatial resolution would make the maps more useful to attribute changes to specific drivers. Implementation of the state's wetland action plan should connect the wealth of ongoing research on wetlands in the Chesapeake Bay region to state policy, including through regulatory and legislative review. As one related next step, Maryland has committed to expanded and effective implementation of the State's Ocean Acidification Action Plan by developing a blue carbon coordinating strategy that drives alignment highlights intersections between climate action, ecosystem restoration, and ocean acidification action.

Recommendations for Chesapeake Bay Program action

Maryland suggests the following actions be taken by the Chesapeake Bay Program to further progress by all the partner states towards achieving the wetlands outcome:

- Establish an action team to bring together decision makers at the state and federal level to work through regulatory challenges, help states align large scale wetland restoration efforts, inform relevant policy and regulations, scale innovative conservation financing, and access new federal funding made available through the BIL and IRA. Identify and use existing targeting efforts such as the Watershed Resources Registry to identify priority large-scale restoration projects.
- Pursue modifications to the Chesapeake Bay Program database to allow for accounting of wetland gains which do not qualify as BMPs.

- Identify other practices which would sometimes qualify as wetland gains, but which were reported under other BMPs, including riparian forest buffers.
- Pursue additional research on and opportunities for thin-layer placement of dredged material to assist in restoration and enhancement of tidal wetlands.
- Establish a Best Management Practice Expert Panel for tidal wetland restoration or release an addendum to the shoreline management panel report that expands eligibility for tidal marsh restoration beyond shoreline projects. This would allow all forms of tidal wetland restoration to become an approved practice for meeting nutrient and sediment reduction goals, opening additional funding opportunities.
- Conduct an assessment of the long-term impacts of climate change and human development on wetlands. Wetland restoration is being done within the context of these two primary drivers of wetland loss. This would help answer the question of what pace of wetland restoration is necessary to maintain wetlands in the Chesapeake Bay watershed.
- Consider crediting the preservation of wetlands as a form of ecosystem crediting which contribute to other Chesapeake Bay Agreement commitments as well as TMDL requirements, beyond nutrient and sediment reductions.
- All Bay Agreement signatories should develop a wetlands adaptation plan to (a) maximize the percent of migrating wetlands that successfully migrate as climate changes; and to (b) increase the resiliency of the few wetland complexes that have a high potential to survive in-place as climate changes

National Oceanic and Atmospheric Administration

The National Oceanic Atmospheric Administration (NOAA) supports efforts to protect, recover and sustain valuable coastal and marine habitats and the communities that depend on them. The NOAA Chesapeake Bay Office (NCBO), under the Office of Habitat Conservation (OHC), leads the Chesapeake Bay Program's (CBP) fisheries, environmental literacy, and climate resiliency efforts, and supports and funds habitat restoration, fisheries research, and climate resilience work. The NCBO's work includes efforts supporting coastal wetland restoration through science application, partnerships, and funding. The NCBO also supports the monitoring of habitat use by fish and assessing the effects of climate change to inform future restoration targeting and design. Described below are NCBO activities pertaining to the four main themes identified during the Wetland Outcome Attainability Workshop: strategic planning, capacity building, community engagement, and funding. There are various NOAA programs that support tidal wetland science and restoration efforts but are not directly linked to the Bay Program, therefore are not included at this time.

Strategic planning

NOAA is one of the lead agencies for the Climate Resiliency Goal in the Chesapeake Bay Watershed Agreement. The NCBO manages the CBP's Climate Resiliency Workgroup working with a mix of federal, state, local, academic, and nongovernmental partners to monitor and assess trends and impacts of climate change and to support the implementation of on-the-ground projects to build resilience to environmental change. To support strategic planning of where to target tidal wetland restoration projects, the NCBO is supporting the Climate Resiliency Workgroup's GIT-funded project through the Chesapeake Bay Trust titled, "Partnership-building and identification of collaborative marsh adaptation projects." This project is reviewing and synthesizing existing resilience and social vulnerability metrics to inform targeting of wetland restoration projects and identify potential projects and partners. The project team is also aiming to align this synthesis with resilience funding criteria to identify potential funding opportunities for identified projects.

The NCBO has funded ecosystem services projects with the Virginia Institute of Marine Science (VIMS) and Morgan State University to better understand the value of nearshore habitat and inform the targeting of location and design of projects that align with community values and economic needs. The NCBO has funded the Virginia Marine Resource Commission to restore oysters in Mobjack Bay and working with them and VIMS to identify where oyster structures could protect shorelines and marsh areas.

Capacity Building

The [OHC's](#) NOAA Restoration Center provides [technical assistance](#) to habitat restoration projects across the country, including in coastal wetlands.

The NCBO funds designs for coastal wetland restoration. Partners have expressed the lack of support for project design as a barrier to pursue grants that mainly focus on funding implementation of projects. In response, the NCBO provided project design funds for marsh restoration at Hog Island and the Naval Weapons Station. The NCBO then assisted partners in pursuing funding to implement the designs through

the National Fish and Wildlife Foundation (NFWF), Department of Defense (DoD), Readiness and Environmental Protection Integration (REPI), and Virginia Coastal Zone Management.

Community Engagement

NOAA has designated two Habitat Focus Areas (HFA) in the Chesapeake Bay ([Choptank](#) and [Middle Peninsula](#)). Both systems have tidal marshes and other critical nearshore habitats that support fish and climate resilience. Envision the Choptank was developed around a common agenda for the Choptank HFA and continues to pursue habitat restoration projects in the area. The Middle Peninsula HFA is being coordinated through the [York River Small Basins Roundtable](#) and Chesapeake Bay National Estuarine Research Reserve in Virginia and is developing a coastal wetland plan to guide restoration.

Funding

NOAA OHC is administering the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act) through the [Transformational Habitat Restoration and Coastal Resilience Grants](#).

This funding will prioritize habitat restoration actions that rebuild productive and sustainable fisheries, contribute to the recovery and conservation of threatened and endangered species, use natural infrastructure to reduce damage from flooding and storms, promote resilient ecosystems and communities, and yield socioeconomic benefits. This funding will invest in projects that have the greatest potential to provide holistic benefits, through habitat-based approaches that strengthen both ecosystem and community resilience.

Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) provides voluntary conservation assistance to private lands through partnerships with private landowners, producers, and communities. Protecting, conserving, restoring, and enhancing wetlands is a priority for NRCS within the Chesapeake Bay region. Wetlands are critical in mitigating storm surges, containing floodwaters before they cause damage, and acting as filters to reduce pollution. Implementing the agency's mission related to wetlands is largely executed through financial assistance programs that utilize the advice of State Technical Committees and Local Working Groups to address unique resource concerns and opportunities within each state, county, and local watershed. NRCS implements conservation prioritization and targeting through its financial assistance programs utilizing a locally-led process. The agency will continue to implement and support the Chesapeake Bay Program through capacity building, stakeholder engagement, and financial assistance program implementation across all states that constitute the Chesapeake Bay Watershed.

Capacity Building

NRCS knows that increasing implementation of conservation technical and financial assistance cannot be achieved nor sustained without increased technical capacity. NRCS will continue to provide and leverage the opportunities for customers to receive technical and financial assistance from various technical specialists. The agency prioritizes expanding its technical capacity by hiring additional technical specialists and securing additional resources through agreements and partnerships. NRCS is expanding its technical capacity at the field level based on the needs within respective states. The agency will also continue to sustain and build technical capacity of NRCS staff, partners, and others through education and training.

Increasing the technical service capacity for customers and the agriculture community requires education and training. This training is not limited solely to NRCS employees, but also inclusive of partners, and others to build capacity in the agriculture community. NRCS will train conservation professionals in planning and implementing conservation practices that improve water quality, fish and wildlife habitat and wetlands. Training includes resource assessments, soils, and conservation planning tools.

Stakeholder Engagement

Engagement with landowners, partners, and the public is integral to increasing wetland preservation, restoration, and enhancement in the Chesapeake Bay. NRCS's mission is voluntary conservation and for that reason remains committed to ensuring its conservation resources and programs are available to all in the agriculture community. Implementation of the agency's programs and services includes feedback and recommendations from partners and the public through State Technical Committees, Local Work Group meetings, and comments from partners who implement NRCS programs through agreements. This is part of a continuous effort to grow education and engagement with the public about the programs and opportunities to conserve wetlands through NRCS programs in the Bay and be responsive to the funding and conservation needs within the Chesapeake Bay watershed. Through strategic stakeholder engagement NRCS will also obtain feedback and identify opportunities to establish agreements to advance wetland implementation.

NRCS has received billions of dollars nationally through the Inflation Reduction Act (IRA) for conservation implementation across several existing programs for the adoption and expansion of climate-smart activities and systems. This funding available through the next four years is in addition to the agency's Farm Bill allocations. NRCS is collecting and evaluating feedback from the public for how Inflation

Reduction Act funding should be implemented to best maximize benefits for climate mitigation, including targeting practices and programs that provide quantifiable reductions in greenhouse gas emissions. NRCS is also utilizing the requested feedback to help identify strategies and provide recommendations on how to maximize, target, monitor, and quantify improvements to soil carbon, reductions in nitrogen losses, carbon dioxide, methane, or nitrous oxide emissions associated with agricultural production. Additionally, NRCS is seeking ideas for how to further streamline and improve program delivery to increase efficiencies and expand program access for underserved and all producers.

Financial Assistance Program Funding to Support Wetlands

The Natural Resources Conservation Service is committed to protecting, restoring, and enhancing wetlands through the delivery of technical and financial assistance. NRCS will continue to work with landowners, land trusts, and entities to implement conservation assistance in high priority areas within the Chesapeake Bay. NRCS will leverage its resources to conserve and protect wetlands through coordinated work with partners.

USDA's Farm Bill provides hundreds of millions of dollars nationally and annually for voluntary habitat conservation on working lands, including tidal marshes. NRCS allocates and obligates millions of dollars for wetland protection, restoration, and enhancement in the Chesapeake Bay Watershed each year. Funding priorities within the Bay have and will continue to be determined in part by the recommendations of each states' State Technical Committee and Local Working Groups. NRCS will support agriculture conservation easements through annual obligations and payments of at least \$3.5 million through the Agricultural Conservation Easement Program (ACEP). ACEP allows NRCS and partners to leverage resources to carry out high priority wetland protection, restoration, and enhancement and improve wildlife habitat. NRCS will receive an additional \$1.4 billion nationally for ACEP over the next four years through the Inflation Reduction Act.

NRCS implements wetland conservation through agreements and partnerships with other organizations, including non-government, to leverage resources and funding to incentivize voluntary wetland conservation. NRCS has allocated millions of dollars annually to the establishment of partner-driven conservation solutions and funding through the Regional Conservation Partnership Program (RCPP). This funding builds upon partner funding and capacity to implement targeted conservation. NRCS will continue to support wetland conservation, restoration, and enhancement through RCPP agreements with partners. NRCS will also receive additional RCPP funding nationally totaling \$4.95 billion, during the next four years, with funding available for Chesapeake Bay partners and wetland focused projects.

Capacity building, stakeholder engagement, and conservation program funding will advance the Chesapeake Bay Program's wetland goal. NRCS will continue to use its suite of programs and conservation practices to implement conservation that restores, conserves, and enhances wetlands in the Chesapeake Bay.

New York

Four major themes emerged during discussions on a state plan of action to move closer to the wetlands outcomes: Strategic planning; Capacity Building; Outreach (landowner engagement); and sustainable funding to support consistent effort towards the wetlands outcome. Within each recommendation we have identified the state's new approaches/ideas and how to address them.

Strategic Planning

Freshwater wetlands are valuable ecosystem services for flood and storm water control, surface and groundwater protection, erosion control, pollution treatment and nutrient cycling, fish and wildlife habitat, and public enjoyment. In 1975, the State Legislature passed the Freshwater Wetlands Act to preserve, protect and conserve freshwater wetlands and their benefits. Wetlands that are 12.4 acres or considered of unusual local importance and the 100-foot buffer around each wetland are protected under this regulation.

New York Chesapeake Bay Wetland Action Team

New York has initiated a Chesapeake Bay Wetland Action Team to meet and brainstorm with partners from across the watershed with the goal of increasing restoration efforts and addressing wetland restoration barriers in New York. The team will strategize how to identify priority restoration sites, using ecosystem services as a site identification tool and designing projects with co-benefits in mind, secure and disburse funding, and expand capacity for wetland restoration. Topics for the action team may include addressing roadblocks for wetland restoration including land development value, streamlining restoration site permitting, and cropland use all of which have been limiting factors in wetland restoration site implementation. Ultimately, this Wetland Action Team will develop a New York State Wetlands Restoration Strategic Plan for the Chesapeake Bay Watershed.

New York Wetland Restoration Progress

Based on water quality targets set in New York's Phase III Watershed Implementation Plan (WIP), New York plans to implement 1,274 acres of wetland restoration on agricultural lands. As of 2021 progress, NY has implemented 1,166 acres of wetland restoration on agricultural lands meeting 91% of the WIP target. NY did not set a target for wetland creation and rehabilitation and has implemented 64 acres and 509 acres respectively.

Best Management Practice	2021 Progress (acres)	WIP III (acres)	Percent Achieved	Acres Remaining	Acres needed per year
Wetland Restoration	1,166	1,274	91%	108	27
Wetland Creation	64	-	-	-	-
Wetland Rehabilitation	509	-	-	-	-

Addressing Climate Change

While New York's portion of the Chesapeake Bay watershed will not be affected by sea level rise, there are multiple environmental concerns associated with climate change. New York is modeled to see increased frequency and intensity of weather events. In 2019, New York signed the Climate Leadership and Community Protection Act (Climate Act) into law. The Climate Act creates a Climate Action Council charged with developing a scoping plan¹ of recommendations to reduce greenhouse gas emission in NY by 40% by 2030 and 85% by 2050 from 1990 levels.

¹Climate Action Council Draft Scoping Plan <https://climate.ny.gov/Our-Climate-Act/Draft-Scoping-Plan>

In the Climate Action Council Draft Scoping Plan, protecting and restoring wetlands is a key strategy for land use. Components of the strategy include improving and expanding the regulation of NY freshwater wetlands, ensuring regulatory oversight for wetlands and waterbodies removed from federal protection, increasing investment in freshwater wetlands, and prioritizing protection and restoration of wetlands with the potential to sequester carbon.

Capacity Building

New York will continue to secure funds to support staffing, planning, design, implementation, and administration of grant funds. The state will explore the potential to partner with other organizations to increase collaboration between agencies. The State or Wetland Action Team can create dialogue between these groups and collaborate to increase capacity.

Participating Partners

In New York, the key partners in wetland restoration are the USDA Natural Resources Conservation Service (NRCS), US Fish and Wildlife Service (FWS), the NYS Department of Environmental Conservation (DEC), Department of Agriculture and Markets (AGM), Upper Susquehanna Coalition (USC), and Soil and Water Conservation Districts (SWCD). Partners to be further engaged include Farm Service Agency, National Fish and Wildlife Foundation (NFWF), NYS Department of Transportation (NYS DOT), Upper Susquehanna Conservation Alliance (USCA), United States Forest Service (USFS), local communities, nongovernmental organizations, land trusts, members of the Climate Action Council, as well as private companies, colleges and universities.

Outreach (Landowner Engagement)

New York will expand landowner education efforts through increased participation in public outreach events and highlighting the importance of the co-benefits of wetlands: habitat restoration, flood resiliency, and water quality. Wetland outreach will also include the increased distribution of outreach materials to wetland restoration partners in the watershed to be used as tools when working with landowners.

Sustainable Funding to Support Wetland Restoration

While Total Maximum Daily Load (TMDL) watersheds are typically prioritized in existing state and federal funding programs, agricultural implementation projects located in the Chesapeake Bay watershed must compete against many other water quality needs and initiatives statewide. There are currently no state funding streams dedicated directly to agricultural implementation in the Chesapeake Bay watershed. The Soil and Water Conservation Committee ruled against direct funding to a single watershed and instead assign projects in a TMDL watershed additional points in the AgNPS competitive grant application. The USC also competes with partners throughout the Chesapeake Bay watershed for funding for wetland restoration from entities like the National Fish and Wildlife Service.

Potential funding strategies were identified by the Environmental Finance Center at the University of Maryland in partnership with Syracuse University Environmental Finance Center and published in their report “Strategies for Financing Chesapeake Bay Restoration in New York State”. Strategies identified in the report that are applicable to the agricultural sector include directing a greater share of existing state water quality to the watershed, including dedicating a portion of the Environmental Protection Fund (EPF) to the Chesapeake Bay restoration effort and endure the Fund’s long-term stability.

New York will continue to secure funds to support staffing, planning, design, implementation, and administration of grant funds. The State and USC will explore the new grant funding discussed during the

Wetlands Workshop and look for additional funding opportunities. There has been previous success securing NFWF funds, which provide a lot of flexibility to support a regional delivery mechanism. WREP funds also have potential as well as RCPP. Additionally, ACEP WRE has the potential to have a more significant role. The State will also consider incorporating flexible program funding.

Current Programs Supporting Wetland Restoration

Upper Susquehanna Coalition Programs

Wetlands Program: The USC's Wetlands Program is dedicated to securing funds and driving wetland restoration throughout the Coalition's Watershed in New York and Pennsylvania. Dedicated USC Wetland Team members facilitate wetland restoration alongside USC partners and watershed residents, providing assistance on everything from wetland site id, evaluation, design, permitting, restoration and monitoring. This funding is flexible, allowing the wetland team to pursue projects that meet the needs of the watershed in a relevant manner, but is dependent on the awarding of those grant funds.

Water Quality Program: The USC's regional delivery method is referred to as the USC Water Quality Program. This program seeks to offer financial compensation and resource assistance (planning, design and plant material) to increase the implementation and restoration of riparian forest buffers, wetlands, stream corridor rehabilitation, and associated water quality BMPs through conventional, as well as new programs. This program has proven to be both innovative and successful for the USC, based primarily on the fact that we focus on local interest and need (flooding, erosion, stream instability from flood and cattle), which targets both nutrients and sediment. This allows for the USC to let local stakeholders identify needs. USC member district and conservation partner projects are supported through this funding. Projects are funded according to ranking criteria. USC staff are engaged at many levels of project implementation, including initial site visits, planning, and implementation. Projects contain a riparian restoration aspect. Project examples include:

- Stream bank and/or channel stabilization that incorporates natural stabilization techniques,
- Riparian restoration including plants, and planting materials (tubes, herbicide spray, stakes, etc.), site preparation, post-planting establishment activities, cattle exclusion, and prescribed grazing practices.
- In stream habitat improvement
- Floodplain connectivity (i.e. berm or obstruction removal)
- Watershed reforestation, focusing on floodplain, and areas suitable for stormwater attenuation.
- Wetland restoration such as restoring site specific hydrology, reducing agricultural impacts, and plantings

Natural Filter Protection Program: The USC's Natural Filter Permanent Protection Program seeks to restore riparian and wetland areas on permanently protected lands as well as provide financial support for permanent protection through conservation easement or purchase. This program is vital to overcoming barriers associated with placing conservation easements on properties throughout the watershed. Through the Natural Filters Program, the USC assists with protecting target areas at a faster pace. We seek to further develop this program to prioritize land protection on sites that have significant potential for wetland, riparian, and floodplain restoration, and to focus on state owned lands to restore riparian areas and to protect them from future impairment. Having already identified several opportunity areas for riparian restoration on state owned land, staff capacity and implementation funding is needed to develop to move the potential projects forwards. Also, in alignment with state climate goals, the USC will seek to reforest areas permanently protected to contribute to state carbon sequestration goals. Project examples include:

- Funding for conservation easement transaction costs. For example, partner land trusts are often
- able to secure an easement donation by a landowner but may not have funding to cover
- transactional costs associated with placing that easement.
- Providing a payment for ecosystem services to encourage placement of a conservation

- easement.
- Purchase property with significant nature filter restoration opportunity

State Funding Programs

Water Quality Improvement Project (WQIP) Program: DEC administers the WQIP program, a competitive, reimbursement grant program that funds projects to address documented water quality impairments. Non-agricultural non-point source grants are provided through the program, including funding for wetland restoration and riparian buffers.

Five Star and Urban Waters Restoration Grant: NFWF offers grant funding for projects that address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development. Ecological improvements may include one or more of the following: wetland, riparian, forest, and coastal habitat restoration; wildlife conservation, community tree canopy enhancement, water quality monitoring, and green infrastructure best management practices for managing run-off. Awards range from \$20,000 to \$50,000.

Climate Resiliency Farming (CRF) Program: The CRF Program is a new competitive grant program administered by the SWCC to reduce the impact of agriculture on climate change (mitigation) and to increase the resiliency of New York State farms in the face of a changing climate (adaptation). The CRF Program operates with three distinct tracks, in recognition of the different applications and benefits of various BMP systems for mitigation and adaptation: Manure Storage Cover and Flare Systems (Track 1), Water Management Systems (Track 2), and Soil Health Systems (Track 3). Wetland Restoration is an eligible practice for Track 2. SWCDs are the only entities eligible to apply for CRF funding.

Chesapeake Bay Stewardship Fund: NFWF offers grant funding each year in the form of Small Watershed Grants (SWG), and Innovative Nutrient and Sediment Reduction (INSR) grants for implementation focused projects to reach bay goals.

USDA Farm Bill Programs Available for Wetland Restoration

Environmental Quality Incentives Program (EQIP): EQIP is a program administered by USDA Natural Resources Conservation Service (NRCS). EQIP assists farm, ranch, and forest production and improves and protects environmental quality and is authorized under the federal Farm Bill. This offers financial and technical assistance to help agricultural producers voluntarily implement conservation practices. To be eligible for funding for practices, farms must have a conservation plan the requirements outline in the National Planning Procedures Handbook. Practices eligible for funding for EQIP include, but are not limited to, Cover Crops, Riparian Forested Buffer and Riparian Herbaceous Buffer, Wetland Restoration, Grassed Waterway, Prescribed Grazing, Waste Storage Facility, Nutrient Management, and Fencing.

Conservation Reserve Program (CRP): CRP is a voluntary program for agricultural landowners. Through CRP, farmers can receive annual rental payments in exchange for removing farmland from production and establishing long-term vegetative cover for the goal of improving water quality, controlling soil erosion, and increasing wildlife habitat. Annual rental payments are based on the agriculture rental value of the land. Participants enroll in CRP contracts for 10 to 15 years.

Conservation Reserve Enhancement Program (CREP): CREP is an offshoot of CRP. CREP is funded in partnership between state and federal governments. In New York, CREP is funded by AGM and USDA. Through the state-federal program partnership, cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices is available. Additional incentive payments are also available for selected practices. Incentive payments can be received at the time of contract enrollment (signing incentive

payment or SIP) and after a practice is established (practice incentive payment or PIP). Practices eligible under CREP include riparian buffers, filter strips, wetland restoration, grassed waterways, establishment of permanent grasses and tree planting.

In 2016, FSA received a \$1 million allocation to increase the signing incentive payments for acres enrolled in CRP and planted as a riparian forest buffer. DEC provided an additional \$200,000 in funding as match, which is being directed to farmers in the form of an additional practice incentive payment received after riparian forest buffer establishment. Within CREP there are financial and technical gaps. The USC currently has an agreement with NRCS to perform technical assistance for the program. However, gaps continue to exist between the USC and USDA on program and planning specifics.

Conservation Stewardship Program (CSP): CSP is a voluntary conservation program that helps producers, building on existing conservation efforts. It encourages producers to undertake additional conservation activities while maintaining and managing those existing benchmark conservation activities. The program provides equitable access to all producers, regardless of operation size, crops produced, or geographic location. CSP was changed in the 2018 Farm Bill and existing authorities were combined with EQIP. Riparian forest buffers are included in the wildlife CSP enhancements.

Agricultural Conservation Easement Program (ACEP): The Farm Bill of 2014 established ACEP and repealed the Wetland Reserve Program (WRP), Grassland Reserve Program (GRP), and Farm and Ranch Lands Protection Program (FRPP). ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, USDA NRCS helps American Indian tribes, state and local governments, and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, USDA-NRCS helps to restore, protect, and enhance enrolled wetlands.

Regional Conservation Partnership Program (RCPP): The 2014 Farm Bill created RCPP. RCPP encourages partnerships between local, state, or private entities, and NRCS to install and maintain conservation practices in priority projects areas. In New York, conservation practices are implemented by applicants in collaboration with NRCS through the existing EQIP and ACEP NRCS programs. Funding is divided into three pools: 1) State; 2) National; and 3) Critical Conservation Areas. The Chesapeake Bay Watershed is one of eight critical conservation areas that have been identified in the program. In fiscal year 2016, the Upper Susquehanna Coalition was successfully awarded \$4.1 million from RCPP to implement practices through EQIP. The 2018 Farm Bill has made RCPP a standalone program that will have its own direct funding. It contains improvements to make RCPP more efficient and effective and hopes to remove impediments so that NRCS and partners can better manage the program throughout the duration of the agreements.

Other Funding Programs

Chesapeake Bay Implementation Grant (CBIG): DEC is the recipient of the Chesapeake Bay Implementation Grant from EPA. This is a non-competitive grant given to jurisdictions covered by the TMDL to support implementation programs and projects. \$1.25 million is allocated to New York on an annual basis. Wetland restoration site identification, technical assistance, and implementation is supported under this grant.

Chesapeake Bay Infrastructure Investment Jobs Act (IIJA): DEC is the recipient of the Chesapeake Bay Infrastructure Investment Jobs Act funding. As part of EPA's FY 2022-2026 Strategic Plan to protect human health and the environment, goal 5 of the plan is to "ensure clean and safe water for all communities". Objective 5.2 is "protect and restore waterbodies and watersheds". The Bipartisan Infrastructure Law awarded \$40 million to help restore the Chesapeake Bay. An allocation of \$15 million, with NY receiving \$1.28

million, was distributed to the six watershed states and DC to implement projects in most effective basins in environmentally overburdened communities. Funding will support Upper Susquehanna Coalition in implementing agricultural BMPs for the Phase III Watershed Implementation Plan and Conowingo Watershed Implementation Plan.

United States Partners for Fish and Wildlife Program (Partners): The Partners program provides free technical and financial assistance to landowners, managers, tribes, corporations, schools and nonprofits interested in improving wildlife habitat on their land.

Pennsylvania

The wetlands overall goal for the Chesapeake Bay Watershed as mentioned in the Chesapeake Bay Agreement states: “Continually increase the capacity of wetlands to provide water quality and habitat benefits throughout the watershed. 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. These activities may occur in any land use (including urban) but primarily occur in agricultural or natural landscapes.”

Pennsylvania is working toward this watershed goal by implementing Pennsylvania’s Phase 3 Watershed Implementation Plan (WIP), which identifies multiple priority initiatives, including supporting stream and wetland restoration efforts. The overall wetland goal should be re-evaluated based on jurisdictions’ Phase 3 WIP and milestone commitments.

Volunteerism—Voluntary restoration comes at a cost. PADEP and its partners need resources, such as staff conducting outreach and education as well as design and implementation. Earthmoving, tree and shrub plantings, seeding and mulching, and follow-up monitoring and adaptive management are all costs-to-bear, whether it be through private or public funding, and these efforts can be very expensive. Land is scarce and valuable, and it loses all development value if wetlands are present. There is an opportunity cost for setting aside land for wetlands, which the landowner then loses the ability to use or subdivide and sell.

Farmers can be reluctant to give up even low-yield cropland to allow wetland reestablishment. PADEP experiences this quite often, for example, in coordinating with permit applicants who are trying to find willing landowners (whom would even remunerate above the value of the land) to allow a permittee-responsible mitigation project on their property through a conservation easement or deed restriction. Grant programs would have to operate at the same level of expense.

Grant-Funded and Regulatory Programs – Currently in PA, the average cost of reestablishing an acre-equivalent functional wetland credit costs \$67,500. This cost figure is similar to other Mid-Atlantic states. PADEP’s wetlands program has calculated that at this modest cost level, it would take approximately \$9.5B (actual amount is \$9,517,500,000) to restore approximately 141,000 acre-equivalent wetland credits, which is the difference between the current goal and realized credits in ChesapeakeProgress. These would be fully functioning wetlands, so whether it represents less acres of higher functioning wetlands or more acres of low-functioning wetlands, the costs are the same.

