



# CHESAPEAKE BAY COMMISSION

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## FOREST AND GRASS BUFFERS ON FARMLAND

*Accelerated Effort Required*

### INTRODUCTION

To achieve the goal of a clean Chesapeake Bay, Pennsylvania, Maryland and Virginia are relying heavily on restoration of grass and forest riparian buffers. Vegetated buffers along streams, rivers and wetlands reduce the amount of nutrients and sediments that enter nearby waters and the Chesapeake Bay. These buffers can apply to all geographies – urban, rural, industrial and agricultural -- wherever water is flowing. Pennsylvania, in their current Watershed Implementation Plan (WIP), is relying on riparian buffer restoration on farmland to achieve 16.5 percent of their nitrogen reductions goals. Maryland and Virginia are counting on them, in their current WIPs, to achieve 12.7 and 19.6 percent of their nitrogen reductions goals, respectively. Therefore, the importance of accelerated implementation and retention of restored buffers on farmland cannot be overstated.<sup>i ii</sup>

In response to Chesapeake Bay Commission (CBC) member requests for an update on progress toward meeting state riparian buffer restoration goals, this document describes buffer pollution reduction effectiveness, tracks state progress toward 2017 and 2025 Chesapeake Bay Total Maximum Daily Load (TMDL) goals based in the current WIPs, and provides recommendations to accelerate implementation. With long-standing as well as recently renewed commitments to restore riparian buffers, the region is poised to take action to accelerate implementation.

### BUFFER BACKGROUND

A riparian buffer is the zone of vegetation adjacent to streams, rivers, creeks or wetlands that reduces nutrient and sediment pollution before it enters the waterways, by trapping, converting or filtering runoff.<sup>iii</sup> Riparian buffers also stabilize shorelines preventing erosion that leads to sediment pollution. These buffers provide fish and wildlife with food and cover and moderate water temperature.<sup>iv</sup> Newly established grass or forest buffers that are at least 35 feet wide can provide credit toward achieving the TMDL goals.<sup>v</sup>

Geography matters. For example, effectiveness of riparian forest and grass buffers in reducing nutrient and sediment runoff from agricultural lands upslope of the buffer varies significantly. For forest buffers, the range is 19 to 65 percent reduction efficiency for Total Nitrogen; 30 to 45 percent for Total Phosphorus; and 40 to 60 percent for Total Suspended Sediments. For grass buffers, the range is the same for Total Phosphorus and Total Suspended Sediments. But for Total Nitrogen grass buffers receive just 70 percent of the forest buffer efficiency, earning 13 to 46 percent.<sup>vi</sup>

### IMPLEMENTATION DATA REFLECTS PROGRESS, ALBEIT SLOW AND SLOWING

The table below provides a summary of the acres of forest and grass buffers planted by Maryland, Pennsylvania and Virginia from 2010 through 2015 on agricultural lands.<sup>vii</sup> In addition to these achievements, the table shows the projected state riparian buffer targets for the 2017 TMDL interim strategy and the 2025 TMDL deadline. The chart reveals that the states and partners such as the USDA Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA) have fallen behind and need support to accelerate efforts if restoration targets are to be met.

**RIPARIAN BUFFERS: CURRENT AND PROJECTED**  
**Encompassing Agricultural Landscapes in PA, MD, and VA**  
**Chesapeake Bay Watershed<sup>viii</sup>**

	2010	2011	2012	2013	2014	2015	2017 Interim Strategy	2025 WIPs
<b>Pennsylvania</b>								
Forest Buffers	61,129	69,180	70,128	54,843	58,459	58,536	65,000	158,813
Grass Buffers	4,752	6,256	6,678	5,345	6,133	6,311	7,500	46,885
<b>Total Buffers</b>	<b>65,881</b>	<b>75,436</b>	<b>76,806</b>	<b>60,188</b>	<b>64,592</b>	<b>64,847</b>	<b>72,500</b>	<b>205,698</b>
<b>Maryland<sup>ix</sup></b>								
Forest Buffers	20,926	21,375	21,795	22,339	22,599	22,776	21,853	22,471
Grass Buffers	46,265	48,327	50,022	51,635	52,095	52,435	48,524	50,028
<b>Total Buffers</b>	<b>67,191</b>	<b>69,702</b>	<b>71,816</b>	<b>73,974</b>	<b>74,694</b>	<b>75,211</b>	<b>70,377</b>	<b>72,499</b>
<b>Virginia<sup>x</sup></b>								
Forest Buffers	16,942	18,629	19,407	19,707	19,742	19,851	20,540	99,437
Grass Buffers	24,912	34,735	24,559	27,168	26,118	27,452	71,235	140,959
<b>Total Buffers</b>	<b>41,854</b>	<b>53,363</b>	<b>43,965</b>	<b>46,875</b>	<b>45,860</b>	<b>47,303</b>	<b>91,775</b>	<b>240,396</b>

