HB1284 – Wetlands and Waterways, Stream Restoration Projects

COMMITTEE- Environment and Transportation

Testimony on HB1284

POSITION – FAVORABLE

Hearing Date--March 6, 2024

Thank you for this opportunity to testify on behalf of the grassroots organization Protect Our Streams. My name is Sharon Boies.

Maryland's natural stream ecosystems are complex, biodiverse, unique, and irreplaceable. They are threatened habitats, vanishing due to our neglect, and perhaps, unintentional blessing. Maryland's remaining fragments of forest and forested stream corridors provide tremendous benefits to the surrounding communities and the environment in multitudinous ways. Mature forests sequester carbon, produce oxygen, filter greenhouse gasses, provide shade and counter heat island effects, they capture up to 50 percent of the precipitation that falls in a watershed and they absorb nutrients and stormwater runoff. They capture and retain silt and sediment, they replenish and purify the groundwater. Mature forests and trees provide critical food and habitat for insects, birds, bats and other mammals. They provide us with forest-bathing, bird watching and other healthy recreational activities connecting us to nature. Mature trees reduce noise and light pollution, they provide a buffer from wind and the elements. These ecosystems, when healthy, improve our quality of life.

Please watch this short video, we are losing our oak trees to stream restoration work at an alarming rate.
https://www.youtube.com/watch?v=0D0zp7Q4YnE -

Please review the image of the air pollution over Howard County and Central Maryland, we need our mature trees.https://www.nasa.gov/press-release/nasa-shares-first-images-from-us-pollution-monitoring-instrument/ -

Maryland's forested riparian zones, wildlife corridors, and natural streams are diverse, and not all streams have floodplains. Many Maryland streams begin as cold and cool springs and are the headwaters for crucial sources of our clean drinking water. Remarkably, urban streams flourish despite negative impacts of deforestation, development, and the hardening and paving of surfaces. Climate change increases levels of polluted stormwater runoff that is discharged into them, yet they still flourish, they thrive, and they support a wide range of life from the macroinvertebrates, fish, mussels, and crayfish in the stream, to species such as snakes, turtles, amphibians, reptiles, salamanders and newts that all rely on these unique ecosystems for their species existence. Even species of owls hunt for aquatic species in our streams. They are strong because these biological species have co-evolved over untold amounts of time as a community. Their resiliency is in their DNA, from the microbes in the soil and stream beds, to the riparian and aquatic flora and fauna, to the trees themselves. Leaves from mature trees feed the stream and create soil, and have done so for eons.

Maryland has thousands of miles of streams of various types, including those without floodplains, where trees can reach more than one hundred years in age. Stream valley tree assets and sloped stream banks also perform services to neighboring communities The Columbia Association had a climate vulnerability study performed that determined the sloped stream banks in Columbia's forested stream valleys were keeping the streams in the channel between the stream banks and safe from flooding people's property.

Maryland's forested stream corridors and native streams are in jeopardy of being "restored" for obligatory pollution and mitigation credits to allow permanent environmental harm to take place elsewhere. Most stream restorations in Maryland involve heavily engineered stream restoration practices, highly destructive to trees and other stream life. As you may know, our state requires municipalities and other MS4/NPDES permit holders to obtain water pollution credits through stream restoration and other upland stormwater runoff related activities in Maryland watersheds. Maryland also requires developers of sensitive locations to purchase offsite "mitigation credits" if they are unable to satisfy environmental requirements within the boundaries of their construction projects of these sensitive habitats.
With few stream restorations taking place that aren't for one or the other type of credit, it's fair to say the primary driver of " stream restoration" project proposals is for some type of credit generation and is now big business for stream restoration contractors and associated professions.