There are four themes intended to move closer to the wetlands outcomes: 1) Sustainable Funding, 2) Strategic Planning, 3) Capacity Building and 4) Outreach (landowner/community engagement). Within each theme we have identified Pennsylvania’s ideas and how to address them. Sustainable funding is a central need for all four themes.

Federal Section 319 Nonpoint Source Management Funds, as well as Pennsylvania’s Growing Greener Funds, have been awarded for Legacy Sediment Removal/Floodplain and Wetland Restoration projects that result in substantial wetland restoration gains. However, the requests for funding of these types of restoration projects exceeds the available funds; wetland restoration projects often compete for funding with other pollutant reduction efforts. Limited funds and a high rate of competition leads to not as many high-quality projects being funded.

Large-scale, process-based restoration projects, which offer the highest potential resource gains and are more sustainable, cost-effective, and resilient to the effects of climate change and flooding, should be prioritized for long-term, dedicated funding if the Chesapeake Bay Partnership is to make significant progress toward the wetland restoration goal.

Funding is the primary limiting factor to Legacy Sediment Removal (LSR) and wetland restoration in Pennsylvania. We currently have unfunded wetland restoration projects that are conservation ready. Federal funds, for example through NRCS, USFWS or USACE, should be more available to support targeted wetland restoration efforts. For example, NRCS has provided funds toward LSR projects in the Chiques Creek watershed, however this funding program cannot cover the entire cost of the projects. PENNVEST funding programs may be coupled with private and other public dollars and used to leverage and align dollars for wetland restoration efforts, however these funds generally are low-interest loans and not principle forgiveness (grants).

Both project and staff funding are needed. PADEP's wetlands program provides more than just regulatory support for the agency. The wetlands program also provides research and development support for stream and wetland restoration work across the agency and in collaboration with other state and federal agencies, universities, and NGO partners, like The Nature Conservancy, The Western Pennsylvania Conservancy and others. To meet this need, the PADEP recommends additional staffing within the wetlands program specifically to support its mitigation banking and in-lieu fee programs, as well as to provide support to non-regulatory aquatic resource restoration efforts.

Pennsylvania will continue to work with its aquatic resource restoration partners, including restoration experts from multiple PADEP water programs, PADCNr, academic institutions, NGO partners, such as The Nature Conservancy and The Western Pennsylvania Conservancy, and practitioners from the private sector, to maintain a technical, multidisciplinary approach to restoration and stay in-tune with emerging scientific restoration practices. There are several key factors in planning that are necessary for programmatic support of effective restoration practices, including working from a common understanding of what restoration includes and doesn't include, understanding the historic/legacy alterations that have shaped our modern landscape and hydrography, and advocating for restoration practices that are most effective at addressing the site-specific underlying causes of degradation.

CLEARLY DEFINING TERMS – WHAT IS RESTORATION?

Over time, the development of programs that address pollution and degradation in aquatic ecosystems and on the upland landscape in some fashion, have led to the muddling of the term restoration. Meeting the common goal of environmental improvement requires the collective input of multiple scientific disciplines (biology, engineering, geology, soil science, etc.) and each sector has its own way of defining restoration because each program area or area of practice (water quality, ecological integrity, TMDL, MS4, wildlife, habitat, etc.) has its own regulatory or para-regulatory targets. In truth, what is deemed "restored" under one discipline or program area may in fact be a barrier to a restoration target in another. Restoration approaches should be collaborative and interdisciplinary and, to the extent possible, address the underlying causes of degradation first. For example, a riparian forested buffer planted on top of legacy sediments along an incised stream channel may address some limited function and provide some limited benefit to the resource, while leaving legacy geomorphic degradation in place. However, a riparian buffer establishment or re-establishment after the restoration of the channel and floodplain geometry and wetlands may yield exponentially more benefits.

The PADEP wetlands program has long advocated for a clear and consistent definition of restoration, one that aligns with the 2008 Federal Mitigation Rule definitions from 40 CFR §230.92 (2008): “Enhancement means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

“Establishment (creation) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.”

“Restoration means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: reestablishment and rehabilitation.”

“Reestablishment means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

“Rehabilitation means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Many approaches that are called “restoration practices” should rather be classified as enhancement. These practices should not be credited in the same manner as true restoration projects.

Another aspect of restoration is sustainability. If a practice improves a resource in some way but long-term or perpetual operation and maintenance is required, then the improvement is only temporary. True restoration returns the aquatic resource to its natural or historical functional state. Natural ecosystems do not require maintenance. These projects may require some care and monitoring, including Adaptive Management, for a time until the functions are fully established and sustainable without the need for further intervention. However, the sustainability target should be measured in years, not decades. Projects can fall into disrepair for lack of continued funding, oversight, and / or dedicated partners.

HISTORIC WETLAND LOSSES – INDUSTRIAL LOGGING, MILL DAMMING, COLONIZATION AND MECHANIZED FARMING

PA has a rich history of legacy alterations that have affected wetland and stream ecosystems. PA’s legacy impacts are often thought of primarily from a water quality degradation perspective (i.e. AMD, industrial, municipal, and domestic waste discharges, acid deposition, agriculture runoff, etc.). However, preceding and continuing concurrently with these legacies were physical degradations to stream and wetland ecosystems that have had lasting detrimental effects up until today. Recognizing the underlying causes of physical degradation is equally critical to understanding how restoration strategies and techniques can be adapted to reestablish functioning, healthy, sustainable, and integrated aquatic ecosystems.

During the colonial settlement era and continuing through the industrial revolution (from roughly 1760 to the early 1900’s), most of PA was deforested to meet the demands for lumber. Situated on the West

Branch of the Susquehanna River, Williamsport, PA was known as the “Lumber Capital of the World” by 1870. Headwater streams were straightened and widened to create water highways; wood debris and boulders were removed to eliminate snags; huge boulders and bedrock constrictions were dynamited to open up the channels; streambed materials were dredged and side-cast to create berms. In the steeper hollows, splash dams were built to store up water and logs and then breached using the stored energy and the power of water to blast timber down the narrow valleys to the larger streams. These splash dams were built, breached, and rebuilt repeatedly, each time exacerbating the adverse effects on the riverine environment. As logging became more industrialized, mule-cart paths and tramways were upscaled to accommodate crude railroads. Streams were diverted and pinned against the valley margins to make room for more permanent road, rail, and logging camp infrastructure. By the turn of the century, unregulated, industrialized logging practices had left behind barren landscapes. Fires swept through dry slash, stumps and undesirable timber left behind. Heavy rains caused massive and widespread erosion across the region and even resulted in mass wasting where steep slopes and highly erodible soils existed. The headwater stream and wetland complexes that once existed were filled with sediment, rock, and debris from the hillslopes. Progressively larger streams were no longer able to interact naturally with their floodplains and underlying hyporheic zones, as the preexisting geomorphology was significantly altered. Floodplain wetlands were also eliminated by filling and draining to make way for road and rail infrastructure, colonization, and farming.

Another significant landform alteration also occurred centuries ago in the lower valleys throughout PA and most prominently in the Piedmont region. The majority of historic wetlands losses in this region occurred when legacy sediment buried once widespread valley bottom wetlands and streams (Walter and Merritts, 2008; Merritts et al., 2011). As forests were cleared and replaced by agriculture, sediment runoff was trapped behind thousands of mill dams that provided the water-driven power that was the backbone of colonial era economies. These mill

dams trapped enormous amounts of sediment and subsequently filled the valleys and significantly altered landscapes.

Agriculture remained the dominant industry in Pennsylvania up until the 1840’s with over 128,000 farms by that time (explorepahistory.com). With the advent of mechanized farming, clearing, and preparing additional lands for tilling became more commonplace and made the family farm more profitable. Poorer families in the northern tier regions who were not as well-connected to the high-demand regions of southern Pennsylvania settlements cleared timbered land by hand and then employed “slash and burn” tactics to eliminate the stumps and undesirable woody debris left behind to prepare the land for tilling. However, wetland drainage practices began well before mechanized farming as far back as the early 1600’s. PA is among the states with the most notable wetland losses occurring between 1600 and 1800 (Dahl and Allford, 1996). As mechanization increased in the mid-1800’s, coupled with new federal laws to incentivize drainage and the advent of new techniques to drain wetlands more effectively, PA farmers drained even more lands to increase production. In the 1930’s, the US Dept. of Agriculture provided free engineering services to assist farmers with draining wetlands. From 1950 to 1990, PA was once again draining wetland acreage at a clip that was notable on a national scale (Dahl and Allford, 1996). Today, ditch systems and tile drain lines on agricultural lands are discernable on aerial photography. Much of the old terracotta drainpipes have deteriorated to the point where groundwater is reemerging once more, making agricultural lands less and less productive to the point where significant alteration would be needed to reinstall those drainage systems that existed prior to December 1985.

TARGETED RESTORATION SOLUTIONS

Precolonial reference conditions are virtually absent throughout the state and in every physiographic province, especially within the Chesapeake Bay watershed. However, restoration scientists have made significant discoveries in understanding how natural aquatic ecosystems work and how to restore the natural system processes that once existed where heavy landscape alterations occurred. There are also investigative techniques that can help determine the appropriate restoration practices to apply, considering both historic and modern landuses and constraints. These evidence-based approaches to restoration are most likely to be successful and sustainable.

LEGACY SEDIMENT REMOVAL – The adverse effects of mill dams and the accumulated valley sediments have degraded stream geomorphology and water quality to the point where active restoration efforts to remove large quantities of legacy sediment are necessary to mitigate the adverse effects and restore a healthy, sustainable aquatic ecosystem. Legacy sediments are prevalent throughout Pennsylvania's Chesapeake Bay Watershed and remain a substantial impairment to wetland ecosystems in the region. While legacy sediment degraded

wetlands are expensive to treat, the cost-effectiveness of doing so is demonstrated by the magnitude of pollutant reductions that are achieved and the multiple benefits that result where legacy sediment is removed (Fleming, et al., 2019). This approach is also highly effective in restoring an activated floodplain with integrated wetlands, all functioning together with a reactivated hyporheic zone that can immediately begin providing water quality benefits. Such benefits include groundwater, hyporheic zone, and surface water exchange and cycling that offers surface water cooling benefits, recolonization of biofilms in the hyporheic zone which increases nutrient assimilation, and lowered shear stresses in the channel and on the floodplain, which promotes sediment trapping and increases flood resiliency. In streams where diurnal dissolved oxygen swings are caused by temperature fluctuations, the cooling of stream temperatures from the reconnection to groundwater can stabilize instream temperatures and restore equilibrium dissolved oxygen levels, which in turn restores pollutant assimilation by the biofilm and benthic communities and improves water quality.

ADAPTIVE MANAGEMENT AND LOW-TECH PROCESS-BASED RESTORATION PRACTICES –

Current scientific approaches to restoration are recognizing the value of using large woody materials in prescribed treatment practices to create structures analogous to natural woody material recruitment in streams. Together with application of Adaptive Management strategies, these techniques have the potential to reverse centuries of disequilibria in watersheds impacted by physical degradations, such as those imposed by logging era practices. Some Adaptive Management strategies include the cutting through or complete removal of legacy physical floodplain barriers, such as logging railroad grades, removal of splash dam remnants and other historic floodplain fills. These approaches can gradually allow streams to migrate away from the valley margins. The woody addition techniques allow streams to trap small woody debris and leaves, change the way gravels and fines are distributed within, on the banks, and without the channel, and raise the streambed in key places where it can reengage with the floodplain. This Adaptive Management technique allows for the stream to dissipate energy across its floodplain where the channel was previously incising and further being disconnected from and inactivating the floodplain. A collaborative project by the US Forest Service, Western PA Conservancy and other partners is showing significant promise for this low-cost, low-tech solution to work in watersheds affected by legacy timbering (<https://youtu.be/zx8H3gum6SM>).

CONVERTED WETLAND RESTORATION – This is an area where better collaboration between PADEP, the Natural Resources Conservation Service (NRCS), conservation districts, farmers and other landowners

could make significant strides toward restoring large tracts of converted wetlands into high-functioning ecosystems. Currently, there is very little collaboration involving PADEP. However, the PADEP wetlands program could provide technical assistance to the PA NRCS office to help restore more converted wetlands on farms where federal grant dollars could offset the low-yield agricultural commodities being produced on these lands. Often, the projects we do see are aimed at turning a converted wetland into a farm pond, or if the NGO conservation partner is Ducks Unlimited or Pheasants Forever, the project is steered toward their goals rather than an integrated system that can serve semiaquatic and terrestrial wildlife habitat needs while still restoring wetland acres on the same site.

PADEP would also like to continue to work with NRCS to explore integrating wetland and stream restoration practices on smaller scales where sites can benefit from conservation practices that minimize surface erosion as well as improve aquatic resources. PADEP sees these areas as opportunities for increasing aquatic resource acres while still gaining the prevented sediment benefit, as well as increasing the nutrient assimilation capacity that is possible using hydrophytic vegetation and anaerobic soil conditions. Daylighting nutrient-laden groundwater and keeping within the active root zone of hydrophytic vegetation could yield better nutrient reductions and other functional benefits. Wetlands and low shear-stress streams could be accomplished within the same footprint as typical conservation practices, so there would be no additional loss of crop production to the farmer.

Pennsylvania will create a multidisciplinary wetland and stream restoration technical workgroup focused on Targeting, Outreach/Education, Implementation, and Funding that will act as a catalyst for increased momentum to maximize wetland restoration. The workgroup will create collaborative arenas where the latest advances in restoration science and proven restoration practices can be discussed amongst different interests (individual, programmatic, and scientific), and where outdated guidance can be revisited and less successful practices can be repurposed or retired. The workgroup will also evaluate the need for targeted wetland capacity at many levels, including integrated stream restoration practices. The workgroup will include key agencies and partners, as needed, to engage practitioners with specific expertise in key areas and explore collaborative solutions.

Pennsylvania identified several ways to determine conservation ready projects. One way is to compare hazard mitigation plan flood mitigation needs to hydric soils/high resolution land cover maps, targeting 100-acre projects or greater. PADEP also facilitated the development of valuable remote-sensing tools like the Topographic Wetness Index and the Restorable Wetlands layer. These resources are freely and publicly available for use on Penn State's PA Spatial Data Access system or PASDA.

Additionally, utilizing state permitting resources could streamline permitting reviews for projects, allowing for more conservation ready projects. A wetland project siting optimization tool (co-benefits, legacy sediment impact, flood mitigation) may be developed to help facilitate larger projects that have co-benefits, in addition to utilizing the Watershed Resource Registry (WRR) tool. Allowing multi-program benefit accounting would allow project scale to increase, as well as allowing stream and wetland benefit accounting.

Additional actions were identified during discussions. Pennsylvania will complete development of the wetland loss watershed impairment rating - a pilot of which was initiated in the Juniata River basin but has not been completed. Pennsylvania will promote higher crediting for evidence-based approaches that address the underlying causes of degradation and allow

crediting to account for integrated riverine corridor restoration projects that include in-stream, floodplain, and riverine wetland conservation.

A bank of projects that have been identified for implementation will be maintained.

Currently, we have multiple projects that have applied for grant funding but were not able to be funded (refer to Sustainable Funding Section). We have quality projects that are conservation ready which require funding.

Additional capacity is needed at the state agency level to develop program guidance, provide education and outreach, and oversee project implementation. Pennsylvania DEP's Bureau of Waterways Engineering and Wetlands will determine technical workload needs and project and staffing budget needs to implement the target number of projects.

In the interim, Pennsylvania may increase capacity by training grantees/NGOs on wetland science - types of wetlands, role of wetlands in stream systems, how wetlands and buffers work together, how to recognize wetland restoration opportunities on farms (installing buffers, including no-till practices, lands with drain tiling and ditching, historic fills, etc.), priority restoration locations, funding opportunities, how wetland restoration is credited in the Chesapeake Assessment Scenario Tool (CAST), etc. Existing/new technical groups and/or watershed manager group could be used to provide technical training on recognizing historic alterations and causes of wetland losses and approaches to restoring them.

Wetland restoration planning should begin by estimating the extent of physical degradation, including legacy sediment accumulation and other physical legacy alterations, in watersheds through use of mapping or other historical information.

Additional needs to be addressed include enhanced remote sensing of wetlands restoration opportunities and enhanced data tracking, so that implementation of wetland restoration is accurately reported and credited. Funding should be available to continue developing and updating the valuable remote-sensing tools like the Topographic Wetness Index and the Restorable Wetlands layers.

Many conservation organizations are not familiar with wetland restoration. Pennsylvania will provide outreach to organizations regarding priority restoration locations, techniques, how to identify restoration opportunities.

In addition, and of equal importance, legacy sediments must be recognized as a historical/societal pollutant and a relic of unmitigated and unregulated historic environmental impacts, rather than viewed as a conventional land use sector pollutant. This would reduce friction between land use sectors while increasing awareness that legacy sediment is a shared responsibility among all land use sectors. The pollutant could then be identified in different categories that provide multi-benefit accounting during planning and post treatment.

The Nature Conservancy

Wetlands are a vital part of the landscapes across the Chesapeake Bay Watershed. They provide a multitude of benefits such as wildlife habitat, clean water, flood protection, and climate resiliency. The Bay watershed has experienced a dramatic loss of historical wetland coverage, and consequently, the region and its people have also lost many of this critical feature's ecosystem services. The Nature Conservancy is committed to working with partners from across the Bay watershed to restore wetlands. We are pleased to have participated in the planning of the Wetland Outcome Attainability Workshop in August 2022 and optimistic that the workshop facilitated a deeper commitment among many partners to accelerating progress toward the wetland restoration Outcome of the 2014 Chesapeake Bay Agreement. We support and are ready to assist states to catalyze action under the four major themes that emerged from the workshop: Strategic Planning, Capacity Building, Outreach (landowner engagement), and Sustainable Funding.

Strategic Planning

The Nature Conservancy is an active participant in planning efforts initiated by federal, state, and local partnerships, and we intend to assist in the implementation of those plans. We encourage expansion of an integrated planning approach that includes both biophysical targeting to identify areas where edge-of-field practices such as wetland restoration can have the most significant environmental benefits and social science to understand landowner interests and barriers to develop a holistic landowner engagement strategy. This approach as deployed on Delmarva has demonstrated success by increasing landowner interest in wetland restoration projects and also identifying other barriers to accelerating implementation such as design capacity and project management needs. Our efforts will build on the body of knowledge, existing efforts, and partnerships already being advanced to guide targeted outreach and project implementation.

Capacity Building

It is clear that there is a need for additional capacity to be able to accelerate progress toward the Wetland Outcome. Compared to other types of conservation practices, wetland conservation efforts clearly lack the capacity needed within many of the states as well as across the conservation community to advance conservation efforts for scalable impact. The Nature Conservancy's wetland conservation efforts started in Delmarva. Here we hired a wetland restoration specialist, who has deep experience implementing projects, to work across the watershed. Working with willing landowners, over 4,000 acres of wetlands have now been restored. Building on this success, we have recently increased our wetland conservation capacity in Maryland, Delaware, Pennsylvania, and Virginia. These practitioners will work with partners to conduct landowner outreach and implement projects in priority locations. We are committed to further increasing capacity within our own organization and advocating for increased capacity among state and federal agencies. We will also work with other NGOs to determine how existing funding sources can be used to increase capacity for longer timeframes than is currently possible under existing grant cycles.

Outreach (landowner engagement)

The Nature Conservancy recognizes that the success of our conservation efforts relies on having landowner concerns and interests at the core of our outreach and engagement strategies. We recently hired a rural sociologist to ensure that we are applying the best social science to guide our efforts. This has provided demonstrated success on Delmarva by already doubling landowner interest in restoration programs over the past year. We are currently advancing a proposal to expand this work to Pennsylvania and Virginia with partners.

It is also clear that landowner engagement success is based on trust. To build this trust, outreach specialists need:

1. Time to meet with landowners and be responsive to inquiries. Having dedicated outreach capacity leads to increased interest in restoration because they have time to listen, respond to questions, and be available for landowner conversations.
2. Options that enable them to “sell” all funding and program opportunities. Outreach specialists should be resources to help landowners select a restoration program that meets their goals and even develop new options where needed.
3. Longevity to navigate program timelines. Outreach specialists need long-term funding to support landowners through an often multi-year process of selecting a program, submitting applications, and following through to implementation. High turnover of outreach specialists can cause additional delays in projects and loss of interest by landowners.
4. Technical expertise to guide high-quality, functional, multi-benefit restoration projects. Technical expertise is essential to helping landowners make informed choices when considering the complexity of restoration approaches available. Technical expertise is also essential to ensure that restoration projects result in the restoration of high-quality wetlands that benefit water quality, wildlife, and our communities.

Sustainable Funding

The Nature Conservancy regularly advocates for increased appropriations for Farm Bill and other government programs that incentivize wetland restoration. We have also brought philanthropic dollars to the table in specific watersheds, for example, providing private funds to complement grant funding where landowners are reluctant to work with government programs. We are also exploring ways that corporations with sustainability goals (and potentially private investors) could support this work.

Virginia

Five major themes emerged when developing this plan of action to move closer to the wetlands outcome listed in the 2014 Chesapeake Bay Watershed Agreement: 1) Wetland Tracking; 2) Strategic Planning; 3) Capacity Building; 4) Outreach (landowner/community engagement); and 5) Sustainable Funding. This Plan highlights several current actions and suggests new ideas to advance efforts within each theme.

Wetland Tracking

Based on data shared at the August 2022 wetlands outcome attainability workshop, Virginia has currently documented 3,666 acres of wetland restoration, 367 acres of wetland creation, 522 acres of wetland enhancement, and 385,029 acres of “other restoration.” This represents approximately 4% progress towards the Bay wide wetland restoration goal of 85,000 acres and less than 1% of the Bay-wide wetland enhancement goal of 150,000 acres, both of which are to be achieved by 2025. While still acknowledging the overall lack of progress towards this goal, these wetland estimates appear low. To improve accountability for the wetlands outcome, Virginia advocates for the creation of an effective reporting and accounting system for voluntary wetland restoration and enhancement activities and supports ongoing Chesapeake Bay Program (CBP) efforts to create the Habitat Outcome and Attainment Tracking System. To accurately account for wetland restoration successes, the activities that count towards the wetlands outcome need to be thoroughly defined and reported. Because wetlands are often considered a co benefit and not the primary driver for restoration projects, some gains are not being realized. Many best management practices (BMPs) like living shorelines, stream restoration projects, wet ponds, and riparian buffer projects ultimately do create, restore, and/or enhance wetlands. These successes need to be evaluated and reported even when they are considered a co benefit, and more emphasis should be placed on wetland restoration as a primary driver for project selection and implementation.

Virginia also sees value in a coordinated effort to determine how large-scale historic impacts are distributed throughout the Chesapeake Bay watershed. This could lead to jurisdiction specific restoration and enhancement targets for both tidal and non-tidal wetlands. The identification of historically impacted wetland areas is necessary to implement restoration and enhancement if creation projects (i.e., wetlands created in uplands) are not counted toward the wetlands outcome.

Strategic Planning

For Virginia to effectively plan and implement more wetland projects within the Chesapeake Bay watershed, a diverse partnership involving all current wetland practitioners in the state needs to be established. This partnership should include members from the many state, federal, and non governmental organizations (NGOs) working to plan and implement voluntary wetland projects throughout Virginia. Although a few partnerships like this already exist, none are primarily focused on furthering the wetlands outcome. The Virginia Department of Wildlife Resources (DWR) has recently been identified as the lead agency for this state-wide initiative, given its current and past efforts to create, restore, protect, and enhance wetlands across the Commonwealth. DWR will seek clarity on the scope of its roles and responsibilities and will continue to increase coordination between wetland practitioners and the CBP to work more pointedly towards the wetlands outcome.

Virginia’s wetland planning efforts will focus on building capacity, expanding outreach, and generating tools to determine high priority restoration areas. This will ensure the state is prepared to identify and implement wetland restoration and enhancement opportunities as funding arises. Restoration planning is currently guided by the Virginia Coastal Resilience Master Plan, the Virginia Phase III Watershed Implementation Plan, the State Lands Watershed Implementation Plan, the Virginia State Wetlands

Program Plan, and many other decision-making support tools such as WetCAT (Wetland Condition Assessment Tool), the Natural Heritage Data Explorer/ConserveVirginia, the Wetlands Catalog, Adapt VA, Coastal GEMS (Geospatial and Educational Mapping System), the Eastern Shore Coastal Resilience tool, the Saltmarsh Sparrow and Black Duck support tools, and the Elizabeth River Environmental Justice Tool.

Planning efforts will acknowledge the consequences of climate change, including the disproportionate impacts on disadvantaged populations in both urban and rural areas. The effects of climate change, like sea-level rise and increases in extreme weather frequency and intensity, will continue to contribute to additional wetland losses and weaken our natural infrastructure. The southern portion of the Chesapeake Bay is experiencing substantial land subsidence in addition to global sea-level rise which has caused areas in Virginia to have the highest rates of observed relative sea level rise along the Atlantic Coast. Because these coastal areas are densely populated and developed, natural processes, like marsh migration, will be in conflict with many existing human uses and activities. This puts Virginia's coastal wetland habitats at an increased risk of experiencing widespread flooding and loss. The state will explore opportunities to work with the Virginia Department of Emergency Management and the Federal Emergency Management Agency to target wetland restoration in areas of frequent flooding in association with retreat efforts.

Virginia's Wildlife Action Plan has identified 883 Species of Greatest Conservation Need (SGCN), more than 80% of which rely on aquatic ecosystems for habitat. Some of the highest priority conservation actions that can be taken to address threats to these species is the protection, restoration, and enhancement of wetlands in priority areas, many of which occur in the Chesapeake Bay watershed. Three SGCN species, Saltmarsh Sparrow, Black Rail, and American Black Duck, are also flagship species for the Atlantic Coast Joint Venture (ACJV). Where practical, tidal wetland restoration efforts should seek to enhance habitat for these species, as they occupy a range of coastal marsh habitats that are highly threatened by sea-level rise and urbanization. Efforts aimed at enhancing habitat for these species would also benefit a host of other marsh-dependent fish and wildlife species.

Virginia's strategic plans should promote increasing wetland restoration on both private and public lands. Given that the outcomes state the vast majority of these activities should occur on agricultural lands, planning efforts should emphasize increasing implementation on private lands. Local staff from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), DWR, Virginia Institute of Marine Science (VIMS), and private lands biologists (employed through a diverse collaborative) provide critical technical assistance on private land projects. Virginia will continue to pursue projects on state-owned lands as they present some of the most efficient opportunities to implement voluntary activities. The state will also continue to work with state and federally recognized Native American tribes to help them reacquire and restore ancestral lands. Increased engagement with federal agencies could lead to restoration opportunities located on National Wildlife Refuges, National Forests, National Parks Service lands, and Department of Defense facilities.

Capacity Building

Virginia can leverage capacity by building on existing diverse partnerships working to advance restoration efforts across the state, including the York River Roundtable Habitat Restoration Steering Committee, the Rappahannock Wetlands Team, the James River Living Shoreline Collaborative, and the Virginia Eastern Shore Conservation Alliance. Wetland practitioners in Virginia will also work with other multi-state groups like the ACJV, the Delmarva Restoration Conservation Network, and the Atlantic Flyway Council. Partnerships like these can identify projects and expedite planning and implementation as they take advantage of the synergistic capabilities of the different organizations. They can ensure expertise is

available to identify high quality sites, develop effective restoration designs, secure funding resources, and oversee project implementation.

Although many government and NGO employees in the state work with wetlands, Virginia recognizes a strong need for agencies and organizations to create more positions focused on advancing voluntary wetland projects. This includes positions that provide outreach, financial incentive program support, and technical assistance for both private and public landowners. Previous efforts in other states (i.e., Delaware and Maryland) show most landowners willing to participate require assistance from planning through implementation. Additional staff capacity is needed to reach willing landowners and support them through the wetland project process. In addition, permit and funding application preparation is time consuming, demanding, and costly, causing many private landowners to get overwhelmed or simply lose interest. Virginia supports efforts to streamline permitting, grant, and other financial incentive program applications for voluntary restoration efforts. Low barrier applications for projects that demonstrate a clear ecological benefit would alleviate some capacity concerns and result in more implementation.

Virginia is currently limited by the lack of native plant nurseries and seed producers available to supply large-scale restoration projects. To address this shortage, a large-scale effort proposed on Virginia's Middle Peninsula is working to acquire additional permits to sustainably harvest wetland grasses from intact wetlands. Native plant nursery capacity must scale-up to supply ongoing and future restoration projects. The Plant Virginia Natives Initiative and the Virginia Pollinator-Smart Solar Program both have goals to kick-start a robust native plant and seed industry. In addition, Virginia recognizes a need to develop a strong cohort of experienced contractors who are available to design, build, and maintain (i.e., treat invasive species) projects to effectively work towards the wetlands outcome.