**THE CHESAPEAKE BAY PARTNERSHIP – COMMITTING TO GREATER RESULTS**

Restoring riparian buffers, particularly forest buffers, has been a long-standing priority of the Chesapeake Executive Council of which the CBC is a member. Building on prior Executive Council directives on forest buffers (which the CBC championed), the *Chesapeake 2000* agreement committed the Council to ensuring that measures were in place by 2002 to meet the riparian forest buffer restoration goal of 2,010 miles by 2010. In the most recent *Chesapeake Bay Watershed Agreement*, signed in June 2014, the Executive Council committed to restoring 900 miles per year of riparian forest buffer in the region.

That same month, Chesapeake Bay partners held the Chesapeake Riparian Forest Buffer Leadership Summit launching USDA and state collaboratives which assessed challenges and opportunities for riparian forest buffer restoration and identified ways to enhance and accelerate progress. Following a year of effort, each Bay state finalized recommendations in the spring of 2015.

At their annual meeting for 2015, the Executive Council endorsed recommendations arising from these federal/state initiatives and committed to work together to “align our efforts and harness available resources to increase the miles of riparian forest buffers on agricultural lands in the Chesapeake Bay watershed.”<sup>xi</sup>

Virginia, Maryland and Pennsylvania have embraced the need to energize their riparian buffer programs with new initiatives, increased funding, and expanded partnerships. For example, Pennsylvania is bringing on a statewide Riparian Forest Buffer Coordinator and recently received a grant from the National Fish and Wildlife Foundation (NFWF) for buffer installation; they have also launched their “Stream Bank” multi-functional program, designed to incentivize new profitable approaches to managing

riparian buffers. Virginia has increased state contributions to Conservation Reserve Enhancement Projects (CREP) to provide 100 percent cost share for buffers restored on agricultural lands and Maryland received NFWF and USDA funding to pilot the use of incentives tied to the nitrogen reduction benefits of riparian forest buffers in targeted areas and to accelerate purchase of conservation easements to permanently protect restored buffers. Continued focus, increased funding and program adjustments remain warranted.

## **RECOMMENDATIONS FOR ENHANCING AGRICULTURAL BUFFER RESTORATION**

The following recommendations to enhance grass and forest buffer restoration on farmland were gleaned from the federal/state initiatives referenced above and augmented from expert testimony provided during the Commission's May 2016 quarterly meeting.<sup>xii</sup> Each of these recommendations, to varying degrees, have budgetary, regulatory or statutory implications and thus will require thoughtful, thorough analysis.

- Insist that federal and state cost share programs are reasonable, predictable, and stable, foster partnerships and work-force development, and support working lands.
- Establish annual riparian buffer performance goals for local, state and federal resource agencies based upon state WIPs and 2014 Chesapeake Bay Watershed Agreement goals. These should be common performance goals for all agencies at all levels.
- Decrease inefficiencies and simplify program implementation by providing federal block grants for states to oversee technical assistance and cost share for riparian buffer restoration, through their local conservation districts.
- Provide state cost share to offer no-cost construction for riparian forest buffers projects through 2020. Offer bonus payments for implementing forest buffers in areas that provide the greatest water quality benefits and/or for contiguous riparian forest buffer stream miles to incentivize landowners to do outreach to neighbors.
- Provide high-level federal and state leadership to inspire local staff and partners to implement riparian buffers and increase outreach to farmers by creating regional specialists to service high priority areas.
- Enhance technical assistance for farmers by breaking down barriers to collaboration among local, state, and federal agencies; fully supporting engineering needs; and incentivizing third-party vendors.
- Establish a new “natural succession practice” or process to allow grass buffers to transition to forest.
- Develop new approaches and model programs that broaden participation among potential landowners of all kinds, including: flexibility in planting materials, including plants that can generate small income streams; flexibility in buffer widths that reflect new science on concentrated flow paths; non-cash incentives such as flexibility in buffer designs that work best for individual landowners; and recruitment beyond agricultural producers to other landowners where buffers will improve water quality.
- Address significant concerns regarding buffer maintenance through such actions as incentivizing contractual service through third party vendors, providing cost share or tax credit assistance and/or increasing buffer maintenance cost share through pooling of federal and state funds.
- Investigate new approaches to retain previously restored riparian buffers including enhancing local, state or federal tax credit opportunities, and providing state funds to purchase permanent easements of buffers. This is a particularly timely concern as CREP contracts on many enrolled forest buffer acres are expiring.
- Resolve reporting complications resulting from “1619” agreements between USDA and states to ensure that the states receive full credit for all restored buffers while avoiding duplicative data.

