



Accelerating Wetland Restoration in the Chesapeake Bay Watershed

Obstacles and Solutions

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The Nature Conservancy and Ducks Unlimited



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EXECUTIVE SUMMARY

This report summarizes common barriers and potential solutions to increase the rate of wetland restoration activity in four Chesapeake states: Pennsylvania, Delaware, Maryland and Virginia. This work supports a project of The Nature Conservancy (TNC) and Ducks Unlimited (DU) to accelerate wetland restoration in the Chesapeake Bay watershed by identifying pragmatic solutions that have the potential to accelerate on-the-ground efforts and lead to more cost-effective Bay-wide improvements to water quality and habitat. Conversations with over 70 partners across the four states formed the foundation of this report, which will be used to guide the remainder of the project, to identify opportunities to enhance existing programs, or to develop new models to engage landowners and implement wetland restoration in targeted locations of each state.

INTRODUCTION

Wetlands are natural filters of the Chesapeake Bay watershed’s landscapes, providing numerous water-quality and habitat benefits. Recognizing the importance of these systems as critical wildlife habitat and a key method to reduce sediment, phosphorus and nitrogen loadings to the Chesapeake Bay, the Chesapeake Bay Wetland Workgroup, comprised of the six watershed states, has a goal to restore 100,000 acres of wetlands in agricultural landscapes across the Bay’s watershed over the next 11 years (Figure 1). At the same time, federal agencies have established a 30,000-acre wetland restoration goal for habitat restoration and a 150,000-acre wetland habitat enhancement goal in response to the 2009 Chesapeake Executive Order. Given the current limitations on implementation funding and technical assistance, along with complex social and economic considerations, those with responsibility to meet these wetland goals — namely state- and county-level urban and agricultural land managers, as well as the Chesapeake Bay Program’s Habitat Goal Team — have cited urgent needs for more strategic, effective and coordinated restoration efforts.

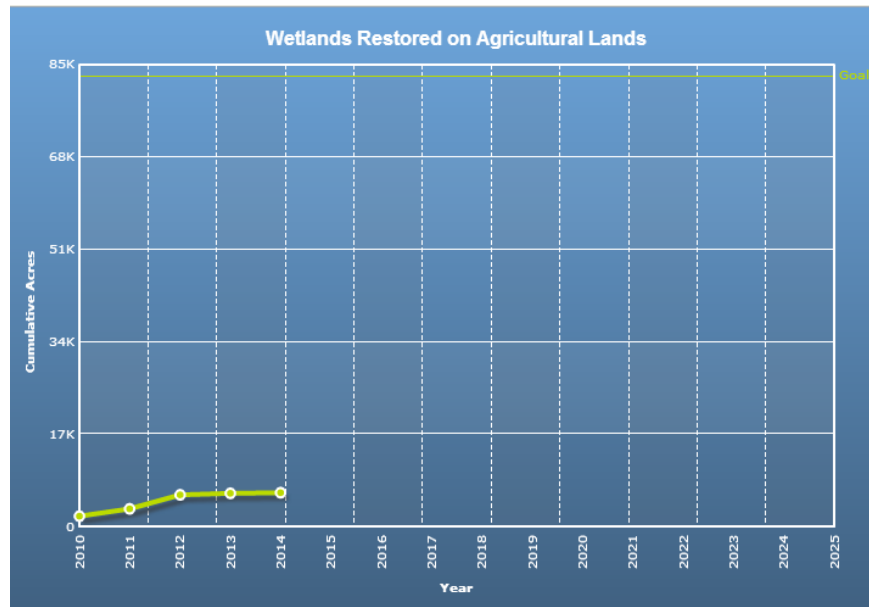


Figure 1. Progress toward 2025 Wetland Restoration Goal established by Chesapeake Bay states to meet the TMDL.

Progress towards this goal, however, has been uneven across the Bay jurisdictions (Table 1) despite the many benefits of wetland restoration. If located properly, restoration projects can provide multiple

services in addition to water quality, such as wildlife habitat, flood storage, and mitigation of climate-change effects. Wetland restoration practices are also often permanent practices and will continue to sustain clean water and wildlife communities for years. Wetland restoration is also one of the most cost-effective practices for mitigating excess nutrient and sediment loads to the Bay (see “Nutrient Credit Trading for the Chesapeake Bay: An Economic Study” Chesapeake Bay Commission, 2012). Therefore, increasing the level of implementation to complement or replace more expensive practices could reduce the costs of meeting the TMDL and restoring a healthy Chesapeake Bay.

Many social, political and programmatic factors influence the rate and success of implementing wetland restoration projects. It’s critical to understand these factors when prioritizing restoration opportunities and developing landowner incentives, as they ultimately influence landowners’ perceptions, flexibility and general willingness to implement practices. For example, although Pennsylvania leads the Chesapeake Bay states in the establishment of riparian buffers, the commonwealth does not have as

Table 1. Wetland restoration progress and goals in the Chesapeake Bay watershed (source: Chesapeake STAT www.state.chesapeake.net).