Outreach (landowner/community engagement)

Landowner interest may be the most critical component to increasing the scale of wetland project implementation across the watershed. Virginia will continue to communicate the myriad of benefits that wetlands provide to both people and wildlife, and seeks to develop a method to share wetlands information directly to the organizations actively engaging with local landowners. Virginia also plans to identify several demonstration sites representing the different types of restoration and enhancement activities. These sites can help educate both professionals and the public, highlight successes, and improve landowner engagement. Outreach efforts should target grant funding focal areas, like the NOAA designated Middle Peninsula Habitat Focus Area. Target outreach areas could be further identified and refined using conservation decision-making support tools.

Active coordination with planning district commissions (PDCs) and soil and water conservation districts (SWCDs), particularly those in rural coastal Virginia where large acreage of agricultural lands remain, is needed to promote effective landowner outreach efforts. These organizations have staff that frequently work with farmers and agricultural landowners. They need to be knowledgeable of the existing opportunities and should be able to direct a landowner with wetland project interests to the technical expertise they need. Depending on the type of project, this could include local NRCS, USFWS, DWR, VIMS, NGO and private lands biologist staff. Private lands biologists are employed through collaborative efforts with federal, state, and non-governmental natural resource management agencies to engage with land owners and producers, and facilitate wildlife habitat implementation and improvement practices through planning and incentive programs. They are a great initial contact for landowners interested in implementing wetland restoration. Another resource for shoreline landowners and communities is Virginia's Shoreline Erosion Advisory Service (SEAS), a program of the Virginia Department of Conservation

and Recreation (DCR). DCR-SEAS provides technical assistance on tidal shoreline management alternatives (including living shorelines) to private property owners and public land management agencies.

Sustainable Funding

Similar to most Bay states, the limited number of voluntary wetland projects completed in Virginia have been funded through landowner incentive programs and competitive federal grant programs. The NRCS oversees several cost-share and financial incentive programs for private landowners, though few NRCS wetland projects have been implemented in Virginia. This may be in part because until recently these programs could only fund a portion of most wetland restoration projects and left the landowner to pay the rest. In July 2022, the USDA, in partnership with DCR, announced expanded funding through the Conservation Reserve Enhancement Program, allowing farmers in Virginia to implement wetland restoration at no cost. Private land wetland projects can also be funded through the Wetland Reserve Easements component of the USDA Agricultural Conservation Easement Program. The Virginia Conservation Assistance Program and Virginia Agricultural BMP Cost-Share Program are state managed funds administered locally through SWCDs, and are available to support living shorelines and other BMPs that have the potential to restore and enhance wetlands.

Public land projects have been largely funded through competitive federal grant programs administered by the USFWS, the National Fish and Wildlife Foundation (NFWF), and the National Oceanic and Atmospheric Administration (NOAA). The IJA has expanded funding for many existing programs and has opened new opportunities, like the America the Beautiful Challenge administered by NFWF and three NOAA-administered grants – Coastal Zone Management grants, Transformational Habitat Restoration and Coastal Resilience Grants, and Coastal Habitat Restoration and Resilience Grants for Underserved Communities. Funding from these sources can support land acquisition and habitat restoration planning, design, and implementation. Several of these sources offer funding for capacity building activities and demonstration projects, particularly for disadvantaged and under resourced communities. Virginia will work to increase the amount of wetland projects pursued within the Chesapeake Bay watershed during this period of expanded federal funding.

Although promising, it is important to note that this temporary boost in funding is ultimately not enough to sustain the efforts needed to meet the wetlands outcome. For most of these grant opportunities, wetland proposals are competing with, and being outcompeted by, other priority conservation needs across the watershed and country. The North American Wetlands Conservation Act and the National Coastal Wetlands Conservation Grants administered by USFWS are the only long-standing funding sources available for voluntary wetland restoration projects and have supported many previous efforts in Virginia. All of these competitive grant opportunities require or strongly prefer projects that offer match dollars, which is a major limit factor in Virginia. Currently, match dollars are being provided by a mix of NGO contributions, state funds, and smaller non-federal grant opportunities. Although there are a few state administered restoration funding opportunities, only the Virginia Waterfowl Stamp Grant is dedicated to supporting voluntary wetland restoration activities through cooperative waterfowl habitat improvement projects. It is clear that Virginia should work to establish a dedicated funding source to support voluntary wetland restoration and enhancement projects. Maryland has a very successful program, the Chesapeake and Atlantic Coastal Bays Trust Fund, which can serve as a model for a Virginia program. Dedicated state-sponsored funding programs ensure that wetland projects have the funds they need to be planned and implemented.

West Virginia

West Virginia did not sign onto the wetlands outcome portion of the Chesapeake Bay Agreement and did not commit to wetlands in our Phase 3 WIP. We do have a robust wetlands program and are dedicated to protecting and restoring the resource. Our primary goal with respect to the CB is implementation of our Phase 3 WIP thereby meeting West Virginia's commitment to reduce nitrogen and phosphorus by implementing the BMPs we have identified as priorities.

Appendix B: Workshop Meeting Minutes August 02-03, 2022

DISCLAIMER: Please note that this version of the Meeting Minutes is different than the finalized and published version currently posted to the [CBP website](#). The document has been edited to adhere to the formatting of the Wetlands Action Plan. Additionally, *Appendix 6*, the table of Google Survey Responses, has been removed entirely from this document and included as *Appendix E* to the Wetlands Action Plan. Additional Wetland Workshop information, including the unaltered Meeting Minutes and presentation slides can be found at the link above.



2022 RESTORING WETLANDS OF THE CHESAPEAKE BAY WATERSHED WORKSHOP AUGUST 2-3, 2022, 10:00 A.M. – 3:30 P.M. ET MEETING MINUTES

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• DAY 1 NOTES	1-11
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• APPENDICES	26-55

DAY 1 – AUGUST 2ND, 2022

[LINK TO PRESENTATIONS AND MEETING MATERIALS](#)

10:00 – WELCOME & OPENING COMMENTS – *Dave Davis, Director of the Office of Wetlands & Stream Protection, Virginia Department of Environmental Quality*

- List of Day 1 attendees included in **Appendix 1**
- Attendee introductions were recorded via the following Menti question, and responses can be found in **Appendix 3**
 - *Do you associate with a federal government agency, a state or jurisdiction, a non-government organization, or other?*
- **Purpose of the Workshop:** *Bring together key people to identify actions to overcome the barriers of implementing nontidal and tidal wetland restoration and accelerate progress towards the Wetlands Outcome identified in the 2014 Chesapeake Bay Watershed Agreement.*
- **Workshop Outcomes:**
 1. **Understanding of the Barriers**
 2. **Identification of Approaches**
 3. **Development of an Action Plan**

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- **Workshop is divided into four sessions:**
 - **SESSION 1:** Where have we been and what have we achieved?
 - **SESSION 2:** Where do we want to go?
 - **SESSION 3:** Access to funding
 - **SESSION 4:** Developing the Action Plan

SESSION 1: WHERE HAVE WE BEEN?

10:15 – CHESAPEAKE WETLANDS OVERVIEW:

- **2025 WETLANDS OUTCOME & STATUS** – *Chris Guy, U.S. Fish & Wildlife Service*
 - CBP Wetlands Outcome: 85,000 acres of tidal and non-tidal wetlands created/reestablished and 150,000 acres enhanced by 2025
 - Presently, the Wetland Workgroup is far off the goal to achieve the 2025 outcome
 - This workshop stemmed from a request by the Management Board in August 2021
 - An evaluation of the Watershed Implementation Plan (WIPs) wetland commitments by jurisdiction shows that even if commitments were achieved, the outcome still would not have been attained
 - Based on the WIPs: 41,350 acres still need to be created/restored and 110,180 acres still need to be enhanced
- **TIDAL WETLANDS: PAST TO FUTURE** – *Pam Mason, Virginia Institute of Marine Science*
 - **Historic**: loss of tidal wetlands largely due to development
 - **Current and future**: tidal wetlands losses can be attributed to sea level rise
 - VA Coastal Resilience Master Plan projects 86% loss by 2080
 - **Tidal Wetland Restoration Now**: limited funding; small projects are mostly focused on living shorelines; priority on non-tidal wetlands; little government involvement (mostly NGO)
 - **Needs Moving Forward**: significant and equitable funding for tidal marshes, greater governance leadership and collaboration, and more capacity.
- **WATERSHED (NON-TIDAL) WETLANDS: PAST TO FUTURE** – *Bill Jenkins, Environmental Protection Agency*
 - Decline in wetland acreage has continued despite establishment of outcomes and commitments
 - **Opportunity**: increase funding for creation, restoration, and enhancement
 - **Challenge**: adequate public and private-sector workforce “capacity” to do on the ground implementation
 - **Need**: capacity for outreach; accessing and managing funds; project management, design, and implementation; and monitoring
 - **QUESTIONS/COMMENTS:**
 - **Matt Robinson**: Is it possible to start counting living shoreline projects as wetland restoration projects as well?
 - **Carin Bisland**: Wetland living shoreline projects can be counted, but my understanding is that we are reporting them in linear feet rather than acres, so we would need to improve our data collection to gather the info on acres. We would also have to be careful that we don't double count for water quality.
- **HISTORY OF FUNDING EFFORTS TO DATE: WETLAND RESTORATION INCENTIVES IN THE CHESAPEAKE BAY** – *Stephanie Dalke, Environmental Finance Center*

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- Methods and boundaries:
 - **Timeframe:** FY2016-FY2020
 - **Primary focus:** incentive programs for wetland and floodplain restoration on private land
 - **Data collection:** mainly through direct communications
- Incentive programs of interest:
 - **Federal:** Farm Bill (USDA); USFWS Partners for Fish & Wildlife; EPA via NFWF
 - **State:** Match for CREP; Grant Programs
- Farm Bill: Examined obvious practices that included wetlands but excluded practices that are not as directly related to wetlands
- Gaps and Limitations:
 - **Data gaps:** in NY/ Upper Susquehanna; in DE state match for CREP
 - **Other factors that are hard to track for Farm Bill:** ease of participation; ability to keep things going through all the steps in the process; needs energy and support sustained through entire project
 - **Messy details of projects:** year awarded/obligated vs. year completed; acreage enrolled vs. restored; practice count vs. project count
- Federal Incentives + NFWF: ~\$25 million funding wetlands projects
- CRP and CREP:
 - Across five states included from 2016-2022 (only federal funding)
 - Not included is the state cost share/matching
 - ~2000 acres in program, total funding ~\$1.3 million
- Comparison with some federal spending: **~1.6% of USDA + FWS Chesapeake Bay spending goes to wetlands**
- Not much restoration occurs through EQIP - it occurs mainly through NRCS/ACEP-WRE
- Biggest state program funders:
 - **MD:** Trust Fund
 - **PA:** Growing Greener
 - **VA:** DCR
 - **DE:** DNREC (319 and federal \$)
 - **NY:** DEC or Dept. of Agriculture
- **KEY FINDINGS:**
 - Capacity is a large issue; need people to administer programs, provide outreach and technical support
 - Need staff on the ground to help navigate programs
 - Relationships with landowners are key to voluntary habitat restoration
 - Practice and project types emphasized for Bay restoration
 - Much focus on agriculture BMPs (easier sell than taking land out of production for wetlands)
 - Riparian buffers- more attention lately
 - Build wetlands into stream/floodplain restoration projects
 - Reality check- lost a lot of wetlands and restoring will take effort and energy
- **QUESTIONS/COMMENTS:**

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- **Peter Gibbs:** I wonder if the Emergency Watershed Protection Program (EWPP) Floodplain Easement (FPE) should be added to the list. It might be a very small part of the puzzle, but FPE has the potential to include restoration, wetland/floodplain as well as tidal marshes. It's driven by natural disasters but can result in restoration.
 - **Stephanie P. Dalke:** Sounds appropriate to include. No one we spoke with at state NRCS offices suggested them as a practice we should be accounting for. I wonder if there are not many happening on the ground. Do you have a sense for how many of those projects are out there in the Chesapeake Bay watershed?
- **Kevin Du Bois:** Would the FEMA Building Resilient Infrastructure and Communities (BRIC) program also potentially be tapped for funding?
 - **Pamela Mason:** From what we have heard in VA, BRIC can be used for wetlands - especially tidal. But it is one of the nature-based solutions funds and wetlands are just one eligible projects type.
- **ACTION: Justin Markey will send Chris Guy all their NAWCA project numbers.**
- **WETLAND RESTORATION: BARRIERS & OPPORTUNITIES IN THE CHESAPEAKE BAY** – Amy Jacobs, *The Nature Conservancy*
 - **There is interest from private landowners in restoration:** Based on 2 independent surveys of 786 landowners from PA, MD, and DE, a 50-60% of landowners would be likely to perform restoration on their property. Most landowners had never been contacted about restoration opportunities
 - Highest motivations to restore wetlands were opportunities to see wildlife, improved water quality, and improved hunting.
 - **Barriers to accelerating wetland restoration:** Based on interviews with over 70 stakeholders in 2015 involved in wetland restoration across MD, VA, PA, DE: limited funding; outreach is limited; programmatic or institutional; permitting; limited approaches to restoring wetlands
 - **This workshop is focused on:** funding capacity; leadership commitment
 - **Funding Barrier:**
 - Solutions:
 - Focus funding on priority areas
 - Secure sustained funding for all phases of restoration
 - Advocate for increased program funding
 - Develop program with local conservation groups to offer restoration options; give alternative funding opportunities to landowners
 - Recent Progress:
 - Expert panel incorporated landscape position into efficiency calculations demonstrating importance of placement
 - Project demonstrating value of working with multiple programs to engage multiple landowners in a large restoration project.
 - **Capacity/Outreach Barrier:**
 - Solutions:
 - Designate local leader for outreach and coordination
 - Host cross-training for wetland practitioners
 - Develop marketing strategies
 - Invest in market research to understand incentives

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- Recent Progress:
 - **WETLANDS WORKGROUP WEBSITE FOR CHESAPEAKE BAY** (wetlandswork.org): this website was developed to help private landowners in the Chesapeake Bay Watershed independently access information on wetland programs and providers. There is still a need for direct engagement to lead them to this website
 - **DELMARVA WETLAND PARTNERSHIP** demonstrates an approach on how to directly engage with landowners. Have had to pause doing outreach because there is too much demand to get projects on the ground
- **THEORY OF CHANGE:** Leadership → Understand landowner concerns to increase engagement → Access more funding → Add capacity → Accelerating Implementation!
- **QUESTIONS/COMMENTS:**
 - **Kevin Du Bois:** I would argue that drought and SLR conditions will drive cropland conversion to wetlands. What we need to do is convince farmers that wetlands are a "crop" that has value to humans and society (just like food crops). If we paid farmers for growing wetlands (for WQ and Climate Resilience, etc.), I think we could unlock their expertise in cultivating plants and being caretakers of the land. I think there's a need to change the messaging and paradigm that climate will not lead to a loss of production, but rather a change in the valuable "crop" they grow.
 - **Kathy Boomer:** Building on **Kevin's** comments: highlighting **1)** overlap between riparian buffers/wetland restoration and edge-of-field and edge-of-stream practices; and **2)** linkages to soil health, climate resilience, and other direct benefits could represent a strategy to engage the ag community more effectively.
 - **Stephanie P. Dalke:** Exactly. Farmers control a lot of important land and have lots of skills and knowledge, but we don't always pay enough for the value of providing wetlands, and also it isn't just about money for them!
 - **Kevin Du Bois:** [Farmers take] great pride that [they] provide food for the world. Check out The Farmer's Creed. Here's one site where it can be found: <https://matthopkins.com/2012/05/16/the-farmers-creed/>
 - **Lorie Staver:** Is there funding or cost-share available to landowners for maintenance of buffers (CRP/CREP)?
 - **Sophie Waterman:** Buffers are starting to become a priority again. States like MD rely on CREP more than others. PA has recently gotten money for buffers. States in the watershed have recently put together buffer plans to address things like maintenance and funding
 - **Scott Phillips:** The theory of change diagram should consider including land-use decisions. Since development is the major cause for wetland loss, the issue needs to be addressed in addition to wetland restoration.
 - **Suzanne Dorsey:** MDE intends to maximize progress with restoration permitting and policies and funding that incentivizes green and blue infrastructure. The Conservation Finance Act for the first time defines blue carbon and sets Maryland up to be a leader in carbon tracking and trading
 - **David O'Brien:** What is the issue with permitting process? We hear this constantly but can't identify where things are breaking down.

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- **Erin Letavic:** More reviewers are needed so application review time is decreased; training for reviewers and practitioners so submittals are consistent, and review is streamlined. The length of timeframe to obtain permits can take over a year.
- **Alison Santoro:** CBP's Stream Health Workgroup ([link](#)) is putting together a survey for practitioners and regulators to help identify specific issues with the permitting process. We hope to send it out in the next month or two. It is focused on streams, but the results will likely apply to wetlands as well.
- **Erin Knauer:** Permitting requirements: we are often held to the same permitting process/standards as developers. Most recently, we also encountered regulations that are not allowing floodplain reconnection if flood area is increased, regardless of whether there are properties nearby or not (it's an open area with no properties in the vicinity/that would be affected).
- **Ben Sagara:** most regulators have a limited background in wetland restoration permits for permanent impacts vs permits for temporary impacts that lead to biologic uplift/restoration. Would be great if we could streamline the latter.

SESSION 2: WHERE DO WE WANT TO GO?

Attendees were asked to answer to the below Menti questions; responses can be found in [Appendix 3](#)

- *How much progress does your jurisdiction/organization envision it will play in achieving the 2025 outcomes? (This was on a 1-5 scale with 1 being a little and 5 being a lot)*
- *What do you need to meet the Outcome for the Bay? Be creative! (e.g., targeting tools, programs regulations, rules)?*

11:30 – VOICES FROM THE FIELD: LIGHTNING ROUND PANEL – NOVEL APPROACHES TO WETLANDS RESTORATION, CREATION, AND/OR ENHANCEMENT – PART 1 of 2

- **MD TIDAL PROJECT – RESTORATION AND RESILIENCY OF MARYLAND'S TIDAL MARSHES: A PROJECT EXAMPLE AND A LARGER PLAN** – Dave Curson, Audubon
 - Lower Wicomico River Maintenance Dredging: Deal Island WMA Marsh Restoration, Somerset County, MD. (begins 2022)
 - **Goals:** USACE Navigation Mission; Create high marsh habitat for Saltmarsh Sparrow (75 acres); protect impoundment berm from erosion
 - Learn ecological lessons for creating high marsh
 - Potential for future projects every four years due to maintenance
 - **Larger Plan:** from *Delmarva Restoration & Conservation Network Salt Marsh Restoration & Resiliency Plan*
 - Coalition of 40 partners
 - Focused specifically on the saltmarsh plan based on the Atlantic Coast Joint Venture's Saltmarsh Sparrow Conservation Plan
 - Prioritize 25,000 acres of high tidal marsh for long-term maintenance
 - Identified 80,000 acres for restoration; want to assign restoration prescriptions creating a sequenced pipeline of projects

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- The Deal Island project will include some low marsh areas, mostly as a consequence of the difficulty of applying sediment in a perfectly uniform manner. The Deal Island marshes are submerging fast so there will be no shortage of low marsh in areas surrounding the project site. Having said this, we will be consulting with NOAA and on these projects to make sure we account for priority fish habitat and low marsh areas in our planning.
- From initial outreach to completion, this project took 4 years
- **QUESTIONS/COMMENTS:**
 - **Matt Robinson:** I am interested in hearing about any experiences with beneficial reuse projects – especially projects on federal lands.
 - **Stephanie P. Dalke:** Here is some information ([LINK](#)) on the Blackwater National Wildlife Refuge (BNWR) marsh restoration project.
 - **Erik Meyers** The BNWR project was funded by NFWF Hurricane Sandy grant with The Conservation Fund as the lead with USFWS and other agencies and key conservation partners like Audubon. The BNWR thin-layer project was not a beneficial reuse. Sediment was mined from deep deposits at turns of Blackwater River with knowledge that eroding marsh upriver would refill the bottom contours. Pre- and post- hydro surveys showed this expectation to be true.
 - **Fredrika Moser:** Is there consideration as to why all these navigation channels have to be maintained? Are they economically critical? Just curious if the question has been asked in that direction.
 - **Chris Guy:** Wicomico River is the second largest commercial Port in Maryland.
 - **Erin Knauer:** They are navigable channels, Corps of Engineers regs.
 - **Erik Meyers:** This could be a location for combination of living shoreline projects to buffer the restored wetland from energy of open Bay waters. Thin-layer placement has been shown to restore wetlands but, obviously, does not by itself address accelerated erosion from rising sea level/ storm combination.
- **VA TIDAL PROJECT – HOG ISLAND WMA SHORELINE STABILIZATION – Ethan Massey, Ducks Unlimited**
 - **Project:** 18 proposed rip-rap breakwaters with sand tombolos and marsh plantings to alleviate erosion
 - **Phase 1:** completed in 2021; completed 7 breakwaters upstream; funded by VEE & VDWR with DU & VDCR providing match
 - **Phase 2:** (remaining 11 breakwaters) is shovel ready with permits and designs; currently seeking funding sources
 - Project experienced several permitting issues that needed to be resolved
 - Construction was completed quickly with an experienced contractor
 - Tidal work was learning process for Ducks Unlimited. State agencies were helpful with knowledge and project implementation.
 - From initial outreach to completion, this project took 4.5 years
 - **QUESTIONS/COMMENTS:**
 - **David O'Brien:** The breakwaters originally proposed were sited too far offshore, resulting in avoidable impacts to shallow water habitat.
- **DE TIDAL PROJECT – SOUTH WILMINGTON WETLANDS – Mark Biddle, Department of Natural Resources and Environmental Control**

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- Highlighting this project as it is an example of cross goal completion
 - South Wilmington Wetland Park is subject to tidal flows from the river. The area is industrialized with residential zones; legacy contaminant concerns; underserved communities & addresses DEIJ concerns
- Flooding issues since 1950s → no resources to address this until mid-2000s
- **Purpose of Wetland Park:**
 - Create stormwater management
 - Restore degraded marsh
 - Clean up brownfield
 - Create new green space/ park
 - Provide walking connectivity
 - Enhance coastal resilience
- Walking Connections → ADA accessible
- Phase 2 funded recently- includes land acquisition
- Great examples of working with many partners to achieve many environmental goals
- **DC TIDAL PROJECT – EXAMPLES OF TIDAL WETLAND RESTORATION FROM THE DISTRICT OF COLUMBIA**
– Matt Robinson, Department of Energy and Environment
 - **ANACOSTIA CORRIDOR RESTORATION PLAN (ARCRP):** this Comprehensive Restoration Plan will help enhance resiliency of the river corridor, restore habitat, improve water quality, and enhance public access and recreation.
 - The “corridor” is defined as the entire tidal section of the Anacostia River in DC, reaching from the river channel to the upland edge of the 500-year flood plan.
 - Funded through a 2020 \$500,000 NFWF Chesapeake Small Watershed Grant (SWG)
 - **COMMUNITY ENGAGEMENT:** the DOEE wants as much stakeholder engagement as possible in the development of the ARCRP. To achieve this, DOEE is holding joint Federal/DC Sister Agency meetings in plan development, including implementation of a public engagement plan. This plan included:
 - Convening a Stakeholder Advisory Committee to guide planning process
 - Having at least 2 engagement meetings with the general public (to gain input on projects/concepts)
 - Interviews with 15 individual stakeholders
 - Conducting public surveys
 - Conducting outreach and engagement at pop-up events throughout the river corridor over the next 2 years
 - Gain input on plan development from stakeholders via interviews/surveys
 - Creating a project website and utilizing social media
 - **KINGMAN LAKE:** 5-year project focusing on fringe wetlands, living shorelines, freshwater mussels, and SAV beds across 158 acres of the lake
 - Early implementation funded by the 2020 NFWF SWG
 - Project will be constructed during toxic sediment remediation → will be utilizing dredge spoils for restoration.
 - DOEE issued a \$700k RFP in December 2021. Applications are currently under review and the award will be made in April or May.
 - From initial outreach to completion, this project took 10 years

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○ QUESTIONS/COMMENTS:

- **Jonathan Watson:** What approximate percentage of this restoration work is being undertaking in historically filled wetlands compared to existing surface waters?
 - **Matt Robinson:** All of Kingman Lake is essentially fill – the Anacostia, historically, was chock full of wetlands. I think it's safe to assume that all of this work will be restoration.

1:00 – VOICES FROM THE FIELD: LIGHTNING ROUND PANEL – NOVEL APPROACHES TO WETLANDS RESTORATION, CREATION, AND/OR ENHANCEMENT – PART 2 of 2

- **MD NON-TIDAL PROJECT – POCOMOKE RIVER FLOODPLAIN RESTOATION PROJECT** – *Steve Strano, Natural Resources Conservation Service*
 - **Pocomoke River:** one of the northernmost cypress swamps in US; 4,250 acres of floodplain disconnected from river
 - 18.4 miles of channel were reduced to 14.3 miles by CCC dredging and straightening in the 1940's; dredging also created 28 miles of spoil levee. This construction degraded the river, deepened the channel, and increased the delivery of nutrients.
 - The Nature Conservancy, USFWS, MD DNR, and USDA NRCS were all partners on this project
 - **Planning and outreach:** 2 floodplain project areas (3,400 and 850 acres)
 - Able to overlay the 102 individual parcels of land to understand who owned which part of the floodplain
 - Good Lidar data helped facilitate the development of this project
 - Targeting where spoil levee breaches can be installed
 - Direct outreach through mailings, phone calls, and face-to-face interactions with landowners
 - Provided participation incentives
 - Partnerships for outreach, funding, design, and implementation
 - **Results:**
 - 165 breaches installed
 - 2,750 acres of floodplain reconnected
 - 1,580 acres of perpetual Wetland Reserve Easements
 - 60+ parcels of lands involved
 - Cost prohibitive to remove all of the spoils
 - *Freeing a Trapped River: Pocomoke Restoration* – a video created by The Nature Conservancy ([LINK](#))
 - *The majority of this project took 10 years, but work is still ongoing*
 - **QUESTIONS/COMMENTS:**
 - **Melissa Yearick:** Was the corridor still forested wetland, or was it too dewatered to classify as such?
 - **Steve Strano:** Yes, it was still a forested wetland, which made the project somewhat easier to implement because we weren't removing ag land from production. Our focus was getting those 2 to 10-year storms back into the floodplain.

