HB 1284

COMMITTEE – Environment and Transportation

Testimony on HB 1284 (Terrasa)

POSITION - Support

Hearing Date - March 6, 2024

Good afternoon. My name is Allegra Cangelosi, a Maryland citizen of 35 years and environmental professional whose work focused on Great Lakes environmental protection and management (retired). Thank you for this opportunity to testify on HB 1284. My testimony today is IN **FAVOR of HB 1284.**

In short, HB 1284 is the only pending legislation on stream restoration that incorporates the critical interdependency of trees, upland stormwater drainage characteristics and stream life into MD policies. Yet this interdependency is the lifeline of stream systems—urban or otherwise—and we ignore it at our peril. As such, this bill also best charts the course for ultimately incorporating stream restoration activity for stormwater management into fundamental Clean Water Act and Chesapeake Bay Restoration Program goals and objectives, embraced by the state of Maryland.

The Urgent Need to Do Right by Our Streams: Streams and stream valleys are an extremely valuable but finite resource benefiting Maryland communities and environment in multiple ways. They are often the only natural areas present in urban and suburban areas providing a healthy habitat for diverse native plant and wildlife communities. Wooded natural stream valleys provide critical human health benefits such as recreational opportunities and connections with nature. In our era of global warming, they lessen heat island effects. Healthy stream systems also absorb stormwater and replenish and purify groundwater. Critically for our children, they provide big-picture ecosystem services such as carbon sequestration, oxygen production, and biodiversity protection.

At present, Maryland's streams and stream valleys are seriously degraded and as such they are unable to deliver these vital services to Maryland residents and ecosystems.[1] Land development has created large areas of impervious surface such as roads and roofs. These impervious surfaces, along with increased storm intensity due to climate change, cause excessive stormwater runoff flowing into Maryland streams. These heavy flows erode stream banks and cause flooding, damaging property and community spaces, and seriously degrading stream ecosystems. Unfortunately, due to inadequate state guidance and incentives, projects to "restore" streams often make these matters worse. HB 1284 would go a long way toward rectifying this situation.

Drivers of Stream "Restoration" Projects in Maryland: The EPA established Total

[1] Nelson, Kären & Palmer, Margaret & Pizzuto, James & Moglen, Glenn & Angermeier, Paul & Hilderbrand, Robert & Dettinger, Michael & Hayhoe, Katharine. (2008). Forecasting the Combined Effects of Urbanization and Climate Change on Stream Ecosystems: From Impacts to Management Options. Journal of Applied Ecology. 46. 154 - 163. 10.1111/j.1365-2664.2008.01599.x.

Maximum Daily Load limits on municipal stormwater discharges to reduce inputs of critical pollutants into the Chesapeake Bay in 2010, essentially creating a "pollutant diet" to restore the Chesapeake ecosystem to a healthy state.[2] As owners/operators of permitted municipal separate storm sewer systems (MS4s), municipalities (primarily) in Maryland receive permits to discharge storm water contingent on actions to reduce their nitrogen, phosphorus, and sediment loadings into the Chesapeake Bay, known as water quality credits. The Maryland Department of the Environment (MDE) awards credits to municipalities for restoration actions they directly or indirectly undertake to earn them. Stream restoration (as defined by the state of Maryland) is a common way for stormwater dischargers to generate required credits within this Total Maximum Daily Load Reduction system. A second driver of stream restorations in Maryland is the ability of projects to generate credits which can be banked and later applied to offset damages by proposed new development. Whether in service to state water quality objectives or offsets, credit generation is the primary driver of "stream restoration" project applications. In both cases, credit generation is now big business for both municipalities and contractors. HB 1284 effectively works within this complex regulatory framework to improve stream restoration project outcomes in Maryland.

Stream Restoration Approaches in Play: Three fundamental types of stream restoration approaches have been described in the scientific literature: those focused on heavily engineered stream bank reinforcement, those incorporating ecological considerations but still focused solely on alterations of the stream channel, and those incorporating measures addressing the broader watershed area to attenuate storm water run-off to the stream bed.[3] All of these approaches are provided for in MDE's Accounting Guidance.[4] The first two, involving construction equipment, are termed "stream restoration", and the latter approach, incorporating stormwater reduction from upland areas, and maintenance of stream ecosystems and forests, are termed "Best Management Practices (BMPs)" in the MD Accounting Guidance. The terminology is ironic because "stream restoration" methods are destructive of streams, while BMPs do the most to restore and sustain them over time.

The heavily engineered approaches, (also known as "designed" approaches in the literature) use wholesale stream bank and channel alterations and reinforcements in an attempt to and armor stream banks and modify physical forces driving stream flow rates during storms.[5] They necessitate severe disruption of existing stream ecological communities, including removal of mature trees to give heavy construction machinery

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[2] https://www.epa.gov/chesapeake-bay-tmdl

[3] Palmer, Margaret & Hondula, Kelly & Koch, Benjamin. (2014). Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals. Annual Review of Ecology, Evolution, and Systematics. 45. 247-269. 10.1146/annurev-ecolsys-120213-091935.