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2025 WIP Goal | Yearly acres needed to meet 2025 Goal (2015 to 2025) |
|---------|--------|--------|--------|--------------------|--------------------|--------|---------------|--|
| NY | 5,360 | 5,725 | 6,363 | 6,216 | 6,278 | 6,307 | 13,792 | 680 |
| PA | 3,837 | 4,708 | 4,709 | 4,549 ^a | 3,857 ^a | 3,858 | 54,135 | 4,570 |
| MD | 7,716 | 8,248 | 8,614 | 9,037 | 9,260 | 9,284 | 12,849 | 324 |
| VA | 214 | 213 | 411 | 420 | 420 | 452 | 19,215 | 1,705 |
| WV | 203 | 203 | 203 | 203 | 203 | 208 | 406 | 18 |
| DE | 286 | 438 | 588 | 2,694 | 2,697 | 2,699 | 5,725 | 275 |
| Totals: | 17,616 | 19,536 | 20,888 | 23,119 | 22,715 | 22,808 | 106,122 | 7,574 |

a - Lower acreages in years compared to previous reporting are due to corrections for double counting of practices.

robust a history of wetland restoration compared to the current goals. Since 1985, the first year Pennsylvania began reporting restoration efforts to the Chesapeake Bay Program, only 3,858 wetland acres have been recorded – an average rate of 137 acres a year, far fewer acres than necessary to meet the state WIP and federal habitat goals over the next 10 years. As in other Bay states, likely reasons for this situation include landscape factors, lack of capacity and funding, and lack of landowner interest. Understanding the complex reasons for progress in wetland restoration across the Bay watershed states will help conservation and agency partners to formulate key policy, technical and socioeconomic solutions and to target restoration efforts where they provide the greatest benefits.

THE STATE OF WETLAND RESTORATION

Restoration progress varies significantly among jurisdictions — some are making significant progress toward the WIP goals, while others are reporting very limited activity (Table 1). These variations are due to differences in local policies and regulations, funding, agency and conservation-partner capacity, and accurate and thorough reporting of practices. As a first step to evaluating obstacles, we provide a brief summary of the state of restoration for Pennsylvania, Maryland, Delaware and Virginia. These summaries are based on conversations with wetland practitioners and our observations working in each of these states.

A. Pennsylvania

Pennsylvania's record of wetland restoration in recent years has not been particularly robust. Because of recent corrections for past errors and double-counting, the number of restored acres has been negative for two of the past three years. Partners are currently evaluating how to improve Pennsylvania's reporting process to ensure that all restored acres are being credited by the Chesapeake Bay Program. To meet the WIP goal of 54,135 acres of wetland restoration on agricultural lands by 2025, Pennsylvania will need to accelerate current wetland restoration to over 4,000 acres per year. In 2014, PA reported only 1 acre of wetland restored.

The recent level of restoration activity in Pennsylvania is tied closely to available funding and agency staffing levels. For the past 15 years, the most active program for wetland restoration has been the Partners for Wildlife program administered by the U.S. Fish and Wildlife Service (FWS), with funding recently provided by the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). Because FWS program staff and funding have been reduced over this same time period, this program is now primarily dependent on NRCS funding. With severe limitations in design and engineering staff at NRCS, compounded by permit requirements at the state level, project implementation has slowed. Another major source of state funding for wetland restoration, the Growing Greener I and II bond initiatives, has also declined in recent years. A new program started in 2011 under Act 13, an impact fee assessed on active oil and gas wells in Pennsylvania, has added another source of funding for wetland restoration that should help offset some losses to Growing Greener I and II.

Wetland mitigation has been fairly active in recent years in Pennsylvania, although it is not credited by the state toward meeting Bay goals. According to a study authored by Robert Brooks and Naomi Gebo in 2012, there are 33 mitigation banks currently overseen by the Pennsylvania Department of Transportation (PennDOT) comprising 230 acres (93 hectares) of wetlands. In addition, the state Department of Environmental Protection (DEP) has established more than 70 sites comprising 128 acres (52 hectares) of restored wetlands through its in-lieu-fee fund. A third category of mitigation wetlands includes compensatory wetland mitigation, usually on-site and small-scale (<0.5 acres), with an annual average total rate of 96 acres (39 hectares) a year. In addition, Pennsylvania authorized its first private mitigation bank in 2014. There are more private banks seeking approval to operate in Pennsylvania to address mitigation needs created by the Marcellus and other gas plays

in the state and associated pipeline expansion.

B. Maryland

Maryland has been making steady progress restoring wetlands in the Chesapeake Bay watershed and is on track to meet the 2025 WIP goal of 12,849 acres if there is a continued gain of approximately 300 acres/year. However, most stakeholders responded that restoration activity has been declining in recent years. NRCS through the Wetland Reserve Easement (WRE) program (formerly Wetlands Reserve Program), consistently restores the greatest acreage of wetlands, followed by Maryland Department of Natural Resources (MD DNR), Conservation Reserve Enhancement Program (CREP) administered by the USDA Farm Service Agency (FSA), and private conservation groups. The increased activity of the WRE program in the last several years is largely credited to enhancing degraded forested wetlands through ditch plugging and floodplain reconnection, which counts toward wetland enhancement goals, but not wetland restoration goals because the acreage of wetlands is not being increased. The permanent easement option in WRE offers a competitive incentive for landowners with degraded forested wetlands without having to take cropland out of production. As in Pennsylvania, although the USFWS Partners for Wildlife Program has had limited project funds, they continue to be an important organization to implement wetland restoration projects in the state by providing design and construction management support to NRCS and other conservation partners.

A program of note is the Maryland Chesapeake and Coastal Bays Trust Fund (MD Trust Fund) that supports implementation of practices that reduce nonpoint pollution, including wetland restoration. These funds are used by MD DNR to restore wetlands on state and other public lands, as well as on private lands, as facilitated by conservation groups. Since these are state funds, this program also provides significant funds that can be used as match for federal programs such as NAWCA and the NRCS Regional Conservation Partnership Program (RCPP) to secure increased federal funds in the state and can also support innovative approaches to supporting wetland restoration through increased outreach and additional incentives.