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- **VA NON-TIDAL PROJECT – HUNTLEY MEADOWS PARK WETLAND RESTORATION** – *Dave Lawlor, Fairfax County, VA*
 - **Huntley Meadows Park is the largest non-tidal wetland in VA**
 - Utilized local taxpayer money for project (through bond)
 - Park managed with environmental education focus
 - **Why wetland restoration?**
 - **In 1985:** healthy ecosystem with nationally breeding birds, high biodiversity, and excellent water quality
 - **In 2007:** silt deposits, reduced water levels, and low biodiversity
 - **CRITERIA FOR PROJECT SUCCESS:**
 - Collect quality data for evidence to gain stakeholder support
 - Establish significant and achievable goals (e.g., improved water quality, increased wetlands, bring biodiversity/ breeding birds back)
 - Create monitoring and survey plan to assess restoration goals; parameters include biodiversity of birds and vegetation
 - **FUNDING STRATEGY:** (the main hurdle)
 - Determine wants and needs of community and stakeholders
 - Gain public and stakeholder support (~60 meetings with the public to talk about project)
 - Gain political support once stakeholders are onboard
 - Secured bond money through voting referendum (voting in Fairfax Co.); need ~\$3 million
 - **PROJECT BENEFITS:**
 - Improved water quality for Potomac River
 - Created 20-30 acres of wetlands and enhanced ~30 acres of wetlands
 - Local citizens and politicians prioritized wetlands by funding restoration
 - Vegetation improved
 - Increased sightings of target species
 - VA Rails bred in wetland in 2016
- **DC NON-TIDAL PROJECT – AGLER PARK UPLAND LID & STREAM & WETLAND RESTORATION PROJECT** – *Josh Burch, Department of Energy and Environment*
 - 35 acres of draining area
 - **WETLAND DELINEATION:** forested portion of the wetland needed to have minimized impacts from projects
 - Lower Alger Park was mostly Japanese knotweed prior to this project – this was due to a result of erosion in the upper stream
 - **GOAL:** to create a wetland with two flow paths flowing through it
 - Cleared out knotweed prior to stream restoration → Stream restoration was a success!
 - **CHALLENGES:** resource conversion, permitting, perception, invasive control, funding
 - **OPPORTUNITIES:** floodplain connection and wetland restoration/creation, daylighting, stability, habitat creation, plant diversity and aesthetics, no more mowing
- **DE NON-TIDAL PROJECT** – *Alison Rogerson, Department of Natural Resources and Environmental Control*
 - **Monitoring Restoration for Improved Wetland Functions:**
 - Using wetland assessment projects to create wetland restoration criteria
 - Raising expectation for wetland restoration
 - Results of project are voluntary (not regulatory)

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- **PROJECT TIMELINE:**
 - 2007- rapid assessments
 - 2017- looked at progress overtime
 - Construction designs and performance standards are not specific to wetland types and not based on natural wetland conditions
 - Determined performance criteria by wetland type, using over 20+ years of wetland data
 - Created rapid assessment method to evaluate created, restored, or enhanced wetlands
- **NEXT STEPS:** pilot testing, scoring, outreach, workshop training
- **PA NON-TIDAL PROJECT: BARRIERS & OPPORTUNITIES** – *Andy Klinger, Department of Environmental Protection*
 - **Multiprogram credit accounting:**
 - Programs working within virtual silos, crediting across all programs can help remove silos
 - Removing silo-ing due to permitting we get: wetland and stream mitigation, MS4 reductions, nutrient reductions, flood resiliency
 - **Prior Converted Cropland acreage:**
 - Preferred BMPs
 - Landowner willingness
 - Better incentives
 - Exploring co-benefits (restore wetlands within same footprint as ag BMP)
 - **Finite resources:** time, funding, personnel
 - **Successful project** → [Big Spring Run](#)
- **NY NON-TIDAL PROJECT – PARTNERING TO EXPAND WETLAND RESTORATION** – *Melissa Yearick, Upper Susquehanna Coalition*
 - Melissa provided a video presentation, which can be viewed here: <https://www.u-s-c.org/USCWetlandProgram.mp4>
- **WV NON-TIDAL PROJECT** – did not participate in the workshop

2:00 – BREAKOUT GROUPS: Following the presentations, workshop attendees divided into breakout groups for small group discussions. There were four breakout group options: Tidal Practitioners, Non-tidal Practitioners, Leadership, and Practitioners & Leadership (for those whose jobs encompass both roles). Attendees self-identified and joined the corresponding breakout group. Ideas discussed in each breakout group were captured using a Jamboard. These Jamboard responses are recorded in **Appendix 5**.

- **General Questions (addressed in all four breakout group types):**
 - *What would it take to do many more of these projects to accelerate the rate of functioning wetlands?*
 - *What can your organization do to accelerate progress to the 2025 Outcome?*
- **Tidal Practitioners:** *What are the ideas for tidal wetlands that can put us on schedule to move us closer to our Outcome?*
- **Non-tidal/Watershed Practitioners:** *What are the ideas for non-tidal wetlands that can put us on schedule to move us closer to our Outcome?*

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- **Leadership:** *What governance changes need to be made at the local, state, or federal level to maximize attainment of Outcome?*
- **Practitioners and Leadership:** *What are the programs that have the greatest amount of funding we can access for non-tidal and tidal wetlands? Why are some programs being undersubscribed?*

3:15 – DAY 1 WRAP UP: KEY TAKEAWAYS AND OVERVIEW OF DAY 2 AGENDA – Dave Davis and Sherry Witt (GDIT)

3:30 – DAY 1 ADJOURNED.

DAY 2 – AUGUST 3rd, 2022

[LINK TO PRESENTATIONS AND MEETING MATERIALS](#)

10:00 – OPENING COMMENTS & PARTICIPANT FEEDBACK – *Dave Davis, Sherry Witt*

- List of Day 2 attendees included in **Appendix 2**
- **Taryn Sudol** (NOAA, MD Sea Grant) announced that Maryland Sea Grant is hosting a similar workshop on large scale tidal restoration. The workshop will be held on October 6th and will focus on design approaches, maximizing benefits, and other topics. If you want to be added to the invite list, email Taryn at sudol@mdsg.umd.edu. The workshop is limited attendance in person and unlimited attendance virtually. More information can be found at this website: https://www.mdsg.umd.edu/large_scale_wetland_bmp_workshop
- **Matt Robinson** announced that the DC Anacostia River Corridor Restoration Plan (DC ARCRP) has a brand-new webpage (<https://restoretheanacostiariver.com/anacostia-corridor-restoration-plan>). DC will be focusing on identifying marshes, living shorelines, SAV beds, and other restoration projects in this plan. For those interested in learning more about the project, please visit the website for more information.

SESSION 3: HOW DO WE ACCESS FUNDING?

- Menti polling questions: **responses included in Appendix 4**
 - **Question:** *Based on what you've heard from Day 1, prioritize where should funding be focused?*
Possible Answers: *monitoring, design/permitting, outreach/stakeholder engagement, implementation [restoration/creation, enhancement], grants match, and capacity.*

10:15 – PANEL PRESENTATIONS: OUR CURRENT TRAJECTORY: FUNDING OPPORTUNITIES – FEDERAL, STATE, & NON-FEDERAL PANEL

FEDERAL PANELISTS:

- **National Oceanic & Atmospheric Administration – HABITAT RESTORATION FUNDING UNDER THE BIPARTISAN INFRASTRUCTURE LAW: WETLANDS OPTIONS** – *Sean Corson*
 - **BIPARTISAN INFRASTRUCTURE LAW (BIL):** signed into law November 15, 2021
 - NOAA received \$3 billion to be dispersed over 5 years. There are different timetables and stipulations associated with different disbursements. More information can be found here: <http://www.noaa.gov/infrastructure-law>
 - **HABITAT RESTORATION AND RESILIENCE:** \$491 million over 5 years
 - Funds are for restoring marine, estuarine, coastal, and Great Lakes ecosystems and enhancing coastal community resilience. systems, estuaries. Bonus points for looking at resiliency and climate related themes.
 - **Two funding opportunities in 2022:** *Both opportunities under this \$491 million are weighted towards underserved communities*
 - Transformational Habitat Restoration and Coastal Resilience Grants
 - Coastal Habitat Restoration and Resilience Grants for Underserved Communities

- **TRANSFORMATIONAL HABITAT RESTORATION AND COSTAL RESILIENCE GRANTS:** \$85 million/year for 5 years
 - **Award Range:** Project sizes are between \$1-15 million
 - **Closes:** September 6th
 - **Opportunity Number:** NOAA NMFS HCPO 2022 2007195
 - **Contact:** Resilience.Grants@noaa.gov
 - **Additional Information:** This is a great source of funding for the kind of projects we're talking about: capacity building, planning, and implementation opportunities. The awards will be better received by technical reviewers if couched within larger context. For example, thinking about tidal wetlands, for NOAA these projects must have a positive benefit for NOAA trust resources. Largely tidal areas of the Bay. The Hog Island, Delmarva, and Wilmington projects would be applicable for this kind of funding but best received if talked about in context of larger Bay restoration programs.
- **COASTAL HABITAT RESTORATION AND RESILIENCE GRANTS FOR UNDERSERVED COMMUNITIES:**
 - **Award Range:** \$75k to \$1million
 - **Opportunity Number:** NOAA NMFS HCPO 2022 2007354
 - **Closes:** September 30th
 - **Contact:** Underserved.Community.Grants@noaa.gov
 - **Additional Information:** \$10 million set aside for underserved communities. There will be more of an emphasis on capacity building in these areas.
- **ADDITIONAL NOAA FUNDING FOR HABITAT:**
 - **Fish Passage:** \$400 million over 5 years (15% Tribal set aside)
 - **National Oceans and Coastal Security Fund Grant Program:** \$492 million over 5 years
 - **Habitat Restoration Coastal Zone Management Program:** \$207 million over 5 years
 - **Habitat Restoration National Estuarine Research Reserves:** \$77 million over 5 years
 - **Pacific Coast Salmon Recovery:** \$172 million over 5 years
- **U.S. Fish & Wildlife Service, Rick Bennett**
 - **PARTNERS FOR FISH & WILDLIFE PROGRAM:** Service provides technical and financial assistance to plan, design, supervise and monitor customized habitat restoration projects. Projects are voluntary and customized to meet landowners' needs.
 - **Available to:** landowners, managers, tribes, corporations, schools and nonprofits
 - Projects designed to benefit federal trust species including migratory birds, endangered, threatened and at-risk species
 - **Prioritization:** priority projects provide habitat for rare, threatened and endangered species
 - **Project Duration:** Minimum duration of 10 years
 - **Partnerships:** The Service partners with other federal agencies, state agencies and nongovernmental organizations to complete projects on private lands. Landowners do not forfeit property rights and are not required to allow public access
 - **NORTHWEST REGION GOALS:**
 - Conserve and protect wildlife
 - Broaden and strengthen partnerships
 - Improve information sharing and communication
 - Increase accountability

- **FUNDING LEVELS:** \$57,715,000 FY22, for FY23 it will increase to over \$60 million (final amount is pending house/senate approval).
- **CHESAPEAKE WATERSHED INVESTMENTS FOR LANDSCAPE DEFENCE (WILD):**
 - 5 PILLARS/THEMES:
 1. Sustain and enhance restoration and conservation activities by conserving a resilient network of fish and wildlife habitats and connecting corridors, with an emphasis on at risk and federally listed species and their habitats.
 2. Address climate change by increasing scientific capacity and supporting strategic planning, monitoring, and applied science activities necessary to ensure resilience of natural ecosystems and habitats impacted by changing climate and development.
 3. Increase capacity and support for coordinated restoration and conservation activities in the Chesapeake Bay watershed, particularly in historically and systemically under resourced communities, through outreach, education, and civic engagement.
 4. Enhance recreational opportunities and public access with a strong emphasis on equitable access to nature and all associated benefits, consistent with the ecological needs of fish and wildlife habitat.
 5. Improve and sustain water quality, upgrade water management capability, and reduce flood damage, with an emphasis on green infrastructure and natural infrastructure to support fish and wildlife populations, their habitats, and drinking water for people.
 - This program fits a niche that isn't covered by other programs – it's habitat oriented and is in the Bay.
 - **FY22:** program received \$4 million in funding. Used the NFWF EPA Small Watershed Grant Program to announce potential funding of Chesapeake WILD funds. Many proposals were received.
 - **FY23:** will use a separate RFP for Chesapeake WILD funding. Final amount is pending.
- **AMERICA THE BEAUTIFUL:** year 1 just closed but will be available for the next 4 years. This funding opportunity was through NFWF and was ecosystem oriented.
 - **Funding:** \$375 million over 5 years (from infrastructure legislation); Has match requirements.
- **FISH PASSAGE:** central priority in the region
 - USFWS fisheries program receives money directly to support fish passage and has fish passage engineers in the region available to assist in design.
 - Additional \$200 million over 5 years to support fish passage through the bipartisan infrastructure legislation.
- **NATIONAL COASTAL WETLANDS CONSERVATION GRANTS:** In 2022, 25 projects in 13 states were awarded a more than \$20.1 million total to protect and/or restore over 61,000 acres of priority coastal and riparian habitat, and several miles of shoreline
- **Environmental Protection Agency, Martha Shimkin, Deputy Director of CBPO**
 - CBPO is grateful to the CBP Partnership for making sure the CBP gets funding and support to continue. As part of Infrastructure Law, the CBP received funding that wetland restoration can tap

into. Look at outcomes other than water quality to see what we can support. Strategically plan for future years to spend money to meet most outcomes.

- *CBP shared a matrix of outcomes, agencies, and infrastructure funding earlier this spring and this matrix can be available upon request.*
 - This funding table, provided by Amy Handen, displays funding sources related to the BIL (Bipartisan Infrastructure Law), points of contacts, and the potential applicability to the CBP outcomes, with links to additional information. ***Please note that this matrix is a living document and is only as accurate as its last update***
 - **Link to the Matrix:**
https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/funding_-_amy_handen_-_infrastructure_funding_summary_spreadsheet_042522.xlsx
- **In order to support a project, it is necessary to know:** how much funding is needed, how it relates to outcomes in the Agreement, and what is the funding vehicle (how are we putting the money out there).
- **Three important themes at the EPA and CBPO:** environmental justice, climate resiliency, and local investments.
- This year, nonfederal cost sharing for grants was waived for infrastructure funds. Future years may have similar opportunities to waive cost shares.
- Bottom line: there is unprecedented funding and support available now, which provides an opportunity to make as much progress as possible.
- **How can a community leverage state revolving funds:** this is an area of a huge influx of infrastructure funds. Funds can be leveraged through SRF financing, and may qualify for loan forgiveness or grants.
- **Natural Resources Conservation Service (NRCS), Dan Ludwig**
 - **Environmental Quality Incentives (EQIP) Program:** provides financial assistance for conservation practices.
 - **Wetland Reserve Easement Program:** the federal government works with landowners to purchase permanent easements in PA (other states within Bay have 30-year easements). NRCS purchases the easement to keep the land in perpetuity; however, landowners retain rights to use that property and NRCS covers the restoration cost for restoring wetlands. For every acre of wetland eligible, can enroll an additional buffer acre. One challenge is focusing on restoring hydric cropland back to wetland. NRCS works with landowners with existing wetlands; however the goal is to restore degraded wetlands.
 - **Wetland Reserve Enhancement Partnership:** FY2023 NRCS has \$20mil available for technical assistance. Presently looking to enter partnerships to enroll easements, which can be evaluated from an individual land-owner standpoint, watershed, or geographic area. Match is required (at least 10% cash or in kind to match for easement due diligence cost or restoration costs.) and this is only available for governments and NGOs. Individuals may not apply for partnership agreement. Once this is awarded NRCS will work with partners to identify individual landowners.
 - ***There will be a project meeting on September 17th, 2022. Contact Lisa McCauley (lisamccauley@usda.gov) for more information.***
 - **Regional Conservation Partnership Program (RCPP):** part of the 2018 Farm Bill and is awarded up to \$300mil annually to enter into partner agreements on watershed or geographic areas. There is an easement component of this NRCS can work with and individual practice implementation.

- Generally, it's a 1:1 match for this opportunity. For the Bay, that would fit into critical conservation area, statewide there's a fund pool you can go into.
 - For those with EPA CBP grants, there is a memorandum between NRCS and EPA stating if you receive an RCPP agreement, some of your EPA funds may be used as a match for the RCPP.
- **QUESTIONS/COMMENTS:**
 - **Olivia Devereux:** Can NRCS provide a total number of acres in easements in the Chesapeake Bay watershed?
 - NRCS Easements are publicly available here: <https://nrcs.maps.arcgis.com/apps/webappviewer/index.html?id=60cb4564f7b4461ca9a61fa224c066ba>
- **U.S. Army Corps of Engineers Norfolk District, Dan Bierly (USACE Baltimore District) presenting on behalf of Michelle Hamor (Norfolk District)**
 - USACE is not a granting agency – a project sponsor is needed for all programs. The Corps leads the efforts it is involved with.
 - **PLANNING ASSISTANCE TO STATES (PAS):** PAS is technical assistance program that does not lead to construction. The Corps acts as consulting engineers on planning studies related to water issues and flooding, including modeling.
 - **SECTION 510:** 510 is solely for Chesapeake Bay and is a design/construction/implementation. This is for smaller projects with less than \$10mil in total cost.
 - **CONTINUING AUTHORITY PROGRAM (CAP):** this program includes a number of standing authorities which are funded every year at the national level. Funds are distributed to projects at the agency's discretion. There are a few of the authorities that could be useful for constructing wetlands. Section 204 is one of the programs that is specifically for the beneficial use of dredged material. CAP projects are smaller and typically anything over \$10 - \$15 mil would not fit.
 - **CAP 206:** Another CAP authority that is specific to ecosystem restoration. The focus is aquatic habitat, such as stream restoration and wetlands work restoration. Due to the program's nationwide popularity, funding is difficult to obtain.
 - **GENERAL INVESTIGATIONS:** These are studies for large projects (>\$15mil). Requires Congressional authorization for a study and then again for construction. There is no limit to project size (example, Mid-Bay Island, Everglades Restoration, etc.).
 - **HOW TO ACCESS FUNDING:** USACE doesn't start projects, they are approached by non-federal entities who agree to be project sponsors.
 - *"Bring your problems to us and we'll find solutions together!"*
 - **QUESTIONS/COMMENTS:**
 - **Chris Guy:** For those getting Bipartisan Infrastructure Law (BIL) funding, that means additional capacity needed for federal agencies. How are you dealing with that? Are you able to absorb it or are you planning to hire for additional capacity so we can get the money out in a better way? How are federal agencies dealing with getting it out?
 - **Martha Shimkin:** We saw this coming when the law was passed in November, and had been working to determine what our needs to implement were. We put out hiring announcements and brought on some new people and will continue to bring in 1-2 more. Because of that and excellent staff, we've already allocated \$40mil of \$47.6mil that came in this year and have a plan for the rest. We've gotten great support from jurisdictions. Hiring has also helped us.

- **Rick Bennett:** It's a mixed bag for us. At the departmental-level they retained money to cover administrative costs associated with implementation of America the Beautiful. We received some bill funding for the DE program which the Chesapeake WILDS is built off. We retained some funding for capacity to implement the program. For fish passage, because there was already a program and process established, there wasn't as much of a need to do that. For Chesapeake WILD, taking funds we received and retaining some to support admin and implementation. Can't run these things without people and expertise so we build it in.
- **Chris Guy:** Is there consideration for capacity when money goes out to jurisdictions and locals? Can the money coming thru the bill be used to build capacity on local, state and NGO level?
- **Rick Bennett:** We have the DE funds, the Chesapeake WILD funds. We ran things and have capacity building as component of that. Mike Slattery can speak to that. We built it in recognizing there is a need; everyone needs capacity to implement. Particularly when trying to reach underserved capacity; they don't have capacity. Just asking them to engage doesn't work. We build it in where appropriate and where we can.
- **Martha Shimkin:** We have already shared with jurisdictions that the funding can also support with technical assistance and implementation.

NON-FEDERAL & STATE PANELISTS:

- **National Fish & Wildlife Foundation, Jake Reilly, Director of Chesapeake Bay Programs**
 - NFWF's Chesapeake Bay programs directly support the Chesapeake Watershed Agreement and TMDLs.
 - Presently, NFWF is especially "open for business" for wetlands work (wetland restoration, black ducks, etc.).
 - **AMERICAN BLACK DUCK GOAL:** increasing wetland habitat and available food to support 5,000 wintering black ducks (5% of the Chesapeake Bay Watershed Agreement goal). Activities contributing to this outcome by 2025 include improving food resources by restoring/creating 7,000 acres of tidal and non-tidal wetlands. Currently, NFWF is halfway to that goal, but 3,000 more acres are needed before 2025.
 - **CHESAPEAKE BAY STEWARDSHIP FUND GRANTS PROGRAMS:** restricted to Chesapeake Bay. NFWF isn't federal but deals with federal funding. The Innovative and Small Watershed programs are beneficiaries of the Infrastructure Bill. The plan is to deliver these dollars to wetlands and riparian forest buffers explicitly. Both programs do not have a federal matching requirement.
 - **INNOVATIVE NUTRIENT & SEDIMENT REDUCTION GRANTS PROGRAM:** Up to \$1mil award; U.S. EPA is the primary funder; RFP coming out later this month; focus on nontidal wetlands.
 - **SMALL WATERSHED GRANTS:** Up to \$500k award; U.S. EPA is the primary funder; spring solicitation and lower match requirement; focus on tidal and nontidal wetlands. This is a smaller program but now has more money than innovative program.
 - **CHESAPEAKE WILD:** up to \$750k award; USFWS is the primary funder; spring solicitation and 1:1 match requirement; focus on tidal and non-tidal wetlands.

- National programs: America the Beautiful. Very competitive. \$100 million available with over \$1 billion requested. Awards of up to \$5 million. Only available for states and tribes.
- National Coastal Resilience funds. Max \$10 million awards.
- **QUESTIONS/COMMENTS:**
 - **Jill Whitcomb:** With the different reporting requirements for IJA, how will NFWF communicate that to the grantees?
 - **Jake Reilly:** If you're thinking about the equity requirements, we have existing tools in house to report out information on communities impacted. Otherwise, reporting will follow our standard processes, appended as necessary by any additional IJA requirements
 - **Kristin Saunders:** 1) Do administrators of SRF programs have the ability to prioritize wetlands and 2) can the various other federal, state and NGO grant funds be used as the "revenue" to repay low interest loans?
 - **Aaron Wendt:** In VA, DCR's state-funded agricultural cost-share funds can be and are used to repay the SRF loans offered by DEQ to agricultural producers
 - **Robert Boos:** PENNVEST has been funding every eligible project that is administratively and technically ready to go so ranking or prioritization wouldn't come into play because everyone is getting funded.
- **Pennsylvania, Robert Boos, PA Infrastructure Investment Authority (PENN VEST)**
 - PENNVEST is a state-revolving loan program that implements federal capitalization grants and pulls together funding sources to fund clean water projects.
 - **HOW CAN PENNVEST HELP:** Drinking water, wastewater, stormwater, non-point source (e.g., green infrastructure, ag BMPs, etc.), and lead testing & remediation.
 - **PENNVEST FINANCING:** since 1988, 4,523 projects have been approved for a total funding of \$10.7 billion. Presently, approx. \$800 million is funded annually, mostly through low interest loan projects. PENNVEST funding is eligible anywhere in PA and the SRF program can be used for match dollars.
 - **BOARD MEETINGS:** 4x/year to ensure projects are progressing.
 - **WEB-BASED SYSTEM:** There are application cut off dates, and this is a fully online system.
 - **CONTACTS:** For those thinking about PENNVEST funding opportunities, contact the regional project specialists covering different areas of PA.
 - **Region 1** – Northwest PA – Brendan Linton (blinton@pa.gov)
 - **Region 2** – Southwest PA – Dan Mikesic (dmikesic@pa.gov)
 - **Region 3** – Southcentral PA – Tess Schlupp (tschlupp@pa.gov)
 - **Region 4** – Northeast & Southeast PA – Rebecca Hayden (rebkennedy@pa.gov)
 - **Region 5** – Northcentral PA – Leslie Cote (lecote@pa.gov)
 - Best way to connect with PENNVEST is through the website: www.pennvest.pa.gov
 - **QUESTIONS/COMMENTS:**
 - **Link to the Potential Restorable Wetlands layer in PA:** <https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=3136>
- **Virginia, Mike Crocker, Department of Environmental Quality**
 - **CLEANWATER FINANCING & ASSISTANCE PROGRAM:** Virginia Clean Water Revolving Loan Fund (VCWRLF aka CWSRF); Water Quality Improvement Fund; Stormwater Local Assistance Fund (SLAF)

- **VIRGINIA CLEAN WATER REVOLVING LOAN FUND:** solicitation closed last week. There were 73 applications for just under \$500 million.
 - **Annual solicitation:** June-July
 - Local government, PSAs, & nonprofits
 - **Eligible Projects:** Wastewater treatment, stormwater and agriculture BMPs, brownfields remediation, land conservation, and living shorelines.
- **CLEAN WATER REVOLVING LOAN FUND:** opportunities for wetlands restoration and enhancements
 - Projects can be standalone (funded independently)
 - Low, subsidized Interest rates. May qualify for Green Project Reserve – which has opportunities for reduced or zero interest rates.
 - Also have potential for grant money
 - **CHALLENGES:** project identification; defining responsible parties; partnership arrangements; debt service are hard sell on non-utility projects; many projects are funded in pursuit of water quality credit/permit compliance
 - **PROJECT EXAMPLES:** City of Norfolk (wetlands and living shorelines); Middle Peninsula (living shorelines); City of Waynesboro (constructed wetlands)
- **New York, Cassie Davis, Department of Environmental Conservation**
 - **CHESAPEAKE BAY NORTHERN HEADWATERS:** 19 NY counties are within the watershed boundary; approx. 70% forested and 3% wetlands
 - **CURRENT EFFORTS & INTENDED RATE OF IMPLEMENTATION:** WIP 3 acreage goal of approx. 1,3000 acres of restored wetlands, which is very close to being achieved. There is no WIP 3 target for wetland creation nor rehabilitation.
 - Major focus in NY is ecosystem services
 - **NY GRANT PROGRAMS** (*each have competitive state funding available*): Water Quality Improvement Program, Climate Smart Communities Grant Program, Environmental Justice Grant Program, and the Climate Resilient Farming Program
 - **UPPER SUSQUEHANNA COALITION (USC):** most of the conservation practices implemented are through USC
 - USC provides on the ground implementation and technical support in agriculture, stream corridor rehabilitation, and wetland restoration
 - USC has a dedicated wetland team
 - **SUPPORT NEEDED:** increased staff capacity, continuing funding for technical assistance and grant assistance, and administrative costs. Having flexible program and funding sources would allow for bundling multiple projects together. Also need to reinvest in aging capital equipment.
- **Delaware, Mark Biddle, Department of Natural Resources and Environmental Control, Regional Team Manager**
 - **Most of DE lies in the coastal plain.** Delmarva has wet soils and no natural drainage. Construction to improve drainage for crops led to draining wetlands. Most wetland projects occur on agricultural lands and a few on state-owned wildlife areas. Opportunities came from multiple objectives including identifying poorly drained cropland.
 - **Partnership with agriculture is important.**
 - **HAINES FARM PROJECT EXAMPLE:** prior to construction was a straight ditch; changed to meandering curves. Flood plain to capture flow before enter stream. Conducted study to see how

wetland cells retained nitrogen and phosphorous. Small cells placed in landscape may improve water quality better than single large ones.

