JEN TERRASA
Legislative District 13
Howard County

Environment and Transportation Committee

House Chair
Joint Committee on Children, Youth, and Families

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THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

March 6, 2024

To: The Honorable Marc Korman
Chair, Environment and Transportation Committee

From: Delegate Jen Terrasa
District 13, Howard County

Re: Sponsor Testimony in Support of HB1284 Wetlands and Waterways Program - Stream Restoration Projects

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Dear Chairman Korman, Vice Chair Boyce, and Members of the Environment and Transportation Committee,

Thank you for the opportunity to present HB1284, which relates to how stream restoration projects are approved by the Maryland Department of the Environment. This is a modification of a bill that I presented in 2023 and is the result of three years of research into the issue.

The term stream restoration sounds like it's a good thing. Who wouldn't want their stream restored, especially when the modeling shows this has positive impacts on the bay? What we've learned though is these projects can be quite destructive to the existing environment and there are many unintended consequences, such as loss of mature trees, not accounted for in the current process for approving stream restorations. There are not just a few "bad actors." The problem is that projects have been approved based on limited criteria.

There are always trade-offs but our current system should have more guardrails that take a holistic look at stream restorations. HB1284 is an attempt to put those guardrails in place and make sure MDE has the tools to appropriately evaluate these projects.

BACKGROUND

Local governments are required to meet municipal separate storm sewer system (MS4) permits and EPA approved total maximum daily loads (TMDLs) which limits the amount of nutrients and sediment that can enter the Chesapeake Bay and its tidal rivers to meet

water quality goals. These goals were established as part of the Chesapeake Bay Agreement between several states and the federal government to reduce pollution and restore the Bay ecosystem. In order to accomplish this, the Chesapeake Bay Program has created a listing of various “best management practices” (BMPs) and model formulas for giving credit to jurisdictions.

MDE has taken that model and developed what is known as accounting guidance for how to calculate the BMPs. The way stream restoration projects are calculated makes them a particularly attractive method for managing stormwater wasteload allocations (MS4/TMDLs). Stream restorations are one of the main BMPs currently used by local governments for MS4 permits and TMDLs. This is in part due to the relatively high number of credits that are given for stream restoration as opposed to other BMPs.

However, despite modeling calculations that indicate we should have made significant progress, we know that all the efforts and BMPs have not resulted in their intended effects. The recent report from the Chesapeake Bay Program, known as CESR (A Comprehensive Evaluation of System Response) summarizes the evaluation of why progress toward meeting the TMDL and water quality standards has been slower than expected.

UNINTENDED CONSEQUENCES

One of the major reasons that modeling calculations haven’t lined up with what is actually happening in the bay is that the BMPs don’t take into account unintended environmental impacts.

Unintended environmental consequences were included in the Bay Program’s *Unified Guide for Crediting Stream and Floodplain Restoration Projects:* “Stream restoration projects have the potential to exert unintended environmental consequences, particularly if they are poorly assessed, located, designed or constructed. Unintended environmental impacts have been observed in restored stream channels, floodplains and downstream ecosystems. All stream restoration design approaches have the potential to cause unintended consequences.” See the attached chart that reviews the potential unintended impacts associated with stream and floodplain restoration projects.

And in fact, that’s what has happened. Stream restoration projects can and often are very destructive to the existing environment. Forests and vegetation are torn out to alter the channel structure of streams. These changes disrupt the surrounding habitats and ecosystems, hurting various wildlife that depend on these environments. In addition, these projects have not been effective in stopping stream bank erosion and, in some cases, have left the stream and its water health in worse shape.

IMPACT ON TREES

Again, the way it works is that these projects are approved based on modeling – what project designers and regulators **estimate** will happen if a stretch of streambank is re-engineered to flatten out the banks so that they are no longer incised. Tons of phosphorus, and nitrogen are potentially removed from flowing downstream. However, to do that, mature trees 50-feet on either side of the stream can be removed. And the modeling does not consider the benefits of these trees in trapping nutrients, treating groundwater, and stabilizing the banks; let alone the role they play in air quality, keeping the stream shaded and cool, and providing habitat for wildlife. The modeling does not calculate the loss of benefits when trees are removed.