Wetland mitigation in Maryland is primarily performed as permittee-responsible mitigation (i.e., individual projects constructed by permittees to provide compensatory mitigation). There are currently three mitigation banks in Maryland totaling 38 credit acres that are operated by local governments and a private company. Additionally, there are several proposed banks that have been submitted. Maryland also operates an in-lieu-fee program through the Chesapeake Bay Trust (CBT) whereby permittees can pay into a fund that is used to restore wetlands. Practitioners generally did not feel that there was competition between mitigation and voluntary restoration; however, CBT has had a couple of situations in which a landowner selected the voluntary restoration option over mitigation due to the stricter requirements of mitigation, including monitoring by MDE and permanent protection.

C. Delaware

Delaware is about halfway to meeting their wetland restoration goal of 5,725 acres by 2025, largely due to restoring over 2,000 acres in 2012. Restoration efforts will need to continue at the rate of approximately 275 acres/year to meet the goal. Wetland restoration in Delaware's portion of the Chesapeake Bay Watershed is implemented primarily through federal and state agency or nonprofit organization programs. Presently, the most consistent and robust restoration delivery program is the NRCS WRE. In the past, other Farm Bill programs such as the Conservation Reserve Program (CRP) and CREP, administered by FSA, have contributed significantly to wetland restoration in Delaware. In recent years, however, implementation of new wetland restoration projects through CRP and CREP has declined and in 2015 CREP was defunded by the state. Regardless of current delivery rates, the historical success of all three of these programs is at least partially due to their dedicated and relatively stable federal funding sources.

Other notable wetland restoration practitioners in Delaware include the Delaware Division of Natural Resources (DNREC) as well as various nonprofit organizations. DNREC actively restores wetlands on state-owned properties throughout the watershed, and these gains have been significant in certain years. These projects are primarily supported by Pittman-Robertson (PR) funds. PR funds, however, must be matched 1:3 with non-federal funds, which can create program limitations. In addition, until recently, DNREC offered private wetland restoration opportunities through the Landowner Incentives Program (LIP), but the program was discontinued due to a lack of dedicated funding. Now, similar to most nonprofit organizations, DNREC relies heavily on competitive grants as a funding mechanism for most private-land wetland restoration efforts. Regardless of program capacity, competitive grants tend to be less reliable funding sources, which can contribute to less consistent wetland restoration delivery rates.

Wetland mitigation in Delaware occurs primarily through permittee-responsible mitigation. There is no in-lieu-fee mitigation program and only one mitigation bank in Delaware's Chesapeake Bay watershed. Currently, mitigation does not constitute a significant source of wetland restoration in Delaware, or create competition with voluntary wetland restoration efforts.

Despite apparent increases in reported restoration acres in Delaware under the CBP WIP over the past five years, in all cases Delaware interviewees indicated the rate of wetland restoration delivery within their organization's respective programs as either stable or decreasing during this same timeframe.

D. Virginia

In Virginia, wetland restoration activities directed toward achieving Virginia's Watershed Implementation Plan have been limited. Since 2009, just over 200 acres of restoration have been reported toward the 2025 WIP goal of 19,215 acres. To achieve this goal, restoration efforts would need to increase to over 1,700 acres/year.

The majority of restoration projects are implemented through NRCS WRE. Wetland restoration is also covered under the Virginia Agricultural Cost Share program, which provides a tax credit rather than direct funding, and very limited amounts through the Virginia Department of Game and Inland Fisheries (VDGIF) and USFWS due to limited project funds. The three sources combined simply do not provide enough funding to complete more than a few small projects each year. The lack of funding from non-federal sources also limits the amount of match available when grants are developed to deliver projects on federal, state and private properties. Conservation partners continue to focus on wetlands restoration when feasible; however, with limited match dollars to leverage through grant programs, collaborative efforts have shifted more to land protection and acquisition for federal and state partners.

Wetland mitigation that compensates for impacts to wetlands is an important factor to consider in Virginia. The existence of the market for wetland credits is a perceived barrier for some landowners who believe the mitigation market will provide a more financially advantageous way to restore their wetlands than voluntary incentive programs. There are over 100 private mitigation banks in Virginia and an in-lieu-fee program operated by The Nature Conservancy. These efforts combined are performing substantial wetland restoration and creation across the state that may be reducing the focus on the need for voluntary restoration. Accelerating wetlands restoration across the Chesapeake Bay watershed will require additional capacity and project funding beyond the work that is already occurring in the mitigation market.

METHODS

We identified stakeholders in the four project states (MD, PA, DE, VA) that were involved with wetland restoration in various aspects. We focused largely on practitioners who directly implement restoration projects, but also included agency staff who oversee restoration programs and permit restoration projects. We developed a list of standard questions (Appendix A) to provide a common format for the interviews, but interviewers allowed each conversation to evolve individually to help capture nuances and more detailed information. In all, we interviewed more than 70 stakeholders, including wetland restoration practitioners, academics, agency staff, nonprofit staff, field staff and regulatory reviewers. In some cases, we interviewed multiple stakeholders from the same agency (e.g., Departments of Natural Resources, Army Corps of Engineers) to gain insights from their different offices and roles within the restoration process. A full list of the organizations and agencies that we interviewed is provided in Appendix B. The TNC and DU project team also represents decades of wetlands restoration experience, so our own knowledge and perspectives were a valuable source of information.

Based on interview results and our own team's input, we developed a list of the primary obstacles to increased wetlands restoration in the Chesapeake Bay watershed. We then identified solutions that multiple stakeholders and our team agree will be necessary to overcome each obstacle.