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- <sup>i</sup> Strengthening Verification of Best Management Practices Implemented in the Chesapeake Bay Watershed: A Basinwide Framework Report and Documentation from the Chesapeake Bay Program Water Quality Goal Implementation Team's BMP Verification Committee. October 2014. Appendix P. Relative Load Reductions Analysis of Source Sectors and BMPs in the Jurisdictions' Phase II Watershed Implementation Plans (WIPs), 2013.
- <sup>ii</sup> During development of the Phase III Watershed Implementation Plans in 2017 and 2018, jurisdictions can and may modify these percentages; however, buffers will remain a significant best management practice moving forward.
- <sup>iii</sup> Lee, P., C. Smith, and S. Boutin. 2004. Quantitative review of riparian buffer width guidelines from Canada and the United States. *Journal of Environmental Management* 70:165-180.
- <sup>iv</sup> Simpson, T. and S. Weammert. 2009. *Developing Nitrogen, Phosphorus and Sediment Reduction Efficiencies for Tributary Strategy Practices BMP Assessment: Final Report*. Prepared by the University of Maryland/Mid-Atlantic Water Program. College Park, MD.
- <sup>v</sup> Belt, K., P. Goffman, D. Newbold, C. Hession, G. Noe, J. Okay, M. Southerland, G. Speiran, K. Staver, A. Hairston-Strang, D. Weller, and D. Wise. 2014. Recommendations of the expert panel to reassess removal rates for riparian forest and grass buffers best management practices. Prepared by Sally Clagett, USFS Chesapeake Bay Liaison and Tetra Tech, Inc. Submitted to the Forestry Work Group of the Chesapeake Bay Program.
- <sup>vi</sup> Ibid.
- <sup>vii</sup> Buffer data provided by Jeff Sweeney, Environmental Protection Agency, Chesapeake Bay Program Office, August 5, 2016.
- <sup>viii</sup> Each state's WIP also includes restoration targets for buffers on urban landscapes. For instance, Maryland has committed to restoring over 10,000 acres of urban forest buffers by 2017 and over 26,000 acres by 2025.
- <sup>ix</sup> Revised buffer data provided for Maryland by Matthew Fleming with Maryland Department of Natural Resources, September 1, 2016.
- <sup>x</sup> As reported by Virginia, since Fiscal Year 2012, Virginia has not been able to consistently report on all riparian buffer implementation. Data for restoration projects completed by USDA, both NRCS and the Farm Services Agency, has not been made available to the Commonwealth in a format that avoids duplicative reporting. Virginia is in ongoing discussions with NRCS but, to date, there is no resolution to this problem due to issues related to 1619 agreements. Virginia also reports that for Fiscal Year 2016, the Department of Conservation and Recreation (DCR) estimates that 1,045 acres of additional grass buffer and 142 acres of forest buffers were installed. DCR also estimates that with SL-6 (Livestock Exclusion) funds that have been obligated to date, an additional 4,700 acres of grass buffers will be installed.
- <sup>xi</sup> Chesapeake Executive Council Resolution, 2015 #1. *Endorsing State Task Force Recommendations for Increasing Riparian Forest Buffers to Meet Chesapeake Bay Goals*.
- <sup>xii</sup> Chesapeake Bay Riparian Forest Buffer Initiative: Final Report. Prepared by the Alliance for the Chesapeake Bay. September, 2015.