- **Important to look for nontraditional sites.** DNREC has partnered with schools, leveraged nontraditional funding sources, and sought other opportunities on publicly owned lands.
- **Don't forget to have fun!**
- **DELAWARE WETLAND RESTORATION WORKGROUP (DWRG):** formed to coordinate leveraging resources. Looking forward to using the influx of fed funding and better utilize SRF and partnering with local governments to get projects on the ground. The challenge is most local governments don't have staff capacity to put together proposals. There is a need for an increase in organizational structure and capacity. Moving forward, folks should consider how to ease match requirements where it's restricting capacity and implementation for other funding.
- **QUESTIONS/COMMENTS:**
 - **Erik J. Meyers:** How have farmers responded to reduction of cropland as result of wetland restoration/creation with ditch projects?
 - **Mark Biddle:** We've had mixed reaction to the reduction in cropland, but if we tie it into other on-farm water quality improvements it helps. It also helps if the land taken out of production has been traditionally marginally productive.
- **Maryland, Sarah Hilderbrand, Department of Natural Resources**
 - **CHESAPEAKE & COASTAL SERVICE:** All funding info can be found on grants gateway website (<https://dnr.maryland.gov/ccs/Pages/funding/grantsgateway.aspx>).
 - **Grant funds come from state and fed sources:** Chesapeake & Atlantic Coastal Bays Trust Fund, Coastal Resiliency Program, Waterway Improvement Fund, NOAA, and EPA's Chesapeake Bay Program.
 - **5 Categories of grants:**
 - Accelerate recovery and restoration of natural resources by implementing non-point source pollution reduction projects.
 - Enhance capacity to understand and effectively plan to address flood risks associated with a changing climate.
 - Utilize natural and nature-based infrastructure to enhance resilience to climate change.
 - Improve student ability to take action benefiting Chesapeake and coastal ecosystems through outdoor learning and stewardship.
 - Foster sustainable development and use of Maryland waterways with projects that benefit the general boating public.
 - **THE CHESAPEAKE & ATLANTIC COASTAL BAYS TRUST FUND:** Approx. \$50mil in funding is generated annually through motor fuel and car rental tax. Funding is competitive, and projects are selected based on geographic targeting.
 - Wetland restoration aligns well with MDNR's Trust Fund goals. Since 2010 MDNR has supported over 3,000 acres of wetland restoration.
 - **Resiliency through restoration:** funds utilize natural and nature-based infrastructure to enhance resilience to climate change and should address short- and long-term climate impacts. There were 19 pilot projects in FY19-21, covering a range of restoration techniques and addressing flooding and sea level rise.
 - **WATERSHED ASSISTANCE GRANT PROGRAM:** provides funding for design and watershed assessment. Allows Trust Fund to target construction-ready projects

- **QUESTIONS/COMMENTS:**
 - **Woody Francis:** Does “shovel ready” projects mean that they already have permits/approvals to complete the project or are they still needed? If they’re still needed, while not yet secured, the project may be considered “shovel ready” but be unable to proceed forward.
 - **Sarah Hilderbrand:** To be shovel ready, MDNR tries to have projects as far along with design and permitting as possible so there is a full understanding of how and when funds will be used, but if the permits are still in the works, the projects can still be considered.
 - **MDNR Grants Gateway:** <https://dnr.maryland.gov/ccs/Pages/funding/grantsgateway.aspx>
 - **Trust Fund Project Map/Story Map (outcome 1):** <https://maryland.maps.arcgis.com/apps/MapSeries/index.html?appid=f7adba8f56924bc58a95d2fac56ec954>
 - **Resiliency through Restoration Story map (outcome 3):** <https://maryland.maps.arcgis.com/apps/MapJournal/index.html?appid=4b2608d5e34d40cfb77b50e16805649f>
- **West Virginia (did not participate in this workshop)**
- **District of Columbia, Matt Robinson (DC DOEE) presented on behalf of Jen Dietzen (DC DOEE)**
 - Majority of DC DOEE’s work has been in streams, but they are looking to get into tidal wetlands.
 - Tidal Anacostia River Corridor Project.
 - **BAG LAW FOR SINGLE-USE PLASTIC BAGS:** DC has a bag law for single-use plastic bags. This funding goes to a special revenue fund that can be used for wetland restoration. DOEE has used it for stream restoration and can also use it for wetlands.
 - **Presently looking to implement natural resource damage assessments**
 - **ANACOTIA RIVER SEDIMENT PROJECT:** remediating toxic sediments. Projects funded through settlements with responsible parties.
 - **KENILWORTH PARK LANDFILL:** owned by Washington Gas, looking to implement restoration projects. Taken advantage of fed funding. We currently have a coastal resilience grant from NFWF. Josh Birch leading that project. Will be some small wetland restoration. Utilize clean water SRF. Currently project on list for wetland restoration along Anacostia, Kingland lake. Application expected to be awarded soon through FEMA for designs for wetlands on Kennelworth landfill.
- **POST-PANEL DISCUSSION, QUESTIONS/COMMENTS:**
 - **Jana Davis:** The Chesapeake Bay Trust has several wetlands funding opportunities as well, including through our general grant programs (which fund living shorelines, other tidal, and nontidal) and one specifically for nontidal wetlands in Maryland (with MDE). Reach out to Sarah Koser (skoser@cbtrust.org) for ideas.
 - **Rich Mason:** I think we need a fresh look at the way funding moves from agencies to NGOs (NFWF and others) to other NGOs, to finally resulting in on the ground results. Wetland practitioners spend too much time seeking funding from several different funding sources. We need a much simpler and less time-consuming method that results in on the ground wetland restoration and protection. What if we flipped this around where a website is developed where practitioners entered projects or a batch of projects in a template and once filled out, funders would get notified of the opportunity to fund a project. Practitioners would not have to apply for multiple sources - just one application. Reporting would be standardized on this site too. This may also

create a better opportunity for private funding for site-specific projects. I have been working on restoration projects and grant programs since the early 1990's and what has changed is that there is more \$ available.

- **Jennifer Starr:** Local government welcomes your idea and has been advocating for a "Common App" website for funding.
- **Kristin Saunders:** I have been wondering same - how can we make all the pots of money work seamlessly together?
- **Dave Goerman:** A block grant approach would provide significantly more flexibility.
- **Jill Whitcomb:** Not only a block grant program, but upfront capital is a necessity. Wherever it comes from (from a grant, low-interest loan, private, etc.) is key, and so allowing for a large chunk of the funds to be provided to the sponsoring entity to work with up front is critical. PA has been using a block grant program that isn't specifically prioritizing wetlands, but counties can apply for different project types that meet their Countywide action plan (CAP) priority initiatives, inclusive of wetland restoration.
- **Jill Whitcomb:** We use an allocation-based method and counties submit an application that outlines the project types and strategies for spending the funds on an annual basis. I would like to see more dedicated funding, in a long-term (5 years) where everyone knows what they're getting, and it doesn't fluctuate.
- **Forrest Vanderbilt:** An interesting model for collaboration is the **RIBITS (Regulatory In-lieu Fee and Bank Information Tracking System)** website in that you can search for opportunities <https://ribits.ops.usace.army.mil/ords/f?p=107:2:3149363624937::NO::>
- **Jeremy Hanson:** the weekly Bay Brief from the CBP lists active funding opportunities. worth signing up for anyone who hasn't already: <https://www.chesapeakebay.net/action/newsletters>
- **Kathy Boomer:** Check out the **ACTION RFA** to explore different outreach strategies to increase conservation practice adoption: <https://foundationfar.org/grants-funding/opportunities/achieving-conservation-through-targeting-information-outreach-and-networking-action-program-request-for-applications/>

11:50 – OPEN DISCUSSION

- **Menti Question:** *What action(s) can the federal, state, or grantee organization take based on what you heard today that would move us towards Outcome attainability by 2025?*
 - Responses recorded in **Appendix 4**

SESSION 4: HOW ARE WE GOING TO GET THERE?

1:15 – ACTION PLAN PROPOSAL – Dave Davis

- Within three months following the workshop, the Workshop Steering Committee will work with partners and workshop participants to develop an Action Plan that outlines steps and a timeline for dedicating resources to implementing these approaches.
- **This Action Plan will be presented to the CBP Management Board at the December 2022 meeting.**
- **STRUCTURE OF THE ACTION PLAN:**
 - **Introduction:** A summary from the workshop's Session 1: "Where have we been".
 - **Management Strategy & Approach:** A summary from the workshop's Session 2 "Where do we want to go" and Session 3: How can we get there from here."

- **Action:** Each partner will write a 1-to-2-page action strategy outlining how they will implement the actions identified in this Plan. Comes largely from Session 4 breakout session and report outs, and the fall 2022 follow up meetings.
- **Next Steps:** Summary of the workshop and action items and begins the framework of the wetlands works beyond 2025. Will establish timelines and milestones for actions described in this plan.

1:25 – SMALL GROUP DISCUSSIONS: HOW ARE WE GOING TO GET THERE?

- During this discussion session, workshop attendees were split into 7 different breakout groups to discuss “How are we going to get there?”. There were seven breakout groups, one for each Jurisdiction. Those in attendance self-selected their breakout group according to the jurisdictions.
- During these breakout groups, the attendees discussed the following Jamboard questions: (**responses can be found in Appendix 6**)
 - *How do we incorporate these new approaches/ideas into our processes and efforts for non-tidal and tidal wetlands? (e.g., How are you going to increase capacity? What types of funding have the greatest influence in your jurisdiction?)*
 - *How do we address them in the development of an action plan?*

2:50 – IMPLEMENTATION OF APPROACHES PANEL

- A panel of policy, management, and science experts shared their perspectives to the approaches discussed in the previous breakout group session and how they can get us on the trajectory for outcome attainability for wetlands in the Bay watershed.
- *Are these approaches implementable? Will they help us get where we want to go? What else do we need to consider? How can we make it better?*
- **Panelists:**
 - Chesapeake Bay Program – **Kristin Saunders**, Cross Goal Implementation Team Coordinator
 - VA DEQ – **Dave Davis**, Director of the Office of Wetland and Stream Protection
 - USFWS – **Cheyenne Owens**, Special Assistant to the Chief of Staff, Directors Office
- **Kristin Saunders:**
 - The adaptive management framework is what led to this workshop; understanding what worked and what hasn’t worked. We can’t continue to have random acts of conservation and restoration. Targeting and being strategic is key.
 - There are a lot of tools developed by partners: from GIS tools, to decision support tools whether species specific or across the board. Several folks have talked about creating a tool to get a better idea to target work. Before creating a new tool, look at the ones that exist: <https://gis.chesapeakebay.net/targeting/>
 - What if wetlands were the focus and the goal, and water quality was the co-benefit? Consider this reframing so decision makers can embrace this work.
 - **Lessons from our successes:**
 - **Commitment** from an organizational and leadership standpoint as well as individual
 - **Have a highly visible leader at state or federal level**
 - **Have specific targets and metrics.** May even consider voluntary goals within each jurisdiction
 - **Have a plan based on targeting for multiple benefits**
 - **Have dedicated funding**

- **Being open to creative financing**
 - **Think big/look large scale**
 - **Broad partnership implementation:** what if we cluster likeminded people or people who have specific expertise share their expertise across the watershed, not just in a specific geographic location [3:23]. Have a big plan and understand how everyone plays a role in the implementation so you have the expertise where you need it and people aren't trying to do everything everywhere.
 - **Don't forget about prevention.** Much attention on restoration; but prevention is more affordable than restoring what's lost. We have the ability to work with local officials and make sure important resources are protected. If we only have our eyes on restoration, we'll continue to lose wetlands.
 - We have pushed on **land conservation community** to get involved in this effort both forest buffers and wetlands because they have the ability and money to buy land or conservation easements and bring financial resources to this work. If we can't get private property owners to convert their land, we can get lands that are marginal but in great places for wetland migration. Untapped opportunity to combine land conservation and wetland restoration.
- **Dave Davis:** About 8-10 yrs ago DEQ and VIMS tried to figure out who was doing restoration activities and we hit a roadblock. I think there is more restoration activity that occurs on the ground than is captured. Better tracking who's doing what, where would be helpful.
 - **Cheyenne Owens:**
 - While the task is formidable this workshop highlights the passion and drive to make this happen. Continued efforts will be needed to keep us accountable.
 - Communication with each other, the public, landowners, coordination, collaboration needed to achieve our goals.
 - There is a presidential initiative, Justice 40, for environmental justice, accountable for all federal agencies 40% of fundings need to benefit communities of color, rural communities, low-income communities. Keeping that EJ element in mind.
 - **Link for additional information on Justice 40:**
<https://www.whitehouse.gov/environmentaljustice/justice40/>
 - Communication and outreach plans, linking wetlands to climate change and EJ should be part of communications, as well as economic benefits of wetlands.
 - Capacity: encourage people to get creative. Leverage details, internships, cost sharing with partners.
 - Draft list of USFWS wetlands grant opportunities: https://drive.google.com/file/d/193WAWpH24oGtAmluXpr32y0ItL_rK9SW/view?usp=sharing
 - Sentinel Landscapes: special category in America the Beautiful, can open up additional opportunities (Link: <https://sentinellandscapes.org/>)

3:15 – DAY 2 WRAP-UP – Dave Davis

- **THE WAY FORWARD:** preparing for & presenting at the December 2022 Management Board Meeting
 - **The Wetland Action Plan will be presented to the CBP Management Board at the December 2022 meeting.**
- **WETLAND WORKGROUP:** For those interested in joining the CBP Wetland Workgroup, please email Pamela Mason (mason@vims.edu) and Katlyn Fuentes (fuentesk@chesapeake.org)

- **GOOGLE SURVEY:**

- A Google Poll was distributed to those in attendance, and those that were interested in participating in continued wetland discussions moving forward completed the poll.
- **Survey responses included in Appendix 7**

3:30 – WORKSHOP ADJOURNED.



2022 RESTORING WETLANDS OF THE CHESAPEAKE BAY WATERSHED WORKSHOP

AUGUST 2-3, 2022, 10:00 A.M. – 3:30 P.M. ET

[*LINK TO MEETING MATERIALS*](#)

APPENDICES TO THE MEETING MINUTES

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APPENDIX 1: DAY 1 WORKSHOP ATTENDANCE (n=154)

1. Aaron Wendt, VA DCR
2. Adrienne Kotula, Chesapeake Bay Commission, VA
3. Alex Vidal, USFWS
4. Alicia Berlin, USGS
5. Alison Rogerson, DNREC
6. Alison Santoro, MD DNR
7. Allison Colden, CBF
8. Allison Ng, EPA
9. Allyson Gibson, Lancaster Clean Water Partners
10. Amy Goldfischer, CRC
11. Amy Jacobs, The Nature Conservancy
12. Andy Klinger, PA DEP
13. Andy Lacatell, The Nature Conservancy
14. Ann Swanson, Chesapeake Bay Commission
15. Anne Hairston-Strang, MD DNR
16. Anne Wakeford, WV DNR
17. Aurelia Gracia, NPS
18. Doug Austin, EPA
19. Becky Golden, MD DNR
20. Ben Sagara, VA DWR
21. Bill Jenkins, EPA
22. Breck Sullivan, USGS
23. Brent Hunsinger, River Friends
24. Brian Lamb, USGS
25. Britt Slattery, NPS
26. Brittany Sturgis, DE DNREC
27. Brittney Flaten, DNREC
28. Carin Bisland, EPA
29. Cara Johnson, CRC
30. Cassie Davis, NY DEC
31. Charmaine Dahlenburg, National Aquarium
32. Cheyenne Owens, USFWS
33. Chris Guy, USFWS
34. Chris Moore, Chesapeake Bay Foundation
35. Christine Conn, MD DNR
36. Dan Bierly, USACE
37. Dan Murphy, USFWS
38. Danielle Algazi, EPA
39. Danielle Szimanski, USACE
40. Dave Curson, Audubon
41. Dave Davis, VA DEQ
42. David Lawlor, Fairfax County, VA
43. David O'Brien, NOAA
44. David Seaborn, MDE
45. Denise Coleman, USDA NRCS
46. Dimitri Rucker, USFWS
47. Ed Farley, Ducks Unlimited
48. Edwin Martinez, USDA NRCS
49. Elliott Campbell, MD DNR
50. Erik Meyers, The Conservation Fund
51. Erin Knauer, Ecosystem Planning & Restoration
52. Erin Letavic; Herbert, Rowland & Grubic, Inc.
53. Ethan Massey, Ducks Unlimited
54. Faren Wolter, USFWS
55. Felix Abel-Ferretti, MD DNR
56. Fiona Koye, USDA NRCS
57. Forrest Vanderbilt, USGS
58. Fredrika Moser, MD Sea Grant
59. Garrett Stewart, CRC
60. Gina Hunt, MD DNR
61. Greg Barranco, EPA
62. Jaime Argo, USDA FSA
63. Jake Reilly, NFWF
64. Jamileh Souiedan, CRC
65. Jana Davis, Chesapeake Bay Trust
66. Jason Fellon, PA DEP
67. Jayme Arthurs, USDA NRCS
68. Jeannie Riccio, MD DNR
69. Jeff Lapp, EPA
70. Jeff White, TetraTech
71. Jeffrey Hartranft, PA DEP
72. Jennifer Starr, LGAC Alliance for the Bay
73. Jeremy Hanson, CRC
74. Jill Whitcomb, PA DEP
75. Joe Toolan, NFWF
76. Joel Carr, USGS
77. John Taucher, PA Game Commission
78. Jonathan Leiman, MDE
79. Jonathan Watson, NOAA
80. Jorge Bogantes, Anacostia Watershed Society
81. Josh Burch, DOE
82. Julie Reichert-Nguyen, NOAA
83. Justin Markey, USFWS
84. Karinna Nunez, VIMS
85. Karri Honaker, USDA NRCS
86. Kathy Boomer, Foundation for Food & Agriculture Research
87. Katie Ombalski, Woods & Waters Consulting
88. Katie Stahl, USFWS
89. Katlyn Fuentes, CRC
90. Ken Staver, University of Maryland
91. Kevin Du Bois, US DOD
92. Kevin McLean, VA DEQ

93. Kristen Saacke Blunk, Headwaters LLC
94. Kristin Saunders, UMCES
95. Lauren Taneyhill, NOAA
96. Leah Franzluebbbers, USFWS
97. Leon Tillman, USDA NRCS
98. Lori Maloney, EBTJV
99. Lorie Staver, UMCES
100. Margaret Zacharias, EPA
101. Marisa Baldine, CRC
102. Mark Biddle, DE DNREC
103. Mark Hoffman, Chesapeake Bay Commission
104. Martha Shimkin, EPA
105. Mary Andrews, NOAA
106. Maryann Reed, USDA FSA
107. Matt Robinson, DC DOEE
108. Megan Fitzgerald, EPA
109. Melissa Yearick, Upper Susquehanna Coalition
110. Michael Roberts, The Coastal Trust
111. Michelle Hamor, USACE Norfolk District
112. Michelle Henicheck, VA DEQ
113. Mike Evans, Chesapeake Conservancy
114. Mike LaSala, Land Studies
115. Mike Slattery, USFWS
116. Nancy Roth, TetraTech
117. Nicole Carlozo, MD DNR
118. Nikki Rovner, The Nature Conservancy
119. Olivia Devereux, Devereux Consulting
120. Pam Mason, VIMS
121. Patrick Vincent, USDA NRCS
122. Patti Webb, DE DNREC
123. Peter Gibbs, USDA NRCS
124. Rachel Lamb, MDE
125. Renee Thompson, USGS
126. Rese Cloyd, DC DOEE
127. Rich Mason, USFWS
128. Rikke Jepsen, ICPRB
129. Sandy Davis, USFWS
130. Sandra Demberger, USFWS
131. Sara Bottenfield, VA DCR
132. Sarah Fleming, Ducks Unlimited
133. Sarah Hilderbrand, MD DNR
134. Scott Bearer, PA
135. Scott Lerberg, VIMS
136. Scott Phillips, USGS
137. Sean Corson, NOAA
138. Sherry Witt, General Dynamics Information Technology
139. Sophia Blanco Seufert, USFWS
140. Sophie Waterman, CRC
141. Stacey Bradshaw, USDA NRCS
142. Stephanie Dalke, University of MD
143. Stephanie Jacobs, EPA
144. Stephen Faulkner, USGS
145. Steve Strano, USDA NRCS
146. Su Fanok, The Nature Conservancy
147. Susanna Massalon, Ducks Unlimited
148. Suzanne Dorsey, MDE
149. Taryn Sudol, UMCES
150. Tim Haydt, PA Game Commission
151. Todd Lutte, EPA
152. Wendy Walsh, Tioga County Soil & Water
153. Woody Francis, USACE Baltimore District
154. Zack Greenberg, The Pew Charitable Trusts

APPENDIX 2: DAY 2 WORKSHOP ATTENDANCE (n=126)

1. Aaron Wendt, VA DCR
2. Adrienne Kotula, Chesapeake Bay Commission
3. Alicia Berlin, USGS
4. Alison Santoro, MD DNR
5. Allison Ng, EPA
6. Allyson Gibson, Lancaster Clean Water Partners
7. Amy Goldfischer, CRC
8. Amy Jacobs, The Nature Conservancy
9. Andy Klinger, PA DEP
10. Andy Lacatell, The Nature Conservancy
11. Anne Hairston-Strang, MD DNR
12. Anne Wakeford, WV DNR
13. Aurelia Gracia, NPS
14. Becky Golden, MD DNR
15. Ben Sagara, VA DWR
16. Bill Jenkins, EPA
17. Breck Sullivan, USGS
18. Brian Lamb, USGS
19. Britt Slattery, NPS
20. Brittany Sturgis, DE DNREC
21. Brittney Flaten, DE DNREC
22. Cara Johnson, CRC
23. Carin Bisland, EPA
24. Cassie Davis, NY DEC
25. Cayla Sullivan, EPA
26. Charmaine Dahlenburg, National Aquarium
27. Cheyenne Owens, USFWS
28. Chris Guy, USFWS
29. Christine Conn, MD DNR
30. Dan Bierly, USACE
31. Dan Ludwig, USDA NRCS
32. Danielle Algazi, EPA
33. Dave Davis, VA DEQ
34. Dave Goerman, PA DEP
35. David Maginnes, Maginnes Productions
36. David Seaborn, MDE
37. Derrick McDonald, PA DEP
38. Dimitri Rucker, USFWS
39. Doug Austin, EPA
40. Ed Farley, Ducks Unlimited
41. Elliott Campbell, MD DNR
42. Erik Meyers, The Conservation Fund
43. Erin Knauer, Ecosystem Planning & Restoration
44. Erin Letavic, Herbert, Rowland & Grubic, Inc.
45. Ethan Massey, Ducks Unlimited
46. Faren Wolter, USFWS
47. Felix Abel-Ferretti, MD DNR
48. Fiona Koye, USDA NRCS
49. Forrest Vanderbilt, USGS
50. Fredrika Moser, MD Sea Grant
51. Gina Hunt, MD DNR
52. Greg Barranco, EPA
53. Jaime Argo, USDA FSA
54. Jake Reilly, NFWF
55. James Martin, VA DCR
56. Jana Davis, Chesapeake Bay Trust
57. Jayme Arthurs, USDA NRCS
58. Jeff Fretwell, MDE
59. Jeff Lapp, EPA
60. Jennifer Starr, LGAC Alliance for the Bay
61. Jeremy Hanson, CRC
62. Jill Whitcomb, PA DEP
63. Joe Toolan, NFWF
64. Joel Carr, USGS
65. John Taucher, PA Game Commission
66. Jonathan Leiman, MDE
67. Jorge Bogantes, Anacostia Watershed Society
68. Julie Reichert-Nguyen, NOAA
69. Karinna Nunez, VIMS
70. Karri Honaker, USDA NRCS
71. Katheryn Barnhart, EPA
72. Kathy Boomer, Foundation for Food & Agriculture Research
73. Katie Ombalski, Woods & Waters Consulting, LLC.
74. Katlyn Fuentes, CRC
75. Kevin Du Bois, US DOD
76. Kevin McLean, VA DEQ
77. Kristen Saacke Blunk, Headwaters LLC.
78. Kristin Saunders, UMCES
79. Leah Franzluebbbers, USFWS
80. Leon Tillman, USDA NRCS
81. Lorie Staver, UMCES
82. Marisa Baldine, CRC
83. Mark Biddle, DE DNREC
84. Mark Hoffman, Chesapeake Bay Commission
85. Martha Shimkin, EPA
86. Mary Andrews, NOAA
87. Matt Robinson, DC DOEE
88. Megan Fitzgerald, EPA R3
89. Melissa Yearick, Upper Susquehanna Coalition
90. Michael Roberts, The Coastal Trust

91. Michelle Henicheck, VA
DEQ
92. Mike Crocker, VA DEQ
93. Mike Dryden, The
Nature Conservancy
94. Mike LaSala, Land
Studies
95. Mike Slattery, USFWS
96. Nancy Roth, TetraTech
97. Nicole Carlozo, MD
DNR
98. Nikki Rovner, The
Nature Conservancy
99. Olivia Devereux,
Devereux Consulting
100. Pam Mason, VIMS
101. Peter Gibbs, USDA
NRCS
102. Rachel Lamb, MDE
103. Rese Cloyd, DC DOEE

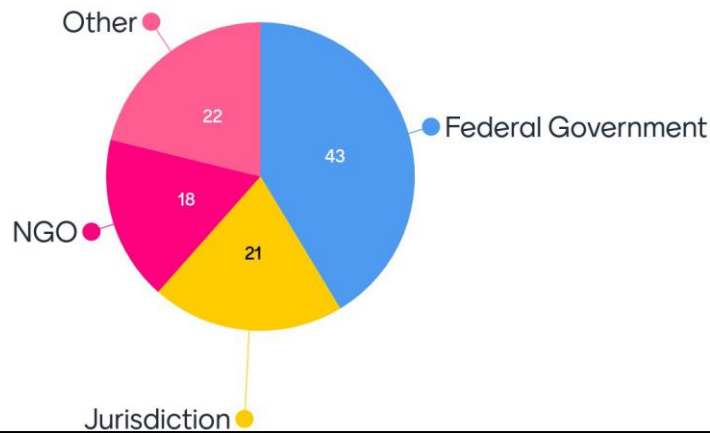
104. Rich Mason, USFWS
105. Rick Bennett, USFWS
106. Robert Boos, PA
Infrastructure
Investment Authority
107. Sandra Demberger,
USFWS
108. Sandy Davis, USFWS
109. Sara Bottenfield, VA
DCR
110. Sarah Fleming, Ducks
Unlimited
111. Sarah Hilderbrand, MD
DNR
112. Scott Lerberg, VIMS
113. Scott Phillips, USGS
114. Sean Corson, NOAA
115. Sherry Witt, General
Dynamics Information
Technology

116. Sophie Waterman,
CRC
117. Stacey Bradshaw,
USDA NRCS
118. Stephanie Jacobs, EPA
119. Steve Strano, USDA
NRCS
120. Su Fanok, The Nature
Conservancy
121. Susanna Massalon,
Ducks Unlimited
122. Taryn Sudol, Maryland
Sea Grant
123. Todd Lutte, EPA
124. Wendy Walsh, Tioga
County Soil & Water
125. Woody Francis, USACE
Baltimore District
126. Zack Greenberg, The
Pew Charitable Trusts

APPENDIX 3: Day 1 Menti Responses

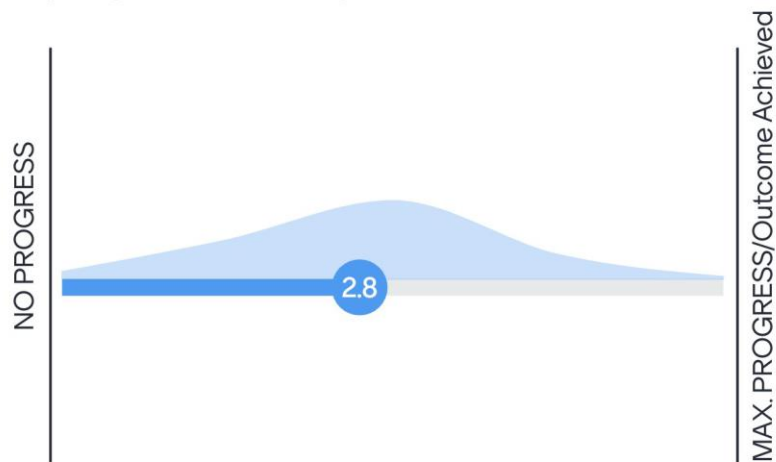
QUESTION 1:

Who do you represent?



QUESTION 2:

How much progress does your jurisdiction/organization envision it will play in achieving the 2025 outcomes?



