SB688 Info - Better for the Bay- PaveDrain Case St

Uploaded by: Aaron Fisher
Position: FAV

Better for the Bay
A Maintenance-Free Green Street

www.pavedrain.com

Quick Information

Intersection of 40th Avenue and Newark Road

Owner: Town of Colmar Manor, Maryland
Engineer: Adtek Engineering
Manufacturer & Distributor: Ernest Maier
Sensor: P4 Infrastructure-INFIL-Tracker

Installation Contractor: Capitol Hardscapes
Application: Roadway Intersection
PaveDrain Quantity: 2,350 Square Feet
Cost of System: $107,000 (including design and construction)

System Performance[1]

	Expected	Actual	Improvement
Peak Infiltration Rate (in/hr)	0.18	5.34	2867 %
48h Infiltration Rate (in/hr)	0.18	0.99	450 %
Drainage Area (sf)	8705 (2.7 to 1)	9400 (3 to 1)	8 %
Annual Cleanings	4-8	0	100 %
ESD Volume (cf^3)	376	1504	300 %

2+ Years No Maintenance

An asphalt traffic intersection in Colmar Manor, MD was replaced with PaveDrain heavy-duty permeable pavement, along with an in-situ water level sensor for performance monitoring. This project was undertaken to address the frequent stormwater challenges in the Town of Colmar Manor in Prince George's County, Maryland. Colmar Manor is one of the Anacostia River's Historic Port Towns. Many of these communities are low-income neighborhoods, and the implementation of this BMP represents restorative environmental justice. As a low-lying area with a high degree of impervious cover it is frequently challenged by poor drainage and pluvial flooding.

In the two years since it was installed the system is functioning as a roadway and stormwater BMP without maintenance, representing a commitment to environmental justice in this economically disadvantaged neighborhood. Furthermore, the use of sensors has documented stormwater performance well in excess of expected, suitable for crediting towards - giving extra credit towards - local stormwater compliance.

Completed site 2021

Completed site during rain 2022

[1] *University of Maryland Study (2023)*

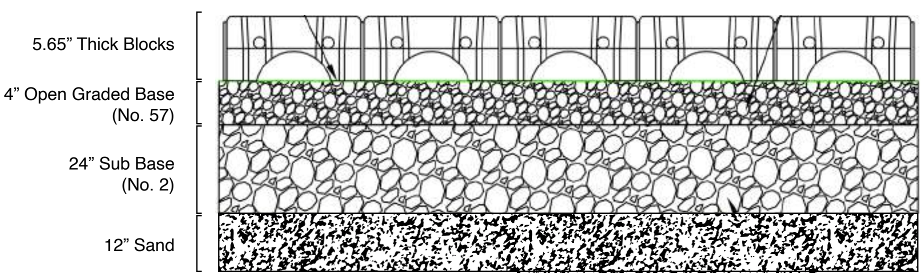
BEST ULTRA-URBAN BMP FINALIST

This system delivered significant ROI, reducing stormwater compliance costs borne by the Town, without requiring maintenance in the existing public right-of-way.

- **2 years worth of storms; Never more than 50% full**
- **Biggest 1-day storm handled: 2.41 in. (August 5, 2022)**
- **Ability to handle 5.50 in/day (1 in 11.4 years; 90-percentile value)**

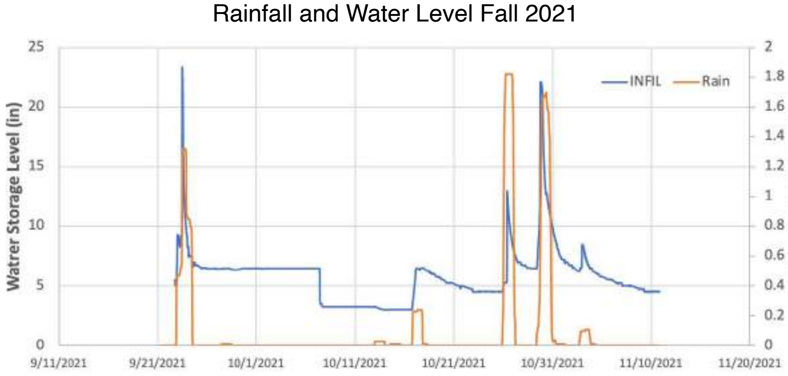
PaveDrain's Environmental Value[2]

	Amount	Value
Total Nitrogen (annual)	3.28 lbs	$ 5,141
Total Phosphorus (annual)	0.36 lbs	$ 3,740
Total Suspended Solids (annual)	0.09 tons	$ 3,600
Total (annual)		**$ 12,481**
Simple Environmental Payback Period		8.57 Years



Placement of PaveDrain system including mid-drain (converted hydraulically to overdrain with standpipe)

Placement of PaveDrain surface



Ready for the Next Event

The sensor shows the water is quickly captured in the PaveDrain base, and is almost fully infiltrated within 24 hours.

[2]Values based on Model 5.3.2 of 2014 MDE Guidance for NPDES Stormwater Permits. TN and TP values from Wainger et al 2023. SS value of $20/lb was sourced from indexing to 2023$ Lemon Bay Watershed Management Plan (2010)

SB688 Testimony - Testimony in Support .pdf
Uploaded by: Aaron Fisher
Position: FAV

The Honorable Brian Feldman, Chair
Senate Education, Energy and Environment Committee
Miller Senate Office Building, 2 East
11 Bladen Street
Annapolis, MD 21401

Testimony in Support – Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Committee:

My name is Aaron Fisher, here in support of Senate Bill 688. The key challenge in streambank restoration work is that it foolhardily believes we can engineer a better waterway—we are **Mansplaining Mother Nature**.

Ever since I can recall Maryland has prioritized Saving the Bay. 40+ years of stormwater work and over $15 billion in restoration activities has resulted in 2025 being the 2nd lowest crab count on record in the Chesapeake Bay.[1] Mother Nature is telling us we aren't succeeding. Not listening would be insulting.

For millions of years rain fell everywhere, and it was managed locally; it infiltrated where it fell. Development—houses, roads, and parking lots—disrupts this distributed model of stormwater management. Prioritizing on-site management practices, within a defined property line, is the most natural effort to restore water quality in Maryland. Research by the University of Maryland shows this is not only possible, but cost-effective. SB688 does just this, while appropriately carving out exceptions to protect property and lives.

Diving deeper the challenge with managing runoff in a stream channel is predicting how much water and how quickly it will arrive at the stream. This is further complicated by climate change amplifying the size and intensity of storms. MDE is wisely already engaged in the process of updating their standards to reflect this new reality.

However, it doesn't take much water to go from gentle stream to raging whitewater. It takes ~½ " of water to float a car! Reducing the amount and speed of the water's movement in the watershed is critical to ensuring success in managing stormwater. Upland or out-of-stream practices do just this and potentially avoid the need for in-stream work.

[1] *Chesapeake Bay Restoration Spending Report SFY2023* and *2025 Chesapeake Bay Blue Crab Winter Dredge Survey*

Under study by the University of Maryland[2], low maintenance permeable pavement practices in Maryland have shown performance 4x greater than expected. Infiltration is the key to this success. This work in the Anacostia watershed challenged the maxim that clay soil is an impediment to infiltration. Sensors showed the clay soil infiltrated water up to 20x faster than rules anticipated. Furthermore, there was no run-off from this roadway. This very repeatable kind of work reduces the burden downstream on Maryland waterways.

Many other jurisdictions nationally are similarly prioritizing infiltration practices on-site. Their stormwater manuals emulated Maryland leadership for many years. They similarly encountered underperformance in terms of water quality and quantity and have adjusted course. Maryland would be wise to listen to the lessons Mother Nature is teaching us.

I am a 4th generation Marylander. I am a pragmatic environmentalist. I've worked for water non-profits and construction companies. This is the kind of bill that shows a learning within the law, doing more of what works. Not, just doing more of the same.

Thank you for your consideration and urge a favorable report on SB688.

[2] Butters, Siena and Davis, Alan P. *University of Maryland Study* (2023).

Written Testimony re SB 0688_ HB 1465.pdf
Uploaded by: Alex Barenblitt
Position: FAV

To: Maryland State Assembly

From: Alex N. Barenblitt – 3513 Char Lil Court, Ellicott City, MD 21042,
alex@barenblitt.com, 443-904-6131

Subject: SB 0688, HB 1465 - Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

I wish to voice my support for this legislation. We have experienced the actual impact of several former stream restoration projects, and while achieving credits, they did not accomplish the goals of the projects. Further, each of these projects we have seen directly resulted in unprojected damage to the environment and wildlife and ended up needed to be addressed a few years later to make repairs resulting in additional funding requirements.

It can be described as applying a temporary fix to gain credits that does little to accomplish the goals of the project, then a few years later, a need to repeat portions of the project arise, causing further harm to the environment and wildlife.

Sincerely,

Alex N. Barenblitt

SB688 - Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations COMMITTEE - Education, Energy and the Environment
POSITION – Favorable
Hearing Date - March 3, 2026 at 1 PM

Dear Members of the Maryland Senate Education, Energy, and Environment Committee:

I am writing to you today as a resident of Takoma Park, Maryland to express my strong support for SB688. Maryland's stream systems are a major natural asset of the state which support mature trees, water quality, aquatic wildlife and quiet natural places. Attempting to convert them into primarily storm sewers (albeit "dressed up" as streams): 1) doesn't work; 2) unnecessarily degrades Maryland natural resource resilience; and 3) wastes tax-payer dollars. Fortunately, storm water management alternatives which *do* support Maryland stream health exist, and this legislation will facilitate our transition to the use of them.

It is important to note that engineered "stream restoration" projects as currently sanctioned and largely practiced in Maryland are neither effective as stream conservation/restoration measures nor storm water management measures. Rather than stream "restoration," these projects should more accurately be called "stream channel destruction and bank armoring". Invariably, mature trees are removed to allow access by heavy equipment, and natural complex aquatic communities are permanently destroyed as streambeds are excavated and replaced with new material. Notably, the replanting of saplings to replace mature tree stands, often touted as making the tree losses okay, has been shown to be ineffective. Young trees need to grow in the context of mature trees and require a range of in-place natural services to survive. Experience has shown that in the context of the aftermath of an engineered "stream restoration", most saplings lack these resources and die soon after planting (within 5-10 years). Even if they do survive, it will take decades for the saplings to deliver the ecological services once supplied by the razed mature trees. (I am pretty sure our Maryland bird life cannot wait that long in the context of rapid deforestation in the State). This highly engineered and destructive "restoration" approach also costs a lot of money in return for these very poor results. Along with upfront costs, armoring along streams invariably requires expensive repair over time as rainfall intensity and run-off increases. There is too little public transparency around these natural asset losses, costs, and the projects generally. And perhaps because these projects are so lucrative to industry, they are taking place at a rapid pace. We need better state policy to stop this needless stream ecosystem destruction …and waste of increasingly valuable public dollars.

There is in fact a far more effective alternative to stream re-engineering: upland storm water and run-off reduction through agreement with upland landowners along stream channels. Well-designed run-off reduction measures include installation of porous pavers, tree conservation and strategic vegetation plantings. Science has shown that simply slowing run-off rates to streams in this way will allow the streams to repair themselves biologically, chemically and physically. (Indeed, they alone appear to be equipped to do it right.) This approach requires respectful and strategic negotiation with private/public landowners and incentives more so than heavy machinery. The fact is, as storm water run-off rates continue to increase, we will ultimately require this transition to get the underlying storm water management job done. The only question is how much irreparable loss to a major natural asset of the state happens in the meantime.

I am in favor of SB688 because it will incentivize this transition to low-tech storm water run-off reduction so it happens in time to prevent irreparable loss to Maryland's critical stands of mature trees along stream systems, and complex natural streambed ecological communities. The bill also improves public communication around needs and proposed measures to protect our beloved streams in Maryland. I urge the committee to issue a favorable report on SB688 to prioritize environmentally sound infrastructure solutions. Let's not wait to get started until we incur more permanent losses to Maryland natural assets. Though it requires more attention up front, in both the short and the long run, this approach will pay off as it will require less repair and erosion control.

Thank you for your time and for your service to our community.

Submitted on 2/27/2026 by:

Allegra Cangelosi
7410 Cedar Avenue
Takoma Park, Maryland 20912
202-557-6536
allegracangelosi@gmail.com

Amy Bennett.pdf
Uploaded by: Amy Bennett
Position: FAV

Testimony in Support of SB688

Thank you for the opportunity to share my support for SB688.This bill takes a thoughtful, practical approach to how Maryland restores streams and manages stormwater—something communities across the state care deeply about.

At its core, SB688 simply asks us to start with the least-damaging, most effective tools first. It prioritizes capturing stormwater at the source, protecting intact forests and floodplains, and using upland practices before turning to heavy in-stream construction. The bill itself notes the importance of "minimizing disturbance to existing streams, floodplains, and forests," which reflects what residents, scientists, and local governments have been saying for years.

I also appreciate how the bill strengthens transparency and accountability. Requiring an alternatives analysis, clear community presentations, and five years of monitoring ensures that projects deliver real ecological benefits—not just modeled numbers. And by focusing on measurable functional lift, including improvements to biological conditions, the bill helps ensure that restoration actually restores.

SB688 doesn't block needed projects. Instead, it makes sure we're choosing the right interventions for the right reasons—especially when public safety or infrastructure is at stake. It encourages solutions that protect habitat, reduce erosion, and make our watersheds more resilient to climate impacts.

This is a balanced, science-based update to Maryland's restoration framework. It protects communities, strengthens environmental outcomes, and ensures that public dollars support projects that truly work. I respectfully urge a favorable report.

Aristos's Testimony.pdf
Uploaded by: Aristos Xagoraris
Position: FAV

Senate Bill 688, Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Support

February 27, 2026

Dear Chairman Feldman, Vice-Chair Kagan, and honorable members of the Education, Energy, and the Environment Committee:

My name is Aristos Xagoraris, and as a worried young citizen of Maryland, I am writing to express my support for the Senate Bill 688. I first learned about the terrible damage to waterways in Howard County during my Environmental Science GT Seminar at Burleigh Manor Middle School, and I feel that these stream stabilization projects have negatively affected the environment in our community.

From research, I have learned that stream stabilizations generate more runoff and sediment in our streams. This clouds the water and destroys aquatic habitats, which increases water treatment costs. Also, trees are taken out to make space for the heavy machinery, leading to more sunlight reaching the stream, this can cause an increase in the temperature of the water. This harms fish and aquatic invertebrates that live in the stream. The removal of trees also causes more erosion to be present in the stream, because the tree roots play a very important role in holding the soil of the stream banks together. Stabilizations usually make erosion even worse by taking out trees and compacting the soil, even though they are trying to fix that problem. Additionally, mature trees that are removed release lots of carbon dioxide into the air, increasing pollution in the air. These trees also provide critical habitats for animals, as well as food for woodpeckers.

Thus, I am pleased that Senate Bill 688 calls for the safety of fish and aquatic life in streams, so they can live healthy lives and create a healthy ecosystem within the stream.The bill mandates that stormwater runoff is treated before entering the stream. This is helpful for streams because it decreases the amount of impurities in the water. Also, the bill calls for the prevention of erosion in any stream stabilization. Erosion in streams pollutes the quality of the water with sedimentation and destroys the habitat for animals living in the stream, so preventing erosion is really important to preserve the ecosystems in our streams. Finally, I am delighted that the bill asks for the stream to stay functional so the ecosystem is healthy.

On behalf of the children of Maryland, who will inherit the environment you leave for us, I support Senate Bill 688.

Signed,
Aristos Xagoraris
10237 Glastonbury Road
Ellicott City, MD
21042

HCCA - Testimony - SB688-2026 - Watershed Bill.pd
Uploaded by: Brian England
Position: FAV

Howard County Citizens Association
Since 1961...
The Voice Of The People of Howard County

Date: 27 February 2026
Subject: SB688-2026 introduced by Senator Mary Washington. HCCA Testimony

The Howard County Citizens Association, HCCA, recommends **APPROVAL** of SB688-2026. We support SB688 as it will "protect and enhance the environment" and save millions of dollars of taxpayers' money because it prevents problems by emulating the forest in the upland watersheds.

In the past we have seen many so called "watershed restoration projects" implemented that have been counterproductive and unfortunately fail to "protect and enhance the environment". These projects cost millions of dollars. Millions of dollars have literally been washed down the drain.

Here are just two examples where projects failed to "protect and enhance the environment".

The Red Hill Branch project in Ellicott City failed dramatically, the Columbia Association, CA Watershed Manager took me on tour of the site after the first storm and witnessed the newly planted trees and shrubs along the stream had been washed away! In May 2021 the Center for Watershed Protection along with the Interstate Commission on the Potomac River Basin reported in their study of the effectiveness of restorations said…. "The Red Hill Branch displayed consistently worse biological health than the control watersheds"

More recently Mellen Court Capital Project D-1158 in Columbia was completed, there was wholesale destruction of trees and shrubs which did little to nothing to improve water quality. This photo of the site says it all, you can clearly see where the forest was destroyed! To make matters worse the established trees are replaced by much smaller trees having failed to take root!

This bill will put our taxpayers dollars where it will do best by promoting forests to soak up and retain the flow of rain.

This legislation is designed to change how Maryland entities meet state-level stormwater and water quality goals, prioritizing long-term ecological health over certain, more invasive restoration methods. It aims to restrict the use of certain stream and floodplain restoration projects by fulfilling environmental permits and mitigation requirements. It prioritizes on-site, nature-based stormwater management over heavy-engineering, with an effective date of October 1, 2026.

This legislation is designed to change how Maryland entities meet state-level stormwater and water quality goals, prioritizing long-term ecological health over certain, more invasive restoration methods. Your **APPROVAL** of SB688-2026 would lead to better stewardship of our environment.

Thank You,

Brian England
HCCA Board Member

SB 688 2026 .pdf
Uploaded by: Brian England
Position: FAV

An ounce of prevention is worth a pound of cure"

This is a   proverb coined by Benjamin Franklin in 1736, emphasizing that it is easier to stop a problem from happening than to repair the damage

This is exactly what this bill is about!

Prevention!

At last a “watershed” bill that addresses the problem, mitigating Stormwater in the upper watershed comes first.

I was part of a group of residents of Columbia who oversaw the development “Columbia Watershed Plan”, although well intentioned it didn’t and couldn’t address the main issue of “Stormwater flowing from streets”. This was because this was Howard County’s responsibility.

I have watched Howard County spend millions of dollars on projects the did nothing to address the issue at it’s source! In fact the most of the projects they did fund matters worse!

Fred Tutman the Patuxent River keeper sounded the alarm but he was ignored.

Over the last 15 plus years I have seen acres of trees removed! Landscapes scraped bare!

The very environment that was soaking up the rain destroyed!

All a waste of money and an environmental disaster!

Please pass SB 688 (2026)

I started on a quote and I will finish on one.

As Columbia’s founders James Rouse wife Lilly Rouse said “you don’t mop the floor until you turn off the tap”!

It’s time to turn off the tap please pass this bill.

Brian England

11915 Gold Needle Way
Columbia Md. 21044
410 952 6856

In Favor of SB 688.pdf
Uploaded by: Claudia Koenig
Position: FAV

Please support and vote in favor of SB688. Although not perfect, it goes a long way to reigning in the problems inherent in the current system. It is astonishing that adequate, meaningful and complete notice to the affected community where the stream restoration will occur must be legislated but I appreciate the recognition of this deficiency and its inclusion in this bill. It is also a step forward to require that other methods of stream restoration and runoff mitigation should be explored and analyzed properly before stream restoration is proposed. The most significant change in this bill, however, is inclusion that MDE prioritize the mitigation of runoff at the source rather than downstream where it will only be a duct tape solution at best and at worst a devastation to habitat and the environment. Finally!

Claudia Koenig

4042 Larkspring Row Ellicott City Md. 21042

Hiba's Testimony.pdf
Uploaded by: Hiba Hakkim
Position: FAV

Senate Bill 688, Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Support

February 27, 2026

Dear Chairman Feldman, Vice-Chair Kagan, and honorable members of the Education, Energy, and the Environment Committee:

My name is Hiba Hakkim, and as a representative from the Stream Team at Burleigh Manor Middle School, I am writing to express my support for the Senate Bill 688. I first discovered the awful damage to waterways in Howard County during my Environmental Science seminar. I apprehend that these projects themselves are credited far too well and cause irreversible damage to our stream beds.

From research, I have learned that stream stabilization projects are performed for MS4 and mitigation credits to offset harm caused by developing wetlands and sensitive habitats. The projects are often directed to prevent erosion in stream beds, yet in order to conduct these projects heavy machinery is brought onto the site, compacting the soil. This compaction causes the soil to be less absorbent, hence the increase in sediment runoff. The increase in runoff intoxicates the stream's water quality through rising temperatures and blocked infrastructure: thereby damaging habitats. This machinery also runs over tree roots, causing growing trees to cease. Similarly, the initial step in these stream stabilization projects is to uproot trees larger or eight inches in diameter, those exact trees whose roots hold up the banks. Hundreds of trees are left, classified as too small to be considered a tree, posing it as though they are only removing a few trees. However, without the trees: the banks collapse, posing issues upon issues. Moreover, contractors end up planting generic undeveloped trees, lacking the necessary biodiversity in an abundant environment. Many of these replanted trees are only about a year old, with only a handful of different species. Unsurprisingly, to contradict themselves, when contractors go back in to replace uprooted trees, the trees are usually around a centimeter in diameter. With the newly planted trees, which takes years to develop and upholster the banks once more, erosion is much more present. Instead of fixing the problem, they make it worse by causing irreparable damage for ages. This puts the entire ecosystem in a state of imbalance at which it’ll remain until the environment can once again reach equilibrium.

Accordingly, I am pleased that Senate Bill 688 calls for the management of runoff, the integrity of stream channels, and the minimization of pollutants in stormwater. This calls for restoring, enhancing, and maintaining the chemical, physical, and biological integrity of state waters. With this bill in place, many prior responsibilities to the development of a stream stabilization are considered; and assessments are conducted to establish the requirements of stormwater management plans. This bill further ensures that the required budget is met, quality is kept, and our healthy environment is left.

On behalf of the children of Maryland, who will inherit the environment you leave for us, I support Senate Bill 688.