Typical stream restorations involve heavy construction machinery in our most sensitive habitats. This heavy machinery uses diesel fuel subjecting neighborhoods, parks, citizens and wildlife, stream water and aquatic species, to the noise and diesel fuel fine particulate matter for months on end. Meanwhile, they clear away the natural filters of the toxins – the mature trees. This heavy machinery brings endless dump truck loads of imported rock to line and armor newly fabricated stream channel, bed and banks. The dump trucks haul out loads of rich topsoil. The excavators further degrade and compact the remaining soil and stream beds, and alter the watershed hydrology as they drive machinery in the streams to fill them in with imported substrates. All of this artificial stream bed, channel and wall material is prone to washing away downstream during large rainfall events. It also has the effect of scouring away the stream banks and altering natural stream meanders. Step pools, a frequent component of these engineered "restorations" create a series of dams and impoundments to collect sediment in the pools in the stream. However, without maintenance they fill back in over time and limit or even prohibit fish passage permanently They also eliminate altogether certain aquatic species ability to exist in those reaches and tributaries. It's confusing to residents as they watch their healthy, mature forests leave stacked on the backs of heavy log trucks
Needless to say, the carbon footprints of these projects are incalculable.

For a better sense of the dramatic and destructive nature of these operations, please watch this short video of a typical stream restoration:https://www.youtube.com/watch?v=NvTvPnG6Qs8

One would hope that at a minimum these disruptions and associated losses would at least deliver stormwater management benefits. Not the case. Stream restorations have a life expectancy of approximately 10 years or so, and are prone to "blow outs" during heavy rain events. They can cost more to repair than the original project. An example of this can be found

in the Lower Booze Creek restoration
(https://www.montgomerycountymd.gov/water/restoration/booze-creek.html)

It is well-known that these heavily engineered approaches that can remove 100 year old forests in a few months time, can result in serious,y often long lasting or even permanent, negative consequences, including:

Extensive tree loss – Tree loss has a domino effect and leads to loss of wildlife and biodiversity. Entire populations of species of flora and fauna are removed and never repopulated. These projects don't just remove the number of large trees that they count on project plans, these projects strip the area clean of all vegetation. Also, hundreds of smaller species of trees, plants and shrubs, also vital to the ecosystem, are removed and never counted as a loss. Invasive species quickly move into the new conditions.

There are numerous studies that conclude stream "restoration" projects like these lack effectiveness in biological improvement (uplift) for aquatic organisms, even over time. Restorations can deoxygenate the stream water, increase turbidity, and alter the pH levels and warm the water temperature, all conditions to which stream life has adapted over the eons. . Restorations rely on the remaining flora and fauna in the unrestored areas to re-populate the area with the species that were lost but with no food sources such as seeds, nuts or acorns, and leaves in the stream for the macroinvertebrates, and cut down habitat, there can be little to come back to. These streams will remain biologically impaired for an undetermined amount of time and possibly forever.

Stream restorations advocates state they improve the water quality of our streams and the Chesapeake Bay. But there is little empirical evidence to support their argument. Until careful monitoring is carried out through baseline testing of water quality and bio-indicators, and stream bank erosion rates measured with bank pins (not just visual checks), who can say if this is true?

We also need better evidence that a stream needs to be restored especially if the stream in question is currently healthy enough to sustain life. All allowed projects should be based on a needs assessment involving empirical evidence through baseline testing. They should also be subject to long-term post construction monitoring to determine if the project was successful. ,

To summarize, many of these conversions of natural and native fragile ecosystems to stormwater management facilities is causing expensive, negative consequences and long term harm. We allow stream restorations for credit generation at the expense of our state, our natural resources, our environment and quality of life. Too little accountability is woven into the process though precious Maryland assets are at stake.

4. There are 31 alternative approaches for obtaining obligatory credits within MDE's Accounting Guidance manual which preserve mature trees by adding credit values to BMP's in the upland watershed which have demonstrated green techniques to reduce silt and sediment and capture, collect and store stormwater runoff where it is occurring and before it reaches the streams. These alternative practices are far less destructive but are underutilized.
Some of these practices include ;

- Bioretention techniques,
- Tree plantings as opposed to removal for stream restorations,

- Street sweeping,
- Wet and dry ponds, and conversion to pervious surfaces.
- Converting lawns to bay-scaping and native lawn vegetation,
- Rain gardens and rain barrels, green roofs
- County run Green Streets programs. By reducing gritty, polluted stormwater runoff before it reaches the streams, we are restoring the streams.