QUESTION 3: What do you need to meet the Outcome for the Bay (e.g., targeting tools, program regulations, rules, etc.)? *Responses have been edited for clarity*

1. Establishment of a state program in Virginia
2. Strengthen the existing programs- CRP/CREP. Put the money back into the existing programs- make it worthwhile to participate, and make matching easier in them
3. Targeting tools to show wetlands can also address other CBP outcomes
4. Better, clearer regulatory priority for tidal wetland restoration
5. Tracking and accounting info for projects and funding so we can manage adaptively
6. Circuit rider expertise
7. Flexible funding
8. Better understanding of conservation financing
9. Staff
10. Convincing landowners (with \$\$)
11. Increased technical staff/capacity
12. More biologists and techs on the ground
13. Cross pollination for funding and outcomes. Need to have wetlands be a thought in everything we do, much like DEIJ
14. Community buy-in/trust
15. Staffing capacity, more training and coordination, consistency, and updates on status of outcomes; more education and outreach
16. Success stories
17. Prioritizing key areas for outreach and engagement
18. State agency capacity for projects
19. Better tracking of wetland practices
20. More people to help with proposal writing, engineers/implementation, project managers
21. Outreach materials; funding that can be used for landowner easements outside federal programs; practitioners workgroup to brainstorm restoration options
22. Restoration targeting mapper: tidal and nontidal
23. Hire additional staff
24. Additional staff
25. NFWF create non-match funding to support training of technical experts to work on technical transfer to private landowners to increase areas for wetland migration
26. Outreach tools and guidance on successful ways to reach the public; funding
27. Unified regional prioritization for tidal wetland enhancement based on objective measures that consider entire mosaic of marsh habitat and verified with field surveys
28. More funding to identify most effective restoration locations. Biogeochemical hotspots for N are different than sediment/P physical processes; need to understand sources, sinks, connectors spatially.
29. Funding and capacity
30. Funding, make it regulatory priority/incentivize
31. Simplify permitting process
32. Update regulations and permitting requirements
33. Additional staff, training, increased collaboration with partners
34. Ease permitting challenges; maybe training on permitting process for tidal projects
35. Funding
36. Prioritize, plan, cost out, restructure goal, receive commitments
37. Partner collaboration to piece together projects
38. Avoiding impacts; additional staff; more face time with public
39. Identify target priority areas - target available funding opportunities, pursuing multiple benefits (habitat, flood, etc.)
40. Some more staff and partners

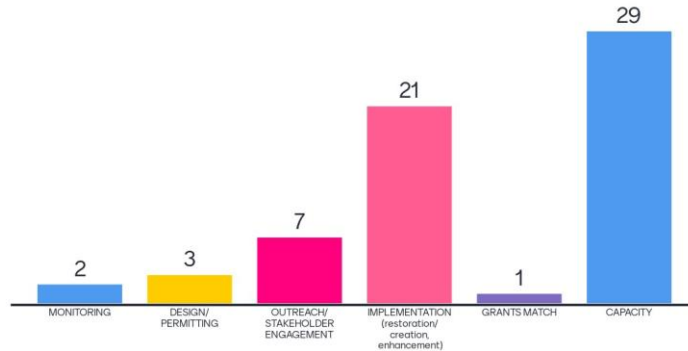
41. Funding tied to different aspects of wetland ecosystem services, not just nutrient and pollutant reduction
42. Develop approach to track wetland credits that may be generated from other projects, such as stream restoration that may include floodplain wetlands
43. Greater emphasis within the watershed
44. Delineate between what if and what is. Trying to force the “what if” to be the “what is”, so need to rethink how we measure the “what is”.
45. State Revolving Funds
46. Establish state FTE support through Federal funding, similar to Clean Water Act.
47. Partnerships between the Government and NGOs
48. Funding not restricted to MEBs
49. Funds
50. Projects need to be clearly identified. Restoration is not needed on every square inch of wetlands. Prioritize good sites and the funding and permitting will be a lot easier.
51. Clear coordination with current TA providers on how to maximize/increase producer/farmer willingness to participate in wetland restoration
52. Funding
53. Sustained support for capacity (not just grants)
54. Prioritizing barriers that need to be removed that can be funded beyond just implementation
55. Identifying/tool to identify most likely sites for success/longevity of restoration (tidal), easier permitting and faster implementation time scales
56. Stack restoration/ resilience techniques in coastal areas
57. Communication guidance as well as technical assistance
58. Local experts to support landowners
59. Funding for reinvestment into capital equipment that implement projects
60. More permit reviewers
61. Meeting landowners where they are - offering them something they need/want, even if just more \$\$
62. Outreach, outreach, outreach
63. Increase depth (overall amount) and breadth (# of programs/partners engaged in promoting) of financial incentives
64. Targeting information related to marsh migration and sea level rise
65. Wetland restoration people – since there hasn’t been much work, it is a dying profession
66. Better communication between organizations
67. Improved siting tools so we can set priorities for wetland areas to be restored and migration corridors
68. Predictable funding for monitoring to evaluate project success and inform adaptive management
69. Farmer advocates to speak to their peers (as trusted parties) about the value of ag wetland restoration
70. Hire additional staff
71. Shovel-ready projects
72. Credits for facilitating wetland migration... i.e., through land conservation and various management approaches
73. Examine capacity expansion in the Farm Bill; Land Grant training and certification?
74. Increased engagement of private sector that has historically worked in mitigation fields, but not in this field
75. More communication within our agency
76. One stop funding application
77. Climate mitigating design parameters
78. On tidal - getting regulatory agencies in agreement so permitting barriers are reduced

- 79.** We need to support a clear effort to bring resources and skilled to underserved and underestimated communities. We need more discussion about the built environment, not just rural areas for wetland restoration and creation.
- 80.** Flexibility in granting requirements to allow for regulatory process and pursuit of measures to avoid/minimize impacts to achieve acceptable resource tradeoffs.

APPENDIX 4: Day 2 Menti Responses

QUESTION 1:

Based on what you've heard from Day 1, prioritize where should funding be focused:



QUESTION 2: *What actions can federal/state/or grantee organizations take, based on what you heard today, that would move us towards Outcome Attainability by 2025?*

1. PA and VA should create programs like MD's Trust Fund
2. Identify priority sites so that agencies can work cooperatively to achieve restoration goals at landscape scales
3. Use wetlands as a job creation opportunity by funding full-time positions in the public sector and continue to provide technical capacity grants to the non-profit/private sector
4. Funding flexibility... continuously open funding streams where once a threshold is achieved (e.g., certain checkboxes for a project) then "here is the money to implement" in lieu of periodic windows for applying for funds
5. States could hire someone that is dedicated to the wetland goal to help coordinate and streamline efforts and secure additional funding
6. Concerted effort by funders to have a unified strategic plan on what wetland projects to fund; that is, if all state agencies in a jurisdiction would coordinate that variety of funding programs to collaboratively attain the outcome
7. Allocations for each state for the wetland and black duck goals – that would create some accountability and responsibility. The starting point could be what they have in their WIPs, and considering what they have done in the past, then divvy up remains.
8. Partnership-building
9. Work on the development of siting tools
10. Communicate benefits of wetlands for ecosystem services such as carbon sequestration, flood resiliency, habitat restoration, and local water quality benefits to municipalities and landowners
11. Leverage the focus on climate resilience to pursue wetland restoration projects
12. Is it possible to reduce match requirements and/or provide some grants that do not require matches?
13. Update technical guidance on wetland restoration techniques, varying by physiographic province

- 14.** Assign a coordinator to reach across state/federal/NGO groups to move individual projects forward as a collective effort
- 15.** Building capacity within EJ communities to access grant funding
- 16.** Advocate for my organization to leverage funding towards achieving common goals across programs.
Tap expertise in wetlands within org
- 17.** Block grants as opportunities for implementation
- 18.** Tie wetland goals to carbon sequestration goals to entice corporations with ESG goals to contribute to the program
- 19.** Connecting funding with partners
- 20.** Provide technical assistance
- 21.** Launching the Targeted Resiliency Area initiative to deliver technical assistance to a geographic focus area - resulting in a pipeline of resiliency projects that leverage habitat/GHG/WQ benefits that will be eligible for state and federal funding
- 22.** Support the identification of projects
- 23.** Develop state-based restoration efforts in Virginia

APPENDIX 5: Day 1 Jamboard Responses

QUESTION 1: *What would it take to do many more of these projects to accelerate the rate of functioning wetlands?*

- Link wetland restoration to strategies for climate resilience and drought mitigation
- Very few of the projects we saw were on private agricultural lands. Those projects require "boots on the ground".
- Regulatory mandate
- Public-private partnership with outcomes based on contracts
- Get appropriations for VA HB 354
- Fully fund federal projects
- Funding sources that have performance success metrics
- Large property owner-buy-in & consent
- Good incentives for landowners are very important
- Collaborative and shared strategic plan with unified social marketing and outreach campaigns
- Reduce regulatory burden
- More flexibility in CRP/CREP programs for private landowners
- Focusing on one effort. I work with multiple programs - while we have great potential, we are limited by time and staff.
- Get buy-in from National Park Service and other federal landowners on these projects. Streamline the permitting process. Have them apply consistent review standards across the board. DoD can be a partner (situation dependent)!
- Securing (or raising) funds to adequately compensate landowners to retain and/or restore wetlands
- Increased staff capacity in areas of permitting, project management, and program coordination.
- While building momentum, ensure that partner coordination is maximized so that it isn't a mad dash to do everything everywhere to expend money without strategy.
- More aggressive outreach and landowner engagement
- Attach wetlands funding to public park improvement funding (two for one)
- Secure the Virginia Security Corridor Sentinel Landscape Designation
- Fiscal resources at state agency to provide technical assistance to landowners, including design engineers to get to shovel-ready projects
- We've seen how having knowledgeable and enthusiastic staff on the ground conducting outreach can make a big difference. Then you need to have biologist and engineering techs that prioritize wetlands projects.
- Leadership Commitments: jurisdictional hiring permanent staff to coordinate outreach and funding.
- Having multiple funding sources within a dedicated partnership can be extremely valuable for large-scale projects.
- Link wetland restoration to strategies for climate resilience and drought mitigation
- Regulatory mandate
- Leverage private funding
- Revised permitting processes tailored to restoration projects that provide habitat value
- Additional regulatory staff complement to ensure permitting and compliance
- Revise procurement policies to support more private sector involvement

- Develop tidal wetland prioritization planning to identify sites suitable for long-term restoration success. Prioritize sites that avoid functioning habitats and address sources of degradation
- Target, target, target - find the places in the watershed that are ripe for this work and use the cross trained outreach folks to get to those property owners
- Develop uniform assessment, monitoring, and adaptive management frameworks incorporated (and funded) across projects
- Matrix the implementation of a watershed wide wetlands plan - identify the target areas (USGS/CBPO), scrub the WIPS to add wetland practices where it makes sense and can meet multiple outcomes beyond water quality (jurisdictions), hire organizations like Upper Susquehanna Coalition and TNC to conduct the outreach and engagement in concert with other technical service providers, have states identify how their funding sources can be surged to these target areas and implemented through NGOs
- Cross-train anyone doing landowner, farm, private property outreach, technical assistance and engagement so they understand the whole suite of options for their property (soup to nuts conservation/restoration practices)
- Require standards for consistency along with success criteria
- Better connect reporting of stream restoration and floodplain reconnection to wetland restoration
- Highlight direct benefits to landowners and have capacity to present restoration opportunities that fit with landowner's knowledge of their property
- More boots on the ground for private landowner engagement - especially for large landscape scale projects
- Technical assistance!
- Assistance for communication and community outreach to supplement the technical/engineering/design support
- Expand the consultant capacity with the qualifications/training to design and implement high-quality projects
- Better communication tools for practitioners who are not as familiar with wetland restoration/re-establishment opportunities to share with landowners
- Better / more easily understood Chesapeake Bay Model crediting
- Greater access to technical and outreach experts for individual projects (Like SMARTeams in New England)
- Less federal match required to use CBIG/CBRAP grants
- More engineering capacity for project design
- Funding that doesn't necessarily require federal match
- Establish agency operating budgets that include funding for adequate levels of staffing to ensure agency function
- Consistent funding sources
- Tidal wetland plan with identified criteria and priority locations identified to better compete for National Federal grants

QUESTION 2: *What would it take to do many more of these projects to accelerate the rate of functioning wetlands?*

- Utilize partners
- Work with local watershed groups or other NGOs
- Translate science to decision-makers to get more decision makers and funder support

- Earmark available state funded agricultural cost-share for wetland restoration (tidal & non-tidal)
- Get buy-in from National Park Service and other federal landowners on these projects. Streamline the permitting process. Have them apply consistent review standard across the board.
- Develop a SERPAS/SASMI-like framework for wetland conservation and restoration for the CB watershed
- USGS could work with partners to bring together existing targeting tools for wetlands into one place. We could also improve land characterization of wetlands to better track their change over time.
- Keep hiring technical staff to respond to the project funding allocations (State/Fed partners - keep the project funding coming!)
- Facilitate/convene folks doing the work, coordinating landowner engagement
- Participate in the development of the wetland conservation plan as part of NOAA's (VA) Middle Peninsula Habitat Focus Area
- Develop decision-support tools. Ex: Restoration Mapper
- Build capacity for project management
- More people and energy focused on outreach and getting landowners started
- Train more folks in grant-writing and familiarize them with funding opportunities
- Respond to as many grant funding requests (e.g., NFWF) as possible to increase likelihood of obtaining grant funds for wetland work
- Climate Resiliency Workgroup can assist with identifying resilience metrics for tidal wetlands and identify marsh adaptation projects through GIT-funded project.
- CBPO can help with identifying target or focus areas
- CBPO can help stitch together the collective effort of the jurisdictions (review the WIPS to see where wetlands can be added as BMPs in their plans, tally up how that stacks against the goals, identify federal funding sources and financing opportunities) and drive accountability and momentum

QUESTION 3: *What are the ideas for non-tidal wetlands that can put us on schedule to move us closer to our Outcome?*

- Look into options to purchase/ protect properties and then do the restoration
- Look into opportunities for other types of restoration projects and think outside the box
- Cross train technical assistance people - anyone who has landowner contact (land conservation, forest buffers, wetlands or other ag practices)
- What if we gather up all the engagement/technical assistance providers across the watershed who know this work and bundle the work so successful NGOs like TNC and Upper Susquehanna do the outreach and implementation they do best. Get the Bay program to work with the jurisdictions to identify focus or target areas. Matrix the implementation and management of a wetlands master plan by having people do what they do best across the watershed instead of only their local area.
- Private consultants finding sites - what are ways that we can incentivize landowners to do voluntary restoration vs selling for mitigation? Tax incentives for land being restored.
- Accepting that living shorelines are going to be more expensive per unit (whatever you are measuring) because they meet another goal too: How do we not be scared by that? Pro-rate them somehow?
- Chesapeake Bay Training Academy? To help train newer employees on design, delineation, etc. Need more staff so that existing staff can access training.

- Need for specialized training for new employees; Create mentorship program or work to overlap positions
- Concern that the same resources (funding and people) are being asked to achieve wetland and forested buffer goals
- Include co-benefit analysis to prioritize funding for projects like wetlands that have high co-benefits and move away from strict TMDL credit cost efficiency
- Increase TA competencies (and willingness) to discuss proactively and positively with farmers the opportunities connecting them to wetlands restoration options
- Re-evaluate local WIPs to increase wetland restoration targets so that local TA folks find more creative ways of getting wetland acres on the ground. NOT to re-do WIP - but to retool it so that wetland targets are better represented.
- Streamline permitting so that conservation or restoration projects have a much simpler and quicker review. If you have to guess it will take 1-2 years to get a project through the permitting process so much momentum will be lost...
- Support field-based folks in recognizing whether practice reporting is beneficial to be wetlands-based or streams based or buffer based - to decrease duplicate reporting and maximize the correct credit for the practice.
- Target already protected lands for wetlands enhancement, extension, restoration - where land use is less of an issue
- Investigate floating wetland technology as a means of increasing wetland restoration in areas where living shorelines are not possible. Need to look at the science and how (if) they can be certified as official BMPs.
- Incentivize/Reward high performing conservation districts that are getting wetland acres delivered - and/or ag practitioners
- Maximize private sector capacity that is currently focused more on mitigation to do additional wetland acres in conjunction with (beyond and above) mitigation
- Connect wetland restoration outreach to flood-based management efforts for increasing willingness to implement
- Change reporting mechanism to include wetland acres created as part of stream restorations but to not assign TMDL credits since that is already in the stream restoration riparian calculation
- Practitioner Training - on-the-ground with live farmers to really see how the discussion can go to encourage wetland restoration - and benefits to producer
- Provide producer more specific and evidence-based examples within their respective communities of how wetlands are of value to their operations
- A simplified process for homeowners/businesses to restore wetland habitat on their waterfront property, opening access to wetland restoration on private land. Homeowners/businesses can be overwhelmed by the permitting process.
- State Fair/Displays
- Buy in and involvement from private landowners to increase not destroy and fill in wetlands
- We need to move folks away from just thinking the LARGE non-tidal wetlands are the goal - and move folks towards knowing that the impactful locations could be smaller areas...
- Encourage agencies at all levels to incentivize wetland restoration in all project types (voluntary/TMDL, mitigation, etc.), and include funding for post-construction monitoring
- More partnerships
- Highlight the wildlife that landowners can expect to see in their newly restored wetlands

QUESTION 4: *What are the ideas for tidal wetlands that can put us on schedule to move us closer to our Outcome?*

- Incorporate flexibility into granting requirements to allow for project adjustments during permitting process
- Need expertise
- Understanding what landowners want - meet them where they are - give them something they need/want. Living shorelines are an example of that.
- Develop (and fund) uniform monitoring/adaptive management protocols that are used in each project and will inform future restoration efforts
- Generate a list of tidal projects and practitioners occurring in Chesapeake Bay to improve partnership building and identifying expertise. Example: LA site: LA project list: <https://lacoast.gov/new/projects/list.aspx>
- Overcome regulatory hurdles, many salt marsh restoration techniques are innovative, or haven't been monitored long term and this makes permitting a bit slower. Pool research to inform regulators?
- Develop objective criteria for designating a site as "degraded" and thus warranting intervention of a certain nature
- Make goose (overpopulated Resident Canada Geese) management easier to happen. It took a long time to happen in DC! It is happening now with great outcomes for the marshes.
- Establish vulnerability/resilience metrics to assist with targeting tidal wetland restoration projects and informing strategies to promote longevity of the restored wetland
- Prioritize sites for restoration. This includes a clear need for TLP or other remediation. Not all marshes are drowning, so focus on those that are. Work collaboratively with agencies to identify source of sediment and synch timelines.
- Coordinate restoration plans within regions or tributaries so that smaller scale projects can be bundled
- Promote BUILD site to identify possible restoration locations for the state of MD <https://gisapps.dnr.state.md.us/coastalatlas/WAB2/>
- Tap into and participated in existing efforts in Virginia, e.g., Elizabeth River Project (NGO), York River Roundtable, NCBO Middle Peninsula Habitat Focus Area (HFA)
- Prioritization and scale - living shorelines - while each parcel is important to the collective, and the individual landowner, it is the larger parcels (public lands and agricultural) that will likely get us to goal
- To meet the overall goal, do we need to spend less time targeting, and realize that we need to take every opportunity that presents itself for tidal wetlands?
- Emphasize local utility of wetlands as a natural resource asset: **1.** Fishponds **2.** Flood control **3.** Water treatment plant usage **4.** Pre-primary treatment for drinking water **5.** Gray water recovery
- Identify priority restoration projects that maximize multiple benefits. Could assist with being more competitive for National Federal grants
- Shoreline management BMP reporting for WIP - living shorelines - default method is shoreline length only, need to emphasize/promote use of site-specific methods which include acres of planted marsh
- Design Living Shorelines to take advantage of all habitat types including low marsh; so often forgotten during design. High marsh is great (SALS) but we need low marsh for fish and to meet wetland goals
- Develop plan or approaches for addressing shallow water use conflicts. E.g., Living shoreline or tidal wetland supplanting SAV. Also, more science to show positive/neg impacts on SAV.

- Accept that living shorelines are going to be more expensive per unit (whatever you are measuring) because they meet another goal too: How do we not be scared by that? Pro-rate them somehow?
- Integrate Living Shorelines to encompass marsh/SAV/freshwater mussel beds (where suitable) habitats like folks in Delaware have started to plan
- Prioritize funding for living shorelines and marshes, and do not limit these by prohibiting structural placement (this is often needed to protect from further shoreline erosion)

QUESTION 5: *What are the programs that have the greatest amount of funding we can access for non-tidal and tidal wetlands? Why are some programs being under-described?*

- NFWF programs have had wetland goals for years, but relatively thin demand for wetland projects. This funding is exceedingly flexible, can absolutely support soft-money expansion of capacity, and represents a critical piece to unlock more traditional federal and state programs
- NFWF coastal resilience fund
- NFWF Chesapeake Bay small watershed grant
- NFWF...all our NFWF INSRG projects generally have a wetlands element to it.
- EPA's Clean Water State Revolving Fund (CWSRF) has historically been used mostly for wastewater and regulated stormwater infrastructure, but wetland projects have long been eligible
- Dedicated public and non-profit revenue streams can open up the significant financing capacity available in the CWSRF's for wetland restoration
- Clean Water Act Mitigation bank/In-lieu Fee programs
- FEMA Grant programs
- No local match for BIL funds
- USDA/NRCS Grant Programs
- America the Beautiful funding - seemed like too quick turnaround
- Would NAWCA (North American Wetland Conservation Act) grants be applicable here?
- USACE Funding CAP 204; 206;1135; Specifically authorized projects, Estuary Restoration Act, Section 1122 Beneficial Use
- Might be a stretch... there have been a few wetlands/wetlands adjacent projects funded via Dept. of Defense's Office of Local Defense Community Cooperation
- Sentinel Landscapes (DOD, USDA, USFWS, etc.) allow matching btw federal agencies to do conservation on private lands (if there's a benefit to DOD). 1 in MD, 1 pending in VA
- ARPA dollars available to states; ARPA dollars available to municipalities
- <https://www.nab.usace.army.mil/Missions/Civil-Works/Chesapeake-Bay-Comprehensive-Plan/>
- Dept. of Defense Readiness & Environmental Protection Integration Program manages a "REPI Challenge" annual RFP, they've also recently partnered with NFWF
- In VA, private landowners need to reach out if they have assistance and whenever they do it seems like there aren't many favorable incentive options
- An indirect source of funding are developers. Some developers pursue approaches where wetland creation/restoration inherently become a part of their development. Especially the ones that understand the benefits.
- It depends on the project. Developing a priority list and periodically review the priority projects and evaluate available funding/programs to fund.
- Funding just for planning phase (to get to shovel ready) would be very helpful
- Some funding sources want "shovel ready" projects but there is lack of funding and capacity for design/engineering to get plans to that point

- Few programs pay for a project entirely, so fundraising for match causes delays
- Economic benefit is not made obvious enough to encourage a landowner to subscribe
- NRCS funding seems to be available for wetlands, but it takes years to get through contracting, let alone project implementation. Landowners aren't that patient.
- Lack of technical expertise by program managers
- Perception that working in/around wetlands often gets people in trouble or is not allowed, lack of knowledge/availability of where to find wetland expertise or assistance
- Education is needed for municipal staff and adjacent landowners of benefits of wetlands, so they welcome instead of fight (re. mosquitos, fear, etc.)
- Reputation that grant funding takes too much energy to use - across the board
- Wetlands are occasionally not included or subscribed because if a rare species is found, that limits other conservation work that is possible
- NRCS's ACEP-WRE has plenty of funding. Haven't hit a ceiling yet.
- NRCS also offers RCPP which allows for wetland funding, through partner led projects. Partner match is required but can be met through EPA or other matching funds.
- CRP/CREP appear to have unlimited funding for wetland restorations
- Sometimes CREP projects in Maryland get stalled in the engineering design process and are not always prioritized
- ACEP-WRE and CREP seem to be the programs leading to the greatest amount of wetland restoration. It seems the technical capacity, or perhaps the coordination of partners, is the limiting factor.
- Explore Federal Infrastructure Funding Opportunities
- Restoration funding is not the limitation for nontidal projects on private lands
- A DoD Sentinel Landscape designation allows DoD to match REPI funds with funds from other federal agencies (USFWS, USDA, USFS, etc.) to conduct conservation on private lands if there is a benefit to DoD. There is currently only one designated SL in the watershed - the Middle Chesapeake Sentinel Landscape in MD and they have done great work to preserve wetlands and protect migration corridors. There is another large SL proposed in VA, but it has not been formally designated yet.
- There is currently only one designated SL in the watershed - the Middle Chesapeake Sentinel Landscape in MD and they have done great work to preserve wetlands and protect migration corridors.
- There is another large SL proposed in VA, but it has not been formally designated yet
- For DoD, funding sources include Legacy Resource Management Program, Military Installation Sustainability Program, Readiness and Environmental Protection and Integration program, Sentinel Landscape Partnership program and the non-DoD Building Resilient Infrastructure and Communities Grants
- Multiple benefits are not well documented or accounted for because of programmatic silos, i.e., habitat focused, water quality focused, resiliency focused, etc.
- In Maryland, the Chesapeake Trust Fund has a lot funding available for wetland projects
- Maryland Chesapeake & Atlantic Coastal Bays Trust Fund
- Our outreach efforts in Maryland have shown that there's a lot of untapped interest, particularly with landowners (in contrast to farmers). Dedicated outreach, and biologists and civil engineering techs on the ground are necessary to address the demand.
- Lack of Technical capacity to deliver the programs
- Obstacle: capacity for getting projects to "shovel ready" stage (this can be a lengthy process, as we heard in the presentations this morning)

- In NY it is a matter of being stretched too thin with limited staff. It would be nice to increase our WRE workload but it's a balancing act with everything else we have on our plate.
- Reach out to retired wetland professionals to develop a "wetland restoration corps"? Contact them through professional organizations like the Virginia Association of Wetland Professionals?
- Some programs are undersubscribed as they are extremely difficult to work with i.e., assist landowner thru the process
- Identify the number of team members and roles for teams working wetlands
- Novel approaches to wetland restoration, like legacy sediment removal, are not well understood despite their tremendous potential for multiple benefits. Conventional approaches dominate
- Outreach is most effective, in person, one on one - developing relationships
- Nonpoint Source Program (Section 319) funds
- NFWF Coastal Resilience
- US FWS National Coastal Wetlands Conservation
- Has anyone had luck with FEMA funding?

QUESTION 6: *What governance changes need to be made at the local, state, or federal level to maximize attainment of our Outcome?*

- Baywide, criteria driven project sighting is needed
- Establish commitments from state/fed/NGO practitioners that can be captured under one goal
- Standardized methods for defining success
- Establish an accounting system to measure the progress consistently
- Standardized terms for what restoration success is
- Establish interagency working groups to plan projects and track progress collectively
- Ability to project costs, schedules, materials, expertise needed to complete projects
- Costs can vary, maybe a portfolio of case studies that illustrate costs across a range of project types, locations, and scale
- Consistent alignment of climate, water quality and habitat goals across state incentives programs to maximize opportunities for wetland restoration
- Reduce implicit bias related to "wetlands versus forests"
- More coordination across agencies and programs - but this must be focused in specific geographies - integrated project planning in focus areas/site based
- CBP reporting and verification policies are a hindrance to accounting for wetlands restored and re-established
- Need to make habitat more important than water quality, per se. Spending too much on WWTPs with no habitat benefits. "Water quality" has become too important.
- Further incentivize (priority ranking, etc.) wetland restoration / re-establishment as part of holistic farm-scale or other larger projects
- Flooding is increasingly a big problem - prioritize wetland creation to address
- For the agriculture community: emphasize connection between buffer/wetland restoration and edge-of-field and edge-of-stream practices designed to enhance soil and watershed health as well as enhance climate resiliency
- Consider measuring Living Shorelines as both linear feet of shoreline and total acreage of wetlands created, as many designs/implementations include portions of both
- Speak to direct benefits that practices can provide to the landowner (e.g., bird/pollinator habitat, soil health, water quality)

- More education and access to innovative financing now allowed through State Revolving Loan funds to support development and prioritization of blue infrastructure
- Better communication tools for general practitioners that are not experts in wetlands
- One of the initial graphs said we still had a declining trend of wetlands - how is that possible with all their legal protections?? Address loopholes.
- Have capacity to speak to how a design might fit on a landowner's property
- Capacity support for grant writing, grant management, BMP documentation, etc... that takes the burden off local governments, farmers, non-profits...
- Capacity building for non-profits who can take the lead in working with landowners and identifying projects to achieve watershed/area wide scale benefits
- Understand how wetlands are currently being captured/credited in the model (CAST) for each sector
- Increase state level capacity for permitting for voluntary and regulatory implementation
- Dedicated teams of people with this as their only focus
- Training for employees in outreach, writing proposals, etc. so that the burden can be spread out
- High Quality projects cost a substantial amount of money. Finite resources do not allow for many of these projects.
- Multi-program crediting and ensure permittees / stakeholders understand what specifically they can get toward their regulatory requirements (e.g., MS4)
- Evaluate if gains made through mitigation banks/projects could be credited towards CBP goals
- Project solicitation and funding - Explicitly request project partners to identify and propose wetland projects and provide incentives to fund - provide bonus points for these projects during funding review and/or set-aside a certain amount of funding for wetland projects
- COLA increases at the state level, combined with Conowingo and CC set asides are making funding tighter year over year within federal grants
- Allow for reporting of greater than 1:1 wetland restoration toward Chesapeake Bay Watershed crediting
- Increase buffer requirements on proposed development to slow/combat wetland loss
- Policies that allow for stacking of quantified and verified environmental outcomes that can be purchased/traded separately but simultaneously from a single project
- Review regulatory hurdles and adopt new processes to permit habitat restoration projects - often permitting uses the lens of development impacts and is unable to look at tradeoffs and/or habitat gains
- MEB boundaries linked to significant federal funding (specifically IJJA) are very limited in Virginia. Could achieve more implementation across all BMP types
- Land use planning strategies aligned at state and local scales that encourages and facilitates wetland restoration in the context of saltwater intrusion and ongoing sea level rise → needs to focus on landowner compensation

APPENDIX 6: Day 2 Jamboard Responses

QUESTION 1: *How do we incorporate these new approaches/ideas into our processes and efforts for non-tidal wetlands? (e.g., how are you going to increase capacity? What types of funding have the greatest influence in your state?)*

DELAWARE:

- Build capacity within the CWSRF that incorporates wetland restoration and enhancement additions to traditional loan projects
- Look at leveraging/coordinating NRCS and State funding sources
- Use newly formed Delaware Wetland Restoration Workgroup to leverage funding, coordinate existing staff capacity, identify additional capacity needs, and increase projects and efficiencies
- Have restoration-specific outreach materials at events where DE Wetlands staff, conservation staff, will be present (State Fair, Water Family Fest, Blackbird Fall Fest)
- Increase staff capacity, leverage staff for outreach
- Increase or build on other efforts: Delmarva Restoration Team, DRCN, Envision the Choptank, etc.