Another concern is that projects generally don't require monitoring of water quality and biodiversity. Fish, insects, and micro- and macro-invertebrates are clear indicators of the health of a stream. If those things aren't tested, before AND after a project is done, then how do we really know if all the work is producing the desired result of a healthier Chesapeake Bay? Right now, many times the requirement for success is simply stream **stability**.

PUBLIC ENGAGEMENT

The other significant problem we have heard from constituents is that there is a lack of transparency around how and why stream restoration projects are done. Residents who have a mature forest or stand of trees in their neighborhood with a stream in it (that has significant erosion) have gotten letters in the mail or seen signs posted that the stream is going to be "restored" and "**some** trees **may** be removed" and that there will be new trees planted as part of the project. So, people think that sounds like a pretty good thing and don't ask for more detailed information. However, what happens in some cases is that huge construction equipment comes in and takes out all the trees and transforms the area into what appears to be a barren landscape - completely altering the character of the neighborhood, and residents get very upset.

WHAT THE BILL DOES

HB1284 is intended to put some guardrails around how stream restoration projects are authorized by MDE. The bill requires applications for projects to include:

- how it will improve or align with the following measurable and quantifiable goals regarding biological uplift, ecological uplift, Chesapeake Bay water quality, forest conservation, and climate change;
- a plan for monitoring of biological community health and water quality both upstream and downstream;
- a plan for minimizing tree removal including a map for which trees will be removed and how any additional trees removed will be accounted for (so residents know what is happening before hand);
- measurable and quantifiable standards for determining stream restoration success

- a plan for addressing related upland BMPs; and
- a plan for addressing potential unintended environmental impacts.

The bill promotes transparency by requiring a robust community engagement process that provides an opportunity for public input and for MDE to maintain information about project results on its website. HB1284 also requires MDE to develop regulations that account for tree loss and a respective decrease in credit allocation. It also removes the fee exemption for stream restoration projects.

To meet our goals for improving the health of the Chesapeake Bay, we need to make sure that we are actually implementing practices that are not just based on limited models. We need to stop incentivizing work that doesn't take into account the whole impact of the project.

I respectfully urge a favorable report of HB1284.

Attachment:

Table 19. Review of Potential Unintended Impacts Associated w/ Stream and Floodplain Restoration Projects

Impact [1]	*Project Stream Channel*
Depleted DO	Associated with stagnant surface waters and high dissolved organic carbon. Often observed as seasonal.
Iron Flocculation	Observed in both restored and unrestored streams. Associated with high dissolved organic carbon, anoxic conditions and the use/presence of ironstone.
Warmer Stream Temps	Associated with loss of tree canopy in the riparian corridor. Stream and floodplain connection to groundwater in the hyporheic aquifer can mitigate increased temperatures.
More Acidic Water	Associated with disturbance of channel and floodplain soils during construction.
More Stream Primary Production	Associated with loss of canopy cover in the riparian corridor.
Benthic IBI Decline	Associated with construction disturbance, with recovery to pre-project levels in some cases.

Construction Turbidity	Sediment erosion during construction, especially when storm flows overwhelm instream ESC practices
Floodplain/Valley Bottom/Downstream Ecosystems	
Project Tree Removal	Riparian/floodplain forest losses are common due to clearing for design and construction access.
Post-Project Tree Loss	Field and lab studies show that long-term soil inundation results in mortality and morphological changes in tree species.
Invasive Plant Species	Construction disturbance and frequent inundation of the floodplain can serve as vectors for invasive species along restored and unrestored streams.
Change in Wetland Type or Function	Changes in vascular plant communities as a result of floodplain inundation are expected and may be desirable or undesirable depending on the habitat outcome.
Downstream Benthic Decline	Associated with changes in habitat conditions, and construction disturbance. Changes may be temporary.
Blockage of Fish Passage	Incision, large drops or structure failures can impede passage. More study needed

[1] Impacts are defined in relation to the stressors measured in a comparable unrestored urban stream/floodplain system.