Stream restorations treat the symptom but not the cause. Stream restorations do not cure anything.

5. Maryland law should incentivize tree and ecosystem preservation by incentivizing upland, out-of-stream channel practices that capture runoff before it reaches the stream. It should revise the current TMDL accounting guidance with the input from a scientific advisory panel comprising experts with no financial stake in the stream restoration industry. Maryland law should reallocate credit values for upland practices and to reduce credit values for tree removal and failed projects and also to include maintenance of upland BMP's,and new pollutants such as PFAS and chloride.
Additionally, mitigation banks could produce credits on acreage amounts of mature forest preserved per year. So 5 acres could earn an amount of credits annually to just leave them in place, as an example.

In conclusion: by providing a favorable report and passing HB1284 as law, our forested stream corridors and their wildlife inhabitants could stand a chance of surviving;. HB 1284 provisions provide important protections to Maryland streams and all of us who depend upon them. . It would:

- Preserve and protect sensitive areas, our quality of life, fragile ecosystems, native wildlife and plant species to maintain our biodiversity and headwater sources of our clean drinking water;Improve the health and water quality of the Chesapeake Bay;
- Provide additional funding to MDE by eliminating the exemption of application fees for stream restoration projects;
- Require pre- and post-project mature tree maps and a preservation plan with before and after comparisons and a before and after impact report;
- Require applications to include plans that specify how projects will improve or align with goals regarding biological and ecological uplift, water quality, forest preservation, and reduce the impacts of climate change;
- Require expanded public notice, transparency, and community engagement in the process;
- Require MDE to list information about each project throughout the permit process from the application to post construction monitoring and credits issued.
- Disallow solicitation of stream restoration projects. Selection for these projects should never be determined by just who will allow it.

After over 700 restorations in our state, these practicioners, are still asking you for a $20 million dollar pilot project after 30 years of performing them, 700 projects should be enough to study and evaluate the results of this practice without any more occurring to make that determination. By voting in favor of HB1284, My hope would be that stream restorations practices in Maryland will become more aligned and consistent with what the current science suggests we must do to

improve the health of our streams and to reduce the unintended consequences as a result of currently used processes.

Thank you for this opportunity to submit testimony regarding the possibilities for improvement to the process that HB1284, Delegate Terrasa's common sense and common courtesy, bill will provide.
I urge you to please vote in favor of this bill.

Thank you for your favorable report.

Sharon Boies

Columbia MD

Protect Our Streams

RESOURCES

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%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf 1

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https://www.epa.gov/chesapeake-bay-tmdl

https://www.fema.gov/pdf/about/regions/regionx/Engineering_With_Nature_pdf

https://www.baltimoresun.com/2023/10/13/environmental-groups-concerned-by-upcoming-construction-along-herring-run-in-northeast-baltimore/ - Please read this article about a neighborhood who could be impacted by a project.

https://www.thebaltimorebanner.com/community/climate-environment/stream-restoration-howard-county-plumtree-branch-EZWMOFQ4ONFNHPPNKTBIKQXGBM/?schk=&rchk=&utm_source=The+Baltimore+Banner&utm_campaign=9a3781df72-NL_AMSC_20231103_0600&utm_medium=email&utm_term=0_-9a3781df72-%5BLIST_EMAIL_ID%5D&mc_cid=9a3781df72&mc_eid=03e98bc6d3 - Please read this article about a neighborhood that stood to be impacted by a proposed project

https://www.baltimorebrew.com/2023/12/23/restoration-of-baltimores-stony-run-is-failing-again-residents-and-scientists-say/ - please read this article

The following are additional articles and studies that all show that stream restorations are not achieving their stated goals and purposes;

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Hilderbrand, Robert H. 2020. Determining Realistic Ecological Expectations in Urban Stream Restorations. Study funded by Chesapeake Bay Trust Award #15823.