Signed,

Hiba Hakkim
3197 Pine Orchard Lane
Ellicott City, MD
21042

SB688_Maryland Native Plant Society_Simmons, Fulto
Uploaded by: Judy Fulton
Position: FAV

Maryland Native Plant Society

APPRECIATION CONSERVATION EDUCATION

Testimony:	**SB688 Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations**
Committee:	**Education, Energy, and the Environment**
Hearing Date:	**March 3, 2026**
Position:	**FAVORABLE**

Chair Feldman, Vice Chair Kagan, and honorable members of the Committee:

The Maryland Native Plant Society (MNPS) strongly supports SB688. It is long overdue. Stream construction often destroys natural, mature forest ecosystems and eliminates the services that these important systems provide to all Marylanders, including cooling, CO_2 absorption, O_2 production, pollution reduction, and stormwater management. Destruction of natural areas not only obliterates large numbers of mature trees and other plants, but also contributes to the significant decrease in pollinators, other beneficial insects, birds, amphibians, and small mammals. In addition, these projects contribute to the spread of invasive plant species, which then further damage our natural areas.

Complete recovery of natural ecosystems after stream construction can easily take decades or even over a hundred years if it occurs at all. Once destroyed, endangered native plants and habitats cannot be easily replaced or recreated. The young replacement trees planted after existing trees are destroyed do not come near to offering the same quality and quantity of ecosystem services as mature trees. Additionally, some plantings survive only a year or two.

Certain situations do require stream work. For example, action is warranted if water or sewer infrastructure is exposed, so at risk for catastrophic failure, or if streams are flowing within concrete channels. However, more often there are much better alternatives to destructive stream re-constructions.

Among MNPS' members is a select group of knowledgeable environmental professionals, including scientists who have been involved with numerous stream and wetlands restoration projects at the federal, state, and local levels throughout Maryland and the greater Washington-Baltimore region for more than 30 years. The work of these experts has ranged from examining stream geomorphology, identifying geohydrology, and assessing ecological impacts and post-construction plantings to determining best practices and making data-driven policy recommendations.

Based on the input from these seasoned professionals, MNPS strongly recommends that Maryland discontinue using so-called stream restoration projects to meet local and regional pollution reduction targets for the Chesapeake Bay. Such industry-centric practices do not work, provide no proven long-term ecosystem improvement (a major permitting requirement), and are environmentally destructive.

SB688 is an important first step in providing necessary guidance and accountability to the Whole Watershed Act. This 2026 bill requires: (1) an alternative local watershed plan to be considered before any stream restoration or floodplain project is authorized, and (2) the project to demonstrate measurable biological uplift before credits are issued.

Professional engineer Bill Stack, Deputy Director of Programs at the Center for Watershed Protection, and Tom Schueler of the Chesapeake Stormwater Network were co-leads in developing the *Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects*. According to this document:

> A severe training need exists among local and state governments, NGOs, and practitioners in understanding their application and the appropriate siting of projects… Stream restoration projects are supposed to demonstrate "functional lift" or improvement to the ecosystem. Generally, this is not happening, at least not to the extent that it should… As a result, municipalities are spending enormous amounts of money on projects that generate the necessary water quality credit but have no real impact on stream function…[1]

There is no scientific evidence that "restorations" reduce pollution (i.e., nitrogen, phosphorus, and sediment) in either the forested stream valleys or the stormwater that is the root cause of pollution and erosion in the streams.[2,3] The real issue affecting the Bay and its waterways is unchecked stormwater runoff, which is caused by overdevelopment of watersheds and by failure to implement adequate volume and pollutant best management controls.

To help the Bay, Maryland must manage stormwater before it reaches these streams. We must prevent the use of our forested stream valleys as stormwater management facilities. Irreplaceable native flora and fauna, wetlands, and water resources still found naturally along urban streams and the parks they flow through should be protected, not bulldozed.

Best practice recommendations to help ensure the preservation and future sustainability of forested stream valleys

- Hold the overarching principle of *Do No Harm* by prioritizing keeping sites natural and causing as little disturbance as possible.

- Before initiating construction, conduct an environmental review that thoroughly assesses all irreplaceable natural resources and determines which might be affected by a proposed stream construction project. All environmental concerns need to be properly quantified and considered to enable effective resource protection.

- Avoid all stream "restoration" projects in stream valley forests, where they are typically implemented, because these projects are not ecological restoration best practices. They are construction projects for the purpose of converting forested stream valleys and groundwater seepage wetlands into stormwater management facilities.

- Adopt a policy to disallow highly destructive, misapplied stream-construction and stormwater management projects in small-order, interior-forested, upper-headwater stream valleys.

- Prioritize controlling stormwater runoff from impervious surfaces before it reaches storm drains. Bioretention cells, bioswales, and dry basins are the most effective infrastructure for achieving this crucial goal.[4]
- Carefully and selectively armor stream banks and channels with wood, log jams, and snags that mimic natural processes. These techniques are proven best practice recommendations for stabilizing and helping to restore eroded stream channels.[5] Often, the No Build Option is the best alternative.
- Be vigilant in controlling non-native invasive plants along waterways.[6] It is critical to acquire funding for large-scale projects so they can be conducted by professional invasive-control companies when the work is not achievable by staff and volunteers on their own.

The Maryland Native Plant Society urges a favorable report on SB688.

Respectfully,

Rod Simmons
Board, Maryland Native Plant Society
simmons22041@gmail.com

Judith Fulton
President, Maryland Native Plant Society
jfulton5@gmail.com

References

1 Stack, W. 2018. Chesapeake Bay Program Stream Restoration Credits: Moving Toward Functional Lift? Center for Watershed Protection. http://www.cwp.org

2 Simmons, R.H. 2021. Evaluation of the Mehlich-3 soil test for phosphorus with implications for calculating pollution reduction credits in the mid-Atlantic region. River Management Society Journal 34: 30-31. https://www.river-management.org/assets/Journals-Newsletters/2021%20Summer.pdf

3 Bailey, R., B. Gillespie, and C.K. Taylor. 2022. Final Report of the Taylor Run Monitoring Project, Contract 17052. https://www.hhparks.com/_files/ugd/a605ce_16dd7931b7dd40a28c304df171618d77.pdf

4 Simmons, R.H. 2022. ‘The Policy & Practice of Stream Restoration’ [PowerPoint presentation]. John Clayton Chapter of the Virginia Native Plant Society. https://www.hhparks.com/_files/ugd/a605ce_834b2e8e8ad746ababc6113954cb362e.pdf

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6 Simmons, R.H. 2017. ‘The Limits of Restoration: Getting to Know the True Nature of Your Stream Valley and Hopefully Keeping It Intact!’ [PowerPoint presentation]. MAIPC/SERMA Conference at Juniata College, PA. The Limits of Restoration - 2017 MAIPC-SERMA Conference

Julianna's 2026 Testimony.pdf
Uploaded by: Julianna Siegel
Position: FAV

Senate Bill 688, Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Support

February 27, 2026

Dear Chairman Feldman, Vice-Chair Kagan, and honorable members of the Education, Energy, and the Environment Committee:

My name is Julianna Siegel, and as a very young, and extremely concerned citizen of Maryland, I am writing to express my support for the Senate Bill 688. I initially learned about the terrible damage to the Howard County waterways during my Environmental Science Seminar at Burleigh Manor Middle School. I strongly feel that these stream stabilization projects are extremely unnecessary, and do irreversible damage to our environment.

From research, I have discovered that during a stream stabilization heavy machinery is brought out to the site, which crushes animals living underground. Since, the heavy machinery is constantly running over the ground, this compacts the soil, making it less absorbent, hence increasing runoff and sediment. An increase in sediment can lower the water quality of a stream, destroy aquatic habitats, raise water temperature, and clog infrastructure, as well as increase erosion. Most stream stabilization projects are designed to help stop erosion in the stream bed, however stream stabilization projects end up causing more erosion. Many trees are removed, and these tree roots are what is helping hold together the banks of the stream. When these trees are removed, there are no longer roots there to hold up the banks, so in turn the banks end up collapsing. This would not be an issue if stream stabilization projects were not favored and used entirely at all. Additionally, the heavy machinery runs over tree roots, which causes the trees to die. So in addition to all the trees removed, there are also many trees that die unintentionally in the process. Contractors end up planting generic baby trees, which lack biodiversity. Many of these trees are only one year old, and contractors typically only plant a handful of different species. This causes a lack of the preexisting biodiversity. Plus, when counting the trees they plan to remove in a stream stabilization project, contractors decide on what diameter size of a tree is acceptable to call it a tree. This size is typically eight inches in diameter or more. Due to this, they leave out hundreds of trees that are “too small” to be classified as a tree. They make it seem like they are only removing a few trees, when in reality they are removing hundreds of trees. However, when planting trees to replace the uprooted trees, the trees they plant are usually around a centimeter in diameter, which the contractors classify as a tree when planting.

Therefore, I am pleased that Senate Bill 688 calls for the treatment of stormwater runoff to remove pollutants and enhance water quality. This will help keep our waterways clean and functional. Additionally, the bill mentioned minimizing disturbance to existing streams, floodplains, and riparian upland forests. This will help prevent unnecessary projects from happening to our environment, as well as keeping these critical habitats natural. Further more, Senate Bill 688 expresses minimizing impacts to wildlife habitats, tree loss and removal, earth disturbance, and disturbance to native vegetation. This is a very important part of this bill since it allows very little disturbance of wildlife habitats. Plus, minimizing tree removal will help keep our forests lush and healthy. Similarly, reducing erosion caused by tree removal. Minimizing earth disturbance will help address the problem of heavy machinery killing tree roots, because of the constant action of running them over. Limiting the disturbance of native vegetation will help protect animal habitats for birds, mice, deer, and more. The bill also was written to avoid impacts to noninvasive plant communities and specimen trees. Noninvasive plant communities are a key part in keeping our forests healthy, and providing animals with habitats. Specimen trees play a huge part in providing key nesting for birds, as well as food for woodpeckers. This part of the bill is one of the most important parts, as it protects these critical trees. Also, Senate Bill 688 calls for when appropriate, prioritizing the removal of nonnative and invasive trees, as well as vegetation. This key factor will help control invasive plant species. In addition, this can be used as an alternative to removing native plants.

On behalf of the children of Maryland, who will inherit the environment you leave for us, I support Senate Bill 688.

Signed,
Julianna Siegel
3612 Gray Rock Drive
Ellicott City, MD
21042

SB688Favorable332026KEMERY.pdf
Uploaded by: Karin Emery
Position: FAV

Thank you for this opportunity to submit my testimony in support of SB 688. As someone who appreciates the outdoors and spent the better part of my childhood traipsing through local streams and forests, and still does as an adult, I am encouraged by the thoughtful and practical approach this bill provides for restoring Maryland's streams and managing its stormwater. Having seen firsthand the outcome of the opposite approach, SB 688 is good news for the tax paying citizens of Maryland.

By focusing on applying the least damaging and most effective tools first, the bill prioritizes capturing stormwater at its source which protects intact forests and floodplains and then can avoid using heavy construction techniques which are so damaging. This bill addresses the importance of "minimizing disturbance to existing streams, floodplains, and forests," prioritizing something that residents, scientists and local leaders have been stressing for many years.

One of the key aspects of this bill that I strongly support is the strengthening of transparency and accountability by requiring alternative analysis, easily understandable community presentations as well as five years of monitoring to ensure projects deliver the ecological benefits that are so important to the state and its citizens, not just modeled numbers. By focusing on measurable functional lift, including improvements to biological conditions, SB 688 helps to ensure that restoration is restorative.

SB 688 makes sure that any intervention is done for the right reasons in the right places which is especially important when public safety and/or infrastructure are at stake. It encourages solutions that protect habitat, reduce erosion and make watersheds more resilient to climate impacts.

A balanced, science-based update to Maryland's restoration framework that protects communities, strengthens environmental outcomes, and ensures public dollars spent appropriately is exactly what is needed. I respectfully and strongly urge a favorable report.

SB0688_Stream & Floodplan Rest_Bawer_31.pdf
Uploaded by: Kenneth Bawer
Position: FAV

Coalition to Stop Stream Destruction

8 Cleveland Ct.
Rockville, MD 20850

March 3, 2026

To: Senate Education, Energy, and the Environment Committee

Subject: SB0688 Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

POSITION: FAVORABLE

Dear Chair Feldman, Vice Chair Kagan, and Members of the Committee:

The Coalition to Stop Stream Destruction supports a favorable report on this bill. For the record, we have no direct or indirect financial interests in this bill.

This is a common sense bill that encourages only necessary and effective stream restorations. If you have not seen an engineered stream restoration, watch a few short **videos**[1] (https://www.youtube.com/@EngineeredStreamRestoration) and read **a one page fact sheet** (Attachment 3). Please also see some **Frequently Asked Questions** (Attachment 1).

It is common sense that we only want the best projects done in our streams that will not require constant repair at taxpayer expense. Unfortunately, that has not been the case. I have photographs showing washed-out projects in many locations in Maryland and Virginia:

- Montgomery County (Josephs Branch, Cabin John Creek, Long Branch, Snakeden Branch, the Bedfordshire project, Old Farm Creek Tributary, the Grosvenor-Luxmanor project, Northwest Branch, Lower Booze Creek)
- Gaithersburg (tributary to Great Seneca Creek),
- Washington County (Block Rock Run),
- Baltimore City (Stony Run),
- Anne Arundel County (Annapolis Landing project, Bacon Ridge Branch),
- Columbia (Longfellow stream),
- Reston, VA (The Glade, Upper Snakeden Branch),
- Arlington, VA (Donaldson Run),
- Fairfax, VA (Little Pimmit Run).

[1] https://www.youtube.com/@EngineeredStreamRestoration

This is not an exhaustive list - these are just the ones I know about. The Lower Booze Creek stream restoration in Potomac, Maryland cost 3.6 million dollars to repair after it was washed-out by storms.

It is common sense to minimize disturbance to existing streams, floodplains, and forests where feasible, as the bill says.

The science and observations on the ground show that engineered stream restorations do not restore streams. In spite of what proponents claim with anecdotes about converting V-shaped to U-shaped streams, their unattainable goal to recreate "natural" or "historical" pre-colonial conditions is impossible given today's land use and climate. The Chesapeake Bay Program's "Comprehensive Evaluation of System Response" (CESR) report written by more than 50 experts states that "The Bay of the future will be different from the Bay of the past because of permanent and ongoing changes in land use, climate change, population growth, and economic development." Likewise, it will be impossible to restore local streams to pre-colonial conditions.

WHAT DOES THE SCIENCE SAY? The purported benefits of engineered stream restorations are not supported by the published science. A Chesapeake Bay Program Expert Panel Report[2] acknowledges that engineered stream restorations do not stop erosion. Published papers[3] analyzed over 700 engineered stream restorations to show that water quality and ecological function are not improved and are sometimes worse. A few claims of successful projects do not disprove the preponderance of the scientific evidence. See also the attached annotated bibliography (Attachment 2).

ALTERNATIVES ANALYSIS: This bill has a common sense requirement that stormwater management plans that include stream-related projects also include an **alternatives analysis** evaluating non-stream-disturbing options. Applicants would need

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[2] https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[3] Palmer, M. A., K. L. Hondula, and B. J. Koch, University of MD, 2014, "Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals,", Annu. Rev. Ecol. Evol. Syst. 2014. 45:247-269. (https://akottkam.github.io/publications/Palmerpublications/Palmer2014a.pdf);
Hilderbrand, Robert H., et. al.,2020, "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf;
Southerland, M., et. al., 2021, "Vertebrate Community Response to Regenerative Stream Conveyance Restoration as a Resource Trade-Off," CBT Research Grant; https://cbtrust.org/wp-content/uploads/FINAL-Report-for-18002-Tetra-Tech-CBL-CBT-RR-Vertebrates-in-RSCs-30SEP2021-Submitted-to-CBT.pdf.
Carr, J., Hart, D., McNair, J., 2006, "Compilation and Evaluation of Stream Restoration Projects: Learning from Past Projects to Improve Future Success," The Patrick Center for Environmental Research, The Academy of Natural Sciences of Drexel University, Report Submitted to the William Penn Foundation. https://ansp.org/research/environmental-research/projects/restoration/

to clearly establish project objectives, assess benefits and adverse impacts, and document why less disruptive practices cannot reasonably achieve the same outcomes.

It is common sense to require an alternatives analysis to ensure that the best project is selected. It is common sense to at least analyze the feasibility of addressing the root cause of excessive stream erosion which is out-of-stream stormwater runoff.

WHAT ABOUT COST? Any additional costs that may be associated with this bill could be offset by the use of alternative, out-of-stream projects that are less expensive than engineered stream restorations. Maryland Department of the Environment's (MDE) Annual Report on Financial Assurance Plans[4] lists twenty out-of-stream practices that are cheaper than stream restorations such rainwater harvesting, dry swales, and forest planting.

WHAT ARE THE CO-BENEFITS? In contrast to engineered stream restorations, since the alternatives can be built in already disturbed developed areas, they provide co-benefits such as reducing urban flooding and heat islands, providing green spaces, increasing property values, and protecting streams and floodplains from toxins in stormwater.

Therefore, we respectfully request a FAVORABLE report on this bill.

Thank-you for your consideration.

Sincerely,

Kenneth Bawer
Coalition to Stop Stream Destruction
(kbawer@msn.com

[4] https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/FAP-WPRP/2022%20Stormwater%20Financial%20Assurance%20Plan%20Annual%20Report%20to%20Governor_%20MSAR%20%23%2010954%2010.18.2022.pdf. Practices cheaper than stream "restoration": Green Roof, Extensive; Rainwater Harvesting; Dry Well; Shallow Wetland; Pocket Wetland; Surface Sand Filter; Dry Swale; Other; Redevelopment; Forestation on Pervious Urban (i.e., Forest Planting); Riparian Forest Planting; Urban Tree Canopy; Septic Denitrification; Septic Connections to WWTP; Shoreline Management; Catch Basin Cleaning (i.e., Storm Drain Cleaning); Mechanical Street Sweeping; Regenerative/Vacuum Street Sweeping (i.e., Advanced Street Sweeping); Nutrient Credits [Trading]; Septic Pumping

Attachment 1: Frequently Asked Questions

Q: Aren't engineered stream restorations necessary to recreate natural or historical pre-colonial conditions by converting V-shaped streams to historically U-shaped streams?
A: That goal, while laudable, is impossible given today's land use and climate. The Chesapeake Bay Program's "CESR" (Comprehensive Evaluation of System Response) report written by more than 50 experts says that the Bay of the future will be different from the Bay of the past because of permanent changes in land use, climate change, and population growth. That is why it is also impossible to restore local streams to pre-colonial conditions. The question becomes, why would we want to destroy an existing ecosystem to try to recreate pre-colonial conditions which we know can't happen?

Q: Proponents of stream restoration projects talk about the importance of reconnecting to the floodplain. What are some of the negative consequences of this practice?
A: Unfortunately, proponents hide the negative consequences of restorations that involve floodplain reconnection[5]. These include 1) more flooding due to more saturated floodplains and loss of evapotranspiration from clearcutting of riparian forests, 2) the death of remaining trees due to water-logged soil, 3) more mosquitoes from standing water in floodplains, and 4) the deposition into floodplains of toxins in stormwater runoff that are hazardous to animals and children. And proponents neglect to say that the forest they destroy will take 100 years or more to recover.

Q: Do all streams have floodplains?
A: You might think so if you listen to the stream restoration promoters. But the answer is: No. For example, the reason given for an industry-proposed stream restoration in Taylor Run in Alexandria, VA was to "reconnect to the floodplain." However, Rod Simmons, the City's Natural Resources Manager pointed out that this would have destroyed a globally rare acidic seepage swamp that is never found in floodplains. The project was cancelled.

Q: What have you seen happen to some of these stream restoration projects?

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[5] The floodplain reconnection techniques of "restoration" try to re-create pre-colonial conditions when stormwater more frequently overflowed stream banks and spread into a floodplain where eroded sediment is deposited. In the "Legacy Sediment Removal" method, the stream valley is clearcut then tons of soil are removed to lower the valley to the stream level. In the FILL method, material is dumped into a stream channel to raise its level closer to the valley floor (only to be eroded out again by uncontrolled stormwater runoff.)

A: Even a Chesapeake Bay Program Expert Panel Report says that engineered stream restorations don't stop erosion. Why? Because they that don't address the root cause of stream erosion which is stormwater runoff from impervious surfaces and agricultural land. This is like having a leaking roof that damages your furniture and carpet, and you go out and buy new furniture and carpet but don't fix the roof. This is exactly what stream restorations are doing. The source of the problem is not being fixed.

What happens is that the fill material dumped into streams gets washed away, and the rocks used to stabilize the banks get eroded around. This requires costly repairs, if they are even done. I have photographs showing washed-out projects in

- Montgomery County (Josephs Branch, Cabin John Creek, Long Branch, Snakeden Branch, the Bedfordshire project, Old Farm Creek Tributary, the Grosvenor-Luxmanor project, Northwest Branch, Lower Booze Creek)
- Gaithersburg (tributary to Great Seneca Creek),
- Washington County (Block Rock Run),
- Baltimore City (Stony Run),
- Anne Arundel County (Annapolis Landing project, Bacon Ridge Branch),
- Columbia (Longfellow stream),
- Reston, VA (The Glade, Upper Snakeden Branch),
- Arlington, VA (Donaldson Run),
- Fairfax, VA (Little Pimmit Run).

This is not an exhaustive list - these are just the ones I know about.

Q: Aren't there some good stream restorations?
A: Even if a few successful projects exist, they don't outweigh the preponderance of the scientific evidence that stream restorations don't work. That's the way science works.

I was a member of Maryland Department of the Environment's Ecological Restoration Permitting Study convened under Senate Bill 945 (House Bill 869), "Permitting for Ecological Restoration Projects – Required Study," in 2022. During one of the meetings, a vocal proponent of stream restorations said that for every failed project, they could give an example of a good project. I gave them the references for 700 failed projects from papers by Palmer, Hilderbrand, Southerland, and Carr. We never heard from them again.

Q: When you say that the material dumped into streams will be washed-out if the source of the stormwater is not controlled, what do you say to those who say that

much care goes into the design and engineering of these types of projects and that all the permitting was approved.[6]
A: That is exactly the answer given online by a stream restoration contractor. They also say that all the engineering and permitting was reviewed and approved by county, state, and federal permit reviewers. This is what we call "lawful but awful." Sure, it is all legal and approved, but that does not change the fact that the scientific evidence shows that these projects don't stop erosion, don't improve water quality, and don't improve stream biology. And on top of that, they destroy riparian forest areas during the construction process.

Q: Some companies say that their projects are engineered to ensure that the project can handle the increased stormwater coming from upstream sources.[7]
A: If any company claims that their projects have been so sufficiently engineered, then why don't they offer lifetime guarantees against being washed-out? There is a good reason that the industry-standard guarantee is only for one year. After that, taxpayers pay for the repairs.