FINDINGS: OBSTACLES AND SOLUTIONS

Our stakeholder interviews revealed five primary obstacles to accelerating wetland restoration in the Chesapeake Bay watershed. We also synthesized stakeholder perspectives to define 15 solutions to overcome these obstacles. Not every obstacle was present in every state, and not all stakeholders within a state (or even within an agency) agreed with one another on all obstacles and solutions. However, we found convergence on this set of primary obstacles and solutions, which are summarized in Table 2, to accelerate the rate of wetland restoration in the Bay watershed.

Table 2. Summary of primary obstacles and solutions to accelerate wetland restoration in the Chesapeake Bay Watershed.

| Obstacle | Solutions |
|---|---|
| 1. Limited Funding | <ul style="list-style-type: none"> A. Secure sustained funding for all phases of restoration B. Focus funding to priority areas C. Advocate for increased program funding |
| 2. Outreach is Limited/Not Coordinated | <ul style="list-style-type: none"> A. Designate a local leader for outreach and coordination B. Host annual cross-training for wetland practitioners C. Develop better marketing strategies |
| 3. Programmatic or Institutional Obstacles | <ul style="list-style-type: none"> A. Increase flexibility of WRE B. Increase flexibility of CREP C. Develop program with local conservation groups to offer private restoration options D. Invest in market research to evaluate the need to change incentive values |
| 4. Permitting | <ul style="list-style-type: none"> A. Reduce regulatory burden for environmentally beneficial projects B. Separate the review process for restoration and development projects C. Develop list of information to support permit applications |
| 5. Limited Approaches to Restoring Wetlands | <ul style="list-style-type: none"> A. Implement demonstration projects to model a variety of practices and approaches B. Disseminate alternative restoration designs and information to practitioners, agencies, and funders |

We describe and discuss each obstacle and the associated solutions below, including reference to examples of successful application of the recommended solutions where they were available.

OBSTACLE 1: Limited Funding

Virtually every stakeholder we interviewed cited limited funding as a universal obstacle. Funding plays a critical role in all facets of wetland restoration, and therefore it is no surprise that funding shortfalls impact various organizations in different manners. Limited funding creates an obstacle to implement wetland restoration projects by not having resources to offer incentives to landowners, or to directly pay for design and construction services, and by limiting the number of personnel qualified to

administer programs and implement projects.

Implementing wetland restoration projects includes costs associated with designing and constructing wetlands. Several interviewees identified the lack of dedicated funding sources and/or limitation of existing funds for implementation as a significant obstacle preventing wetlands from being restored. In some grant programs, funding is available for design/permitting or construction, but not both phases. Few grant sources fund all phases of a project. The recent shift in emphasis to “shovel-ready” projects, possibly a result of the federal stimulus program’s emphasis, has meant that some projects cannot get to the implementation phase because there is no available funding to support design and permitting work. In other cases, design and planning are emphasized with no guarantee of future implementation funding.

Qualified staff are critical to all phases of wetland restoration, including outreach, project identification, contract management, survey, design, permitting, construction and overall project management. Several stakeholders specifically identified lack of funding to hire qualified personnel as a limiting factor to the acceleration of wetland restoration. Even in cases where outside engineers and contractors are hired to do various phases of a project, projects can be held up for six months or more because the agency staff who approve designs have serious backlogs. Further, budget cuts have forced many agency staff to fill multiple roles. The result can be delays, decreased efficiency and difficulties maintaining communication with landowners throughout the duration of the process.

Solution A: Secure sustained funding for all phases of restoration. Reliable funding for all phases of wetland restoration is critical to develop a pipeline of high-quality restoration projects. Practitioners cite a “chicken or egg” challenge: It is risky to line up good projects with willing landowners until funding is secured, but also problematic to secure funding first and risk not finding good projects with willing landowners before funding expires. Practitioners in each Chesapeake Bay watershed state need sustained, reliable and flexible funding mechanisms that provide some assurance that high-quality projects with willing landowners will be funded. Flexibility is key so that project managers can quickly access funding needs to cover incentives, design, permitting, construction, or project management to complement existing state and federal programs to fill funding gaps. Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund) is an example of such a funding source. The Trust Fund generates revenue through motor fuel and rental car taxes. It offers grants for the most effective non-point source pollution control projects in the state and can support all phases of wetland restoration as well as leveraging existing programs.

Solution B: Focus funding to priority areas. Stakeholders support the approach of encouraging and supporting projects where multiple agencies and organizations work together to leverage multiple sources of funds. State agencies and private funders in each Bay state should initiate or continue efforts to set priorities that provide a framework to focus funding from multiple sources in project areas. Bringing together a diversity of funding sources helps compensate for gaps in individual programs, and a diversity of partners helps create teams with a fuller complement of skills and capacity to effectively implement projects. One recent example of this practice is the Regional Conservation Partnership Program (RCPP) under NRCS. In January, a number of RCPP grants were made at the state and regional levels within the Bay watershed to

accelerate and target Farm Bill practices where they could do the most for water quality and habitat. Partners will apply a fine-scale targeting methodology on Maryland’s Eastern Shore to identify the highest-priority wetland restoration sites and practices that enhance both water quality and provide better wildlife and fish habitat.

Priority watersheds within each of the Bay states should be identified to focus wetland restoration efforts. Federal, state, and local partners should then identify restoration goals/outcomes for the priority watersheds to identify the best placement of wetland restoration projects within the watershed.

Solution C: Advocate for increased program funding.

The majority of funding for wetland restoration projects is federal and state programs, either through agencies or grant funding.

Funding varies yearly

based on agency budgets and priorities. Strong and coordinated advocacy is necessary to maintain or increase federal and state funding levels.