DISTRICT OF COLUMBIA:

- Most restoration in Anacostia
- Utilizing experts and technical partners for their knowledge
- 2 Factors pushing wetland work ahead of streambank and shoreline: Sea level rise and sediment remediation work in Anacostia
- Established a restoration plan for the tidal corridor of the Anacostia additional opportunities from federal agencies
- Change in WIP focus since being able to meet jurisdiction WIP
- NFWF and Chesapeake Bay Trust are prime funding opportunities. Looking at USFWS and other federal funds for funding.
- Funding for maintenance
- Kingdom Lake future project
- Was able to address the goose population management for wetland projects to progress work
- Having to get public and partner buy-in related to living shoreline maintenance and getting federal buy-in related to establishment on federal lands
- Challenge: 7 miles of Anacostia is armored
- Building partnership to address apprehension of altering armoring (historic resource)

MARYLAND:

- Implementing Maryland's Conservation Finance Act - opens state revolving loan funds for green infrastructure projects/leverages private sector funding/requires quantification of ecosystem services. Send a signal through this leg and funding for more wetland projects
- Develop a wetland finance plan for tidal and inland wetlands, considering marketable ecosystem services and potentially combining funding with finance
- Modify/update local agriculture conservation plans to allow wetland restoration (MALPF has started this recently)
- Increase collaboration with DNR and MDE to implement green infrastructure funding and leverage funding. Standardizing outcomes/ reporting/ quantification.
- How to leverage state and private dollars - what new opportunities are there to use Clean Water Finance Act funding and/or the new opportunities available through Clean Water Commerce.

- Provide more funding for shoreline projects, including those that have structural components mixed in with marsh/living shoreline components (make funding more flexible)
- Of tremendous influence is the Department of Transportation, including MPA. Wetlands are not their primary mission, but they have a lot of funding there and we need to hear how they work wetlands into their projects.
- Support long-term capacity building, maybe through a cost-share program (support 1/2 of the cost of a position if an organization supports the other 1/2).
- Networks of scientists/land managers (e.g., CBSSC) can provide technical expertise to help increase capacity
- What is meant by capacity? Increase skills/knowledge of existing staff, add new/permanent staff, create widgets like a centralized grants application... something else?
- We need greater interest in wetland restoration at the local County levels... RFP focus areas drive location (urban, rural), and type (stream type, wetlands included or not?) of restoration done.
- Collective Impact - support the development of collaborative networks in geographic focus areas to work with landowners, generate projects, apply for grants, manage paperwork
- Capacity building/EJ: DNR and CBT are partnering on a Community Based Organization Capacity Building Initiative to help historically under-engaged community organizations participate in WQ and Resilience project design and grant funding proposal development.
- Develop a strategy to assist partners in utilizing state funds for match in the development of grant proposals
- Field liaisons that can help smaller entities/private landowners navigate funding
- Tracking success stories and making project objectives more accessible could help agency staff more readily ID better designs or at least provide more directed responses to applicants. If this is being done already - could that tracking be made more accessible by other agencies?
- Are there ways to incorporate a more visible tracking of projects in the pipeline? 'Visible' = to the public. This could help with site prioritization. I think someone mentioned earlier today about a GIS-database that could be hosted by (who I don't know).
- Increase education and outreach regarding wetlands - many residents/communities think wetlands are mosquito pools and don't want them
- Develop a landowner targeting plan for distressed properties, agricultural fields experiencing saltwater intrusion, ecologically important areas etc.
- How do we move from an opportunistic model to a targeted approach? Understand what on-the-ground capacity, outreach and planning is needed for this transition.
- Identify areas that are conservation/restoration priorities for multiple partners/stakeholders and align efforts
- Identify what decision-support tools and frameworks are needed by conservation partners

NEW YORK:

- Identify outreach needs, and prioritize landowners based on recently developed potential sites databases
- Utilize new grant funding that was discussed today
- Increase collaboration between agencies
- We have been very successful securing NFWF funds, provide a lot of flexibility to support our regional delivery mechanism. We are always looking for new funding opportunities.
- Look into the potential to partner with other organizations
- Identify priority restoration sites and secure funding for acquisition
- WREP funds also have potential as well as RCPP

- ACEP WRE has the potential to have a more significant role

PENNSYLVANIA:

- Project ID option: Compare hazard mitigation plan flood mitigation needs to hydric soils/hi res land cover maps to identify project opportunity areas; target 100-acre projects or greater
- Allow multi-program benefit accounting which will allow project scale to increase. Stream and wetland benefit accounting. Most wetlands were lost in PA due to legacy sediment occurrences.
- Facilitate larger projects that have co-benefits (restored floodplains with wetlands reestablished), co-benefits including flood attenuation, etc.
- Utilize state permitting resources to streamline permitting reviews for projects
- Complete development of the wetland loss watershed impairment rating. A pilot was initiated in the Juniata River basin but not completed.
- Identify that legacy sediment is a historical societal pollutant load and not a land use sector load, reduces friction between land uses and allows it to apply across all sectors. The pollutant load could then be identified as different category for addressing and provide multi-benefit accounting.
- Fund a wetland program complement at PADEP!
- Determine project and staffing budget needs to implement the target # of projects
- Determine technical workload needs to implement the targeted number of projects
- PA DEP could use a wetland restoration technical workgroup similar to DE which we learned about this past summer at MAWWG, and we will be looking to develop this effort.
- Use existing/new technical groups and/or watershed manager group to provide technical training on recognizing historic alterations and causes of wetland losses and approaches to restoring them. Too often projects are not recognizing opportunities and leave benefits on the table.
- Many conservation organizations are not familiar with wetland restoration. Providing outreach to organizations regarding priority restoration locations, techniques, how to identify restoration opportunities when working on farms, funding priorities, etc. would be very helpful.

VIRGINIA:

- The approval of the proposed Virginia Security Corridors Sentinel Landscape designation will present the opportunity to leverage various sources of military and other federal funding sources
- Is USDA and USFS engaged in this Sentinel Landscape initiative?
- See proposed Sentinel Landscape Partnership framework
- That is for cooperative planning. Also for implementation?
- Need to further engage federal agencies and wetlands that may be implemented on federal land in VA
- Designated Sentinel Landscapes come w/funding that can be used to hire coordinator(s) for a certain amount of time, could help with capacity
- Re: DoD, there's a new state-level Virginia Military Community Infrastructure Grant Program & Fund, might be applicable here?
- Are there opportunities to work with emergency management agencies to target wetland restoration in areas of frequent flooding in association with retreat efforts?
- Nature based solutions in Coastal Resilience Master Plan and Flood Protection Master Plan
- NOAA selected the Middle Peninsula as a Habitat Focus Area - this designation could bring resources to the area through NOAA grants
- York River Roundtable Habitat Committee developing tidal wetlands plan for watershed to provide some prioritization to wetlands restoration/conservation projects/sites

- Capacity issues for state & partners
- Need a method to share information across agencies regarding landowner projects and how to engage landowners
- Seem to be more roadblocks to this particular type of work - land development value, permitting, cropland use all seem to be hold ups for landowners
- New funding through IJA has huge potential for all types of BMP implementation (including wetlands) but is extremely limited geographically in Virginia
- Engage the farmers as champions
- Engagement w/VA PDCs?
- For tidal wetlands associated with living shorelines: good collaboration and coordination between partners on projects - see JRA's Living Shorelines Collaborative and DCR-SEAS NFWF INSR project
- Demonstration projects
- Engagement w/VA PDCs?
- Middle Peninsula PDC climate resilience initiatives

QUESTION 2: *How do we address these ideas/approaches in the development of an action plan?*

DELAWARE:

- First, must increase capacity - badly needed
- Need to understand how all the funding sources - and new funding - interact and can be used efficiently
- Determine how to connect wetland projects with flood plain management and restoration. Coordinate with flood funding sources such as flood hazard mitigation.
- Is there an approach and organized structure (and assistance) to help us decide what to do to help meet our wetland goal? To help break down silos...
- Organized structure that sustains progress, guides efforts, and keeps momentum over time and through staff changes
- Have a point-person who is knowledgeable about the requirements and eligibilities for all the different funding sources?
- Revisit and update the comprehensive list of funding, landowner incentive programs
- Make sure the action plan address how to deal with competing influences for lands (ag economy and production; development pressures)
- Consider the economic benefits of going out and acquiring large parcels to bring about significant wetlands restoration and enhancement projects -- especially since it is becoming very difficult to convince landowners to enter easement programs or even offer them enough \$\$ for them to consider it.

DISTRICT OF COLUMBIA:

- Establishing a medium/ long term maintenance plan/ budget
- Shorter term grants are meeting some of the needs currently, but a longer-term approach (longer term funding) needed
- Evaluating reuse projects as part of future work
- Interested in map of sea level rise to plan for maintenance
- Corridor plan will serve as the outline/foundation for the development of the action plan as it will address multiple areas and future projects
- Continue to monitor goose exclusion for wetlands

- Phragmites control is a major maintenance concern

MARYLAND:

- Consider a federal, NGO, or University coordinator to span jurisdictions
- Identify what do we want increased hires to do? How will they be trained, what are the priorities for their work, who do they need to work with to be effective in whatever the goal(s) is/are for the new workforce.
- More collaborative effort between SRF and Trust Fund - MDE/DNR work via Conservation Finance Act... options could include ranking SRF funds or providing opportunities for DNR and other agencies for more direct funding/financing management
- Align wetland restoration plans with striped bass habitat protection plans to expand juvenile fish habitat
- Targeted Resilience Area Initiative will work in lower Pocomoke area and in Antietam Creek/Hagerstown area. Will generate pipeline of projects and engage other agencies/orgs in a collaborative network approach enhance climate change resiliency. Should incorporate both tidal and non-tidal wetland efforts.
- Tie in tidal and non-tidal wetland goals with the State's Climate Change Commission workplans/new MD Dept. of Emergency Managements Office of Resiliency/Conservation Finance Act... create the demand for wetlands!
- DNR and MDE wetland outreach campaigns via social media platforms of what wetlands are and their functions/services/benefits
- Regional robust mapping and data layers to identify tidal wetlands, where they can migrate, and identify and map the criteria needed to rank wetland value for restoration and migration
- Separate the tidal and non-tidal discussion as they seem to have fairly different requirements
- Develop strategies for: **1)** generating DEMAND for wetland projects and **2)** generating SUPPLY, or a pipeline, of fundable wetland projects
- Section for coordination/ streamlining of getting projects on the ground
- Section for coordination of funding to leverage federal dollars
- Develop a Wetland Finance Implementation Tool based on model of MDE's Forest Finance Implementation Tool
- Include the development of a finance plan for tidal and non-tidal wetlands

NEW YORK:

- Expand capacity
- Continue to secure funds to support staffing, planning, design, implementation and administration of grant funds
- Expand virtual resources, and access to those resources for partners to use
- Develop NY CBP Wetland Action Team to meet and brainstorm
- Ongoing dialogue between groups and collaborating on increasing capacity, where possible
- Flexible program funding
- Highlight co-benefits: habitat restoration, flood resiliency, water quality
- With the new Farm Bill in the offing, provide comments that might expand options within the Farm Bill to address conservation issues

PENNSYLVANIA:

- Enhanced data tracking so that wetlands implementation gets reported
- Team Leads focused on Targeting, Outreach/Education, Implementation, and Funding are critical and would be a catalyst for increased momentum

- Explore how to leverage funding and efforts of key federal partners such as NRCS and Partners for Fish & Wildlife
- Enhanced remote sensing of wetlands that are either built or formed
- Increase capacity by training grantees/NGOs re: wetland science - types of wetlands, role of wetlands in stream systems, how wetlands and buffers work together, how to recognize wetland restoration opportunities on farms (in buffers, tiling, filling), priority restoration locations, funding opportunities, how wetland restoration is credited in CAST, etc.
- Evaluate the need for targeted wetland capacity at many levels including at key agencies
- Increase public fund project period enabling capacity to be hired for a longer timeframe
- Legislative support for state wetlands program staff and project funding
- Short-term need: wetland project siting optimization tool (co-benefits, legacy sediment impact, flood mitigation)
- What about Watershed Resource Registry (WRR) as a tool?
- Promote higher crediting for evidence-based approaches that address the underlying causes of degradation
- Allow crediting to account for integrated riverine corridor restoration projects that include in-stream, floodplain, and riverine wetland conservation
- Allow multi-program benefit accounting which will allow project scale to increase. Stream and wetland benefit accounting. Most wetlands were lost in PA due to legacy sediment occurrences.
- Need collaborative arenas/mechanisms where individual interests are "checked at the door" to allow fruitful discussions amongst different interests (local, state, and bay-wide level)
- Exploration of how PennVest coupled with private and public dollars can be used to leverage and align dollars in the wetland space

VIRGINIA:

- Develop a wetland restoration targeting tool VIMS
- Focus on public lands?
- VACS cost-share for wetlands creation
- Allow IJA funding from CBPO to states to be used for wetland restoration anywhere (not just in most effective basins geography) and to build staff capacity to assist landowners
- State coordination
- Incentivize developers by making wetland inclusive urban BMPs more desirable to include in their plans
- For tidal wetlands associated with living shorelines, VCAP has been in important financial incentive. for urbanized areas, need to try to expand VCAP into non-SWCD localities.
- Can incentives be connected with flood mitigation? E.g., Identify wetland projects with Fight the Flood program and provide an incentive for flood mitigation.
- Establish the annualized value of public benefit from an acre of wetland. That becomes the basis for rental payment
- Communicate benefits of wildlife and hunting opportunities
- NRCS serve a state coordination for wetlands projects
- GIT (or other funding) Farmer survey on what they want to change landcover to wetlands
- Once a VA Sentinel Landscape coordinator(s) is in place, create a point of contact/system for working with landowners or something to that effect

APPENDIX 7: GOOGLE SURVEY RESPONSES

DISCLAIMER: Please note that *Appendix 6*, the table of Google Survey Responses, has been removed entirely from this document and included as *Appendix E* to the Wetlands Action Plan. Additional Wetland Workshop information, including the unaltered Meeting Minutes and presentation slides can be found at the [CBP website](#).

Appendix C: Funding Sources Identified in the August 02-03, 2022 Workshop

The following table summarizes upcoming funding opportunities for wetlands-related projects. This table was created by Taryn Sudol and Hannah Cooper (Maryland Sea Grant, University of Maryland).

<u>Funding Title</u>	<u>Focus Area Description</u>	<u>Total Funding Available</u>	<u>Award Range</u>	<u>Funding Agency/ Opportunity Number</u>	<u>Application Deadline</u>	<u>Website/ Contact</u>	<u>Match Requirements</u>	<u>Eligibility & Other Notes</u>
Agricultural Conservation Easements Program-Wetland Reserve Easement	The federal government works with landowners to purchase permanent easements in PA (other states within Bay have 30-year easements). NRCS purchases the easement to keep the land in perpetuity; however, landowners retain rights to use that property and NRCS covers the restoration cost for restoring wetlands. For every acre of wetland eligible, can enroll an additional buffer acre. One challenge is focusing on restoring hydric cropland back to wetland. NRCS works with landowners with existing wetlands; however, the goal is to protect, restore, and enhance degraded wetlands.			NRCS		LINK		Available to eligible landowners who own privately held land (incl. land held by American Indian tribes). All landowners who meet the adjusted gross income limitations, incl. all members of landowner-legal entities, and those compliant with the Highly Erodible Land and Wetland Conservation provisions of the Food Security Act of 1985.
America the Beautiful	<ol style="list-style-type: none"> 1. Conserving & restoring rivers, coasts, wetlands and watersheds 2. Conserving & restoring forests, grasslands and other important ecosystems that serve as carbon sinks 3. Connecting & reconnecting 	Funding: \$375M over 5 years		NFWF		LINK	<ul style="list-style-type: none"> - States 90% of costs and 10% of costs, at least 2.5% must be cash - Tribes and Territories 97% 	Eligible: States, territories, and Tribes; DOI Conservation and Restoration Funds Match Requirements

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	wildlife corridors, large landscapes, watersheds & seascapes 4. Improving ecosystem & community resilience to flooding, drought, & other climate related threats 5. Expanding access to the outdoors, particularly in underserved communities						of costs 3% of costs, at least 0.75% must be cash	
Bipartisan Infrastructure Law	Over 5 years, with significant funding for habitat restoration, conservation, and resilience	\$3 billion for NOAA over 5 years		NOAA		LINK		
Building Resilient Infrastructure and Communities (BRIC)	FEMA's BRIC grant program give states, local communities, tribes, and territories funding to address future risks to natural disasters, incl. wildfires, drought, hurricanes, earthquakes, extreme heat, and flooding.				1/27/2023, 15:00ET	LINK		Applicants may include states, the District of Columbia, U.S. territories, and federally recognized tribal governments. Applicants must have a FEMA-approved state or tribal HMP by the application deadline, and also have one at the time of obligation of grant funds.
CAP, Section 206	Aquatic ecosystem restoration, small projects		<\$10M	USACE		LINK	Feasibility: 50/50; D&I 65/35	Example: Belle Isle State Park (Proposed)

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Chesapeake and Atlantic Coastal Bays Trust Fund	Funds utilize natural and nature-based infrastructure to enhance resilience to climate change and address short- and long-term climate impacts.	\$50M annually		MDNR		LINK		Wetland restoration aligns well with MDNR's Trust Fund goals. Since 2010, MDNR has supported over 3,000 acres of wetland restoration.
Chesapeake Watershed Investments for Landscape Defense (Chesapeake WILD)	The Chesapeake WILD grant program complements existing investments in clean water for wildlife and people by supporting projects that are of exceptional value for fish and wildlife, outdoor recreation, climate resiliency, community engagement, and equitable access to the outdoors that cannot be funded by other restoration grant programs	FY22 Chesapeake WILD program received \$4 million. FY23 will use a separate RFP for Chesapeake WILD funding: \$15 million House & \$6 million Senate	up to \$750K	USFWS		LINK	1:1 required	
Clean Water Financing & Assistance Program - Virginia Clean Water Revolving Loan Fund	Wastewater treatment, stormwater, and agriculture BMPs, brownfields remediation, land conservation, and living shorelines. Opportunities for wetlands restoration and enhancements.	~\$500M		VA DEQ	Annual solicitation June-July	LINK	Pairing with Stormwater Local Assistance Fund (50/50 matching) may provide additional grant funding	- Projects can be standalone (funded independently) - Low, subsidized interest rates. May qualify for Green Project Reserve, which has opportunities for

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(VCWRLF, CWSRF)								reduced/zero interest rates.
Clean Water Financing & Assistance Program - Water Quality Improvement Fund (WQIF)				VA DEQ		LINK		
Clean Water Financing & Assistance Program - Stormwater Local Assistance Fund (SLAF)	Non-Point Source Nutrient Credit purchases and stormwater projects including: - New stormwater BMPs - Stormwater BMP retrofits - Stream restoration - Low impact development projects - Buffer restorations - Pond retrofits - Wetlands restoration	\$72 million	\$50k - \$5 million	VA DEQ		LINK	50/50 matching grant program; pairing with VCWRLF may provide additional grant funding	Eligible recipients are local governments - any county, city, town, municipal corporation, authority, district, commission, or political subdivision created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth.
Climate Resilient Farming Program	Reduce the impact of agriculture on climate change (mitigation) and to increase the resiliency of New York State farms in the face of a changing climate (adaptation).					LINK		

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Climate Smart Communities Grant Program	Program for municipalities to implement projects focused on climate change adaptation and greenhouse gas mitigation. Project types include certain planning and assessment projects that are part of a strategy to achieve Climate Smart Communities Certification.	\$12 million for implementation projects; \$2 mil for certification projects	\$50k-\$2 million for implementation projects; \$10k to \$200k for certification projects	NY OCC		LINK	50/50 match	
Continuing Authority Program (CAP), Section 204	Beneficial Use of Dredged Material, small projects		<\$10M	USACE		LINK	Feasibility: 100%; D&I 65/35	Example: Hampton Roads Beneficial Use of Dredged Material (Feasibility), Poplar Island
Environmental Justice Grant Program	The Office of Environmental Justice offers competitive grants to support and empower communities as they develop and implement solutions that significantly address environmental issues, harms, and health hazards, build community consensus, set priorities, and improve public outreach and education.			NY DEC		LINK		Eligible sole applicants must be 501(c)(3) not-for-profit organizations. Organizations with other types of tax-exempt status, such as 501(c)(4), are not eligible to apply for the grant without a 501(c)(3) fiscal sponsor.
Environmental Quality Incentives (EQIP) Program	Provides financial assistance for conservation practices			NRCS		LINK		Farmers, ranchers, and forest landowners who own or lease agriculture land may be eligible

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Fish Passage	Program funding and BIL funding	\$200 million per year for 5 years		USFWS		LINK		
Habitat Restoration - Coastal Zone Management Program	Coastal habitat restoration planning, engineering, and design; and land conservation projects that support the goals and intent of the Coastal Zone Management Act (CZMA), the Coastal and Estuarine Land Conservation Program (CELCP), and the Infrastructure Investment and Jobs Act, Public Law 117-58.	\$207 million over 5 years	\$200k-\$6 million	NOAA		LINK	None	
Habitat Restoration and Resilience Funding	<u>Two funding opportunities in 2022:</u> -Transformational Habitat Restoration and Coastal Resilience Grants -Coastal Habitat Restoration and Resilience Grants for Underserved Communities	\$491 million over 5 years		NOAA		LINK		Both of the two opportunities under this \$491 million are weighted towards underserved communities
Habitat Restoration and Resilience Funding - Coastal Habitat Restoration and Resilience Grants for			\$75k to \$1 mil	NOAA NMFS HCPO 2022 2007354	9/30/2022	Underserved.Community.Grants@noaa.gov		\$10 million set aside for underserved communities. There is more emphasis on capacity building in these areas. Award size \$75k-1 million. Opportunity closes September 30th.

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Underserved Communities								
Habitat Restoration and Resilience Funding - Transformational Habitat Restoration and Coastal Resilience Grants	Restore habitat for fisheries and protected resources while also strengthening the resilience of coastal communities and ecosystems	\$85 million	\$1 mil - \$15 mil	NOAA (NOAA-NMFS-HCPO-2022-2007195)	9/6/2022	LINK	-	
Habitat Restoration-National Estuarine Research Reserves		\$77 million over 5 years		NOAA		LINK		
Innovative Nutrient & Sediment Reduction (INSR) Grants	Accelerate the rate and scale of water quality improvements through the implementation of BMPs that cost-effectively reduce nutrient and sediment pollution to local rivers and streams and the Chesapeake Bay.	\$30 million: \$10 million for INSR Partnership Grants & up to \$20	\$500k-\$1 million each, for an estimated 20-40	U.S. EPA, NFWF	11/17/2022	LINK	INSR Partnership Grants require non-federal matching contributions equal to the grant request.	

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		million for INSR Infrastructure Grants	individual awards				Non-federal match is encouraged but not required for the grant.	
National Coastal Resilience Fund (NCRF)	The NCRF invests in nature-based projects such as restoring coastal marshes & forests, reconnecting floodplains, rebuilding dunes or other natural buffers, or installing living shorelines to protect communities from coastal hazards and enhance habitats for fish & wildlife.	\$140 million in 2022		NFWF		LINK		
National Coastal Wetlands Conservation Grants			up to \$1 million	USFWS		LINK		
National Oceans and Coastal Security Fund Grant Program		\$492 million over 5 years		NOAA		LINK		

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PA Infrastructure Investment Authority (PENN VEST) Financing	Drinking water, wastewater, stormwater, non-point source (e.g., green infrastructure, ag BMPs, etc.), and lead testing & remediation.	Approx. \$800M annually, mostly low-interest loans		PENNVEST		LINK	SRF program can be used for match	PENNVEST is a state-revolving loan program that implements federal capitalization grants and pulls together funding sources to fund clean water projects. Eligible only in Pennsylvania.
Partners for Fish and Wildlife Program	Service provides technical/ financial assistance to plan, design, supervise & monitor customized habitat restoration projects. Projects are voluntary and customized to meet landowners' needs. Available to: landowners, managers, tribes, corporations, schools & nonprofits. Projects designed to benefit federal trust species including migratory birds, endangered, threatened & at-risk species. Prioritization: priority projects provide habitat for rare, threatened, and endangered species. Project Duration: minimum duration of 10 years. Partnerships: Partners with other federal agencies, state agencies & NGOs to complete projects on private lands. Landowners do not		FY2022: \$57.7 Million. FY2023: House \$69.8 Million; Senate \$60 Million.	USFWS		LINK		Northeast Region Goals include: <ul style="list-style-type: none"> • Conserve and Protect Habitat for listed/at risk species, connecting aquatic and terrestrial habitats, and by restoring/protecting resilient ecosystems • Engage/facilitate key partnerships that will restore important fish and wildlife habitats • Engage with communities, schools, and congressional members to increase program awareness, share success stories, and connect people with nature • Ensure actions are

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	forfeit property rights and not required to allow public access.							effective and that they promote transparency
Planning Assistance to States (PAS)	Technical Assistance (e.g., hiring the Corps)		~\$25K-\$100K	USACE		LINK	50/50 cost share	Example: Shoreline and Oyster Reef Restoration, Menchville Marina, Deep Creek, Newport News (Complete)
Readiness and Environmental Protection Integration (REPI)	While REPI's primary mission is to protect military readiness, REPI also benefits the environment by conserving land near military installations and ranges. Partnerships often work across boundaries and protect working lands (e.g., farms, forests, ranches), wildlife habitat, water resources, natural spaces for recreational opportunities, & threatened/endangered species. Also develops and transfers lessons learned from innovative strategies and pilot projects that address regulatory barriers and constraints, such as projects focusing on off-installation habitat conservation to meet on-installation Endangered Species Act obligations.			US DOD, Office of the Secretary of Defense		LINK		For-profit companies, regional councils of government, or joint ventures are eligible, and federal entities are ineligible.

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Regional Conservation Partnership Program (RCPP)	Part of the 2018 Farm Bill and is awarded annually to enter into partner agreements on watershed or geographic areas. There is an easement component of this NRCS can work with and individual practice implementation.	\$300 million annually		NRCS		LINK	There is no longer a 1:1 match requirement.	For those with EPA CBP grants, there's a memorandum between NRCS and EPA. If you receive an RCPP agreement, some of the EPA funds may be used as a match for the RCPP.
Restoring Fish Passage through Barrier Removal Grants		\$65 million (\$15 million for Tribal Orgs)		NOAA		LINK		
Section 510, Chesapeake Bay Environmental Restoration & Protection Program	Solely for Chesapeake Bay, focused on design/construction/ implementation; Small projects		<\$10M	USACE		LINK	Feasibility: 100%; D&I 75/25	Example: Middle Peninsula State Park Living Shoreline (proposed)
Small Watershed Grants	Focus on tidal and nontidal wetlands	\$14 to \$25 million	up to \$500K	U.S. EPA, NFWF		LINK	None, but strongly encouraged	Smaller program than Innovative NFWF, but has more available funding currently
USACE General Investigations	General construction and large projects, address flood risk management, navigation, water supply, recreation, and other needs and opportunities		>\$10M	USACE		LINK	Feasibility: 50/50; D&I 65/35	Example: Lynnhaven River Basin Ecosystem Restoration (Construction

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Water Quality Improvement Program (WQIP)	This program is a competitive, reimbursement grant program that funds projects that directly improve water quality or aquatic habitat, or protect a drinking water source		Variable based on project type	NY DEC		LINK		
Watershed Assistance Grant Program	Provides funding for design and watershed assessment	\$1.4 mil	<\$100k for design of storm-water BMPs; <\$150k for design of stream restoration practices, & <\$75k for watershed planning & program development	MDNR		LINK	None	Allows CBT Fund to target construction ready projects
Wetland Reserve Enhancement Partnership (WREP)	WREP is a voluntary program through which NRCS enters into agreements with eligible partners to leverage resources to carry out high priority wetland protection, restoration, & enhancement, and to improve wildlife habitat. It's part of the Wetland Reserve Easement component of the Agricultural Conservation	\$20 million in FY2023	<\$5 million	NRCS		LINK	Match is required (min. 10% cash/in kind to match for easement due diligence cost or restoration costs). Only available for	Individuals may not apply for partnership agreement. Once this is awarded NRCS will work with partners to identify individual landowners.