Q: What do you say to those who agree that stormwater should be controlled at the source, but that is not a viable alternative to restoring any given stream since the damage is already done and can only be repaired through direct intervention.
A: This is what proponents say about every single proposed engineered stream restoration project. The problem is that the viable, alternative out-of-stream analysis is never done. I know for a fact that Montgomery County does not do alternative analyses, and none were done for the other projects I have looked at around the state. When they say the damage is already done, they don't acknowledge that the damage from uncontrolled upland stormwater <u>continues</u> to firehose into streams, and the problem can't be fixed until this root cause of the damage is controlled. This goes back to the leaking roof analogy. Why would you replace your future and carpeting while the roof is still leaking. It makes no sense.

As to saying that "the damage is already done, and can only be repaired through direct intervention," the assumption is that pre-colonial or pre-development conditions can be engineered. That is not what the 50 experts of the CESR report said. They said you can't

[6] https://www.bayjournal.com/columns/chesapeake_born/for-stream-revival-ask-wwbd-what-would-beavers-do/article_5cc96246-c4fe-11ee-9e4a-ff6de288c95f.html
[7] https://www.bayjournal.com/columns/chesapeake_born/for-stream-revival-ask-wwbd-what-would-beavers-do/article_5cc96246-c4fe-11ee-9e4a-ff6de288c95f.html

re-create pre-development conditions given the population, climate and development that exists now.

In addition, there is evidence that, once out-of-stream stormwater is controlled, the streams will self-heal.[8] Will they look like pre-colonial streams? No. Will they be functioning ecosystems that provide ecosystem services like carbon sequestration and wildlife habit? Of course.

[8] Fraley-McNeal, et. al. (2021), "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf; streambank soil will slough off into streams during self-stabilization, but the science (note vi) shows that most stream "restorations" do not stabilize streams anyway, and photographic evidence shows that "restorations" are being eroded away by post-construction storms.

Attachment 2: ANNOTATED BIBLIOGRAPHY OF STREAM RESTORATION MONITORING REPORTS, STUDIES, AND INVESTIGATIONS

Beauchamp, Vanessa, Joel Moore, Patrick McMahon, Patrick Baltzer, Ryan A. Casey, Christopher J. Salice, Kyle Bucher, and Melinda Marsh. 2020. Effects of Stream Restoration by Legacy Sediment Removal and Floodplain Reconnection on Water Quality and Riparian Vegetation. Study funded by Chesapeake Bay Trust Award #13974. December 2020. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

This report concludes that stream restorations did not have any impact on nitrogen concentrations. Preservation of high-quality forest areas, even if they have invaded previous floodplains, should be considered. The effects of loss of tree canopy should also be considered.

Bernhardt, E. S., and Palmer, M. A., 2011, “Evaluating River Restoration,” 91-page Invited Feature, Ecological Applications, Vol. 21, No. 6

Following are some quotes from the study:

- *“Empirical evaluation of a variety of channel-based restoration projects discovered little evidence of ecologically successful outcomes. Violin et al. find that urban stream restoration efforts in the southeastern United States had no demonstrable effect on habitat diversity or on macroinvertebrate communities. More disheartening, Louhi et al. find that several restored streams in Finland have stream invertebrate communities that are depauperate relative to unrestored upstream reference reaches even 15 years following restoration. Sundermann et al. find that most of the restored streams they sampled in Germany show no measurable improvement in macroinvertebrate communities, and the few that do are close to intact, forested catchments.”*
- *“Sudduth et al. report that restored urban streams in North Carolina have significantly higher temperatures than unrestored urban streams as a result of removing riparian trees to facilitate restoration projects. Filoso and Palmer show that efforts to reduce the flux of nitrogen to coastal waters through hydrogeomorphic stream restoration approaches are rarely successful. Jahnig et al. document the existence of different perceptions of restoration success and show that, according to data from river restoration projects in Germany, water managers tend to be overly positive in their self-evaluation of restoration projects.”*

Berg, J., et.al., the “Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects,” Test-Drive Revisions Approved by the [Water Quality Goal Implementation Team]WQGIT: September 8, 2014, Prepared by: Tom Schueler, Chesapeake Stormwater Network and Bill Stack, Center for Watershed Protection https://chesapeakestormwater.net/resource/final-recommendations-of-the-expert-panel-to-define-removal-rates-for-individual-stream-restoration-projects/)

Following are some quotes from the study:

- *"Three recent studies have documented that the construction of stream restoration projects can lead to local destruction of riparian cover within the project reach. The loss of riparian cover can adversely impact functional responses within the stream, including nutrient reduction. For example, Sudduth et al. (2011) and Violin et al. (2011) compared the functional services provided by four forest reference streams, four NCD-restored streams, and four non-restored urban streams in the North Carolina Piedmont. The studies concluded that the heavy machinery used to reconfigure channels and banks led to significant loss of riparian canopy cover (and corresponding increase in stream temperatures), and these were a major factor in the lack of functional uplift observed in restored streams, compared to non-restored streams." Page 25*
- *"It was outside the Panel's charge to resolve the scientific debate over the prospects of functional uplift associated with urban and non-urban stream restoration (i.e., beyond nutrient and sediment reduction)." Page 26.*
- *"…the research reinforces the notion that stream restoration should not be a stand-alone strategy for watersheds, and that coupling restoration projects with upland retrofits/"restorations" and other practices can help manage the multiple stressors that impact urban streams (Palmer et al., 2007)." Page 26.*
- *"Stream restoration is a carefully designed intervention to improve the hydrologic, hydraulic, geomorphic, water quality, and biological condition of degraded urban streams, and must not be implemented for the sole purpose of nutrient or sediment reduction." Page 29.*

Budelis, Drew, Lauren McDonald, Steve Schreiner, and Donald E. Strebel. 2020. An Evaluation of Forest Impacts Compared To Benefits Associated with Stream Restoration. Study funded by Chesapeake Bay Trust Award #14833. February 2020. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

This report concludes that:

- *There is no compelling evidence that the benefits of floodplain reconnection outweigh the impacts, and Maryland DNR stresses the need to minimize impacts to existing forests.*
- *While the authors believe that floodplain habitat is of greater value than upland habitat, attempts to convert upland habitat to floodplain habitat are likely to not be successful, especially in areas where habitat is fragmented and has anthropogenic structure, such as Elkhorn Branch.*
- *Reconnection of floodplains does not increase functional composition or diversity of plant communities.*
- *Floodplain reconnection may increase presence of invasive species.*
- *Floodplain reconnection will not affect soil nutrient content.*

Carr, J., Hart, D., McNair, J., 2006, "Compilation and Evaluation of Stream Restoration Projects: Learning from Past Projects to Improve Future Success," The Patrick Center for Environmental Research, The Academy of Natural Sciences of Drexel University, Report Submitted to the William Penn Foundation. https://ansp.org/research/environmental-research/projects/restoration/

Following are some quotes from the study:

- *"Instream and riparian conditions were monitored during 2004 at 30 restored reaches, each paired with a forested upstream reference reach."*
- *"Our analysis of the differences between the ecological condition of restored sites and their paired reference reaches showed that the restored sites consistently scored lower in riparian habitat quality as well as the biotic integrity of both periphyton (i.e., attached algae) and benthic macroinvertebrate assemblages. These results clearly demonstrate that at the present time these stream reaches continue to exhibit the types of impaired conditions that originally made them candidates for restoration."*
- *"We also administered a social survey for 31 restoration projects…. We learned that riparian restoration projects are often implemented to achieve aesthetic goals as well as environmental goals."*

Center for Watershed Protection. 2021. The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation. Study funded by Chesapeake Bay Trust. March 2021. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

This report concludes that, in a study of a limited number of stream restoration sites, the total suspended sediment load increased after restoration.

Following are some quotes from the study:

- *… "[stormwater BMP] retrofits reduce the magnitude, duration and frequency of erosive flow rates." (p. 48)*
- *"…there is strong evidence that the channels below the treatment sites will stabilize and adjust as the frequency of erosive flows diminishes. This will likely translate to corresponding decreases in sediment erosion. (p. 52)*
- *"…, it is likely the channels are on a trajectory leading towards stabilization as anecdotal evidence (which includes photographs)…." (p. 52)*
- *"It is expected that, with the reduced hydraulics [from erosive flows] within the catchment, these banks will continue a trajectory toward stability as indicated by reduced bank angles and vegetation establishment." (https://www.cwp.org/the-self-recovery-of-stream-channel-stability-in-urban-watersheds/)*

Center for Watershed Protection. 2022. Maintaining Forests in Stream Corridor Restoration and Sharing Lessons Learned. Acquired by email from Greg Hoffman, Center for Watershed Protection, on 6/14/2023

Observation

This extensive study was intended to respond to the growing observations of massive tree removal and disturbance of riparian area during "stream restoration" projects. The purpose was to review past projects and identify ways to protect riparian buffers and minimize impacts on those buffers, especially healthy, mature trees. The report noted that "there are very few requirements that explicitly focus on protection of existing forests from impacts", meaning that the extent to which these projects remove trees is largely left to the developer. Key Observations included:

- *Some stream restoration sites are not severely degraded and therefore result in significant forest losses that could have been avoided with better site selection.*
- *Sites where the quality of the riparian community is poor (e.g., invasive species, poor habitat conditions) may be good candidates for stream restoration project design that incorporates native plantings and habitat improvements. The trade-off here is that short-term forest loss may be necessary to achieve longer-term habitat improvement goals.*
- *Certain stream restoration designs may include extensive removal of riparian vegetation or subsequent tree loss through increased groundwater elevations and/or extended inundation (e.g., floodplain reconnection projects) while others (e.g., legacy sediment removal) may not be intended to include a fully forested riparian area, but instead include a diverse mosaic of herbaceous plants, shrubs, and water-loving trees that represent pre-development site conditions. The specific project goals, objectives, and design approach therefore have an important bearing on how much forest loss results from the project.*

Christopher J., T. D. Fletcher, M. J. Burns, 2012, "Urban Stormwater Runoff: A New Class of Environmental Flow Problem,", PLOS ONE (www.plosone.org), September 2012, Volume 7, Issue 9

Following are some quotes from the study:

- *"Urban stormwater is a new class of environmental flow problem: one that requires reduction of a large excess volume of water to maintain riverine ecological integrity." P. 1*
- *"Urban stormwater runoff, delivered through conventional drainage systems, is a complex enviro-mental flow problem that can, in large part, be solved by harvesting stormwater before it reaches aquatic ecosystems." P. 8*
- *"Degradation of stream biotic assemblages occurs at very low levels of (connected) imperviousness. Therefore, protection of the ecological integrity of stream ecosystems is likely to require interception and treatment of runoff from almost all catchment impervious surfaces, including the prevention of excess runoff from reaching streams." P. 9*

Conley G, McDonald RI, Nodine T, Chapman T, Holland C, Hawkins C, Beck N., 2021, Assessing the influence of urban greenness and green stormwater infrastructure on hydrology from satellite remote sensing. Sci Total Environ. 2022 Apr 15;817:152723. doi: 10.1016/j.scitotenv.2021.152723. Epub 2021 Dec 31. PMID: 34979231.

Following are some quotes from the study:

- *"Green stormwater infrastructure (GSI), which includes features like rain gardens, constructed wetlands, or urban tree canopy, is now widely recognized as a means to reduce urban runoff impacts and meet municipal water quality permit requirements."*

Craft, C., 2016, "Creating and Restoring Wetlands, From Theory to Practice," BookCraft https://www.sciencedirect.com/book/9780124072329/creating-and-restoring-wetlands

Following is a relevant quote from the study:

- *"Complete restoration [via reconnecting the floodplain] of a fully developed mature species-rich forest, critical to migratory songbirds, may require 100 years or more." https://www.sciencedirect.com/science/article/abs/pii/B9780124072329000063*

Craig, Laura S., Margaret A. Palmer, David C. Richardson, Solange Filoso, Emily S Bernhardt, Brian P. Bledsoe, Martin W. Doyle, Peter M. Groffman, Brooke A. Hassett, Sujay S Kaubal, Paul M. Mayer, Sean M. Smith, and Peter R. Wilcock. 2008. Stream Restoration Strategies for Reducing River Nitrogen Loads. Frontiers in Ecology and the Environment. Vol. 6, Number 10, 529-538. Accessed at https://www.jstor.org/stable/20441018 on 5/7/2023.

Observation:

The Prospectus for the Elkhorn Branch project claimed that this article supports the statement "stream restoration WILL improve water quality through the reduction of stream bank erosion and the downstream transport of associated pollutants, improve instream nutrient processing".

The article does not support these claimed "benefits". The use of this article to claim reduction of nitrogen concentrations is moot, since the 2015 CA Watershed Quality Report did not identify nitrogen concentrations in Elkhorn Branch to be elevated. Instead, the article says that "stream restoration alone is not appropriate for compensatory mitigation and should be seen as complementary to land-based best management practices"

Dance, Scott, 2020, "As Maryland pours millions of dollars into ailing streams, research shows some projects don't help clean the bay." https://www.baltimoresun.com/news/environ'ment/bs-md-stream-restoration-20200102-hqwyeoa4m5bgfhtxybgdalrhby-story.html. Baltimore Sun. January 2, 2020.

Following are some quotes from the study:

- *"…the only monitoring most rebuilt streams receive are visual checks to see that the streambeds haven't eroded away. Few are studied closely to measure how much pollution is flowing from the streams into rivers and, eventually, the bay."*
- *"…in cases where streams face the heaviest onslaught of polluted runoff, scientists say the investment isn't paying off with cleaner waterways, teeming with aquatic life. 'There's limited evidence these restorations work, as far as ecology is concerned,' said Robert Hilderbrand, an associate professor at the University of Maryland Center for Environmental Science's Appalachian Laboratory. 'Many of these watersheds are just too degraded.'"*
- *"Stream restoration projects are often an easier sell because they have aesthetic value, and because other stormwater-reducing alternatives can be disruptive and expensive and require cooperation of private landowners. 'To avoid political heat, local governments have defaulted to stream restoration,' said Doug Myers, Maryland senior scientist at the Chesapeake Bay Foundation, which instead advocates for greater spending on pavement removal, tree planting or stormwater basins."*

Doyle, Martin W. and F. Douglas Shields, 2012. Compensatory Mitigation for Streams Under the Clean Water Act: Reassessing Science and Redirecting Policy. Journal of the American Water Resources Association (JAWRA), 48(3): 494-509 https://marylandstreamrestoration.files.wordpress.com/2012/02/doyle-and-shields-2012.pdf

Following are some quotes from the study:

- *"Current stream restoration science is not adequate to assume high rates of success in recovering ecosystem functional integrity."*
- *"Physical habitat variables are often the basis for indicating success, but are now increasingly seen as poor surrogates for actual biological function."*
- *"The working assumption by regulators, practitioners, and many academics appears to be that stream restoration, as typically practiced (see Bernhardt et al., 2005), produces increased physical, chemical, and biological integrity. This assumption is necessary for the current implementation of compensatory mitigation to be an option in the CWA 404 permitting program. Our review shows that this assumption is questionable, and that many traditional stream restoration projects are largely ineffective at restoring chemical and biological functions."*

Ensign, Scott H., and Martin W. Doyle. 2005. In-channel transient storage and associated nutrient retention: Evidence from experimental manipulations. Limnology and Oceanography 50, p. 1740-51. Accessed at https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileID/13937 on 5/7/2023.

Observation:

The Elkhorn Branch project Prospectus claimed that this article supports the statement "stream restoration WILL improve water quality through the reduction of stream bank erosion and the downstream transport of associated pollutants, improve instream nutrient processing". However, the article does not support these claimed "benefits". The use of this article to claim reduction of nitrogen concentrations is moot, since the 2015 CA Watershed Quality Report did not identify nitrogen concentrations in Elkhorn Branch to be elevated. The study was conducted in a completely different environment type, and concludes by saying that results could not be corroborated because results were affected by sediment disturbance.

Filoso S, Smith SM, Williams MR, Palmer MA, 2015, "The Efficacy of Constructed Stream-Wetland Complexes at Reducing the Flux of Suspended Solids to Chesapeake Bay," Environmental Science & Technology, 2015 Aug 4;49(15):8986-94. doi: 10.1021/acs.est.5b00063. Epub 2015 Jul 16. PMID: 26181355; PMCID: PMC9813913. https://pubmed.ncbi.nlm.nih.gov/26181355/

Following are some quotes from the study:

- *"Studies documenting the capacity of restored streams to reduce pollutant loads indicate that they are relatively ineffective when principal watershed stressors remain intact."*
- *"Constructed stream−wetland complexes [in Coastal Plain lowland valleys] receiving relatively high TSS loads may experience progressive physical and chemical changes that limit their sustainability."*

Groffman, Peter M., Ann M. Dorsey, and Paul M. Mayer. 2005. N Processing within Geomorphic Structures in Urban Streams. Journal of the North American Benthological Society 24: 613-25. Accessed at https://www.jstor.org/stable/10.1899/04-026.1 on 5/7/2023.

Observation:

The Prospectus for the Elkhorn Branch project claimed that this article supports the statement "stream restoration WILL improve water quality through the reduction of stream bank erosion and the downstream transport of associated pollutants, improve instream nutrient processing".

The article does not support these claimed "benefits". The use of this article to claim reduction of nitrogen concentrations is moot, since the 2015 CA Watershed Quality Report did not identify nitrogen concentrations to be elevated. Instead, the article states that "denitrifying structures are difficult to maintain in urban streams because of high storm flows and downstream displacement". Since the Elkhorn Branch project would not have controlled runoff, any in-stream structures were likely to be destroyed.

Hawley, Robert J., Kathryn Russell, and Taniguchi-Quan, Kristine. 2022. Restoring Geomorphic Integrity in Urban Streams via Mechanistically-Based Storm Water Management: Minimizing Excess Sediment Transport Capacity. Urban Ecosystems. Vol. 25, p. 1247-1264. Accessed at https://link.springer.com/article/10.1007/s11252-022-01221-y on 5/8/2023.

Observation:

This article presented case studies showing that, to reach a goal of geomorphic stability in urban watersheds, stormwater control measures to reduce erosion potential must be implemented.

Hilderbrand, Robert H., Joseph Acord, Timothy Nuttle, and Ray Ewing. Undated, except after 2017. Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland. Study funded by Chesapeake Bay Trust Award #13141. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

There is a large amount of information to unpack in this report. In a study of stream restorations on 40 urban streams in the Baltimore/Washington area, this study found no evidence of ecological uplift. The report went on to conclude that the practitioners of stream restoration are aware of this, but the public and regulators are not.

Hilderbrand, Robert H. 2020. Determining Realistic Ecological Expectations in Urban Stream Restorations. Study funded by Chesapeake Bay Trust Award #15823. July 2020. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

The study of more than 20 stream restoration projects documented that biological uplift goals were not met. Following are some quotes from the study:

- *"We therefore reject our hypothesis that stream restorations improve overall ecological condition or even its subcomponents. Benthic macroinvertebrate communities in restored sections remained similar to unrestored sections on the same stream and were significantly dissimilar to MBSS Sentinel Sites. Similarly, the numerous metrics used in ecological assessments also showed a lack of response."*
- *"The over-arching goal of this research was to determine whether stream restoration activities produce ecological uplift compared to sections on the same stream that have not been restored." P. 7/70.*

- *"We sampled 40 urban stream restorations across the Piedmont and Coastal Plain physiographic regions in the grater Baltimore/Washington DC Metropolitan area of Maryland.*
- *Despite the promise and allure of repairing damaged streams, there is little evidence for ecological uplift after a stream's geomorphic attributes have been repaired.*
- *Unfortunately, the ecological aspects rarely improved despite the improved physical measures.*
- *There simply were few ecological differences between restored and unrestored sites. In fact, the unrestored sections upstream were often ecologically better than the restored sections or those downstream of restorations.*
- *Our results suggest that restoration activities do not mitigate the reasons causing the ecological declines. Higher levels of Impervious Surface Cover (ISC) in the watershed has an overarching influence on Piedmont streams (but not in the Coastal Plain). Restorations actually decreased in ecological health measures to a greater extent as ISC increased than their unrestored counterparts upstream.*
- *Ecological measures also responded negatively to the degree of disruption caused by the restoration. Longer restorations and those with more installed structures had lower ecological uplift measures in the Piedmont, while those in the Coastal Plain responded negatively to greater amounts of installed root wads and step pools. A key point here is that the amount or intensity of restoration did not improve outcomes in either region.*
- *The time since restoration completion partially mitigated these effects when focusing only on responses in restored sections, but it did not produce significant trends when compared against unrestored sections.*
- *We conclude there is little evidence that urban stream restorations can produce meaningful improvements in traditional measures of stream condition as measured with benthic macroinvertebrates. Unfortunately, the possibility of restoring the ecology of urban streams to resemble conditions of streams in lesser disturbed watersheds is limited."*
- *"Justifying degrading activities by claiming that restoration will solve the problems the activities caused is untrue and will lead to misdirected human and financial resources. The steep declines in IBI and richness in restored sections as ISC increases are particularly troubling and suggest that restorations in high ISC watersheds may do more ecological harm than good."*
- *"In relative terms, RSC [Regenerative Stormwater Conveyance]-dominant restorations performed similarly to NCD [Natural Channel Design]-dominated; both showed limited to no ecological uplift due to restoration activities."*

Hodgson, K., Powers, L., and Stranko, S., Resource Assessment Service. 2023. "Evaluating a Regenerative Stormwater Conveyance Stream Restoration and its Effects on Water Quality and Benthic Macroinvertebrates." Maryland Department of Natural Resources. 580 Taylor Avenue, Annapolis, Maryland 21401. DNR 12-042623-352.

https://dnr.maryland.gov/streams/Publications/Evaluating-a-Regenerative-Stormwater-Conveyance-Stream-Restoration-and-its-Effects-on-Water-Quality-and-Benthic-Macroinvertebrates_A-Case-Study-at-Muddy-Creek.pdf

Following are some quotes from the study:

- *"An RSC was installed along 452 linear stream meters on North Branch Muddy Creek on the Smithsonian Environmental Research Center (SERC) property in Edgewater, Maryland to reconnect the stream to its floodplain to increase water storage and sediment deposition, increase nutrient and sediment processing, and provide biological uplift."*
- *"Dissolved oxygen concentrations and saturation levels were frequently significantly lower at the downstream monitoring station compared to the upstream station in the same month, and DO concentrations more frequently fell below the 5.0 mg/L Maryland Use Class I water quality standard violation threshold at the downstream station. Stream temperatures were significantly higher at the downstream station compared to the upstream station in more than half of the months studied."*
- *"Significant decreases in Benthic Index of Biotic Integrity (BIBI) scores, Number of Taxa, Shannon-Wiener Index, and Percent Predators, and significant increases in the Percent Chironomidae and Percent Collectors were observed after restoration."*
- *"Benthic macroinvertebrate communities also experienced a marked shift in composition to the dominance of tolerant taxa."*
- *"Although water chemistry data previously reported by SERC showed significant retention of some nutrients within the reach, dissolved oxygen, water temperature, and benthic macroinvertebrate communities appear to have worsened after restoration."*

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

Observation:

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.