Howard County DPW NPDES Permit MD0068322 Annual Report for Fiscal Year 2021.

The annual update of results from watershed monitoring includes several watersheds in which “stream restorations” had occurred in prior years. The results are as follows:

- Wilde Lake – the report discusses the erosion and sedimentation status of the upstream reach (the location of the Longfellow “stream restoration” project) and the downstream reach. As of 2021, the “upstream reaches are not experiencing the same level of erosion as the downstream reach and have remained relatively stable over 2017-2021 period”. Given this observation, it is not clear why a “stream restoration” project was implemented in the upper reach in 2020-21. The report goes on to state that a “newly constructed stream restoration project in the upstream reach should provide increased stability”. Since the upper reach was not exhibiting any instability, it is not clear how such a destructive project in that area, removing acres of trees, can be expected to provide “increased stability”.
- Red Hill Branch – This area is downstream of the Bramhope Lane stream restoration project done in 2011. The monitoring in 2021 found no improvement in water quality. The biological monitoring results “have not shown any significant improvement after restoration”. The results did show a reduction in erosion, but noted that flood damage to an upstream debris dam had contributed sediment into the survey area.

- Dorsey Hall – The post-restoration biological and physical monitoring results showed that “habitat results have been similar throughout the post-restoration period”, with the sites falling into the lowest “severely degraded” category. The physical habitat results show that both monitored sites continue to be severely impacted, “with no evidence yet of ecological uplift after restoration”.

Howard County DPW NPDES Permit MD0068322 Annual Report for Fiscal Year 2022.

The annual update of results from watershed monitoring includes several watersheds in which “stream restorations” had occurred in prior years. The results are as follows:

- Wilde Lake – The water quality results continued to show elevated total suspended solids concentrations. With respect to biological monitoring, the report states “Overall, the stream system in the Wilde Lake watershed continues to exhibit evidence of the urban stressors affecting it and has not demonstrated measured improvement in either habitat quality or ecological stream health over the seventeen years of monitoring.”.
  Most concerning is the geomorphic assessment, conducted long after the Longfellow project was completed. The text states “The main goal of the monitoring is to assess the temporal variability of the geomorphic stability of the stream channels upstream of the lakes as they react to restoration activities. Overall, implementation of projects in the watershed do not appear to have significantly improved the physical habitat in the tributary streams.”
- Red Hill Branch – This area is downstream of the Bramhope Lane stream restoration project done in 2011. The monitoring in 2021 found no improvement in water quality. The biological monitoring results show that “post-restoration monitoring results indicate a subwatershed in an overall degraded ecological condition, with little change from the first two years of pre-restoration monitoring.” In fact, the BIBI scores in 2022 were “slightly worse results than during 2021”. Habitat assessments in 2022 were “nearly identical to 2021 and 2020 results”, with all sites rated as “degraded”. The text states “The biological community and habitat continue to fluctuate slightly from year-to-year, with 2022 results a slight decrease from 2021, but remain in a degraded condition and have not shown any significant improvement after restoration. The report did note that there had been reductions in erosion.
- Dorsey Hall – The post-restoration biological and physical monitoring results were the same as reported for 2021. The report showed that “habitat results have been similar throughout the post-restoration period”, with the sites falling into the lowest “severely degraded” category. The physical habitat results show that both monitored sites continue to be severely impacted, “with no evidence yet of ecological uplift after restoration”.

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Palmer, Margaret A., Solange Filoso, and Rosemary M. Fanelli. 2013. From Ecosystems to Ecosystem Services: Stream Restoration as Ecological Engineering. Ecological Engineering, Vol. 65, Pgs. 62-70.

Simon, A., M. Doyle, M. Kondolf, F.D. Shields, B Rhoads, G. Grant, F. Fitzpatrick, K. Juracek, M. McPhillips, and J. MacBroom. 2005. How Well do the Rosgen Classification and Associated "Natural Channel Design" Methods Integrate and Quantify Fluvial Processes and Channel Response? Abstract from conference paper. DOI publication 10.1061/40792(173)584.

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