Targeting practices to achieve the greatest outcomes: The availability of higher resolution and more accurate data such as land cover, topography, and soils has improved the ability and scale at which potential wetland restoration opportunities can be remotely identified (Figure 2). Targeting improves the efficiency and effectiveness of conservation efforts by focusing efforts in locations where they will achieve the greatest outcomes toward stated goals. For example, if a programmatic goal is flood reduction and wetland restoration is a strategy to achieve this goal, wetland restoration opportunities that will retain the greatest amount of water during storm events upstream of the flooding concern can be prioritized for outreach and funding.

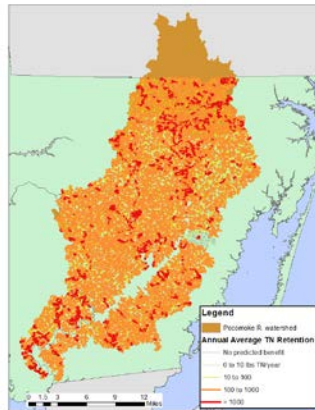


Figure 2. Priority wetland restoration locations in the Pocomoke River watershed.

Developing predictions of outcomes from the targeting and testing of these outcomes allows tracking of progress and further supports continued improvement of targeting tools and site-level design criteria. Targeting efforts should consider multiple outcomes from various stakeholders and funders to develop priorities that will meet multiple program goals and increase opportunities to match available funds with landowner interests.

Targeting high-priority locations for restoration will accelerate the amount and rate of restoration activities by focusing multiple organizations and their resources to the same area. A diversity of originations from federal to local agencies and conservation groups will provide complementary resources to implement restoration projects. Local groups typically have relationships with landowners to improve outreach efforts; state and federal agencies often have resources for design, construction, or incentives (but often one agency cannot provide all of these); and private conservation groups often have the ability to leverage public funding with private funds to fill any needed gaps. The key component to a successful partnership is to have someone take the lead to maintain good communication and track progress.

OBSTACLE 2: Outreach Is Limited/Not Coordinated

The ability of practitioners to restore wetlands on private property ultimately relies on identifying landowners that are willing to convert land from its current use into wetlands. Outreach is an essential step to engage landowners who have a positive predisposition toward wetland restoration and to convince more hesitant landowners of the benefits that are afforded through restoring wetlands. This is a critically important factor in restoring wetlands on private property and emphasis on coordinated and strategic outreach in the Chesapeake Bay watershed is limited.

Historically, many conservation organizations and agencies employed designated outreach staff. These individuals worked with landowners to identify funding programs that achieved both the financial needs of the landowner and delivery of wetland restoration. Through years of budget cuts and staff reductions, however, many of these outreach staff have been lost or reallocated to different tasks. Several NRCS and Conservation District staff stated that their job responsibilities have increased over the past several years, resulting in less time to perform outreach for specific programs. As an example, in the past the USFWS Partners Program helped pool staff and funding from federal, state and NGO partners in select parts of the Chesapeake Bay watershed. Potential projects were evaluated by multiple organizations, reviewed for merit/feasibility, ranked based on a set of criteria, and funded based on suitability and availability of pooled resources. This strategy helped avoid overlap of limited outreach efforts and contributed to improvements in communication between major wetland restoration practitioners and funders.

Lack of coordination between organizations poses further challenges. Currently, coordinated efforts between groups in watersheds targeted for restoration are limited or in some areas nonexistent. The result is outreach efforts that are single-program oriented. For example, if one organization is performing outreach, it may only offer landowners the opportunity to participate in one specific program. If this program does not fit the landowner's interest or needs, the group may not have the knowledge or motivation to educate landowners on all available programs and the guidelines and requirements of each. Additionally, wetland restoration is only one of many conservation practices offered through some programs such as CRP and CREP. Accordingly, wetland restoration may be under-subscribed in favor of other practices for a number of reasons, including cost of implementation, misconceptions of wetland functions, and practice longevity. Ultimately, these can result in missed wetland restoration opportunities.

Solution A: Designate a local leader for outreach and coordination. Designating a local outreach lead is a demonstrated approach that increases project implementation. For example, in the Pocomoke River watershed in Maryland, TNC has demonstrated how a dedicated staff person can accelerate landowner engagement in wetland restoration programs. With dedicated time and specific project focus needed to follow up with contacts and find information to locate absentee landowners, the staff person has been able to successfully communicate with almost every priority landowner identified. Once contacted, the dedicated staff person provided

available options for achieving restoration through various federal, state and private programs and identified the best fit with the landowners' goals. These efforts have resulted in an increase of wetland restoration moving forward through various programs.

Supporting such a leader, who focuses outreach within a limited geography (e.g., county or sub-watershed) and who spends all of their time cultivating landowners, coordinating projects and funding with partners, and overseeing projects to completion, is a key for success. The time it takes to contact and locate landowners, explain various programs, and assist them to apply for a selected program is significant. A local leader provides the capacity to follow up with all landowners who express some level of interest. The leader coordinates with partners that lack time to perform these tasks, leverages funding and assists with the implementation of projects. Designating or hiring a local leader for outreach in priority watersheds can also accelerate implementation of projects by increasing the level of landowners' engagement through outreach efforts that are tailored to the local community.

Solution B: Host annual cross-training for wetland restoration practitioners within each state.

The key to translate interested landowners into projects on the ground is to find the programs and funding that match the landowner interests. The goals and eligibility criteria of each organization's restoration programs are diverse and wide ranging. Consequently, a restoration opportunity that is not suitable for one program may in fact be ideal for another. Further, individual landowners who are unwilling to restore wetlands due to the requirements associated with one program may be more receptive to other programs. Cross-training field staff from various organizations and agencies on the programs available through each would increase the likelihood that interested landowners would restore wetlands by finding a program that matches their interests.