Observation:

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".*

Iliff, Jesse, Wayne Martin, and Sarah Giordano, February 9, 2020, "Assessing Watershed-scale Restoration Effectiveness: Treatment Impacts and Monitoring Requirements," Arundel Rivers Federation (South River Federation prior to January 2019) and Smithsonian Environmental Research Center

Following are some quotes from the study:

- *"A suburban watershed with septic systems and fertilized turf might release more nutrients than a more highly impervious watershed lacking turf and septic systems. In some cases, nutrient releases from urban watersheds may come from leakage of sewer pipes." (p. 17)*
- *"With knowledge of the sources of nutrients in a watershed, regulators may decide to address the sources directly rather than constructing BMPs to remove the nutrients after they are released into the streams. If necessary, improving sewage and septic systems*

could be more effective at reducing nutrient discharges than would restoring streams." (p. 17)

Jepsen, R., Caraco, D., Fraley-McNeal, L, Buchanan, C., and Nagel, A. 2022. "An Analysis of Pooled Monitoring Data in Maryland to Evaluate the Effects of Restoration on Stream Quality in Urbanized Watersheds: Final Report." ICPRB Report 22-2. Interstate Commission on the Potomac River Basin, Rockville, MD. https://www.potomacriver.org/wp-content/uploads/2022/06/ICP-22-1_Jepsen.pdf

Following is a relevant quote from the study:

- *"Following large amounts of stream restoration, there is often an apparent decline in stream health." (p. 48)*

Kaushal, Sujay S., Kelsey L. Wood, Phillippe G. Vidon, and Joseph G. Gallela. 2021. Tree Trade-offs in Stream Restoration Projects: Impact on Riparian Groundwater Quality. Study funded by Chesapeake Bay Trust. March 2021. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

This report concludes that tree removal during stream restoration resulted in long-term degradation of groundwater quality. Shallow groundwater will eventually discharge as surface water runoff, carrying these pollutants into streams and lakes.

Lave, Rebecca and Doyle, Martin, 2021, "Streams of Revenue: The Restoration Economy and the Ecosystems it Creates," January, 2021, The MIT Press [Keywords: stream restoration banking]

- *"While Congress likely assumed that the regulatory agencies implementing the CWA—the U.S. Army Corps of Engineers (Corps of Engineers) and the Environmental Protection Agency (EPA)—would deny many permits to prevent harm to these ecosystems, the vast majority of permits have been granted, as the agencies have yielded to the political costs of limiting development, be it new homes, factories, or roads. Rather than deny permits altogether to protect the nation's freshwater ecosystems, the agencies arrived at a workaround known as the mitigation sequence: avoid impacts, reduce impacts, and only then compensate for any unavoidable impacts. In practice, however, it turned out to be far more politically palatable to let developers offset their project's impacts on a stream by restoring a comparable stream elsewhere than to ask them to rework the project to avoid or reduce its impacts altogether." (pp. 6-7)*
- *"As defined in North Carolina's mitigation regulations, preservation produced the lowest number of credits on a given site, and enhancement carried a medium number of credits. The maximum number of credits was only available if mitigation bankers reconfigured the existing channel. Regulators thus created a powerful economic incentive for full reconstruction rather than preservation or enhancement. (p. 123) [Is this true in MD?]*
- *"Instead of having to compare the biological, chemical, and physical particularities and interconnectivities of the two sites, stream mitigation banking in North Carolina calls out*

a relatively narrow range of physical characteristics…. P. 124 [how is equivalence defined in MD or by COE?]

- *"Equivalence is thus reduced to criteria that are relatively easy to measure and control. Biology and chemistry, not to mention more complex physical characteristics (e.g., groundwater connectivity) are excluded from consideration because channel form is considered an adequate proxy for them…. This highly simplified equivalence makes mitigation look simple, and effectively takes concerns about ecological uncertainty…off the table. (p. 124)*
- *"…[scientists] do not consider stability to be a proxy for the overall chemical, biological, or physical health of a steam." (p. 125)*
- *"…this political-economic system led to… an artificial hydroscape bearing the signature of regulation rather than natural processes. …Stability equals success." (p. 137)*
- *"From the bankers' and designers' point of view, this meant that stability was the only target." (p. 138)*
- *"…it is not at all clear that current stream restoration practices actually work (see chapter 3)." (p. 140)*

Mayer, Paul M., Michael J. Pennino, Tammy A Newcomer-Johnson, and Sujay S. Kaushal. 2022. Long-Term Assessment of Floodplain Reconnection as a Stream Restoration Approach for Managing Nitrogen in Ground and Surface Waters. Urban Ecosystems Vol. 25, p. 879-907. Accessed at https://link.springer.com/article/10.1007/s11252-021-01199-z on 5/8/23.

Observation:

This article states that stream restoration can be an important component of holistic watershed management "if stream restoration and floodplain reconnection can be done in a manner to resist the erosive effects of large storm events."

Myers, Doug. 2023. Chesapeake Bay Foundation. Testimony to the CA Board Meeting on January 12, 2023. Video available at https://www.youtube.com/watch?v=8p8M7ebpl9o, beginning at time stamp 1:50:00.

Observation:

Mr. Myers repeatedly stressed that it is useless to attempt stream restoration if you do not first address the source of the problem, which is increased runoff. The Elkhorn Branch project will not control runoff. At the end of Mr. Myers presentation, he was asked if, in his expert opinion, it would be better to do the project and see what happens, or if it would be better to do nothing. Mr. Myers stated that the evolving science says that it would be better to do nothing, and let the stream heal itself. This recommendation was rejected by the Columbia Association staff, none of whom had any relevant qualifications. It was quite obvious that CA had been offered a substantial sum of money to allow the project to proceed, and their appetite for an increase in revenue far outweighed their interest in preserving trees in their Open Space.

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. Accessed at https://pubag.nal.usda.gov/catalog/5378506 on 4/30/2023.

Observation:

This article concluded that urban stream restoration does not result in net annual benefits in reduction of nitrogen. With respect to retention of sediment, the article concludes that this does occur initially, but it will decrease over time. In addition, the article documented that loss or damage of riparian forests and pulses of sediment released during construction may offset other project benefits. Therefore, the article concluded that use of approaches that require substantial ecosystem modification to enhance a limited number of biophysical processes should be limited to the most degraded systems, and then only after less invasive approaches, such as upland reforestation, reduced lawn fertilization, and better stormwater management at the source of runoff generation have been exhausted.

Palmer, Margaret A., K.L. Hondula, and Benjamin J. Koch. 2014. Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals. Annual Review of Ecology, Evolution, and Systematics 45:247-69. Accessed at https://www.annualreviews.org/doi/10.1146/annurev-ecolsys-120213-091935 on 5/7/2023.

Observation:

This is probably the key article that documents failures of stream restoration projects to meet almost every metric of success. The study involved an assessment of reported monitoring results in 644 streams. The article documents that the projects usually improve habitat, substrate, and channel form, but this is because these measures have recently been physically manipulated as part of the restoration. These are not measures of the long-term condition of the stream, and others researchers have documented that these manipulations do not last if runoff is not controlled. With respect to stability, the study found that less than half the projects showed improvements in channel stability compared to pre-restoration conditions, even though the projects had used rip-rap and boulders to try to stabilize the streams. Improvements in water quality metrics were only met 7% of time. The projects did improve indicators of hydrologic or biogeochemical processes, but these were not accompanied by any increased aquatic biodiversity or recovery of sensitive species. This was a common finding in other articles – that, although the metrics showed improvements in habitat, channel form, substrate, and velocity, these improvements were not accompanied by improvements in biodiversity. There was also no improvement in taxa richness, except for one area where the increase in taxa was due entirely to the addition of some taxa that are tolerant or urban stream conditions.

Palmer, Margaret. 2023. University of Maryland. Email to Bob Dover regarding NCD Stream Restoration Methodology. May 7, 2023.

Observation:

Because Dr. Palmer's article was developed in 2014, Bob Dover of Columbia, Maryland, contacted her by email in May, 2023, to notify her that he intended to use the article to oppose a proposed project, and to determine whether the statements and conclusions made in the article still reflect her current opinions about the effectiveness of stream restoration. She responded "Yes, they absolutely do."

Ruck, Chris. 2023. Suburban Case Study: Flatlick Branch (Fairfax, VA) Stream Restoration Project.

Observations:

The study included monitoring of multiple parameters beginning in 2008, with construction occurring in 2017. It concluded that measurement of some parameters showed improvements following restoration, while others showed declines. The declines were found in physiochemical (temperature, conductivity, pH, and dissolved oxygen) and biological parameters (benthic macroinvertebrates and fish assemblage). Improvement was shown in floodplain connectivity and stability, as well as concentrations of nitrogen, phosphorus, and total suspended sediment.

Of the improvements, floodplain connectivity is a physical parameter that is easy to accomplish with earth-moving equipment and, while some supporters of stream restorations claim that this will lead to chemical and biological improvements, it is not, in itself, a measurement of chemical or biological improvements. The same statement can be made for stability, which was not even based on measurements, but only on visual observations.

The claimed "improvements" in nitrogen, phosphorus, and total suspended sediment were more concerning. The lead investigator made sure to link these gains to the TMDL mass that was credited, and to provide a gigantic green "checkmark", to draw attention to this success. Unsurprisingly, there was no gigantic red "checkmark" placed next to the graphics that showed parameters for which there were no improvements. However, when viewing the actual data for the nitrogen, phosphorus, and sediment measurements, it is quite obvious that the concentrations for all three parameters were already in sharp decline between 2008, the beginning of monitoring, and 2017, the year of construction. Even though the author makes sure to indicate the TMDL credits he was able to claim, there is actually no evidence that the project, on its own, caused TMDL reductions of any kind.

Scientific and Technical Advisory Committee (STAC), 2023. An Independent Report from the Scientific and technical Advisory Committee (STAC), Chesapeake Bay Program, Annapolis, Maryland, May, 2023.

Observation:

Disappointing project- and watershed-specific results are reflected in the overall results for the Chesapeake Bay, as reported in the 2023 Independent Report from the Scientific and Technical Advisory Committee (STAC) of the Chesapeake Bay Program. The report, commonly called the Comprehensive Evaluation of System Response (CESR) report, found that decades of efforts to improve water quality and ecological function in the Bay through load reductions in TMDL and other programs have not been successful. One particularly relevant statement, from Page 75 of the Findings of that report, is "To date, efforts to reduce nonpoint sources have not produced sufficient levels of BMP implementation to meet the TMDL, and the implementation that has occurred may not be producing the pollutant reductions expected" (emphasis added).

This is a critical statement. The entire purpose of this "implementation that has occurred" is to achieve these pollutant reductions. As discussed above, this "implementation" has enormous financial costs, as well as adverse impacts to the ecology and the residents. If it turns out that this implementation is not producing the "pollutant reductions expected", as stated in the Findings of the CESR report, then all of the financial costs and the adverse impacts to ecology and residents have been for naught.

In testimony in favor of the Maryland Whole Watershed Act before the Environment and Transportation Committee of the House of Delegates in January, 2024, representatives of the stream restoration industry, and others who favor stream restoration projects, cited the CESR report in claiming that the reason for the failures to meet the TMDL were entirely due to not having done enough stream restoration projects, and not having done them of a large enough scale. However, if the Findings of the CESR report, that these projects are not delivering the *expected pollutant reductions, is correct, then implementation of more and larger projects will only waste money, cause damage to existing ecological systems, and adversely impact property values in residential neighborhoods.*

Shields, Douglas, online webinar still active in 2025, “Stream Restoration: What Works and What Doesn't Work,” webinar sponsored by American Society of Civil Engineers (https://www.asce.org/education-and-events/explore-education/on-demand-webinars/stream-restoration--what-works-and-what-doesn-t-work/)

Following is a quote from the description of the webinar:

- *However, few projects are monitored, and many that have been monitored have performed poorly. Accordingly, the ability of stream restoration engineers to deliver promised benefits is in question.*

Simmons, R. H., 2020_1, “Why Natural Channel Design Projects are Incompatible With Natural Resource Protection and the Preservation of Native Biodiversity,” R. H. Simmons, Natural Resources Manager, City of Alexandria; presentation to Montgomery Stormwater Partners Network on July 13, 2020: Accessed at https://drive.google.com/file/d/11oDj0emKLFP1ecRCUKEkKjHozmpAHyDw/view?usp=sharing and https://drive.google.com/file/d/1ud14WcJPU4u18bUPl-2WQFMYK2THP8Ct/view?usp=sharing

Simmons, R.H, 2020_2, “A Review of Little Hunting Creek Watershed, Paul Spring Segments 1 & 2 (Brickelmaier Park and Goodman Park), Hollin Hills Stream Restoration 100% Plans,” in Northern Virginia, March 2020.

Following are some quotes from the study:

- *“While the Clean Water Act has accomplished many great things and benefited society, of late it has driven some unintended negative consequences by inducing inappropriate stream restoration projects. The driving force behind most geomorphic stream restoration projects in the Chesapeake Bay Watershed in recent years is local jurisdictions seeking to find ways to meet Clean Water Act requirements focused on reducing nutrient and sediment loads - principally Chesapeake Bay and individual river/stream Total Maximum Daily Load (TMDL) requirements, but also Municipal Separate Storm Sewer Systems (MS4) permits. TMDLs for sediment are set based upon what is necessary to reduce phosphorus loading because phosphorus is transported to the Bay in large quantities adsorbed to sediments.”*
- *“Managing excess phosphorus (P) delivery is probably the greatest concern. The most important measures to curb excess phosphorus sediments are by improved agricultural practices, sanitary sewer rehabilitation, and better urban stormwater runoff management. So-called stream restoration projects, however, do not actually target phosphorus-rich deposits.”*
- *“The stream bank and channel sediments that geomorphic projects prevent from eroding can be rich in phosphorus if they consist of recent erosion of topsoil (i.e., through inadequate silt fencing around soil disturbance of cropland), erosion of floodplain overbank deposits, and the like. Conversely, eroding geologic materials in upper headwater streams typically have minimal phosphorus in them compared to mid and*

lower stream reaches that contain floodplain sediments. Yet, headwater streams are often targets for geomorphic restoration work because substantial erosion can occur there."

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. Accessed at https://www.usgs.gov/publications/how-well-do-rosgen-classification-and-associated-natural-channel-design-methods on 5/10/23.

Observation:

This abstract from a conference presentation challenged the idea, of David Rosgen, that classification of streams and "natural channel design" are equivalent or superior to the science of fluvial geomorphology. The authors lamented that "para-professional training" had empowered individuals and groups with limited backgrounds to re-engineer entire stream systems. The abstract concluded that, while the system makes it easy to communicate between practitioners, but that does not justify its use for engineering design or for predicting river behavior, and its use for designing mitigation was beyond its technical scope.

Simon, A., M. Doyle, M. Kondolf, F.D. Shields Jr., B. Rhoads, and M. McPhillips. 2007. Critical Evaluation of How the Rosgen Classification and Associated ''Natural Channel Design'' Methods Fail to Integrate and Quantify Fluvial Processes and Channel Response. Journal of the American Water Resources Association (JAWRA). Vol. 43, Number 5, Pg. 1117-1131. Accessed at https://naldc.nal.usda.gov/download/7764/PDF on 5/10/23.

Observation:

The purpose of the article was to "present a critical review, highlight inconsistencies, and identify technical problems of Rosgen's natural channel design approach to stream restoration." The text states that Rosgen's training business has "empowered individuals and groups that may have limited backgrounds in stream and watershed sciences to engineers modifications of streams whose scientific underpinning is based on 50-year-old technology never intended for engineering design."

Southerland, Mark, Chris Swan, and Andrea Fortman. 2017. Meta-Analysis of Biological Monitoring Data to Determine the Limits on Biological Uplift from Stream Restoration Imposed by the Proximity of Source Populations. Study funded by Chesapeake Bay Trust. September 2017. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

This report was largely inconclusive, but did conclude by saying that expectations for biological uplift from stream restorations should be tempered. The report was mostly setting the stage so that the chief investigator could ask for more funding for more studies.

Stack, B., 2019, "Chesapeake Bay Program Stream Restoration Credits: Moving Toward Functional Lift?", Bill Stack, PE, Deputy Director of Programs, Center for Watershed Protection,

September 12th, 2019; https://www.cwp.org/chesapeake-bay-program-stream-restoration-*credits-moving-toward-functional-lift/*

Following are some quotes from the study:

- *"I helped lead the effort in developing the Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects with Tom Schueler of the Chesapeake Stormwater Network. …I can no longer hide from the turmoil that I helped to create in the stream restoration industry. …This action unleashed an unprecedented flurry of stream restoration projects identified in Watershed Implementation Plans and MS4 implementation plans across the Bay watershed which are now being implemented by a thriving billion-dollar stream restoration industry comprised of engineers, hydro-geomorphologists and a few biologists. I forgot to mention big-time financiers. Also, take notice of what I said about "few biologists.""*
- *The Expert Panel noted "the root causes of stream bank erosion: impervious cover. …As a result, municipalities are spending enormous amounts of money on projects that generate the necessary water quality credit but have no real impact on stream function. …Perhaps [change] will come after we spend billions of dollars on these projects and the taxpayers ask "why can't I catch fish in this stream?""*

Stowe, Edward S., Petersen, Kelly N., et. al., 2023, "Stream restoration produces transitory, not permanent, changes to fish assemblages at compensatory mitigation sites," Restoration Ecology, Volume 31, Issue 5, Jul 2023, https://onlinelibrary.wiley.com/doi/10.1111/rec.13903 and https://onlinelibrary.wiley.com/doi/epdf/10.1111/rec.13903

Following are some quotes from the study:

- *Analyzed results from 23 compensatory mitigation projects. Concluded that stream "restoration" produces only transitory, not permanent, changes to abundance and species richness of fishes, especially to sensitive taxa and in urban systems.*
- *"Modeling results indicated that abundance and species richness of fishes generally increased in the first years after restoration before decreasing to baseline levels by the seventh year."*
- *"Stream restoration utilizing Natural Channel Design should not be expected to produce permanent changes to fish communities, especially to sensitive taxa and in urban systems."*
- *"Our analysis indicates that reach-level manipulation of streams [by stream restorations] should not be expected to induce long-term changes in fish communities"*

Thompson, Tess, and Eric Smith. 2021. Improving the Success of Stream Restoration Practices – Revised and Expanded. Study funded by Chesapeake Bay Trust Award #13970. June 2021. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

This report concludes:

- *There are few studies that support the supposed benefits of stream restoration.*
- *Attempting these projects in urban watersheds will limit the potential for biological improvements.*

- *In-stream improvements to reduce channel erosion, sedimentation, and nutrient reduction will not be effective if excessive runoff is not controlled.*
- *Efforts to limit channel migration are opposed to the normal functions of streams, and will therefore limit ecosystem health.*
- *The practice of stream restoration has far outpaced the science. Practitioners base their efforts on their own personal experience, which is not written and not made available for study. Where they have been made available, they are non-quantitative and anecdotal.*

Welty, Claire, Andrew J. Miller, and Jonathan M. Duncan. 2021. Quantifying the Cumulative Effects of Stream Restoration and Environmental Site Design on Nitrate Loads in Nested Urban Watersheds Using a High-Frequency Sensor Network. Study funded by Chesapeake Bay Trust Award #15828. 2021. Accessed at https://cbtrust.org/grants/restoration-research/ on 6/10/23.

Observation:

This report concludes that stream restorations did not provide any reductions in nitrate loads.

Wood, Kelsey L., Sujay Kaushal, Phillippe G. Vidon, Paul M. Mayer, and Joseph G. Galelle. 2022. Tree Trade-Offs in Stream Restoration: Impacts on Riparian Groundwater Quality. Urban Ecosystems. Abstract accessed at https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=CPHEA&dirEntryId=355730 on 5/8/2023.

Observation:

The article states that "riparian tree removal can lead to significant groundwater quality impacts", and that "where possible mature trees and soil profiles should be conserved".

Attachment 3: Engineered Stream "Restorations" Fact Sheet

(Coalition to Stop Stream Destruction, 2/212026, v146 r00)

1. WHAT? They are civil engineering projects that **destroy natural areas,** converting streams into engineered stormwater conveyances using heavy equipment to clearcut forests, dig artificial channel shapes, and dump fill material into streams. Use the QR code to see videos of these harmful engineered stream projects.

2. WHERE? Usually in public land like parks that do not require public approval and are hidden from street view.

3. WHY? Engineered stream "restorations" try but **fail to stop stream erosion** or improve water quality or stream ecology**. Their unattainable goal - to recreate "natural" or "historical" pre-colonial conditions - is impossible given today's land use & climate.[i] Governments hide the real drivers of engineered steam "restorations" - not environmental concern, but EPA regulations (MS4 permit & TMDL goals) and construction "mitigation" laws[ii]. Despite industry & government disinformation[iii], "restorations" are not required by law. There are many nondestructive out-of-stream alternatives (see #6).[iv]

**** ROOT CAUSE OF STREAM EROSION?** Upland (out-of-stream) stormwater runoff from impervious surfaces like roads, parking lots, etc. that firehoses into steams. Engineered stream "restorations" **don't address this root cause of erosion**.