<u>Funding Title</u>	<u>Focus Area Description</u>	<u>Total Funding Available</u>	<u>Award Range</u>	<u>Funding Agency/ Opportunity Number</u>	<u>Application Deadline</u>	<u>Website/ Contact</u>	<u>Match Requirements</u>	<u>Eligibility & Other Notes</u>
	Easement Program, a Farm Bill conservation program.						governments and NGOS.	

Appendix D: Survey of Current Wetland Projects in Need of Assistance; Projects identified in the August 02-03, 2022, workshop.

After the Wetlands Workshop, in October 2022, the Workshop Steering Committee sent out a survey to identify current wetlands projects that are “conservation ready”. This was in direct response to the wetlands workshop recommendation to identify funding sources and capacity to match with projects. This survey, created by Sophia Seufert (USFWS), was sent out to all 400+ personnel invited to the August 2022 *Restoring the Wetlands of the Chesapeake Bay Watershed Workshop*, as well as those identified post-workshop. The information that was collected via survey has been synthesized below and minor edits were made to survey responses for added clarification.

<u>PROJECT NAME</u>	<u>INFORMATION</u>
Chesapeake Bay Sentinel Site Cooperative and Maryland Sea Grant	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Maryland Sea Grant • POINT OF CONTACT: Fredrika Moser, moser@mdsg.umd.edu • PROJECT PARTNERS: Multiple academic, state, and federal partners • LANDOWNERSHIP: Public Land • WETLAND TYPE: tidal saltwater/brackish marsh • PROJECT LOCATION: SET sites located around Chesapeake Bay • COST ESTIMATE: \$50,000 • PROJECT DESCRIPTION: To continue to support SET Working Group data collection and synthesis around the Chesapeake Bay. • PROJECT MANAGEMENT: Overseen by the Maryland Sea Grant/CBSSC manager, Taryn Sudol. More details at: https://chesapeakebayssc.org/maps/ • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? No • ADDITIONAL INFORMATION: This project is seeking funding to keep the coordinator of the SET WG funded and provide additional support to SET WG partners to synthesize wetland accretion and erosion. These data are critical for understanding wetland dynamics and where wetland restoration/sustainability & migration projects might be best located around the CB.
Head of Tide Marsh Restoration	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Cape St. Claire Community Association Environmental Committee • POINT OF CONTACT: Joe Berg, jberg@biohabitats.com • PROJECT PARTNERS: Little Magothy River Homeowners Association, Biohabitats • LANDOWNERSHIP: Community Association • WETLAND TYPE: tidal saltwater/brackish marsh • PROJECT LOCATION: Little Magothy River. 1223 River Bay Rd, Annapolis, MD 21409. Coordinates: 39.042558, -76.435381 • COST ESTIMATE: Design \$100k, construction \$1.25 million

PROJECT NAME	INFORMATION
	<ul style="list-style-type: none"> • PROJECT DESCRIPTION: Excavate approximately 5,000 cy of sediment and 2-acres of Phragmites and re-establish 2-acres of a mosaic of submersed aquatic vegetation and native intertidal marsh community. • PROJECT MANAGEMENT: Long-term management including control of non-native species, supplemental planting of native species, and erection and maintenance of stewardship and educational signage. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes
<p>Hydrology Restoration at Rare Tiger Salamander Breeding Site</p>	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Virginia Dept. of Wildlife Resources • POINT OF CONTACT: Ben Sagara, ben.sagara@dwr.virginia.gov • PROJECT PARTNERS: Jane Perry - Private Landowner • LANDOWNERSHIP: Private Land • WETLAND TYPE: seasonal wetland (vernal pool) or fish free open water • PROJECT LOCATION: Westmoreland County. HUC 02070011. Exact location sensitive. • COST ESTIMATE: \$250,000 • PROJECT DESCRIPTION: The eastern tiger salamander (<i>Ambystoma tigrinum tigrinum</i>) is a state endangered species that has two distinct lineages in Virginia. The Blue Ridge Mountain lineage is believed to be a surviving relic of the last ice age, while the Coastal Plain population is believed to be a recolonization from a northward range expansion from the Carolinas following the last glacial episode that ended about 11,000 years ago. The Coastal Plain population has only three known breeding sites, one of which is in Westmoreland County. This site was just recently discovered by a DWR biologist in 2016 at an old mill pond that according to locals had been abandoned for more than 50 years ago. The Westmoreland breeding site is approximately 1-2 acres, and the “pond” is estimated to be 100+ years old. Historic imagery shows the “pond” has essentially acted as an ephemeral wetland or vernal pool over the last several decades, holding up to 2-3 feet of water during the spring and winter and often drying out in the summer. Unfortunately, sometime in the past 2-3 years a section of the small earthen dam finally eroded to a point that the breeding site no longer retained water through the winter or spring (during the tiger salamander breeding period). We have implemented a temporary berm to the dam to restore hydrology by allowing water to back up which will create breeding habitat for the upcoming seasons. Still, extensive work is needed to fully repair the dam and construct a lasting solution. We need funding assistance to finalize design plans, permit, and the implement this project. • PROJECT MANAGEMENT: Invasive species did not appear problematic at the site. Management should be minimal upon project completion. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes

PROJECT NAME	INFORMATION
James Spiny mussel Along Potts Creek (WV)	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: West Virginia Land Trust • POINT OF CONTACT: Adam Webster, adam@wvlandtrust.org • PROJECT PARTNERS: Project support will be provided by the U.S. Fish and Wildlife Service's West Virginia Field Office, Appalachian Fish and Wildlife Conservation Office, and White Sulphur Springs Fish Hatchery, as well as West Virginia Division of Natural Resources, Marshall University, Edge Engineering and Science, and private individuals. • LANDOWNERSHIP: Private Land • WETLAND TYPE: Former agricultural land in a floodplain with hydric soils • PROJECT LOCATION: North Fork and South Forks of Potts Creek. Project is located along South Fork Potts Creek and parallels Waiteville Road (Route 17) approximately 5 miles south of Gap Mills, Monroe County, West Virginia. Coordinates: 37.486139, -80.412584 • COST ESTIMATE: Could use funding for outreach to adjacent landowners to increase amount of contiguous conserved areas. Amount not yet estimated. Current project costs: \$499,824.05 (Funded by NFWF) \$296,825.00 (Matching contributions: In-kind and Cash) • PROJECT DESCRIPTION: The Potts Creek James Spiny mussel Restoration Project will preserve and restore one of two remaining populations of federally endangered James spiny mussel in West Virginia along 0.70-mile section of South Fork Potts Creek. The West Virginia Land Trust and partners including U.S. Fish and Wildlife Service and West Virginia Division of Natural Resources will restore the 40-acre tract to support an array of flora and fauna, as well as promote outdoor access to community members through outreach at the site and walking trails. The Potts Creek James Spiny mussel Restoration Project will preserve and enhance an endangered population of freshwater mussels in the upper Chesapeake Bay Watershed. The 40-acre tract of land is located at the confluence of North and South forks of Potts Creek, which is occupied by one of the only two remaining populations of the endangered James spiny mussel in West Virginia. Through grant funding, this tract of land will be secured and restored by the WVLT with support from the USFWS (WV Field Office, White Sulphur Springs National Fish Hatchery, Appalachian F&W Conservation Office), Marshall University, Edge Engineering and Science, and others. The Project will also increase the quality of foraging and roosting habitat for rare and endangered bats as well as many species of grassland birds. WVLT is proposing to develop pollinator plots and flowering plants to support Monarch butterfly, rusty patched bumble bees, and other native insects. The Project will protect habitat for the James spiny mussel by stabilizing approximately 0.7-mile of South Fork Potts Creek, including restoring 1600 feet of channel that is at risk of streambank collapse. By planting rooted trees and vegetation to reestablish a riparian corridor, erosion and sedimentation that has plagued the watershed will be reduced. • PROJECT MANAGEMENT: WVLT is just beginning its planting strategy in consultation with USFWS, however, we will be using native seed mixes and plants to repopulate riparian and upland areas. WVLT has a Land Preserve Steward and other staff, along with partners, who will monitor and manage

PROJECT NAME	INFORMATION
	<p>invasives, however, additional funding and/or capacity for long term maintenance would be beneficial. A considerable section of property is already populated by native vegetation and USFWS will be assessing existing plants to help form management goals.</p> <ul style="list-style-type: none"> • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes <p>ADDITIONAL INFORMATION: WVLT has referenced the WSS maps and can provide a map of the area. The site is largely Atkins silt loam and there is a small area populated by alders.</p>
John Marks	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: USFWS • POINT OF CONTACT: Mark Roberts, mark_roberts@fws.gov • PROJECT PARTNERS: Columbia County Conservation District • LANDOWNERSHIP: Private Land • WETLAND TYPE: Nontidal emergent • PROJECT LOCATION: 244 Queen City Road, Catawissa, PA; Coordinates: 40 54 42.5 76 26 50.3. HUC 02050107. • COST ESTIMATE: \$98,000 • PROJECT DESCRIPTION: 4-acre restoration. Wetland tree and shrub planting. Lots of logs and brush for habitat. • PROJECT MANAGEMENT: 5-year monitoring as per permit including invasive control • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes
Lake Tecumseh Hydrology Restoration	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Virginia Dept. of Wildlife Resources • POINT OF CONTACT: Ben Sagara, ben.sagara@dwr.virginia.gov • PROJECT PARTNERS: USFWS Back Bay NWR and Ducks Unlimited (DU to be applicant) • LANDOWNERSHIP: Mix of public and private • WETLAND TYPE: should be non-tidal freshwater but is currently connected to wind tides of back bay. • PROJECT LOCATION: 645 Firefall Dr., Virginia Beach, VA, 23454 - for access (Hampton Roads Sanitation District Property). Coordinates: 36.76195, - 75.97194. HUC 030102051301. • COST ESTIMATE: \$821,357 (DU estimate) • PROJECT DESCRIPTION: Ducks Unlimited, in partnership with the U.S. Fish and Wildlife Services and the Virginia Department of Wildlife Resources, are working to rebuild a failed weir and restore hydrology to ~700 acres of wetlands within an identified Resilience Hub, support habitat for 200+ acres of submerged aquatic vegetation and eliminate a severe sediment source of Back Bay. Lake Tecumseh is a 261-acre shallow freshwater lake located in Virginia Beach, Virginia, just 500 meters west of the Atlantic Ocean. The project is located in the Albemarle-Currituck Sound-Ashville Bridge Creek sub-watershed (HUC12 03010102051301). The lake is owned and managed by the

PROJECT NAME	INFORMATION
	<p>Hampton Roads Sanitation District whose property extends along the western boarder of the lake. The Oceana Dam Neck Naval Air Station borders the lake to the north and east and Back Bay National Wildlife borders the lake to the south. The lake and almost 500 acres of upstream forested and emergent wetlands have been heavily impacted by drainage activities and urbanization. The hydrology of this lake and the surrounding wetlands was altered in the 1960s with the construction of an extensive canal system, now known as Ashville Bridge Creek, to connect Lake Tecumseh and other areas to the north to Back Bay and the Currituck Sound. Unintentionally, this canal also connected Tecumseh and other headwater wetlands to the wind-driven tides of Back Bay and the Currituck Sound. During wind-tide events that drastically lowered the lake's water level, wave energy greatly increased which caused massive erosion, increased turbidity, and the loss of submerged aquatic vegetation. To address these environmental concerns, in 2010 the USFWS installed two concrete and steel weirs and reinforced the earthen berm separating Lake Tecumseh and Ashville Bridge Creek to restore hydrology to the lake and upstream wetlands. Following the completion of this project, the weirs and earthen dam proved to be successful at reducing extreme dewatering events, and several studies were conducted which highlighted the positive ecological response. In early 2021, several breeches were noted in a section of the earthen dam that was not reinforced during the 2010 project, just upstream of the secondary weir. Lake Tecumseh is again experiencing extreme dewatering events with the wind-tides of Back Bay, leading to increases in wave energy in Lake Tecumseh and intensifying erosion and turbidity. The new design is still being finalized; however, we are hoping to restore the hydrology of Lake Tecumseh and the surrounding forested wetlands by incorporating a nature-based solution. We intend to rebuild a "low barrier" between Lake Tecumseh and the Ashville Bridge Creek canal, effectively disconnecting the systems from wind-driven tides of Back Bay. The low barrier will consist of sections of earthen dam as well as a concrete and steel weir structure crossing the canal that connects Lake Tecumseh to Ashville Bridge Creek. In order to ensure the local community still has access to Ashville Bridge Creek and Back Bay, the USFWS also intends to use grant funds to repair an existing solar powered boat lift which allows boaters to move their vessel across the earthen berm.</p> <ul style="list-style-type: none"> • PROJECT MANAGEMENT: No long-term management expected aside from maintenance of the boat dolly. No invasive species control. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes • ADDITIONAL INFORMATION: We submitted a grant application for planning and permitting to NFWF NRCF pre-proposal but were not invited to submit a full proposal.
Leonardtown Wharf Marsh	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Town of Leonardtown, MD • POINT OF CONTACT: Laschelle McKay, Laschelle.McKay@leonardtownmd.gov

PROJECT NAME	INFORMATION
Creation Project & Bluff Stabilization	<ul style="list-style-type: none"> • PROJECT PARTNERS: Town of Leonardtown & Leonardtown Landing Community • LANDOWNERSHIP: Local government • WETLAND TYPE: tidal saltwater/brackish marsh • PROJECT LOCATION: State Hwy 326, Leonardtown, MD 20650. Coordinates: 38.286781, -76.639488 • COST ESTIMATE: \$200,000 • PROJECT DESCRIPTION: Marsh creation using biologic marsh creation and/or shingle beach to protect bluff and coastal community. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes
Little Conestoga Creek Blue/Green Corridor Project	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Little Conestoga Creek Foundation • POINT OF CONTACT: Joseph Donaldson, jdonaldson@steinmancommunications.com • PROJECT PARTNERS: Steinman Foundation, PA DEP, East Hempfield; Manheim; Lancaster Townships and City of Lancaster, various landowners, etc. • LANDOWNERSHIP: Both • WETLAND TYPE: nontidal floodplain • PROJECT LOCATION: East Hempfield; Manheim; Lancaster Townships and City of Lancaster; Latitude (40.062013) Longitude (-76.343209). • COST ESTIMATE: \$6,000,000 • PROJECT DESCRIPTION: The project identifies and proposes to address current and historic resource degradation to wetlands, watercourses, and their floodplain environments on a watershed scale. The applicant demonstrated five basic degraded conditions or system discontinuities that results in reduced watershed functions. The applicant proposes six phases of the overall project which include: 1) Conestoga House, 2) Barrcrest, 3) F&M, 4) Mennonite Home, 5) Woodcrest Villa, and 6) Schreiner Station, to lessen or reverse the degradation or discontinuity through implementation of restoration, rehabilitation, and enhancement construction techniques to address the predominant causes of degradation. The project includes restoration, rehabilitation, and enhancement activities of aquatic resources across approximately 45 acres of the Little Conestoga Creek sub-watershed of Conestoga River. The phases include restoring or rehabilitating 14 acres and ten watercourse reaches totaling 9,258 linear feet of watercourse and the adjoining floodplains. • PROJECT MANAGEMENT: The restoration will require minimal management based upon the performance of past projects; some invasive species management is anticipated. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? No
Mike Aument	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: USFWS • POINT OF CONTACT: Mark Roberts, mark_roberts@fws.gov • PROJECT PARTNERS: Centre County Conservation District

PROJECT NAME	INFORMATION
	<ul style="list-style-type: none"> • LANDOWNERSHIP: private Land • WETLAND TYPE: nontidal emergent • PROJECT LOCATION: 277 Beacon Light Lane, Phillipsburg, PA 16866. Coordinates: 40 51 21.8 78 4 11.3. HUC 02050201. • COST ESTIMATE: \$59,000 • PROJECT DESCRIPTION: 2-acre restoration. Wetland tree and shrub planting. Lots of logs and brush for habitat. • PROJECT MANAGEMENT: 5-year monitoring as per permit, including invasive control. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes
Pickering Creek Living Shoreline	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Pickering Creek Audubon Center • POINT OF CONTACT: Mark Scallion, mscallion@pickeringcreek.org • PROJECT PARTNERS: Pickering Creek Center / MD DNR • LANDOWNERSHIP: private Land • WETLAND TYPE: tidal saltwater/brackish marsh • PROJECT LOCATION: 11450 Audubon Ln, Easton, MD 21601. Coordinates: 38.865961, -76.115319 • COST ESTIMATE: \$695,000 • PROJECT DESCRIPTION: Approximately 300 linear feet of bulkhead removal and installation of a vegetated headland breakwater living shoreline. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • ADDITIONAL INFORMATION: A portion of this project has been funded through MD DNR revolving loan fund. Permits are in hand. Bids came back higher than anticipated.
Scott Phirman	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: USFWS • POINT OF CONTACT: Mark Roberts, mark_roberts@fws.gov • PROJECT PARTNERS: Columbia County Conservation District • LANDOWNERSHIP: private Land • WETLAND TYPE: nontidal emergent • PROJECT LOCATION: 310 Queen City Road, Catawissa, PA; Coordinates: 40 54 44.5 76 27 7.3. HUC 02050107. • COST ESTIMATE: \$68,000 • PROJECT DESCRIPTION: 3-acre restoration. Wetland tree and shrub planting. Lots of logs and brush for habitat. • PROJECT MANAGEMENT: 5-year monitoring as per permit including invasive control. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? Yes
Water Street Living Shoreline	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: City of Havre de Grace, MD • POINT OF CONTACT: Stephanie Noye, stephanien@havredegracemd.com • PROJECT PARTNERS: City of Havre de Grace

PROJECT NAME	INFORMATION
Project - Phase II	<ul style="list-style-type: none"> • LANDOWNERSHIP: Public Land • WETLAND TYPE: tidal fresh • PROJECT LOCATION: 553-599 N Union Ave, Havre De Grace, MD 21078. Coordinates: 39.550188, -76.088284 • COST ESTIMATE: \$1-2 million
Wildwood Lake Restoration	<ul style="list-style-type: none"> • APPLICANT ORGANIZATION: Dauphin County, PA • POINT OF CONTACT: Erin Letavic, eletavic@hrg-inc.com • PROJECT PARTNERS: Dauphin County Parks, HRG, Friends of Wildwood Lake • LANDOWNERSHIP: Public Land • WETLAND TYPE: nontidal emergent • PROJECT LOCATION: 100 Wildwood Way, Harrisburg, PA. Coordinates: 40 deg, 19' 53.46" N, 76 deg, 53' 08.08" W • COST ESTIMATE: \$10,000,000 • PROJECT DESCRIPTION: 100+ year old flood impoundment has filled with sediment over the years, creating beneficial wetland habitat that is being buried by continued sediment influx. While the upstream watershed is being remediated with stream restoration to avoid sediment influxes, a Lake restoration design is complete, including a plan for dredging, stream restoration/enhancements, habitat structures, and invasive species management. • PROJECT MANAGEMENT: Sediment dredging to restore open water, invasive species management on wetland complex area, landscape restoration in areas of disturbance that will not remain open water • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? Yes • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? No
Various	<ul style="list-style-type: none"> • POINT OF CONTACT: Tom Hughes, thughes@pa.gov • PROJECT PARTNERS: Various • LANDOWNERSHIP: Public Land • WETLAND TYPE: nontidal floodplain • PROJECT LOCATION: Various • COST ESTIMATE: Various • PROJECT DESCRIPTION: Nature based solution, gray/green • PROJECT MANAGEMENT: by the subapplicant when awarded via FEMA funds, state funds, Municipal and private funds. • IS THERE A CONCEPT RESTORATION PLAN VIEW MAP? No • IS THERE A SOIL MAP FROM WEB SOIL SURVEY (WSS) WITH SOIL DESCRIPTIONS? No • ADDITIONAL INFORMATION: The State is the Grantee for funds and not all Letters of Interest/Intent (Sub-Apps) go to final applications

Appendix E: Self-identified Experts (Capacity) Identified in the August 02-03, 2022 Workshop

DISCLAIMER: Please note that *Appendix E*, the table of Google Survey Responses, has been removed from the Wetlands Workshop Meeting Minutes (*Appendix B*) to be displayed here as its own appendix to the Wetlands Action Plan. This table has been further edited to include additional personnel who were identified post-workshop. More information on the Wetland Workshop, including the unaltered Meeting Minutes and presentation slides can be found at the [CBP website](#).

During both days of the workshop, attendees who were interested in participating in continued wetlands discussions moving forward were asked to complete a survey. Twenty-eight personnel responded to the survey. The following tables contain the contact information and topics of interest in which these personnel can provide assistance.

GRANT-WRITING:

NAME	EMAIL	AFFILIATION	AGENCY/PLACE OF WORK
Aaron Wendt	aaron.wendt@dcr.virginia.gov	Virginia	Virginia Department of Conservation and Recreation - Shoreline Erosion Advisory Service
Ben Sagara	ben.sagara@dwr.virginia.gov	Virginia	Virginia Department of Wildlife Resources
Danielle Algazi	algazi.danielle@epa.gov	Federal	EPA - R3
Kristen Saacke Blunk	kristen@headwaters-llc.org	NFWF Contractor	Headwaters LLC
Melissa Yearick	melissa@u-s-c.org	County Government	Upper Susquehanna Coalition

FUNDING:

NAME	EMAIL	AFFILIATION	AGENCY/PLACE OF WORK
Alison Santoro	alisona.santoro@maryland.gov	Maryland	Maryland Department of Natural Resources
Amy Jacobs	ajacobs@tnc.org	NGO	The Nature Conservancy
Bill Jenkins	jenkins.bill@epa.gov	Federal	EPA - R3
Cassandra Davis	cassandra.davis@dec.ny.gov	New York	NYS Department of Environmental Conservation
Danielle Algazi	algazi.danielle@epa.gov	Federal	EPA - R3
Elliott Campbell	elliott.campbell@maryland.gov	Maryland	Maryland Department of Natural Resources
Kristen Saacke Blunk	kristen@headwaters-llc.org	NFWF Contractor	Headwaters LLC
Matt Robinson	matthew.robinson@dc.gov	District of Columbia	DC Department of Energy and Environment
Megan Fitzgerald	fitzgerald.megan@epa.gov	Federal	EPA - R3
Melissa Yearick	melissa@u-s-c.org	County Government	Upper Susquehanna Coalition
Michael E Slattery	michael_slattery@fws.gov	Federal	U.S. Fish and Wildlife Service
Michael Roberts	Michael@thecoastaltrust.org	NGO	The Coastal Trust
Mike LaSala	mike@landstudies.com	Practitioner, CAP Coordinator	LandStudies
Nancy Roth	nancy.roth@tetrattech.com	Consultant	Tetra Tech
Rese Cloyd	rese.cloyd@dc.gov	District of Columbia	DC Department of Energy and Environment
Su Fanok	sfanok@tnc.org	NGO	The Nature Conservancy

PERMITS:

NAME	EMAIL	AFFILIATION	AGENCY/PLACE OF WORK
Becky Golden	rebecca.golden@maryland.gov	Maryland	Maryland Department of Natural Resources
Ben Sagara	ben.sagara@dwr.virginia.gov	Virginia	Virginia Department of Wildlife Resources
Matt Robinson	matthew.robinson@dc.gov	District of Columbia	DC Department of Energy and Environment
Megan Fitzgerald	fitzgerald.megan@epa.gov	Federal	EPA - R3

Mike LaSala	mike@landstudies.com	Practitioner, CAP Coordinator	LandStudies
Nicole Carlozo	nicole.carlozo@maryland.gov	Maryland	Maryland Department of Natural Resources
Pamela Mason	mason@vims.edu	Academia	Virginia Institute of Marine Science
Su Fanok	sfanok@tnc.org	NGO	The Nature Conservancy
Woody Francis	woody.francis@usace.army.mil	Federal	USACE - Regulatory Branch - Baltimore District

TECHNICAL-ASSISTANCE:

NAME	EMAIL	AFFILIATION	AGENCY/PLACE OF WORK
Aaron Wendt	aaron.wendt@dcr.virginia.gov	Virginia	Virginia Department of Conservation and Recreation - Shoreline Erosion Advisory Service
Alison Santoro	alisona.santoro@maryland.gov	Maryland	Maryland Department of Natural Resources
Amy Jacobs	ajacobs@tnc.org	NGO	The Nature Conservancy
Becky Golden	rebecca.golden@maryland.gov	Maryland	Maryland Department of Natural Resources
Ben Sagara	ben.sagara@dwr.virginia.gov	Virginia	Virginia Department of Wildlife Resources
Bill Jenkins	jenkins.bill@epa.gov	Federal	EPA - R3
Cassandra Davis	cassandra.davis@dec.ny.gov	New York	NYS Department of Environmental Conservation
Christine Conn	christine.conn@maryland.gov	Maryland	Maryland Department of Natural Resources
Kristen Saacke Blunk	kristen@headwaters-llc.org	NFWF Contractor	Headwaters LLC
Matt Robinson	matthew.robinson@dc.gov	District of Columbia	DC Department of Energy and Environment
Megan Fitzgerald	fitzgerald.megan@epa.gov	Federal	EPA - R3
Melissa Yearick	melissa@u-s-c.org	County Government	Upper Susquehanna Coalition
Michael Roberts	Michael@thecoastaltrust.org	NGO	The Coastal Trust
Mike LaSala	mike@landstudies.com	Practitioner, CAP Coordinator	LandStudies
Nancy Roth	nancy.roth@tetrattech.com	Consultant	Tetra Tech
Pamela Mason	mason@vims.edu	Academia	Virginia Institute of Marine Science
Sarah T. Hilderbrand	sarah.hilderbrand@maryland.gov	Maryland	Maryland Department of Natural Resources
Steve Strano	steve.strano@usda.gov	Federal	USDA NRCS Maryland
Su Fanok	sfanok@tnc.org	NGO	The Nature Conservancy
Woody Francis	woody.francis@usace.army.mil	Federal	USACE - Regulatory Branch - Baltimore District
Zack Greenberg	zgreenberg@pewtrusts.org	NGO	The Pew Charitable Trusts

OTHER:

GENERAL TOPIC OF INTEREST	NAME	EMAIL	AFFILIATION	AGENCY/PLACE OF WORK	GROUPS INTERESTED IN JOINING
COLLABORATION & ENGAGEMENT	Pamela Mason	mason@vims.edu	Academia	Virginia Institute of Marine Science	Collaboration and Partnerships
	Kristen Saacke Blunk	kristen@headwaters-llc.org	NFWF Contractor	Headwaters LLC	Coordination, Collaborations
	Rese Cloyd	rese.cloyd@dc.gov	District of Columbia	DC Department of Energy and Environment	Public & Community engagement
	Megan Fitzgerald	fitzgerald.megan@epa.gov	Federal	EPA - R3	Capacity building (Incl. cross agency collaboration)
	Zack Greenberg	zgreenberg@pewtrusts.org	NGO	The Pew Charitable Trusts	Convening, collaboration and outreach
DATA COLLECTION & EVALUATION	Katheryn Barnhart	Barnhart.Katheryn@epa.gov	Federal	EPA CBP	Establishing metrics to track progress
	Julie Reichert-Nguyen	julie.reichert-nguyen@noaa.gov	Federal	NOAA Chesapeake Bay Office	Targeting and restoration success criteria
	Aaron Wendt	aaron.wendt@dcr.virginia.gov	Virginia	Virginia Department of Conservation and Recreation - Shoreline Erosion Advisory Service	Monitoring & Assessment
FINANCE	Elliott Campbell	elliott.campbell@maryland.gov	Maryland	Maryland Department of Natural Resources	Finance
POLICY	Mike LaSala	mike@landstudies.com	Practitioner, CAP Coordinator	LandStudies	Policy
WETLANDS RESERVE EASEMENTS (WRE) PROGRAM	Elena Stewart	elena.stewart@usda.gov	Federal	USDA, NRCS Wetlands Easement Program Manager	Assistance with proposed projects through the WRE program