Solution C: Develop better marketing strategies. Improving the understanding of the socioeconomic factors that affect a landowner's decision to restore or not restore a wetland would provide valuable information to practitioners to improve messages and methods that promote wetland restoration to landowners. Market research by professionals may provide new insights into effective strategies that resonate with local landowners. Outreach can then be tailored to distinct groups of landowners that may respond to different types of marketing and wetland restoration opportunities (e.g., waterfowl hunters and monetary incentives). Additionally, restoration program goals should not limit outreach efforts. For example, if the goal of a restoration program is to improve habitat for wildlife, but the community interest is to reduce flooding, restoration efforts should seek to find locations that can meet both goals and convey these to the landowners.

Insight from beyond the Bay: Research and Education to Advance Conservation and Habitat (or REACH) is a successful collaborative program in the Mississippi River delta. REACH is a producer-driven, producer-led program that merges environmental interests (reducing nutrient runoff and increasing habitat) with farmers' economic interests (profitable and sustainable production.) Led by Mississippi State University and coordinating contributions from over 2 dozen agency, NGO and private-sector partners, the REACH network currently includes 41 farms totaling over 126,000 acres. Dr. Robert Kröger of Mississippi State University says the program is successful because it is driven by the farmer's needs, not a set agenda. REACH provides research that tests and demonstrates successful practices, with highly skilled, high-touch extension specialists who help farmers evaluate challenges, identify solutions and connect with resources for implementation. Conservation programs in the U.S. Farm Bill, particularly those that are part of the Mississippi River Basin Initiative or MRBI, provide the bulk of funds for practices that participating REACH farmers implement. A second reason for REACH's success is that participating farmers are some of the program's strongest advocates. "Farmers listen to other farmers," Kröger says. [More information available at The Nature Conservancy's website.](#)

OBSTACLE 3: Programmatic or Institutional Obstacles

There are some programmatic or institutional obstacles within Farm Bill conservation programs used to restore wetlands (WRE, CRP, CREP) that can deter or prevent landowners from pursuing wetland restoration on their lands. Situations also exist in which landowners are interested in restoring their wetlands, but they are not eligible for WRE or other Farm Bill Programs that offer incentives. An example from Maryland is a landowner who was interested in restoring a forested floodplain wetland. However, the land was previously enrolled in the state farmland preservation program and therefore is ineligible for the WRE program (to prevent stacking of easements). The project area is not eligible for CRP or CREP because it has not been farmed in the last seven years. The only options remaining are grant- or private-funded work through conservation groups that typically do not offer monetary incentives.

An obstacle noted for the WRE program is the 10-acre minimum used in some states as an official or unofficial criteria to qualify for the program. Although this size limit is used to maximize resources on larger projects due to the amount of work to establish an easement on a property, this size threshold limits the number of eligible projects in the piedmont and ridge and valley physiographic provinces. In these regions, natural wetlands are typically smaller and the average farm size is smaller than the coastal plain province. However, because of the attractive incentives associated with WRE permanent easements, additional landowners might be interested if they were eligible to enroll smaller projects.

Several obstacles were also noted within the CRP and CREP program to convert existing practices to wetlands. Several stakeholders noted the difficulty in converting land that was enrolled in one conservation practice, such as a grass or forested buffer, to a restored wetland. In some cases, these practices were even failing because they were too wet to establish trees in a forested buffer but could not be converted into a wetland restoration practice designed to revegetate wetter areas so they would not lose their contracts or be forced to reimburse costs. Other examples were given of landowners wanting to convert a buffer to a restored wetland, but to proceed they would have to pay back all of the incentives received for the buffer, terminate the contract, and lose eligibility for two years to be able to enroll it as a new practice.

Additionally, there are landowners who aren't interested in participating in government-based programs. Based on direct conversations with landowners in the Pocomoke watershed in Maryland, TNC learned that almost half of the landowners in our project area were not interested in enrolling in the WRE program either because they did not want to enter into an agreement with the federal government or because they did not want to place a long-term easement on their land.

Many stakeholders responded that funding for — and the ability to offer — competitive incentive payments is a significant obstacle to accelerate wetland restoration within their programs. Incentive payments, which can offset potential financial losses associated with removing land from agricultural production, are a proven method to generate landowner interest in wetland restoration and other conservation practices. The volatility of commodity markets does introduce uncertainty, however, and the inability for incentive payments to maintain pace with commodity prices can affect landowner decisions. At the same time, not all landowners are motivated by funding. Studies have not fully explored the relationship between incentive payment rates and landowner participation, but anecdotal experience indicates that higher incentives result in higher participation.

Solution A: Increase flexibility of WRE program. To increase landowner interest and eligibility, two changes to the WRE program are suggested:

- i. Reinstate the 10-year Restoration Only option through WRE to allow landowners to restore wetlands that are already under an existing easement.* Additionally, the program should cover 100% of the restoration if the land is permanently protected through an existing easement. The benefits of the WRE 10-year Restoration Only option over restoring a wetland through Environmental Quality Incentive Program (EQIP) or CREP if lands are eligible is that the landowner does not have to front the costs of restoration and then be reimbursed. Although some stakeholders have found ways around this by having contractors delay when payment is due, it may be creating an obstacle for some landowners.
- ii. Lower the minimum acreage requirement for regions with naturally small wetland types.* To meet the interests of landowners who want to restore wetlands on their property through the WRE program to receive the higher incentive and long-term protection through the easement, state NRCS offices should lower the minimum acreage requirement for high-value wetland types in the piedmont and ridge and valley physiographic regions. There is precedent for doing this in Maryland, which could be used as a model to expand this provision to other states.