4. WHO INITIATES? Local or state governments for pollution laws; private companies for construction "mitigation."

5. HOW SOLD TO THE PUBLIC? Greenwashing & disinformation[v] to the public and elected officials are used to claim stream "restorations" are both necessary and desirable. Click for a presentation or use QR code:

0 **a.** Local, state, and federal governments and the $25B industry **ignore the science** and Chesapeake Bay Program Report[vi] that stream "restorations" do not stop erosion. Published papers[vii] analyzed over 700 "restorations" to show that water quality and ecological function are not improved (even though "…biological benefit is an assumed condition for the permitting and crediting of stream restoration projects"[viii]), are sometimes worse, and less than half stopped stream erosion – less than a coin toss. A few claims of "successful" projects (if they even exist) are outliers.

b. Proponents **falsely claim** that 1) studies[ix, x, xi] prove upland projects cannot stop stream erosion – in fact, these studies only show that too few properly sized projects were built, and 2) there are not enough upland areas for stormwater control, even when not evaluated or only considering the same watershed or meets-minimum projects done in public areas/ROWs.

c. Governments **ignore or trivialize adverse consequences**[xii] by hiding tree numbers cut, claiming that wildlife habitat loss by forest clearcutting is temporary and quickly mitigated by planting saplings,[xiii] that invasives will be removed and then successfully controlled, concealing that small animals will be crushed or buried alive, and hiding the loss of property values due to viewshed destruction, increased traffic noise, and decreased shade, privacy, and nature-based recreation.

d. They **hide negative consequences** from floodplain reconnection[xiv] "restorations" like more flooding due to runoff from more frequently saturated floodplains and loss of evapotranspiration from cut trees, death of trees due to water-logged soil, more mosquitoes, and deposition into floodplains of toxins in stormwater that are hazardous to animals and children.

e. Governments falsely claim that **photos of washed-out engineered "restorations"**[xv] that failed to stabilize streams and that require costly taxpayer-funded repairs[xvi,xvii] are cherry-picked, yet they provide no scientific evidence to the contrary.

f. To justify "restorations," they claim stream erosion rates using bogus theoretical, irreproducible calculations[xviii].

g. To promote "restorations," governments falsely conflate the need for infrastructure and property protection (e.g., exposed sewer lines and backyard erosion) which can be done via spot repairs without the need for stream "restorations."[xix]

h. Governments[xx] & Chesapeake Bay Program's STAC[xxi] make baseless claims that engineered "restorations" are cheaper (install + life cycle cost) than 20 less expensive out-of-stream stormwater control practices per MD Dept. of Environment.[xxii]

6. SOLUTION? Control stormwater outside of streams with **non-destructive, upland practices** such as roadside bioretentions, rain gardens, permeable pavement, etc.[xxiii] in already disturbed, developed areas. Many are cheaper than engineered stream "restorations" and provide co-benefits like reducing urban flooding and heat islands, providing green spaces, increasing property values, and protecting streams & floodplains from toxins in stormwater.

7. COST vs. NATURE? Even if some upland stormwater controls are more expensive, **our natural areas must be protected**.[xxiv]

8. HOW TO FIX ERODED STREAM BANKS? There is evidence that streams self-heal[xxv] and self-stabilize once upland runoff is controlled.[xxvi]

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[i] Just as the Chesapeake Bay Program's "Comprehensive Evaluation of System Response" (CESR) report states that "The Bay of the future will be different from the Bay of the past because of permanent and ongoing changes in land use, climate change, population growth, and economic development," so too it will be impossible to restore local streams to "natural" or "historical" pre-colonial conditions.

[ii] MS4 permits for stormwater runoff pollution control and mitigation projects to offset damage done e.g. by proposed Beltway widening.

[iii] "Why is this work required?" in "FAQs, Miracle Drive," by Montgomery Co. DEP. https://greenmiracledrive.com/wp-content/uploads/2023/05/Miracle-Drive-FAQ_0526.pdf

[iv] Allowed MS4 permit practices in Maryland are listed in the MDE Accounting Guidance document: https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

[v] Presentations by governments and industry falsely promise stream & ecological restoration and water quality improvement. But, in a private meeting for Stormwater Partners (1/16/2024), Montgomery Co. DEP admitted that "We have not seen benthic [macroinvertebrate] improvement in any of our stream restorations." BMIs are a measure of stream health.

[vi] In their Step 3: Estimate restoration reduction efficiency, The Chesapeake Bay Program's (CBP) Expert Panel Report states that, "In the last step, sediment and nutrient load reductions are conservatively reduced by 50% to account for the presumed [in]efficiency of stream restoration practices." https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf.

[vii] Palmer, M. A., K. L. Hondula, and B. J. Koch, University of MD, 2014, "Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals,", Annu. Rev. Ecol. Evol. Syst. 2014. 45:247-269. (https://akottkam.github.io/publications/Palmerpublications/Palmer2014a.pdf); Hilderbrand, Robert H., et. al.,2020, "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf; Southerland, M., et. al., 2021, "Vertebrate Community Response to Regenerative Stream Conveyance Restoration as a Resource Trade-Off," CBT Research Grant; https://cbtrust.org/wp-content/uploads/FINAL-Report-for-18002-Tetra-Tech-CBL-CBT-RR-Vertebrates-in-RSCs-30SEP2021-Submitted-to-CBT.pdf; Carr, J., Hart, D., McNair, J., 2006, "Compilation and Evaluation of Stream Restoration Projects: Learning from Past Projects to Improve Future Success," Drexel Univ., Submitted to Penn Foundation. https://ansp.org/research/environmental-research/projects/restoration/

[viii] Chesapeake Bay Program's (CBP), STAC Workshop Report, 2024, "The State of the Science and Practice of Stream Restoration," https://www.chesapeakebay.net/files/STAC-Report_Stream-Restoration_24-006-1.pdf; objective of Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." https://www.govinfo.gov/content/pkg/USCODE-2018-title33/pdf/USCODE-2018-title33-chap26.pdf

[ix] Williams, B. et al., (2022), "Tracking geomorphic changes after suburban development with a high density of green stormwater infrastructure practices in Montgomery County, Maryland," Geomorphology. https://doi.org/10.1016/j.geomorph.2022.108399

[x] Thompson, T. W. et al., (2023) "Effectiveness of stormwater management practices in protecting stream channel stability," presented at the 2023 Maryland Water Monitoring Council Annual Conference. https://drive.google.com/file/d/1isYAs58zVsLJ9H1VOiu4PvzMuYvSplf3/view

[xi] Hopkins, Kristina G., et. al., 2022, "Lessons learned from 20 y of monitoring suburban development with distributed stormwater management in Clarksburg, MD," Freshwater Science, volume 41, number 3, Sept.2022. https://www.journals.uchicago.edu/doi/full/10.1086/719360

[xii] References provided on request.

[xiii] "Restoration" disturbances are not temporary. After clear-cutting, "…full ecological recovery, including soil stabilization and biodiversity restoration, can take several decades to over a century." https://forestry.com/education-and-community/educational-resources/clear-cutting-pros-and-cons-what-you-need-to-know/

[xiv]The floodplain reconnection techniques of "restoration" try to re-create pre-colonial conditions when stormwater more frequently overflowed stream banks and spread into a floodplain where eroded sediment is deposited. In the "Legacy Sediment Removal" method, the stream valley is clearcut then tons of soil are removed to lower the valley to the stream level. In the FILL method, material is dumped into a stream channel to raise its level closer to the valley floor (only to be eroded out again by uncontrolled stormwater runoff.)

[xv] Photos in Appendix 3, testimony on Montgomery Co. FY26 Capital Budget; MoCo DEP and Parks have no public list of storm intensity each project has experienced and which were damaged. https://drive.google.com/file/d/1DTOOLLm_Aei8lRpPoxPpnFvnTXWJW8eq/view?usp=drive_link

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[xvi] Example of Montgomery Co. failed “restorations” repair cost per DEP: Lower Booze Creek, Potomac: repair = $3.6M.

[xvii] Stream “restoration” companies typically only guarantee their projects for one year since they know that these projects will be washed-out. After that, taxpayers foot the repair bill.

[xviii] Per CBP Expert Panel Report, theoretical erosion rate calculations have “…high variability when performed by different practitioners,” and “restorations” are presumed to be at most 50% effective in stopping erosion. https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[xix] False conflation: “What is stream restoration? What problem can it solve? …Erosion can also be harmful to public infrastructure (such as exposing a sewer pipe) and private property (such as a backyard in danger of eroding away into a stream). https://www.montgomerycountymd.gov/DEP/water/clean-water-montgomery/watershed/stream-restoration.html

[xx] Montgomery Co DEP claims “restorations” are cheaper than upland stormwater control practices (WQAG meeting, 4/12/2021). They misleadingly compare pricing for stream “restorations” vs. DEP’s “Green Streets” program comprised of at least 7 different practices including Rain Gardens, Bioretentions, etc. DEP does not break out prices for these 7 practices for a true comparison of practices.

[xxi] CBP STAC Workshop Report, 2024, “State of the Science and Practice of Stream Restoration,” p.47 https://www.chesapeakebay.net/files/STAC-Report_Stream-Restoration_24-006-1.pdf

[xxii] Per MD Dept. of the Environment (MDE) “Annual Report on Financial Assurance Plans” -2022- https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/FAP-WPRP/2022%20Stormwater%20Financial%20Assurance%20Plan%20Annual%20Report%20to%20Governor_%20MSAR%20%23%2010954%2010.18.2022.pdf

[xxiii] Examples at MoCo DEP’s site https://www.montgomerycountymd.gov/DEP/water/clean-water-montgomery/watershed/green-streets.html

[xxiv] Especially given global warming and some Climate Action Plans’ goal to “Retain, increase, and restore terrestrial ecosystems including forests….” https://www.montgomerycountymd.gov/climate/Resources/Files/climate/climate-action-plan.pdf

[xxv] Prestegaard, K. 2023, “Urban Runoff and Channelization,” STAC Workshop Report, 2023, “The State of the Science and Practice of Stream Restoration, https://www.chesapeake.org/stac/wp-content/uploads/2023/04/Prestegaard-Karen-panel-slides-2.pdf

[xxvi] Fraley-McNeal, et. al. (2021), “The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation,” https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf; streambank soil will slough off into streams during self-stabilization, but the science (note vi) shows that most stream “restorations” do not stabilize streams anyway, and photographic evidence shows that “restorations” are being eroded away by post-construction storms.

SB688_SierraClub_FAV_EEE_3.3.26.pdf

Uploaded by: Marion Edey

Position: FAV

SIERRA CLUB
MARYLAND CHAPTER

P.O. Box 278
Riverdale, MD 20738

Committee: Education, Energy and Environment

Bill Number: SB 688: Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Position: Support

Hearing date: March 3, 2026

The Sierra Club Maryland Chapter supports SB 688, which would improve the way our State and counties manage stormwater in Maryland. We need to shift our focus from stream restoration projects that address only the symptoms of stormwater runoff and give priority to cost-effective projects that address the sources of stormwater flooding, pollution and erosion.

Stream restorations – reengineering of stream channels and floodplains – should be the last resort, not the first option. They are expensive, often remove hundreds of mature native trees, and disrupt ecosystems while frequently failing to solve the underlying problem – excess stormwater entering the streams from upland areas. Unfortunately, we have created systems that incentivize costly stream restorations, regardless of necessity, and local agencies have been slow to change. Administratively, it is easier to authorize a few big construction projects to earn pollution credits than to work with the public and developers to create many small interventions such as rain gardens, bioretention installations, bioswales, green roofs, and reductions of impervious surfaces.

This bill provides some much-needed guidance and accountability that requires the shift in priorities we need to address the root problem. It says that in-stream construction projects using heavy equipment cannot be used to earn MS4 credits, mitigation or other pollution control credits unless there are no feasible alternatives. "Infeasible" is defined as technically impracticable for physical reasons. An alternative cannot be ruled out on the basis of cost alone.

Fortunately there are many alternatives which can be more cost effective. A 2012 Baltimore case study estimated stream restoration at $500-$1,200 per foot, while bioretention ponds were "equivalent to $30-120 per foot of restored stream."[1] The Maryland Department of the Environment's 2022 Annual Report on Financial Assurance Plans shows that there are 18 different kinds of out-of-stream projects that can earn pollution credits and which are cheaper per acre restored than stream restorations,

[1] M. A. Kenney, et al., 2012,. Is Urban Stream Restoration Worth It? *Journal of the American Water Resources Association* (JAWRA) 48(3): 603-615. DOI: 10.1111/j.1752-1688.2011.00635.x

including rainwater harvesting, pocket wetlands, surface sand filters, dry swales, tree planting, and catch basin cleaning.[2]

Moreover, these cost data only reflect the short term. They do not compare the lifecycle cost of these investments over time: the maintenance, repair, replacement, and loss of ecosystem services. Stream restorations often fail, making their true costs far higher than original estimates. A restoration of Lower Booze Creek in Montgomery County failed shortly after the completion of a $700K project, with subsequent repairs ballooning the total costs to $4.9 million.[3]

The recent stream restoration done by the University of Maryland Baltimore County provides another concerning example. At a cost of $27 million, this controversial stream restoration demolished a wetland in the Spring Grove Arboretum and took out huge trees which have kept the stream so stable that it survived a 1,000 year flood without leaving its channel. Now a local forester predicts "I don't think it's going to hold up when the next heavy rain comes."[4]

The bill requires that any project receiving pollution control credits demonstrate "measurable functional lift" verified by post-construction monitoring. This lift must include some improvement to biological habitat or ecological function, and not be based solely on physical channel stability. This will help to ensure that pollution and mitigation credits are based on results, not simply on how many miles of streambed are dug up, reshaped or hardened with rocks.

Some stream restorations are necessary to protect infrastructure in dense urban areas, but they can be very destructive ecologically, especially in the Piedmont region, and often fail to improve water quantity and quality objectives. Several major published scientific studies confirm this. **A meta study looked at 644 projects and concluded that "improvements in all the five metrics within the water quality category were found for only 7% of the channel reconfiguration projects and for none of the in-stream channel projects…Recovery of biodiversity was rare for the vast**

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[2]Annual Report on Financial Assurance Plans and the Watershed Protection and Restoration Program, 2022 Maryland Department of the Environment, Appendix C. pp. 21-23 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/FAP-WPRP/2022%20Stormwater%20Financial%20Assurance%20Plan%20Annual%20Report%20to%20Governor_%20MSAR%20%23%2010954%2010.18.2022.pdf

[3] Montgomery County Council, May 23, 2023 Work session, Environmental Protection budget, p. 57 https://www.montgomerycountymd.gov/council/Resources/Files/agenda/col/2023/20230510/20230510_50.pdf

[4]K. Hille, "UMBC claims compliance in $27 million project that removed 1,000-plus trees at Spring Grove," *Baltimore Sun*, Feb.14, 26. https://www.baltimoresun.com/2026/02/14/umbc-tree-clearing-reaction/

majority of stream restoration projects."[5] Another report concludes that "following large amounts of stream restoration, there is often an apparent decline in stream health."[6] Still another study of 40 urban stream restorations in Maryland done for the Chesapeake Bay Trust concludes that "the ecological aspects rarely improved despite the improved physical measures…In fact, the unrestored sections upstream were often ecologically better than the restored sections or those downstream of the restorations."[7]

The disturbing study results are not so surprising when one considers how typical stream restorations are done. To make room for heavy earth moving equipment, hundreds of trees must be removed and the earth scraped bare, killing everything from the tree canopy down to the soil's micro-organisms and stream bed. Without shade from the trees, streams are often left to bake in the sun, raising water temperatures to levels higher than some aquatic species can tolerate, including insects and fish. Contractors are required to plant native trees and other vegetation once construction is completed, but it is hard for these plants to thrive in compacted soil and it takes generations for trees to mature. The denuded sites create opportunities for invasive plant species which rush in to fill the void. These invasive plants outcompete our natives and do not support our native insects, birds, and other wildlife.

One of the most aggressive invasive plants is Japanese stiltgrass. Research on the impact of stream restorations on riparian forests found that this invasive species benefited the most, especially when efforts were made to connect a stream with its floodplain. "The dominant herbaceous species across all study sites and treatment was Japanese stiltgrass…which was found at 22 out of 27 plots in 2020…Japanese stiltgrass was the only herbaceous species that comprised 75-100% of ground cover of any study plot," according to a Maryland study commissioned by Chesapeake Bay Trust.[8]

Despite the intentions of these projects, the removal of so many trees and their deep roots can further destabilize the banks, making streams even more vulnerable to

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[5] M.A. Palmer, et al., 2014. "Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals," *Annual Review Ecology, Evolution, and Systematics*. 45:247-269. https://doi.org/10.1146/annurev-ecolsys-120213-091935

[6] R. Jepsen, et al., 2022. *An Analysis of Pooled Monitoring Data in Maryland to Evaluate the Effects of Restoration on Stream Quality in Urbanized Watersheds*, Interstate Commission on the Potomac River Basin; Center for Watershed Protection
https://www.potomacriver.org/wp-content/uploads/2022/06/ICP-22-1_Jepsen.pdf

[7] R. H. Hilderbrand et al., c. 2019. "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," grant report to Chesapeake Bay Trust, 2020 p.2.
https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf

[8] D. Budelis, et al., "An Evaluation of Forest Impacts Compared to Benefits Associated with Stream Restoration" Chesapeake Bay Trust Research Award Program, 2020 pages 13-14
https://cbtrust.org/wp-content/uploads/Award14833_RestoResearch2017_FinalReport_Versar.pdf

erosion, if they continue to be fire-hosed by stormwater rushing off paved surfaces above. It can take over a hundred years for the tree canopy to be restored.

In our cities and suburbs, many of our remaining natural areas are in stream valleys targeted by restoration projects. We need the riparian forests in these valleys to cool our cities in a time of climate change, sequester greenhouse gases, support wildlife, and give both children and adults access to nature.

The Chesapeake Bay Comprehensive Evaluation of System Response (CESR) report tells us that 50 to 90% of runoff pollution is coming from only 5 to 20% of the land.[9] It recommends that we target critical areas. We don't need to control stream erosion everywhere, because not all silt ends up in the Bay. When streams can meander, the silt from erosion on one bank usually ends up on a beach around the next bend.[10]

Green infrastructure uses living vegetation to absorb and control stormwater, remove excess nutrients and control sediment. There are many studies showing that these interventions done before stormwater enters streams are cost effective. The report *Banking on Green* found that "75% of green infrastructure projects cost less than (44%) or equal to (31%) gray infrastructure solutions."[11] The EPA came to a similar conclusion in their report about reducing stormwater costs through Low Impact Development Strategies (LID) environmental site designs. "Total capital cost savings ranged from 15 to 80 percent when LID methods were used."[12] A compilation and meta-analysis of 39 different studies looked at a wide variety of upland stormwater controls including bioretention, infiltration, swales, ponds, grass channels,permeable pavement and green roofs. On average, these interventions achieved stormwater runoff reduction rates ranging from 59% to 89%.[13]

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[9] "K. Stephenson and D. Wardrop, eds.,(2023). *Achieving water quality goals in the Chesapeake Bay: A comprehensive evaluation of system response*, STAC Publication number 23-006, Chesapeake Bay Program Scientific and Technical Advisory Committee (STAC). p.38
https://www.chesapeake.org/stac/wp-content/uploads/2023/05/CESR-Final-update.pdf

[10] J Thompson et al, "The multiscale effects of stream restoration on water quality, Ecological Eingineering, 2018 pp. 7-18
https://www.sciencedirect.com/science/article/abs/pii/S0925857418303537?via%3Dihub

[11]*Banking on Green: A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide,* Apr. 2012. American Rivers, the Water Environment Federation, the American Society of Landscape Architects and ECONorthwest p.8
. https://www.americanrivers.org/wp-content/uploads/2017/03/banking-on-green-report.pdf

[12]U. S. Environmental Protection Agency, 2007, *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices*
https://www.epa.gov/sites/default/files/2015-10/documents/2008_01_02_nps_lid_costs07uments_reducingstormwatercosts-2.pdf

[13] Updating the Runoff Reduction Method, report commissioned by Tennessee Metro Water Service, 2018
hirschmanwater.com/wp-content/uploads/2018/07/RRM-Nashville_Report_FINAL_060718.pdf

Green infrastructure projects like these can better control stormwater, pollution and erosion, help prevent the damage to our streams and offer potential savings as compared to stream restorations. This is the intent of this bill and why we urge a favorable report on HB688.

Marion Edey
Biodiversity and Natural Places Team
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Josh Tulkin
Chapter Director
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SB688 Response from Martin Gould.pdf

Uploaded by: Martin Gould

Position: FAV

Favorable Response to Proposed Stormwater Management Legislation

The proposed legislation represents a thoughtful and forward-looking approach to stormwater management, one that aligns with modern environmental science, fiscal responsibility, and long-term watershed resilience. By prioritizing proven practices and strengthening oversight of stream and floodplain restoration projects, the bill helps ensure that Maryland's investments in water quality deliver measurable, durable benefits.

1. Prioritizing Effective Stormwater Practices

Requiring the Department of the Environment to prioritize certain practices is a meaningful step toward ensuring that stormwater management strategies are grounded in evidence rather than convenience. This emphasis supports:

- Nature-based solutions that reduce runoff at its source
- Green infrastructure that provides co-benefits such as habitat, cooling, and community resilience
- Cost-effective interventions that reduce long-term maintenance burdens on local governments

This prioritization helps Maryland maximize environmental return on investment while supporting healthier, more resilient communities.

2. Strengthening Guardrails on Stream and Floodplain Restoration

The bill's restrictions on using stream or floodplain restoration projects to satisfy compensatory mitigation, permit obligations, or TMDL requirements address a long-standing concern: not all restoration projects are created equal. By establishing clearer limits and expectations, the legislation:

- Ensures that restoration is used appropriately and strategically, not as a default compliance shortcut
- Encourages higher-quality, ecologically sound projects that genuinely improve watershed function
- Reduces the risk of over-reliance on channel manipulation, which can be costly and sometimes counterproductive

These guardrails help protect both ecological integrity and public trust.

3. Improving Stormwater Management Plans

Requiring stormwater management plans that include stream-related projects to meet more rigorous standards is a practical and necessary update. This provision ensures that:

- Projects are designed with full watershed context, not in isolation
- Plans incorporate best-available science, including hydrology, geomorphology, and climate resilience
- Communities benefit from more predictable, transparent, and accountable project outcomes

This strengthens Maryland's overall stormwater program and supports long-term compliance with state and federal water quality goals.

Conclusion

Overall, the bill advances a more strategic, science-based, and accountable framework for stormwater management in Maryland. It promotes practices that deliver real environmental benefits, ensures responsible use of restoration projects, and enhances the quality and transparency of stormwater planning. These updates position the state to better protect waterways, reduce flooding risks, and support resilient communities for decades to come.

In support of SB 688. 02 27 26.pdf
Uploaded by: Richard Bannister
Position: FAV

I am writing in support of Maryland Senate Bill 688, "Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations,"

In the summer of 2020, my wife and I were informed of an upcoming stream restoration project, known as the Lake Elkhorn Project, adjacent to our property and a locally popular wooded stream trail. Thus began several years of struggle to protect the woods and stream from unnecessary destruction. After we formed a group with other local concerned residents, we managed to halt the project, but for myself and others it took a great deal of time and energy. As a self-employed individual, this also came with a financial cost to my business.