[4] "Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits" https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N 5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf 1 RESOURCES

[5] Wortley, Liana & Hero, Jean-Marc & Howes, Michael. (2013). Evaluating Ecological Restoration Success: A Review of the Literature. Restoration Ecology. 21. 10.1111/rec.12028.

access.[6][7] As new construction, they also require long-term maintenance as the unmitigated stormwater input flows continue and damage the new stream bank structure. Studies have found that stream restoration projects like these fail to show evidence for biological improvement (uplift) for aquatic organisms.[8] Increasingly, biological components are being factored into stream restoration projects, but even these efforts remain solely focused on the stream channel, limiting their capacity to attenuate the upland drivers of streambed erosion. Sadly, under current MD law there is no requirement for stream restoration outcome assessment. The MDE, and too often the public, just assume these methods result in "restoration". Science is showing that they do not.

Fortunately, as noted above, far less disruptive, and more effective approaches (termed BMPs) are also authorized in the MD Accounting Guidance.[9] Scientific evidence is showing the alternative approaches such as these are more effective than engineered approaches at reducing stormwater damage and restoring biological assets of streams.[10,11] BMPs aim to address run-off into subject streams from upland areas. Techniques include strategic use of rain gardens, bioretention techniques, tree plantings (as opposed to counterproductive tree removal), permeable pavement, and native lawn vegetation. These upland practices reduce stormwater run-off before it can enter streams and can ultimately eliminate the need for disruptive streambed alterations altogether. This more integrated "green" approach better preserves existing stream ecosystem assets supporting Maryland's objective of increasing wildlife habitat generally. Finally, addressing run-off at its sources also costs the public less over time.[12]

Benefits of HB 1284

The authors of HB 1284 propose changes to Maryland's stream restoration permit

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[6] Wood, K.L., Kaushal, S.S., Vidon, P.G. et al. Tree trade-offs in stream restoration: impacts on riparian groundwater quality. Urban Ecosyst 25, 773–795 (2022). https://doi.org/10.1007/s11252-021-01182-8

[7] Laub, Brian & McDonough, Owen & Needelman, Brian & Palmer, Margaret. (2013). Comparison of Designed Channel Restoration and Riparian Buffer Restoration Effects on Riparian Soils. Restoration Ecology. 21. 10.1111/rec.12010.

[8] See: Hildebrandt et al Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland Final Report Submitted to the Chesapeake Bay Trust for Grant #13141. Robert H. Hilderbrand and Joseph Acord, Appalachian Laboratory University of Maryland Center for Environmental Science And Collaborators Timothy J. Nuttle and Ray Ewing Civil and Environmental Consultants, Inc. 333 Baldwin Road, Pittsburgh, PA 15205

[9] "Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits" https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N 5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf 1 RESOURCES

[10] Pennino, Michael & McDonald, Rob & Jaffe, Peter. (2016). Watershed-scale impacts of stormwater green infrastructure on hydrology, nutrient fluxes, and combined sewer overflows in the mid-Atlantic region. Science of The Total Environment. 565. 10.1016/j.scitotenv.2016.05.101.

[11] Fejerskov, Morten & Kristensen, Klaus & Friberg, Nikolai. (2014). Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?. PloS one. 9. e108558. 10.1371/journal.pone.0108558.

[12] https://www.fema.gov/pdf/about/regions/regionx/Engineering_With_Nature_Web.pdf

process, the ultimate driver of the nature of stream work in Maryland, to grapple with the difference between "stream restoration" as it is defined in MD Accounting Guidance and restoration of stream health, more generally. It proposes critical changes to the overall program to assure that Maryland does not permanently damage stream valleys in the process of carrying out stormwater management work. For example, the legislation will:

- Create clear requirements for mature tree conservation and increase accountability relative to it.
- Remove the current MD waiver on stream work application fees to generate funds for better program oversight.
- Reduce the fee for projects requiring less acreage to incentivize less wholesale stream valley destruction in the name of stream work.
- Require definitive upfront planning and outcome monitoring around critical tree conservation and biological uplift endpoints in stream work.
- Requires upfront plans for how the project will avoid unintended consequences enumerated in Maryland's "A Unified Guide for Crediting Stream and Floodplain Restoration Projects in the Chesapeake Bay Watershed".
- Keeps authority and discretion over project approvals squarely with the state of Maryland, rather than creating an industry-driven recommendation system (i.e., see Licensing Board provisions of SB 798 and SB 969)
- Creates public notice and input opportunities commensurate to the serious public interest in the nature and outcomes of these stream projects in Maryland.
- Increases transparency of MDE decisions regarding stream work applications and their outcomes.

Conclusion

HB 1284 is the only legislation before this chamber which takes a strategic look at the actual causes of stream degradation in Maryland so that the problem can be addressed in the long term. It is also the only legislative proposal which corrects the current drivers within the MD's regulatory system—of counterproductive stream valley destruction and tree loss which is occurring in the name of "stream restoration projects". **As a result of the importance of these provisions and with great appreciation to the bill's sponsors for doing the hard work, I urge the Committee to support this legislation. Thank you.**

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