Solution B: Increase flexibility of CREP program.

- i. Modify cropping history requirement.* One of the eligibility requirements of enrolling in CREP and CRP is that the land has a cropping history or is a marginal pasture. While there are ample opportunities to convert areas in cropland to wetlands, these areas typically have a higher economic value associated with them, and therefore private landowners are unwilling to take them out of production, particularly during times of

high commodity prices. There are often other areas on a farm that have not been cropped, yet have the opportunity to restore or enhance wetland functions. The CRP and CREP programs should be modified to allow for restoration efforts on non-cropland that is part of a farming operation.

ii. Allow conversion of specified conservation practices to a wetland practice without any penalty. CRP and CREP practices should be evaluated to determine practices that would maintain or increase the conservation benefits of land if converted to wetland and provide a simple process for doing so. This would allow landowners who enrolled in one practice, but find that the land is more suitable to wetland restoration, to convert these areas without needing to break a contract and suffer associated penalties and pay-back costs.

Solution C: Develop program with local conservation groups to offer private restoration options. Local conservation groups may be able to provide restoration options to landowners who do not want, or are not eligible, to enroll in government programs. An understanding of the needs of these groups to seek funds, identify potential sites, and oversee project implementation is needed to determine resource needs to assist groups. Additionally, case studies should be compiled that demonstrate successful models. One example is the Missouri Agricultural Wetland Initiative (MAWI), a voluntary partnership between producers/landowners and federal, state and local conservation organizations that demonstrates the compatibility of wetlands and production agriculture for the improvement of water quality and wildlife habitat utilizing a variety of conservation programs, practices, technical assistance and financial assistance. MAWI integrates existing wetland conservation programs administered by the U.S. Department of Agriculture, Missouri Department of Conservation, Ducks Unlimited Inc., and U.S. Fish and Wildlife Service to fully develop the restoration potential of wetland habitats interspersed in agricultural settings on private lands, and provides increased leverage of cost-share dollars among programs.

Solution D: Invest in market research to evaluate need to change incentive values. Additional research is needed to assess the need for increased and/or additional incentives to attract landowners to restore wetlands on their property. There is currently a lot of speculation that increased incentives will increase demand by landowners; however, this theory has not been tested. Evaluating the socio-economic reasons that landowners may or may not restore wetlands would improve our ability to make sound recommendations on the need to advocate for increased financial incentives to these programs, or if there are other strategies that should be improved to increase demand for wetland restoration on private lands. Additionally, systematically testing different incentives through public/private funding may also offer information to determine the need for programs to modify incentives.

OBSTACLE 4: Permitting

Interview results differed markedly among the states on this topic. The Delaware stakeholders we interviewed did not consider permitting to be a primary obstacle. We attribute this to the fact that Delaware only has federal review of wetlands restoration for non-tidal wetlands; the other Bay states have both state and federal review. Stakeholders in Virginia and Maryland acknowledged permitting “headaches” that delayed projects, but those interviewed did not consider these delays a primary obstacle. In Pennsylvania, however, permitting was the first thing most stakeholders mentioned as an obstacle to increasing the rate of wetlands restoration.

The issues surrounding permitting included the cost of permits being prohibitive in some states for smaller projects, the lengthy process and amount of effort placed on the applicant to defend the benefit and value of a restoration project, and a complete difference in philosophy on the type of projects that should be permitted. One area on which all stakeholders agreed was that to be able to accelerate the rate of restoration in the Bay states and get wetlands restored faster, the permitting process needs to be streamlined and expedited for wetland restoration projects.

Solution A: Reduce regulatory burden for environmentally beneficial projects

The recent decision by NRCS and USACE in 2014 to exempt “normal farming practices” in the conservation title of the Farm Bill from section 404 and 401 requirements is an example of how specified environmentally beneficial projects can receive expedited regulatory review. This model should be expanded to state regulatory programs to accelerate the implementation of projects that meet these requirements and are following set restoration designs.

Solution B: Separate the review processes for restoration and development projects

Designating regulatory staff who review restoration versus development projects would expedite reviews and increase consistency. This approach would enable reviewers to increase their expertise in restoration designs and improve their ability to provide constructive comments based on similar projects. As reviewers gain experience and expertise on restoration projects, they are more effective and more efficient in issuing decisions and improving both the speed and quality of the review process.

Solution C: Develop standardized list of information to support permit applications.

Stakeholders commented that they are almost always asked to submit additional information related to their permit request and that it is never known exactly what information is required. This can lead to extensive delays in the permitting process. Regulatory agencies should provide a detailed list of information that is required for them to definitively review a permit and make a decision without over-burdening the applicant to submit information that will not be considered in making a final decision. This information should be specific to the type of restoration project (e.g., stream, headwater wetland, floodplain restoration). Clarifying this process will reduce the time spent requesting information and submitting additional information and will also provide consistency to reviewers to base decisions on similar information.

Insight from beyond the Bay: Extensive experience by Ducks Unlimited (DU) throughout the Midwest offers numerous lessons on overcoming barriers associated with permitting and other challenges. In states like Missouri, Kentucky and Iowa, DU engineers were involved early in required dam safety reviews. This early action helped to avoid complications during the review process. Permitting also posed challenges executing restoration projects in Michigan. DU staff there provided opportunities for key agency staff to visit sites early in the process and increase familiarity with projects. Staff also created a “Wetland Working Group” with state, federal and NGO partners to specifically focus on resolving permitting issues. Further, staff overcame limited capacity for engineering design by establishing a cost-share agreement with federal and state partners that increased capacity and enabled partners to take the lead on restoration design and implementation phases.