Initially the corporations pushing the project justified it by stating that the project would generate millions of dollars of mitigation credits for development use downstream. Later it was claimed it would reduce pollutants to the Chesapeake Bay, but official water quality reports showed nitrogen levels to be normal and phosphorus levels to be elevated only during storm events. It was claimed it would prevent sediment winding up in the bay. However, two man-made dams prevented any settlement from reaching the Bay. In other words, the motive for this project was financial and not environmental.

Through my opposition to the project, I learned and documented a lot about upland, wooded stream restoration practices, the main takeaway being that they seldom work, nor have they the promised effect. Generally, they are unmonitored after completion and after just a couple of years or so, they begin to fall apart, resulting in more sediment release. The replanted vegetation shown in “after restoration” photos is soon overrun by invasive plants, die of harsh climatic conditions, or is browsed by deer.

Out-of-stream controls of stormwater, i.e. best practices, are the only methods that can permanently control pollutants and sediment. Mechanical in-stream channel engineering is a temporary and unproven solution.

Passage of SB 688 would hinder corporations from taking advantage of an under-informed public, and may prevent other Marylanders from having to have unnecessary and destructive “stream restoration” projects similar to the LEP in their neighborhoods.

In the event you are interested in my comments to MDE and USACE in regards to the Lake Elkhorn Project back in January of 2022, I have provided a link below. A reading of these comments will further explain my support for SB 688.

https://www.dropbox.com/scl/fi/ckit1mkzno4qxx8sdercr/Comments-to-USACE-MDE-Final-01-07-22.pdf?rlkey=7kdgy5hjthmlx0ibq0iie9mfg&st=58j1sfx8&dl=0

Please protect our streams and save our precious upland woods and forests and vote in favor of SB 688.

Comments on SB0688_Dover_February 27 2026.pdf

Uploaded by: Robert Dover

Position: FAV

SENATE BILL 688 – ENVIRONMENT – STREAM AND FLOODPLAIN RESTORATION – REQUIREMENTS AND LIMITATIONS

COMMITTEE – Education, Energy, and the Environment

Testimony on S.B. 688

Position – Support

Hearing Date – March 3, 2026 (submitted on February 27, 2026)

Dear Members of the Education, Energy, and the Environment Committee:

I am Robert Dover, a resident in Columbia, Howard County, Maryland. I am writing to request that you file a favorable report for Senate Bill 688.

Background

I am a geologist with more than 35 years of environmental consulting experience. For more than 30 years, I have served as a subject matter expert (SME) in surface water hydrology, responsible for evaluating the benefits and adverse impacts of proposed watershed, energy, and transportation projects on stormwater flow, erosion, water quality, and flooding potential for dozens of Federal projects.

My first exposure to the practice of stream and wetland “restoration” projects being conducted for purposes of generating MS4 permit or wetland compensatory mitigation credits in Maryland was in 2021, when I learned that a pond re-construction project was proposed adjacent to my back yard and, simultaneously, a large-scale wetland mitigation bank project was proposed adjacent to my side yard. In both cases, the project description offered by local officials and the affiliated contractors claimed that the existing stream, mature forest, and pond were to be destroyed in order to “restore” them to something resembling original conditions. Although I have served as a subject matter expert in surface water hydrology for Federal clients for more than 30 years, this was the very first I ever heard of an industry practice that seeks to establish a high-functioning ecosystem by first destroying a mature, existing ecosystem and replacing it, from scratch, with a system designed by engineers.

Even though I know that hydrologic and ecological systems in densely developed urban and suburban areas are no longer functioning as they did before Europeans arrived, this concept of reversing perceived degradation by completely removing all trees, draining all water bodies, and re-grading the soil to match some engineering fantasy made no sense at all. My entire career is based on the knowledge that the only way to restore any degraded system is to eliminate the cause of the degradation. Taking any other actions while leaving the cause of the degradation in place, and then expecting the situation to remain intact over the long-term, is absurd.

In the case of streams and wetlands that have been degraded by elevated volumes and velocities of stormwater runoff, the only way to stop and reverse the degradation is to reduce the elevated runoff volumes and velocities back toward the original runoff conditions, and then let the stream heal naturally. This can only be done by capturing stormwater runoff at the source, before it enters the stream channels. It cannot be done by simply re-directing the same volume of stormwater in a different direction. As discussed in detail in my comments below, any solution that fails to address this root cause of degradation will only be temporary, and will quickly be destroyed by continuing erosion and sedimentation. This is not only the logical conclusion based on an understanding of the hydrologic processes of streams and adjacent floodplains, but it is borne out by post-construction observations and monitoring measurements of hundreds of stream restoration projects.

It is not just the failure to address the root causes of the elevated runoff levels that makes no sense. In order to allow the stream channel to be relocated and the topography of the floodplain to be regraded to the design of the engineers, these projects are accompanied by full clearing of all mature trees and understory vegetation. The theory behind this practice has not one, but two, major flaws:

- It completely ignores the critical functions that mature trees and understory vegetation perform in stabilizing soils in our watersheds. While purporting to have the purpose of reducing erosion, these projects actively and completely remove the extensive root systems that are the only things protecting the soil from erosion in the first place. Removing a root system in order to protect the soil from erosion is literally insane – yet it is done on a massive scale on these projects, with devastating consequences.
- Similarly, removing mature trees immediately eliminates the evapotranspiration process, which functions to remove up to 50 percent of rainfall out of the watershed and return it to the atmosphere. It is well-documented that, when evapotranspiration is stopped, groundwater levels immediately rise in a process called “watering-up”, resulting in an increase in runoff volumes and velocities and associated flooding. Again, if the cause of the degradation is elevated runoff volumes due to urban development, then removing mature trees that harmlessly transfer up to 50 percent of this excess water out of the watershed is the exact opposite of what we should be doing.

Maryland’s current regulatory framework for replacing the trees removed during stream restoration and other projects ignores the science behind how trees function. It focuses entirely on *numbers* of trees removed and replanted, when it should be focusing on the *functions* of the trees removed and replanted. If the replanted trees are 2-inch diameter immature trees, which they always are, there is simply no replacement ratio (1:1, 3:1, 10:1, or 100:1) that will restore the hydrologic, ecological, and residential functions of the removed mature trees. Even if those replanted trees survive (and post-construction survey results from multiple projects show they often do NOT survive), it will take those 2-inch diameter trees decades before their root systems begin to stabilize the surrounding soils, and before they begin to evaporate and transpire rainfall in any significant quantities. When the mature trees are removed, those functions are effectively destroyed forever, leading to even more extreme erosion, flooding of nearby properties, and degradation of water quality and ecological function.

In my studies, I was also shocked to learn that the impetus behind these misguided practices was that the State of Maryland had instituted a “crediting” system that is almost entirely weighted toward solutions that involve total destruction of the existing ecosystem, instead of toward incremental solutions that address the root causes of the degradation. Again, as a long-time environmental consultant, it was obvious to me why the environmental engineering industry has consistently urged Maryland’s legislators and regulators to establish this upside-down crediting system. When the crediting system has largely been developed with substantial participation of the environmental engineering industry, it should be of no surprise to anyone that the resulting crediting system is strongly weighted toward projects that generate the highest amount of revenue to that industry.

Comments on Specific Proposed Changes

1) ***Section 4-203(D)(1) – Prioritizes capture and reduction of stormwater volume and velocity at its source***
   Section 4-204(a)(2)(I) and (II) – Prohibits consideration of cost, property ownership, or administrative convenience when considering feasibility of less disturbing out-of-stream alternatives

There are two major reasons that this change is needed:

a) Reducing the erosive velocity of stormwater runoff by capturing it at its source to encourage infiltration of some portion and spread the release of another portion over a longer period of time is the *only* effective and permanent method for reversing degraded water quality and ecological function in our watersheds; and
b) Construction work and engineered structures for these upland methods will occur in already developed areas, and will thus have fewer adverse impacts on existing mature forests, floodplains, and stream channels than in-stream methods.

Both the science and the post-construction results demonstrate that in-stream methods that seek to reduce erosion by modifying the stream channel DO NOT WORK.

Here is the science:

The reason for degradation of our streams is excessive runoff due to development. This excessive runoff causes the velocity of runoff to increase, thus increasing erosion and deepening (channelization) of stream channels. In-stream stream restoration projects seek to reduce erosion in two ways: by spreading the stormwater runoff laterally across a wider area to reduce its velocity, and by placing engineered structures (rock walls, rip-rap, step-pools, riffles, and log vanes) across the soils and sediment, like paperweights. This will work – temporarily. Spreading the runoff across a wider area of the floodplain will cause it to flow more slowly – temporarily. Using armoring methods will protect underlying soils and sediments from erosion – temporarily.

But, just as the elevated runoff volumes caused the erosion in the stream channel in the first place, the continuation of these elevated volumes following completion of construction will *always* re-initiate that erosion. Similarly, just as the elevated runoff volumes eroded behind and beneath natural rocks and logs in the first place, the continuation of the elevated volumes will *always* quickly erode behind and beneath the engineered structures, causing them to become unstable and collapse into the stream, and again leaving the underlying soils and sediments exposed to erosion.

Although the stream restoration industry and its supporters within the regulatory agencies are always careful to defend these projects, they occasionally slip and reveal that they know that their projects do not work. The following examples show that the decision-makers, designers, and constructors of these projects are fully aware that their efforts are only be temporary and will be destroyed by erosion and flooding in a few years, and that they do no achieve the pollutant load reductions that they claim:

- When I recently commented to a Howard County official that one of his planned stream repairs would only be temporary, he replied, casually, “Everything we do is temporary,” as if this was a normal and acceptable expenditure of taxpayer funds. It is not normal, and it is not acceptable.

- The Chesapeake Bay Program's *Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed*, General Verification Requirements for Stream Restoration Projects, recommended that the five-year duration of credits for stream restoration projects be shorter than those for other credit-earning projects (ten years) because stream restoration projects were "subject to catastrophic damage from extreme flood events".
- The 2023 Comprehensive Evaluation of System Response (CESR) report by the Chesapeake Bay Project's Scientific and Technical Advisory Committee (STAC) found that decades of efforts to improve water quality and ecological function in the Bay through load reductions in TMDL and other programs have not been successful. One particularly relevant statement, from Page 75 of the Findings of that report, is "*To date, efforts to reduce nonpoint sources have not produced sufficient levels of BMP implementation to meet the TMDL, and the implementation that has occurred may not be producing the pollutant reductions expected*". While the stream restoration industry tried to spin this by claiming that the failures to meet the TMDL were entirely due to not having done enough stream restoration projects, and not having done them of a large enough scale, it is quite obvious, based on the science and reports of other researchers, that the failure is because the individual projects, themselves, do not achieve any significant load reductions.

And here are the post-construction results (note that these are far too voluminous to provide in these comments, but here are a few examples):

- In Columbia, Maryland, right now (2026), two stream restoration projects are in progress – a project at the Unnamed Tributaries of the Little Patuxent River (a.k.a., the Longfellow project) and a project at Font Hill Wetland Park. Both of these projects are nothing but repairs of erosion damage to engineered structures and supposedly "stabilized" streambanks that were constructed during a previous stream restoration in 2019 to 2020. The residents see this going on, and they are not stupid – how does the state legislature justify allowing state and county agencies to continue to spend state and county tax dollars to continually repair failed projects, yet continue to promise that the new ones will be successful, especially when the scientific reasons for these failures are glaringly obvious?
- The Programmatic Environmental Assessment (PEA) for the Nationwide Permit 27 (NWP-27) by the U.S. Army Corps of Engineers (USACE) presents a reasonably comprehensive assessment of the scientific literature regarding stream restoration projects and, in so doing, presents a strong case for concluding that these projects frequently fail to achieve the advertised improvements. Some of the highlights include:
    - ". . . restoration typically cannot return a degraded wetland or stream to a prior historic condition . . ." (e.g. Moreno-Mates et al. 2016, Higgs et al. 2014, Jackson and Hobbs 2009, Zedler and Kercher 2025, and Palmer et al. 2014). This is echoed on Page 91 by citing Wohl et al. (2015) and Roni et al. (2008), who concluded that stream restoration cannot return a stream to a historic state.
    - Rey Banayas et al. (2009) and other researchers are cited as showing that the projects will not restore biodiversity or ecosystem services to levels on undisturbed reference sites, or to historic or reference standard levels.
    - Hobbs et al. (2014) are cited to show that the ability to reverse ecosystem degradation to restore ecological function depends on factors such as the extent to which the location is degraded and the surrounding landscape. By citing this statement, USACE acknowledged that the ability to achieve positive benefits by these projects is site-specific. This acknowledgement, in turn, makes the analysis of these projects under non-site-specific programmatic NEPA documents, and the

inclusion of these projects under non-site-specific Nationwide Permits, inappropriate. It also shows that the claims in other parts of the PEA that benefits will definitely occur are not nearly as certain as they sound, and those claims should be qualified to disclose the uncertainties.

- Page 91 of the PEA acknowledges that there have not been enough studies of the effects of these projects on aquatic resources to be able to say whether compensatory mitigation projects (which are largely done using the destructive Natural Channel Design method) are able to offset the lost functions of the project area that was originally disturbed (Kettlewell et al. 2008).
- NRC 2001 claims that wetland restoration, enhancement, and establishment projects can provide wetland functions as long as the project is placed in an appropriate landscape position and has appropriate hydrology. This importance of site conditions is echoed by Mitsch and Gosselink 2015 and Meli et al. (2014). I have never seen a proposal for one of these projects that does an assessment of whether the proposed site has this appropriate landscape position and hydrology. Yet all of the project documents claim, with no qualification, that their project will certainly be successful.
- Moreno-Mateos et al. 2015 did a study of 628 wetland restoration projects, and concluding by emphasizing the importance of re-establishing water flows instead of extensive earthwork.
- In a study of more than 600 stream restoration projects, Palmer et al. (2014) documented that, to be successful, stream restoration activities must address the cause of stream degradation, which is often outside of the stream channel, in other locations within the watershed, and that effective stream restoration requires implementing practices that reduce stormwater runoff to streams.

In contrast, upland Best Management Practices (BMPs) such as retention ponds, swales, rain gardens and other methods seek to reduce the erosive velocity of stormwater runoff by promoting infiltration and/or detaining runoff for release at a later time. Because it is the elevated volume and velocity of runoff, caused by development, that is the root cause of erosion and sediment transport, these methods address the root cause of the degradation of water quality and ecological function.

It is very easy to get anyone, even those in the stream restoration industry, to agree that these non-destructive upland practices are more effective than more destructive in-stream practices. However, it is also a fact that implementation of in-stream practices are much simpler and less costly to implement than upland practices. This is because land ownership along stream channels is generally consolidated, and the land area is largely undeveloped, making large-scale projects easier and less costly to implement. In contrast, upland areas are usually already developed, with land ownership spilt into small parcels. These challenges are usually cited by stream restoration companies and MS4 permit holders to justify why they choose to implement in-stream projects rather than upland projects. However, the fact that upland projects have a higher cost and level of effort is completely independent of the question of whether an in-stream alternative will or will not be effective.

Unfortunately, the discussion about which of these completely disparate stream restoration methods to use always focuses on feasibility of implementation, including whether or not there is space available to construct the necessary structures, and whether the responsible agency has land ownership and easements to use that space. Because the land availability and ownership are always easiest to address within the stream channel and floodplain, and is always more challenging in the upland areas, the decision almost always defaults to choosing in-stream methods. If the in-stream methods were just as effective upland methods, then it would still be preferable to implement upland methods in order to avoid the adverse hydrologic, ecological, and residential effects of tree removal and channel modification. However, they are NOT as effective – they are not effective at all. The agencies and landowners prefer them because they are administratively easier to implement, and the engineers prefer them because they generate the highest profits.

2) Section 4-203(D)(2) – Prioritizes projects that minimize disturbance and tree removal

Section 4-203(E)(1) – Prohibits in-stream construction and mechanical alteration of stream channels.

Section 18-102(b)(6) – Establishes a requirement to document that stream degradation cannot be addressed through non-stream-disturbing upland practices

Section 18-102(b)(7) – Establishes a requirement to prioritize preservation and non-destructive management of streams, floodplains, and mature riparian and upland forests

There are three reasons for prohibiting in-stream construction, channel modification, soil disturbance, and tree removal in the conduct of stream restoration projects:

a) As discussed above, the in-stream methods that are focused on re-directing the direction of flow of streams rather than reducing the volume of runoff are only temporary fixes that are not effective.
b) By removing the evapotranspiration function of the canopy, removal of trees actually increases runoff, which is the exact opposite of what these projects should be doing. Similarly, removing the soil stabilization function of the tree root systems makes soil and sediment more prone to erosion, instead of less. The simple act of the “restoration” project actively makes the factors that degraded the stream in the first place WORSE.
c) In-stream methods are enormously destructive and disruptive of the existing hydrologic, ecological, and residential functions of the existing mature forest, floodplain, habitat, wetlands, and stream itself.

As discussed above with respect to Section 4-203(D)(1), any method that seeks to reduce erosion by diverting water or armoring soils without actually reducing the excess volume of stormwater runoff is doomed to failure. This is not only obvious through knowledge of the hydrologic science about stream flow, but is also demonstrated in the post-construction results. However, even if the in-stream methods were effective, the question of whether their benefits would outweigh the adverse impacts would still remain.

The negative, adverse impacts of “stream restoration” projects are definite and certain, while the positive benefits are speculative and uncertain. Meanwhile, the more destructive a project is, the more money that the “stream restoration” contractor makes. Those two statements, combined, should make any influence exerted on this legislative process by the “stream restoration” industry questionable.

Whether or not they are ultimately successful in achieving any long-term restoration goals, so called “stream restoration” projects are enormously destructive. They generally rely on massive deforestation in order to re-connect floodplains, and to replace upland forests with riparian communities. In addition to eliminating the critical evapotranspiration and other hydrologic functions of mature forests, this displaces or kills existing wildlife, increases the potential for downstream flooding on adjacent properties, and impacts viewscapes from residences, reducing their property values. The disturbance of the soil exposes deeper soils to oxygen and pH changes, which will then mobilize otherwise insoluble minerals, such as iron. The projects also bring in foreign materials such as rocks, soil, gravel, and organic material from other locations, upsetting the established geochemical equilibrium, and again resulting in mobilizing otherwise stable materials.

When a project is approved, the deforestation, displacement of existing wildlife, increase in flooding potential, and visual impacts to adjacent property owners WILL occur. What is more concerning is that these destructive impacts are not only certain, but they are immediate and irreversible. The devastation occurs within a few short weeks and, once done, cannot be undone. I have found multiple examples of communities, including my own, where the first “stream restoration” project was allowed to proceed because the community was not properly informed about the extent and duration of destruction that was going to occur, but the proposed second project was fought aggressively, once the community saw how these projects really work. This pattern can only be stopped by a more proactive community engagement program, including comprehensive public notification and multiple comment opportunities, beginning at the conceptual stage, and including the ability to review and comment on final design plans before a project is approved.

The negative impacts are also long-term, affecting the project area for years or decades. The public notices that I received from MDE for one of these projects not only failed to disclose the extent of tree removal adjacent to my property, but also claimed that the impacts would be “temporary”. In a recent Environmental Impact Statement for another project in Maryland, the U.S. Army Corps of Engineers (USACE) defined the duration of impacts for a project involving vegetation removal as “long-term” or “permanent”. This is a standard assumption under the National Environmental Policy Act (NEPA). Also, even non-professionals understand that it will take decades to restore a mature forest canopy and ecology once mature trees are removed from an area. Claims that the adverse impacts of these project are “temporary” can only be a deliberate attempt to misinform the public in order to minimize public scrutiny.

It should also be noted that the profits generated by these companies are DIRECTLY proportional to the destruction they cause. The larger and more aggressive the project, the greater the level of effort, and therefore the greater the cost to the Maryland State and county agencies paying for the projects. These companies actually have a financial incentive to inflict the maximum amount of destruction on an area, regardless of the adverse impacts or whether the area is residential.

Most of the adverse effects of tree removals on ecology and adjacent residential property values are well-documented, and need no further elaboration. However, there is a substantial adverse effect that is less well-known, and which cuts directly to the core of the success or failure of “stream restoration” projects. This is the effect of tree removal on surface water hydrology and runoff volumes.

I have had substantial professional experience in surface water hydrology, including multiple projects in which I analyzed the hydrologic effects of either planting fast-growing trees, or of removing trees. There is an enormous body of literature on this subject – it is not complicated, nor is it controversial. Trees perform the following hydrologic functions:

- Trees directly remove stormwater from the watershed through evapotranspiration. Trees remove enormous quantities of groundwater, substantially lowering the elevation of the water table. Also, tree roots are very effective promoters of infiltration pathways. Operating together, these provide substantial storage for stormwater in the unsaturated zone, and active infiltration pathways for surface water to get to that storage. When trees are removed, the groundwater table in the immediate area immediately rises, a process known as “watering-up”. This allows the unsaturated zone to become saturated during a storm much more quickly. It is well-established in logging areas that removal of trees immediately increases the frequency and intensity of surface water flooding.

- Watering up also has the effect of killing whatever trees have been left in place. Even if a tree removal project leaves some trees uncut, they will quickly die due to the modification of their hydrologic setting. This can be clearly seen at past projects. Advocates of stream restoration like to proclaim that these projects do not "clearcut" forests. This depends on the definition of "clearcut". At past projects I have visited, a small number of mature trees were left uncut by the developer. In both cases, all of those leftover trees died anyway, and still stand there today as ghostly reminders of the mature forest that once thrived in both places.
- Trees also directly remove stormwater from the watershed before it reaches the ground, through evaporation. When it rains, the trunk, branches, and leaves get wet – a process known as canopy interception. Following the rain, much of this water evaporates without reaching the ground. This is a large amount of water. When trees are removed, this water that would have evaporated over time instead reaches the ground immediately, during the most intense part of the storm, and becomes stormwater.
- Much of the water from the branches and leaves that does drip and reach the ground does so in the hours or days following a storm. Although the water enters the watershed, it does so slowly, over a period of hours or days, and thus does not add to the immediacy of a flood during a storm. Removal of trees eliminates this attenuation effect of trees, thus adding to stormwater volumes at the very time that additional water is most destructive.
- The presence of tree trunks and fallen tree trunks, branches, and leaves all add to the roughness of the forest floor. This roughness is another strong attenuation effect on stormwater. It slows the stormwater velocity, reducing its erosive effect. Removal of trees allows stormwater to flow freely, with nothing to hinder its velocity and erosive powers.
- The root structures of trees, as well as fallen trunks and branches, serve to stabilize soils in place and protect them from erosion. Removal of trees removes this stabilizing effect, exposing soils to increased erosion and downstream transport.
- Trees directly reduce nutrient concentrations, such as nitrogen, in groundwater and, by extension, in nearby surface water bodies that receive discharged groundwater.

In all cases, there are some important observations:

1) The effect is highest at the tree, and diminishes with distance from the tree. Therefore, removal of trees within close proximity of surface water bodies has a substantial ability to influence the amount of stormwater that enters the stream.

2) The effect is immediate when a tree is cut down. The hydrologic functions of the tree cease immediately, the groundwater level begins to rise immediately, and adverse effects on nearby streams can be seen to happen within a few weeks.

3) The effect is permanent, unless trees of similar size and evapotranspiration capacity take their place. Where mature trees are removed and attempts to re-establish the forest are made, the hydrologic system can take 10 to 20 years to recover.

Almost all of the discussion regarding stormwater management issues in urban watersheds focuses on the conversion of permeable land surface to impermeable, thus eliminating infiltration and increasing the volume and velocity of stormwater. This is true, but it is the highly visible part that is easy to understand and explain to people. Evaporation and evapotranspiration are invisible. You cannot stand by a tree and watch as it physically removes water from the watershed, as the groundwater table is lowered, and as the water is evaporated into the atmosphere. Nevertheless, this happens, in enormous quantities. By some estimates I have looked at, forests stands in Maryland evaporate more than 50% of the precipitation that falls on them (Sanford, Ward E., and Selnick, David L., 2012). When these trees are removed, this water raises groundwater levels, reducing water storage capacity during a storm. This excess water then becomes increased runoff stormwater during rainstorms.

3) ***Section 4-203(E)(2) – Prohibits awarding any pollution reduction or mitigation credit simply for completion of construction on a project.***

   Section 18-102(E)(2) – Provides a statement that authorization of a stream or floodplain project does not automatically qualify the project for MS4 permit or wetland mitigation credits

   Section 18-102(E)(3)(II) and Section 18-102(E)(4) – Establishes a requirement for post-construction monitoring to verify that the project has produced measurable functional uplift, including demonstration of improvements to biological function, and prohibition on demonstration of uplift through modeling or physical channel stability

Unfortunately, the question of how ecology, hydrology, water quality, streambank erosion, and other functions of watersheds react to human manipulation is complicated by the length of time that it takes these systems to react, and the multiple external factors, some natural and some human-caused, that that may influence these reactions. Ideally, we would all like to have immediate answers to inform our future efforts, but that is not possible. So, instead of ensuring that science-based, quantifiable and measurable techniques are used, and are given the time to generate meaningful answers, the “stream restoration” industry has, until recently, responded by managing to avoid the need to do any monitoring whatsoever.

As a 30+ year experienced environmental consulting contractor, this fact had me completely stunned. EVERY environmental project I have ever worked has established measurable and quantifiable goals. It was only after a year of studying these projects, in detail, that I realized how little actual field monitoring and data collection is required.

As two examples of the extreme extent to which the stream restoration industry had managed to exert full self-regulation of stream restoration projects, I cite the proposed Elkhorn Branch wetland mitigation bank and the Unnamed Tributaries of the Little Patuxent River, both in Columbia. For Elkhorn Branch, the developer proposed, in their Prospectus, that they be allowed to sell 70% of their mitigation credits upon completion of construction, with no demonstration that the construction achieved any positive results. This is despite the fact that MDE regulations allowed no more than 30% to be claimed. This would have effectively allowed the developer to make a profit on the project just by pushing some dirt around, without any demonstration that they had any beneficial effect.

At the Unnamed Tributaries of the Little Patuxent River project, there is no requirement to conduct pre- or post-construction water quality or ecological monitoring to establish whether these objectives have been achieved. The only required monitoring is surveying of engineered structures, and counting of trees. Even with that absurd limitation in monitoring requirements, the contractor still failed on both accounts. Less than three years after completion of construction (and having been paid more than $2 million for it), the reforestation success rate had dropped to 36%. In a series of emails and PIA requests inquiring about this failure, I found that:

- The contractor tried to claim that no trees had died, even though all of the residents knew it;
- The contractor made a statement in their annual monitoring reports about the trees being “well-established“ based on results of a survey that was done SEVEN DAYS after the trees had been planted;
- MDE, the agency that is supposed to be making a determination about the success of the project, had never been informed about the dead trees, or that a corrective action had been implemented (the person who notified MDE of this was me);
- DNR acknowledged that, not only do they allow the developer to set their own tree surveying standards, but they did not know what standards the developer for this specific project had established; and
- With respect to the erosion of engineered structures, the contractor noted more than 20 instances of structures at risk of failure, but they still made a suggestion, in one of their annual reports, that they be excused from their required fifth year of monitoring.

Even though MDE did not require any monitoring of the Unnamed Tributaries project, they did conduct some monitoring of their own. In reviewing emails regarding this monitoring, I found an exchange in which MDE acknowledged that the ability of the agency to reach conclusions regarding the success or failure of multiple projects was hampered by the “unfortunate” choice to not collect any background data, and the fact that it takes years for biological systems to respond to the projects. I fully agree with the statements in that email. While I agree that it is “unfortunate” that these projects are not subjected to pre-construction monitoring, so that a science- and data-based evaluation of the project could be developed, this is how USACE and MDE have chosen to operate the program. This unfortunate circumstance could, and should, be avoided in the future by requiring both pre- and post-construction monitoring on the projects, including field measurements of the stream stability, water quality, and ecological parameters that are supposed to be improved by the project. It makes no sense that your agencies would sanction the destruction of mature forests in residential areas based on a promise of improvements, without actually requiring that those improvements be demonstrated through pre- and post-construction data collection.

If the “stream restoration” industry is so convinced of the benefits of their projects, then they should have no problem performing site-specific monitoring, both pre- and post-construction. However, their actions are the exact opposite, and it is not hard to understand why. These practitioners resist project-specific monitoring because it costs money, and because it may provide results that they do not like. It is much easier, and more lucrative, to simply cut down the trees, push the dirt around, and declare success without any actual data to demonstrate this. Meanwhile, the individuals testifying in favor of this bill have, in past hearings, expressed surprise and disappointment at the ongoing failure to accomplish improvements in the Chesapeake Bay. Given that there is no actual data for the individual projects, it should not be surprising that the agglomeration of projects also shows no improvements.

4) Section 4-204(D) and Section 18-102(E)(3)(I) – Establishes a requirement to define objectives and analyze alternatives

The changes proposed in Section 4-204(D) and 18-102(E)(3)(I) are important in communicating to the adjacent property owners, regulators, and other stakeholders that the objective of the project is clearly defined, that a range of alternatives to attain that objective are developed, and that the benefits and adverse impacts of each alternative are evaluated.

In my review of several of the project permit applications, the objective is very poorly defined, and there is little or no analysis of alternatives. It is also a common practice in these documents to refuse to acknowledge, and even to deny, that ANY adverse impacts my result from these projects. Some of these documents, such as the U.S. Army Corps of Engineers 2025 Environmental Assessment for the proposed Anacostia Aquatic Ecology Restoration Project, completely fail to disclose that cutting down trees has actual adverse impacts on local wildlife, on hydrology, or on local residents, and even go so far as to say that cutting down acres of trees for a project would be considered a BENEFICIAL impact to visual aesthetics for residents. Such a ridiculous statement strains credulity, with the authors seemingly twisted into knots to avoid acknowledging that there is any possibility of an adverse impact to anything or anyone. This type of manipulative reporting would be impossible if the changes proposed in Section 4-204(D) were implemented, and then enforced through a thorough technical review of the permit applications by Maryland regulators.

5) *Section 4-204(F) – Establishes the conditions in which in-stream practices may be approved*

Section 4-204(F) allows for use of in-stream construction and hydrologic modification in situations where actual, documented cases of threats to public safety or damage to infrastructure exist. I agree that this exception should be made but, based on my observation of recent projects, I am concerned that it will not be enforced by regulators.

I commented on this issue in comments to Howard County regarding the proposed Plumtree Branch project after MDE had already approved the permit. In those comments, I noted that the Design Report made multiple references to infrastructure in the project area, including photos, claiming that the project was needed to protect infrastructure. However, there was not a single instance where the document claimed, or showed a photo of, an actual, specific piece of infrastructure that was threatened. Instead, the contractor obviously felt that it was sufficient to generally cite that there was infrastructure nearby, and that this would justify any project they wanted to do. Obviously, the MDE reviewers failed to catch this obvious case of manipulation, because they went ahead and approved the permit.

The same goes for health and safety threats – we have seen contractors claim that trees need to be cut down because they may, someday, fall into the stream and, if humans happen to also be in or near the stream, they could be injured. Using this logic, the State of Maryland should re-direct every stream in the state because it is a short distance from a road, power line, or property line, and should cut down every tree in every forest because a tree might fall when someone is hiking.

While I agree that actual threats to public safety and infrastructure should be exempted from the prohibition on in-stream practices, this will only be effective if it is enforced. Permit applicants must not be allowed to just make vague, generalized claims of such threats in order to justify being exempted. They must be forced to be specific, and to provide actual documentation of the potential threat, and reviewers of the permit applications must aggressively enforce this provision.

6) *Section 18-102(b)(3) and Section 18-102(c)(7) – Establish requirements for content of community notifications and presentations*

I spent more than 35 years serving as a third-party technical consultant for Federal agencies, conducting technical accuracy and completeness reviews of permit applications and reports submitted by commercial companies, and also managing the public engagement process for notifying stakeholders and integrating their concerns into project designs. In my past four years of being subjected to, and studying, the practices of the stream restoration industry, it has become obvious that their public notifications and presentations constitute deliberate fraud. They are obviously intended to conceal the actual scope and extent of their project plans, exaggerate the expected benefits of those projects, and either ignore or trivialize the adverse impacts their projects will have on hydrology, ecology, and adjacent residents. And, unfortunately, the regulators, including MDE, DNR, and Army Corps of Engineers, are complicit in this concealment, by failing to conduct their own technical accuracy and completeness reviews.

It was not until the Whole Watershed Act was passed that there was even a requirement to notify the public about upcoming projects. That requirement passed, fortunately, over the objections of the stream restoration industry. However, notifying residents and other stakeholders is not sufficient, if the information conveyed does not completely and accurately describe the actual physical activities that the project will entail, or if it falsely describes the expected benefits or trivializes adverse impacts.

I not only have more than 30 years of experience in managing public engagement programs for federal NEPA projects, but have also recently experienced, as an adjacent property owner, how the stream restoration industry implements these programs. For the recently proposed Elkhorn Branch project adjacent to my property, the process played out as follows:

1) There was literally no direct contact with me, or my neighbors, as part of the Columbia Association's approval of the 130-acre, six mile-long easement. A presentation was made to the Village Board, at a meeting that is commonly attended by fewer than five residents, out of a community of more than 10,000. The stream restoration contractor's position was that the onus was on the 10,000 residents to attend bi-weekly Village meetings, or on the Village to individually notify its 10,000 residents. In my federal NEPA experience, the onus is always squarely on the contractor who will be making profits by implementing the project.
2) There was no requirement for an official MDE or USACE public notification or comment opportunity. It was only after a neighbor made strenuous efforts and complaints that the agencies agreed to do this.
3) The notice of public comment period was sent to directly adjacent owners of single family homes. No notices were sent to hundreds of other single family homeowners who live within sight of, and walking distance of, the area which would be subjected to deforestation. For the seven multi-family apartment, condo, and townhouse communities that are directly adjacent, a single notice was sent to the management company. In none of these cases did the management company forward the notices to the individual unit owners, many of whom live within less than 100 feet of the project area.
4) Despite there being a requirement in the checklist for Nationwide Permit 27 (NWP-27) to disclose the area and extent of tree clearing, the public notices for the project did not clearly provide this information, and did not even mention that fact that trees would be cut down. Instead, they presented the "Limits of Disturbance" (LOD). In engineering and construction parlance, LOD generally means "removal of all vegetation and grading of soil." However, this definition is not generally known among residents without training in engineering or construction and I know, from speaking about it with neighbors, that none of them understood that it indicated removal of all trees and vegetation. One of the requirements of the federal National Environmental Policy Act is that project documentation must be written in non-technical laymen's terms that are readily understandable to the general population. The presentation of the LOD, without defining what that term means with respect to tree removal, was a clear attempt to avoid public opposition by using terminology that was not familiar to the general public.

5) Confusing the situation even more was the actions of the owner of the project, the Columbia Association (CA). At the end of the public comment period, the Staff encouraged its Board to dismiss all comments from the public regarding tree removal because the extent of tree removal had not yet been determined. This is a direct admission that the permit application and public notice had failed to satisfy the checklist requirement to disclose this information to the adjacent property owners and residents.
6) The public notice also failed to accurately describe the duration of the impact of the project. It described the adverse impacts as "temporary", even though any impacts associated with de-forestation are clearly long-term or permanent. The U.S. Army Corps of Engineers – Baltimore District, in its recent Environment Impact Statement for the proposed Bureau of Engraving and Printing project in Beltsville, define the duration of the impacts of vegetation removal as "long-term". Meanwhile, even a successful stream restoration project, if it involves extensive tree removal, will take years or decades to recover. In Columbia, the Longfellow project was recently required to re-plant 700 trees, three years after construction, because the first attempt at re-forestation had failed. At The Glade in Reston, Virginia, there is no evidence of a return of a mature forest 14 years after construction. Yet I, and my neighbors, chose not to review project documents, attend public meetings, or provide comments, because the public notices encouraged us to believe that the only adverse impacts were associated with construction, and failed to acknowledge that longer-term impacts would also occur. Again, the reference to all impacts as "temporary" was a transparent attempt to avoid any public opposition.

Conclusion

Based on these observations, it is my opinion that the "stream restoration" industry, in general, is not based on a solid, scientific footing. Instead, it is entirely based on greenwashing, making exaggerated claims of benefits to persuade well-meaning members of the community that these projects are environmentally-friendly and science-based, when nothing could be further from the truth. Any objective consideration of these projects must present an accurate and up-to-date assessment of both the expected benefits AND the long-term, adverse impacts, and must honestly report the likelihood of each occurring. That information is currently completely missing from the documentation submitted by these companies.

I hope you agree that, to be successful, the practice of stream restoration in Maryland must:

- Be based on the most up-to-date, published science available;
- Have its results, positive or negative, documented through comprehensive pre- and post-construction field data collection and monitoring;
- Closely coordinate with the surrounding community and potentially affected property owners at ALL stages of the process;
- Consider the realistic probability of success, rather than just assume that placement of engineered structures will automatically result in improved water quality and uplifted ecology; and
- Consider the adverse impacts, including the duration of those impacts to residents, the challenges associated with revegetation efforts, and the certainty that long-term adverse impacts will occur.

Without addressing these issues, the "stream restoration" companies will continue to present their unrealistic, unsupported opinion of the benefits of these projects, and will continue to fail to properly notify the surrounding residents of the actual extent and duration of destruction that is about to be inflicted on their communities.

Thank you for considering these comments, and providing a favorable report on S.B. 0688

Robert Dover

Columbia, MD 21045

FAV_B.Portanova
Uploaded by: Robert Portanova
Position: FAV

SENATE BILL - SB 688
POSITION: FAVORABLE

I am writing to support this critically important Bill that is long overdue.

This Bill will protect thousands of acres of woodland forest from being clear cut and demolished.

This Bill will protect thousands of acres of wildlife habitat from being demolished.

This Bill will protect thousands of acres of natural stream valley corridors and buffers.

This Bill will protect the single most important resource on our planet – TREES.

This Bill will protect the stability of stream valley corridors.

This Bill will protect the skin of our planet – trees.

Thank you to Senator Mary Washington for sponsoring this Bill along with Delegates Terrasa, Ruth and Lehman for sponsoring HB 1465.

Robert Portanova
11 Beacon Hill Way
Gaithersburg, MD 20878
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Roger Davis SB688.docx.pdf
Uploaded by: Roger Davis
Position: FAV

SB688 ENVIRONMENT- February 27, 2026

Stream and Floodplain Restoration Projects-

Requirements And Limitations

POSITION: FAVORABLE

Dear Chairman Feldman, Vice Chair Kagan, and Members of the Education, Energy,

and Environment Committee,

My name is Roger Davis, I am with Save Font Hill Wetland Park in Ellicott City. I am writing to express my strong support for SB688. My first notice of a stream restoration was the sound of chainsaws and bulldozers removing acres of a unique ecosystem in 2017. These woods provided deep shade to the stream and the wetland was covered with acres of skunk cabbage that stills tries to come back each year but it gets baked in the sun and dies. The stream is often choked with algae due to the increased sunlight. When that algae dies it is eaten by bacteria that consumes the oxygen in the water. Many of the saplings that replaced the mature trees have died and were never replaced. Noone in my neighborhood knew anything about the project. People that used a footbridge to cross the stream every day had no idea about the project. The contractor claims that in 20 years the streams will be in deep shade with cool water. There will not be shade because the trees have died. The picture shows what happens when one rock falls out of place.

In 2023 my neighbors and I helped stop the Plumtree Branch stream restoration that was estimated to cost 1.8 million dollars. One of the biggest problems we had was the inadequate notice of the project, and the misinformation provided about the project. What is on the technical documents is not honestly presented in their public documents and presentations. At one meeting the county denied knowledge of a 1000 ft. auxiliary truck path that had already been surveyed and staked that would require the removal of an additional 600 trees! When talking about tree removal they only acknowledged the 46 trees over 12” ignoring the hundreds of other trees to be removed. The majority of the trees proposed in the replanting plan were 1”saplings. The county claimed on its MDE permit application that the streambanks were eroding at rates that could not possibly be true given the mature trees straddling the stream at many locations. In the picture below are mature trees on the right and a hill on the left. These streambanks have not moved in decades. Peter Wilcock, now Professor Emeritus of watershed sciences at Utah State University, was a professor at the Johns Hopkins University until 2014, and he takes issue with how Rosgen's approach(to stream restorations) has been applied in Maryland. For example, he says, it tends to identify streams as rapidly eroding because they have tall, bare banks. Some of these streams are indeed eroding, but others stopped eroding years ago and have remained stable since. "Bank erosion is too complex, too episodic, and controlled by too many factors to predict its rate based on the presence of bare banks," Wilcock says.

In their NPDES permit Annual Update 22, on page 57, in response to a comment from the Chesapeake Bay Foundation concerning stream restoration failures, Howard County responded “Except for one or two times where we’ve needed to do localized repairs, which were done by manual labor or with a small piece of equipment, the projects have been successful.” At the Font Hill Wetland Park the county is proposing the third stream restoration since the park was built in 2007. In 2019 they added 4 stone walls, two of which have collapsed so now they are proposing to repair those two walls and build additional walls. Typically, Howard County holds their first public meeting on a capital project at the 60 % design phase. On this project they waited until they received their permit and then held a public meeting in September 2025, and then proposed starting in the winter. The meeting notification signs were posted on park paths rather than the street. So their new strategy is to limit public notice and rush the beginning of work. This park has had bald eagles, beaver(which have been killed), river otters, heron, a barred owl nesting right in a proposed work area, and a rare leucistic cardinal. This leucistic cardinal named Lucy is also mostly seen in the same work area. Lucy actually draws birders from Virgina an Pennsylvania. Park and Rec actually put up a fence and sign to keep birders out of the woods to prevent damage to the habitat. They are now proposing to bulldoze that area to build a wall that has a 50% chance of success.

On this project Howard County claims to be removing only 8 trees. The 2025 original project scope on their MDE permit called for the disturbance of 1.75 acres. There will actually be hundreds of trees removed. My tree count includes saplings which have a much better chance of surviving than those planted during the two previous restorations. During the 2007 project alone the county claimed to have planted “2000 trees and shrubs”, there is little evidence that many of these survived. One resident at the meeting (that I didn’t know about) expressed concern about fireflies. The Project manager replied “We are only looking at 8 trees and there are probably 30 or 40 Ash trees that have come down, so they should be alright.” Fireflies actually winter in dead trees and underground the 1.75 acres that will be bulldozed. They will not be alright.

I hope I have made the case for Section 18-102(c)(7) - The Department’s assessment review shall include WHETHER PROJECT COMMUNITY NOTIFICATIONS AND PRESENTATIONS WERE COMPLETE AND CONSISTENT WITH THE TECHNICAL MATERIALS SUBMITTED TO THE DEPARTMENT.

At another meeting I attended, there was much talk about the stream encroaching on someones property and the damage to his fence. The project managers were presenting themselves as responsive government employees who were there to help. There was little talk of the stream restoration and lots of talk about keeping it out of peoples yards. The project area was a heavily wooded area separating the back yards of two rows of homes. There was no talk of tree removal until I asked during the Q & A how much tree removal there would be. They said there would be some tree removal. The picture below shows what Howard County means by some. I think it would be a conservative estimate to say these $800,000 homes lost $ 20,000 in value.

The consistent dishonesty about tree removal and project scope needs to be stopped.

On a community FAQ sheet about the Font Hill Project they state: " Is this project being done to earn Chesapeake Bay or MS4 credits? No. While Maryland counties must meet stormwater management requirements under the MS4 permit program, this project is not being pursued primarily to generate Bay or MS4 credits." The table below show every stream restoration project planned in 2017 is for MS4 credits.

Countywide Implementation Strategy **Appendix 3 - List of Potential Projects (FY18, FY19, FY20)**

Note: Project Planning List as of December 2017, subject to change.