OBSTACLE 5: Limited Approaches to Restoring Wetlands

Across the Chesapeake Bay Watershed, three distinct physiographic provinces (piedmont, ridge and valley, and coastal plain) support a wide variety of natural wetlands. Stakeholders perceive a disconnect between the types of wetland projects being advanced and the suitability of restoration sites to accommodate them at a watershed or landscape scale. Stakeholders in some regions observed that there are limited types of restoration projects being implemented, but there are opportunities to restore a great diversity of wetland types to reflect the natural array of wetlands. For example, the majority of naturally occurring wetlands in the Mid-Atlantic region is forested riparian, but the majority of wetland restoration projects in these regions is depressional emergent wetlands. This situation is largely driven by landowner preferences for attracting priority waterfowl species.

Solution A: Implement demonstration projects to model a variety of practices and approaches. Implementing demonstration projects on less commonly restored wetland types would provide examples of restoration options for landowners. Additionally, restoration of alternative wetland designs would allow the evaluation of cost, testing of new construction techniques and identification of additional information needs. In the 1990s, the majority of wetland restoration in Delaware was open water depressional wetlands, which historically comprised a small portion of natural wetlands in the state. With the dedication of a few innovative wetland practitioners working in Delaware to implement demonstration projects for restoring large headwater flat wetlands and floodplains, there has since been a marked shift in the types of wetlands being restored to better reflect the natural diversity of wetlands in the landscape.

Solution B: Disseminate alternative restoration designs and information to practitioners, agencies and funders.

Information and lessons learned from implementing alternative restoration designs should be shared with other restoration practitioners. This information is often part of institutional memory, but not recorded and passed along to other agencies and funders. Information could

be captured by sharing the original restoration design with notes on what worked and what didn't work to eventually build standard templates or design criteria for additional wetland restoration types.

CONCLUSION

Accelerating the implementation of wetland restoration in the Chesapeake Bay is a critical need to achieve clean water and enhanced habitat for aquatic and wetland-dependent species at the local and Chesapeake Bay scales. Just as there is not one specific reason that our progress toward our wetland restoration goals is lacking, there is not one solution that will immediately accelerate implementation of restoration on the ground. The stakeholder interview report is a first step toward identifying the complexity of obstacles, offering related solutions, and implementing new ideas and processes to accelerate the restoration of wetlands.

Stakeholders revealed a wide variety of obstacles that are limiting the implementation and acceleration of wetland restoration projects in the Bay states — from landowner engagement to permitting and project design. These obstacles varied by state and region, but there were numerous common themes that spanned across multiple states and physiographic regions. We encourage partners from federal, state, and local governments, along with private and nonprofit organizations, to consider opportunities for addressing these obstacles and implementing proposed solutions that were identified by your peer wetland practitioners. The potential solutions also provide opportunities to engage new partners in our work, such as those with expertise in policy, marketing and engineering. Bringing additional perspectives and capacity may open up new opportunities to advance our collective efforts and reach our ambitious goals in the Chesapeake watershed and beyond.

Ultimately, our collective success will come from fostering learning among all wetland practitioners to advance our knowledge, break down obstacles and reach our restoration goals. The Wetland Workgroup under the Chesapeake Bay Program should be used as a forum to share these results, learn from our peers and develop new collaborations. Working together, this group can be used as a conduit to advocate for resources to address key obstacles and advance our restoration efforts.

Appendix A: Questions for Stakeholder Interviews

1. What role does your organization/program play related to wetland restoration?
2. What programmatic goals drive restoration (e.g., habitat, CB goals, water quality, acres), does this match landowner goals if working on private lands?
3. Are dedicated funds for wetland restoration used every year?
4. Do you have methods for targeting or prioritizing wetlands restoration projects?
5. What are the most common types of wetland restoration projects that you are involved with?
Do you think this is reflective of all ongoing wetland restoration work? Does this vary regionally?
6. What kinds of wetland restoration projects would you like to see more of? Less of?
7. What is the current rate of restoration activity compared to the recent past? Distant past?
8. What are the limiting factors for restoring more wetlands and either meeting or increasing existing goals within your program? Thoughts on how to address these?
9. What are your thoughts on the existing permit process? Working? In need of change?
10. What are your thoughts on how to reach CB wetland restoration goals on ag lands?

Appendix B: Organization and Agencies Interviewed by State

| Organization | Participating States | | | |
|---|----------------------|----|----|----|
| | PA | MD | DE | VA |
| Federal | | | | |
| NRCS, State Office (state conservationists, conservation staff, GIS staff, program staff) | X | X | X | |
| NRCS District/County Offices | X | X | | X |
| US Army Corps of Engineers | X | | | |
| US Fish and Wildlife Service | X | X | X | X |
| Farm Service Agency | | X | X | |
| State/ County Government | | | | |
| County Conservation Districts | X | X | X | |
| DE Dept. Natural Resources and Environmental Control | | | X | |
| MD Dept. Natural Resources | | X | | |
| MD Department of the Environment | | X | | |
| PA Dept. Environmental Protection | X | | | |
| PA Fish and Boat Commission | X | | | |
| PA Dept. Conservation Natural Resources | X | | | |
| VA Dept. Game and Inland Fisheries | | | | X |
| Conservation Partners/ University | | | | |
| Chesapeake Bay Foundation | | | | X |
| Chesapeake Bay Trust | | X | | |
| Delaware Wildlands | | | X | |
| Environmental Concern | | X | | |
| Penn State Wetlands Center | X | | | |
| Stroud Water Research Center | X | | | |
| Private Wetland Contractors | | | | |
| 10 firms | X | X | X | |