Project Name	Proposed BMP Type	Watershed	Projected Impervious Credit	FY Funding Year - Design	Estimated Cost - Design	FY Funding Year - Construction	Estimated Cost - Construction
Ashton Woods (F90-011)	New BMP	Patapsco LN Branch	5.0	PF	PF	FY19	$500,000
Beech Creek	Pond Repair	Little Patuxent	25.1	PF	PF	FY18	$500,000
Brentwood Manor - Gatewood Drive	Sand Filter	Little Patuxent	3.3	FY18	$66,719	FY19	$300,000
Brentwood Manor (DOR-SR-F906/DOR-SR-F907)	Stream Restoration	Little Patuxent	20.4	FY18	$65,799	FY19	$800,000
Churchill Way Outfall Stabilization	Outfall Stabilization	Middle Patuxent	2.0	PF	PF	FY18	$149,503
Columbia Medical Campus	Submerged Gravel Wetlands	Little Patuxent	8.0	FY19	$90,000	FY20	$500,000
Country Meadows	New BMP	Little Patuxent	5.0	PF	PF	FY18	$1,200,000
Courthouse	New BMP	Patapsco LN Branch	2.0	PF	PF	FY18	$800,000
Cradlerock Way	Step Pool Storm Conveyance	Little Patuxent	2.3	PF	PF	FY18	$106,160
Diversified Lane	New BMP	Patapsco LN Branch	8.5	PF	PF	FY19	$800,000
Dobbin Road Commercial Center	Retention Pond (Wet Pond)	Little Patuxent	9.4	FY20	$90,000	FY21	$437,359
Ducketts Lane	Stream Restoration	Patapsco LN Branch	33.2	PF	PF	FY19	$277,144
Ellicott City Parking Lot D Water Quality Enhancements	New BMP	Patapsco LN Branch	8.0	PF	PF	FY19	$137,594
Ellicott View Pond - Opti	Wet Pond	Patapsco LN Branch	4.9	FY18	$152,980	FY19	$200,000
Font Hill Stream Restoration	Stream Restoration	Little Patuxent	20.0	FY18	$350,000	FY19	$2,950,000
George Howard Building Parking Lot	Bioretention	Patapsco LN Branch	2.0	PF	PF	FY18	$800,000
Golden Coin Court	Retention Pond (Wet Pond)	Little Patuxent	9.9	FY19	$90,000	FY20	$227,240
Governor Martin	Outfall Stabilization	Patapsco LN Branch	4.0	PF	PF	FY18	$500,000
Gwynn Park Drive	Stream Restoration	Little Patuxent	5.0	FY19	$150,000	FY20	$500,000
Heritage Woods Retrofit	Wet Pond	Little Patuxent	2.0	PF	PF	FY18	$600,000
Kesting Court	Extended Detention Pond - Wetland	Patapsco LN Branch	4.0	FY19	$90,000	FY20	$242,090
Kings Meade	Sand Filter	Middle Patuxent	3.2	PF	PF	FY19	$300,000
Longview Drive (9509) Stream Restoration	Stream Restoration	Little Patuxent	4.5	PF	PF	FY18	$700,000
Mellen Court Stream Restoration and Outfall Stabilization	Stream Restoration	Little Patuxent	28.0	PF	PF	FY20	$950,000
Mink Hollow - Stream	Stream Restoration	Rocky Gorge Dam	8.4	FY18	$200,000	FY19	$379,800
North Laurel Community Center	Stream Restoration	Patuxent River Upper	12.0	FY18	$226,985	FY20	$800,000
North Laurel Industrial Park	Stream Restoration	Patuxent River Upper	6.0	FY18	$271,008	FY19	$270,000
Nuetzel Stream	Stream Restoration	Little Patuxent	1.0	FY20	$271,008	FY21	$783,996
Old Annapolis Road	Retention Pond (Wet Pond)	Little Patuxent	14.5	FY20	$90,000	FY21	$428,480
Park Drive	Stream Restoration	Patapsco LN Branch	5.0	PF	PF	FY18	$500,000
Patapsco Park Estates Repair and Retrofit	Extended Detention Structure, Wet	Patapsco LN Branch	5.0	FY18	$90,000	FY20	$277,165
Patrick Farm	Stream Restoration	Brighton Dam	64.0	PF	PF	FY18	$2,471,000
Phelps Luck Stream	Stream Restoration	Little Patuxent	5.0	FY19	$150,000	FY20	$500,000
Plum Spring Lane (NLP-SR-F99a)	Stream Restoration	Little Patuxent	22.0	FY19	$200,000	FY20	$800,000
Quaker Mill Court	New BMP	Patapsco LN Branch	5.0	FY15	$83,387	FY18	$900,000
Red Hill Way Phase 2	Stream Restoration	Little Patuxent	4.5	PF	PF	FY18	$184,152
Route 40 N (NLP-SR-F555b; Frederick Road - South)	Stream Restoration	Little Patuxent	14.0	PF	PF	FY18	$900,000
Route 40 S (NLP-SR-F555a; Frederick Road - North)	Stream Restoration	Little Patuxent	13.0	PF	PF	FY18	$800,000
Sante Fe Court	Stream Restoration	Little Patuxent	10.7	FY20	$180,000	FY21	$783,996
SHA Study A	Stream Restoration	Little Patuxent	17.3	FY20	$200,000	FY21	$700,000
SHA Study B	Stream Restoration	Little Patuxent	17.3	FY20	$200,000	FY21	$700,000

Whenever you ask Howard County about MS4 credits they say “We do not perform projects for credits.” In their NPDES annual report 30 on page 51 they state “Howard County continues to provide regular outreach to the public and specific stakeholders related to watershed management, associated infrastructure issues, capital project implementation for TMDL creditable projects.” They may be doing outreach, but they need to be compelled to tell the truth. To ensure the best outcomes for our watersheds and our communities, we must mandate transparency and early engagement. I urge a favorable report on SB688.

Thank You,

Roger Davis

Examples of Maryland Forest Loss and Stream Implac

Uploaded by: Sharon Boies

Position: FAV

Examples of Maryland Forest Loss and Stream Ecosystem Impacts by Engineered Stream Restoration Work

Healthy Stream Valley, without Stream Restoration Work – Prince George's County

Guilford Woods Stream by https://saveguilfordwoods.wordpress.com/

Font Hill – Howard County

Before Stream Restoration Work (2017) –

Wooded stream banks useful for run-off and stream surge control

https://data.howardcountymd.gov/InteractiveMap.html?Workspace=HistoricAerials, 2017 Aerial Photo

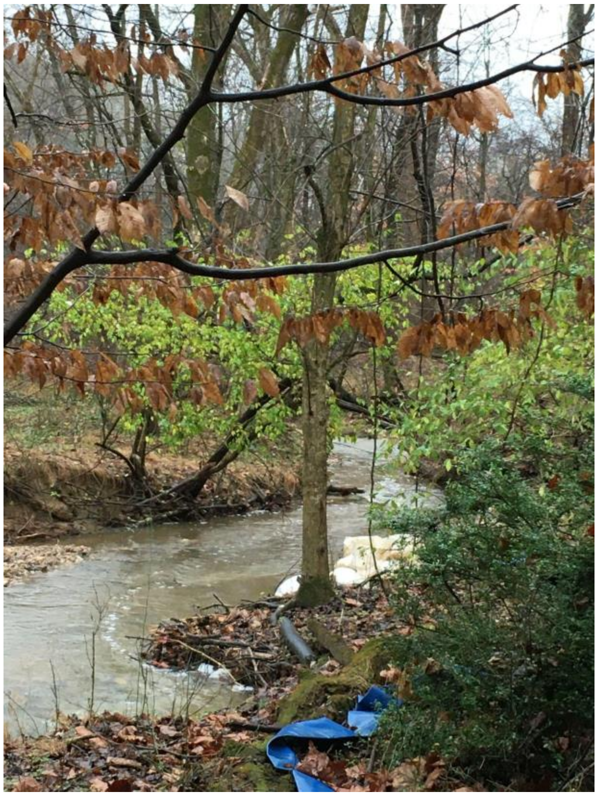
After Stream Restoration Work (2022) –

Heavy tree loss which contributes to stormwater surges

https://data.howardcountymd.gov/InteractiveMap.html?Workspace=HistoricAerials 2022 Aerial Photo

Little Patuxent UT #1- Howard County

Before Stream Restoration Work – Heavily vegetated and wooded. Blue hose to pump out stream water for the upcoming restoration work is visible.



After Stream Restoration Work – Rich riparian ground cover and trees have been stripped from the stream banks.

During Stream Restoration Work 1 (Spring 2021) –
Heavy tree loss.

During/After Stream Restoration Work 2 (Spring 2021) –
Heavy tree loss, armored stream banks

Before and After Stream Restoration Work –
Negative impact on stream bank run-off, including rocks, silt, and sediment accumulation, following first large rainfall (~1 year after tree loss).

Before

After

Little Patuxent UT # 2, Howard County (Before photo not available)

During Stream Restoration Work 1 –
Clearance of mature trees.

During Stream Restoration Work 2 – Mature tree removal.

During Stream Restoration Work 3 –
Riparian zone cleared of natural vegetation.

During Stream Restoration Work 4 –
Natural benthic habitat is removed and replaced with new stream substrate material that is less effective for supporting diverse stream life.

Little Patuxent #3 (Before photo not available)

After Stream Restoration Work –
Established vegetation and trees that help slow stream flow rates and run-off removed making stream banks vulnerable to run-off and erosion.

Miller Run-Baltimore County (Before photo not available)

After Stream Restoration Work 1 –
Trees cleared and replaced with saplings.

After Stream Restoration Work 2 – Riparian forest removed.

Solitaire Court- Montgomery County

Before Stream Restoration Work-see link

During Stream Restoration Work--

Stream no longer continuous, heavy tree removal, artificial substrate to stream with step pools.

After Stream Restoration Work 1 – Mature trees removed and replaced with saplings. Step pools installed.

After Stream Restoration 2 –
Vegetation dominated by invasive plants.

After Stream Restoration 3 –
Embankment engineering subject to erosion and failure.

Watkins Mill/Travis Ave Stream Restoration & Outfall-Montgomery County

Before Stream Restoration Work
– A well-vegetated and wooded stream corridor.

After Stream Restoration Work 1
– Loss of mature trees and native vegetation and healthy soil.

After Stream Restoration Work 2 –
Re-engineered streambanks susceptible to blow-outs and heavy erosion.

After Stream Restoration Work 3 –
Re-engineered streambanks susceptible to blow-outs and heavy erosion.

Upper Watts Branch - Montgomery County

During Stream Restoration Work - An example of the heavy engineering equipment and process disrupting soil structure and wildlife habitat.

Whetstone Run/Asbury Methodist Village - Montgomery County

After Stream Restoration Work – Note magnitude of natural landscape alteration in step-pool installation. Step pools interrupt fish and other aquatic species passage.

St. Charles Parkway Stream-Charles County

Before Stream Restoration Work –

Well-established vegetation moderates stream flow and supports diverse aquatic life.

https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0

After Stream Restoration Work 2 –

Heavy loss of mature trees.

After Stream Restoration Work 3-

More Tree Removal

https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0

Other Stream Restoration Projects of Concern (Photos available)

Stony Run-Baltimore City

Ruth Swann Park-Charles County

Bear Branch-Prince George's County

Jones Mill Road-Montgomery County

Lower Booze Creek-Montgomery County

Dead Run-Baltimore County

Scotts Level Branch-Baltimore County

Tinkers Creek-Prince Geoge's County

Beaver Creek-Washington County

North Creek-Montgomery County

Diamond Farms Park-Montgomery County

SB688 Stream and Floodplain Restoration Requiremen
Uploaded by: Sharon Boies
Position: FAV

March 3, 2026

SB688 ENVIRONMENT-
Stream and Floodplain Restoration Projects-
Requirements And Limitations

POSITION: FAVORABLE

Dear Chairman Feldman, Vice Chair Kagan, and Members of the Education, Energy, and Environment Committee.

Protect Our Streams strongly supports SB688, and we are asking for your help.

This legislation represents a necessary evolution of Maryland's environmental policy. For too long, our regulatory system has treated the mere completion of construction of a stream restoration project as a success. SB 688 corrects this by moving away from engineered stream restoration as a default, the first choice, and toward a model where success is defined by "measurable functional lift" such as the number, and species of bugs and fish that live in the stream. This ensures that pollution reduction and mitigation credits are earned through verified ecological recovery and actual water quality improvements, rather than modeled estimates or the act of cutting down trees, moving dirt, and placing rocks along the remaining stream banks.

Importance of Maryland's Stream Ecosystems

- Maryland's stream ecosystems are unique, biodiverse and provide essential environmental benefits, including oxygen production, carbon sequestration, water filtration, cooling shade, and habitat for wildlife.
- Many headwater streams feed the sources of our drinking water.
- Mature forests and riparian zones play a critical role in maintaining water quality and supporting various species, including macroinvertebrates, fish, bats, reptiles, insects, mammals, amphibians and birds.
- Urban streams, despite facing challenges from development and climate change, continue to thrive and support diverse life forms.
-Forest bathing is known to improve human Health. (7)

Concerns with Current Stream Restoration Practices

- Many stream restoration projects prioritize credit generation for MS4 pollution and development mitigation credits, over ecological health, often leading to destructive practices that harm existing ecosystems.
-This has resulted in contractors soliciting landowners and raises concerns that these projects are being performed in places where people will allow them over what

stream might benefit from this practice. Just because you can do something doesn't always mean that you should.
- Heavy machinery used in restorations disrupts habitats, removes mature trees, and alters natural stream hydrology, resulting in long-term ecological damage.
- Evidence suggests that these engineered restorations often fail to deliver promised benefits, such as improved water quality and habitat restoration, with many projects showing no significant ecological uplift. There are 13 known negative consequences directly associated with engineered stream restorations. (1) Some ecosystems will experience all 13 negative consequences.
-Fine print on design plans indicate contractors expect projects to take 30 YEARS to stabilize and recover, while neighborhoods and communities are told to expect great improvements to areas destroyed by projects, by year 3 of the recovery process.
-Stream restoration projects do not offer a cure or a solution for polluted stormwater runoff.
-Stream restoration projects are not held accountable for failing to meet the goals of the Clean Water Act. They are not held to the standard of making a waterway more "Swimmable and Fishable", the intended reason for their very existence as an acceptable practice.
-Stream restorations are not guaranteed to be successful, and they don't come with long-term warranties. They are prone to failure requiring expensive repairs and maintenance for possibly decades to come. (4)
-Taxpayers are expected to pay for unwanted projects, then pay for their maintenance. A petition to stop a stream restoration at Centennial Lake Park garnered over 2000 signatories in opposition to the project, and a current petition to stop a stream restoration at Font Hill Wetland Park is approaching 660 signatories. These are taxpayers and constituents who are asking for your help.
-Extensive tree removal and warmer stream temperatures exacerbate the impacts of climate change and global warming.
-Stream restoration projects intentionally create sideways and downstream flooding. They do not attenuate flooding as many are often told. (3)
-Stream Restorations and excessive tree removal decrease property values. (8)
-Stream restorations do not "mitigate" the loss of a Nontidal wetland. They should not be used to fulfill the requirement of "No Net Loss". This hypocrisy in Maryland has led to a disproportionate number of stream restoration projects performed for credits while allowing the development and loss of unique, one of a kind, irreplaceable, ecosystems. Woodland forests and streams are uniquely different from wetlands. MDE has the authority to allow non-destructive "out-of-kind" projects be performed instead, and the ability to sell credits through its In-Lieu Fee Program.
-The hidden costs to the taxpayers.
-Long term maintenance. After the maintenance or conservation easement expires, long term monitoring and maintenance funding is left to the landowner and can cost municipalities for decades to come. Invasive species removal oftentimes is not performed or left up to volunteer organizations.
But this comes with concerns about the accuracy of data provided.

-Volunteers performing crucial monitoring for the DNR instead of qualified professionals. This has included monitoring for macroinvertebrates which can lead to misidentification and incorrect data recorded. For example, a taxa list from 2014 by Stream Waders at Sweet Hours on the MBSS website has two glaring errors: Polycentropodidae is not a stonefly but a caddisfly; and Hydrophilidae is a beetle not a mayfly. This should raise red flags about the data DNR has on file.

Need for Alternative Approaches

- This bill advocates alternative practices that preserve mature trees and enhance stormwater management without resorting to destructive restoration methods as the first choice.
- Suggested alternatives include bioretention techniques, tree planting, rain gardens, permeable pavers, sand filters, green roofs, catch basin inserts (9), and green infrastructure (10), which can effectively manage runoff and protect stream health.
- These methods are underutilized but can provide significant ecological benefits while minimizing harm to existing ecosystems. A recent study on a project in Carroll County demonstrated by capturing stormwater runoff before it reaches a stream the stream banks can begin to “self-recover” in as little as 14 months. (5)

Recommendations for Legislative Action

- SB 688 aims to incentivize the preservation of mature trees and ecosystems by revising current practices and credit systems, which are currently under review by the Maryland Department of the Environment.
- The bill proposes enhanced monitoring and accountability for stream restoration projects, requiring pre- and post-project assessments to ensure ecological goals are met. **It is not a ban; the goal is to stop “random acts of restoration”** and “RINO’s – restorations in name only”. These are nicknames the industry and NGO’s use for “bad projects”.
- It emphasizes the need for community engagement and transparency in the project selection process, ensuring that decisions are based on ecological needs rather than financial incentives. (2)

To those concerned about the economic impact on the restoration industry, let us be clear: this bill is not a ban or a threat to grant money, access to tax dollars, jobs, or credits. (6) On the contrary, it protects the integrity of the industry by ensuring we fund the "right project in the right place." It shifts our focus to high-performing "upland first" strategies—such as bioretention and source controls—that treat the root cause of degradation rather than just the symptoms. Contractors, engineers, and non-profits will remain essential for the consulting, planning, design, implementation, and critical pre and post-construction monitoring this bill mandates. This shifts the

priority from working in the streams, to the uplands to “slow the flow”, and “contain the rain” before it reaches the waterways.
This bill will create jobs for many, instead of large profits for a few. The health of the Chesapeake Bay and the CESR report (11) have made it clear, it’s time for a change.

Maryland has no natural lakes to act as nature’s brake system on the natural runoff process; it’s one big drainage leading to the Chesapeake Bay. And we all live downstream. Everything from the tops of the trees and our roofs down to the street curbs washes down to the lowest point and into the storm drains which lead to the nearest waterway.

We have spent billions of dollars over decades on projects that often fail to deliver a living, breathing return on investment. In science, when an experiment fails to produce results, you change the methodology. SB 688 does exactly that. This bill is scientifically sound, fiscally responsible, and essential for the genuine recovery of our waterways. It ensures that taxpayer dollars are an investment in verified environmental outcomes, not just construction outputs.

Conclusion

- Supporting SB 688 is crucial for protecting Maryland's streams and riparian corridors and the biodiversity they support by reforming the way it manages stormwater runoff.
- The bill seeks to align restoration practices with scientific evidence, promoting sustainable methods that enhance the health of Maryland's waterways and ecosystems.
- By passing this legislation, Maryland can take significant steps toward preserving its natural resources and improving the quality of life for its residents while still producing obligatory credits.

In June of 2021, I wrote an Op-ed in the Washington Post. I asked the question “ Do we wait until species such as box turtles, newts, and water snakes become endangered before we protect them?”.

We are asking for your help, and we urge a favorable report on SB 688. Thank you.

Sharon Boies
Protect Our Streams

“If future generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it.” *– President Lyndon B. Johnson upon signing the Wilderness Act (1964)*

RESOURCES.

(1)From the "Stream Restoration Credit Guide" See page 73, Table 19

https://cast-content.chesapeakebay.net/documents/UnifiedStreamRestorationGuide.pdf

3.5.2 Unintended Environmental Impacts

All stream restoration design approaches (i.e., NCD, RSC, LSR and their variants) have the potential to cause unintended impacts that degrade the quality of streams and/or floodplains. These impacts have been observed in restored stream channels, floodplains and downstream ecosystems, and are documented in recent research studies in the Mid-Atlantic region and elsewhere (Table 19).

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

1 Project Stream Channel-

Depleted Oxygen 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.

Project Tree Loss Post- 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.

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

And from Page 74 –

(2) "Restoration and stabilization practices should always be tailored to individual site conditions. Where possible, opportunities located out of the stream network should be evaluated first or in conjunction with OGS projects."

(3) "Piping and armoring may also increase stream velocity, creating the potential for exacerbated erosion, flooding, or habitat impacts downstream."

(4) A few examples of failed stream restoration projects include-

Josephs Branch, Cabin John Creek, Long Branch, Snakeden Branch, the Bedfordshire project, Old Farm Creek Tribuary, the Grosvenor-Luxmanor project, Northwest Branch, Lower Booze Creek, tributary to Great Seneca Creek, Block Rock Run, Stony Run – more than once, Bacon Ridge Branch, Font Hill Wetland Park- more than once, Little Patuxent UT #1, Little Patuxent UT #2, Little Patuxent UT #3.

Articles about failed stream restorations-
https://www.baltimorebrew.com/2024/06/07/critics-decry-one-baltimore-stream-restoration-project-as-a-debacle-as-dpw-pushes-ahead-with-another/

https://www.baltimoresun.com/2023/10/13/environmental-groups-concerned-by-upcoming-construction-along-herring-run-in-northeast-baltimore/

https://www.instagram.com/sacredparksandwaterways/reel/DLADdosONTK/?__d=1

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

(5) The Self Recovery of Stream Banks -
https://mms.cwp.org/news_archive_headlines.php?org_id=CWSP&sniid=44811641#44811641

Critics and scientists have known almost since the start of the program that these projects do not achieve their stated goals or desired outcomes. But we kept going.

(6) "But critics argue that a heavy-handed approach to stream restoration in such settings often does little if anything to restore the waterway's ecological health. In the process, they argue, precious patches of riparian forest are being sacrificed in what the Chesapeake Bay Foundation's Rob Schnabel **calls a "gold rush" by local and state agencies to accumulate credits toward meeting Bay restoration targets."**

https://www.bayjournal.com/news/pollution/stream-restoration-techniques-draw-pushback/article_ffc96960-0895-11eb-b36f-efa466158524.html

A meta-analysis of 644 projects by M. Palmer et al. in 2014 said, "We show that a major emphasis remains on the use of dramatic structural interventions, such as completely reshaping a channel, **despite growing scientific evidence that such approaches do not enhance ecological recovery,** and the data we assembled suggest they are often ineffective in stabilizing channels when stability is the primary goal." They also showed that water quality does not improve, that biology does not improve, and that ecology does not improve.

We also knew it wasn't working in 2016 – but kept experimenting with our streams and tax dollars

https://www.accotink.org/2016/StreamRestorationDiscussionBayJournal.htm

"In recent decades, there's been growing interest by government agencies, engineering firms and environmental groups in restoring degraded waterways. The methods for doing that can be dramatic and sometimes controversial, with bulldozers felling dozens of trees and reshaping stream channels. **Skeptics, including some scientists, question the value of such projects, whether they hold up over the long term and provide real biological or chemical improvements"**

We knew it wasn't working in 2018 – But kept on going anyways now defending the practice by calling it "Art"

https://marylandreporter.com/2018/11/28/bay-scientists-say-stream-restoration-not-delivering-as-much-as-hoped/ **Restoration more art than science**

Proponents of stream restoration say that its benefits haven't fully come to light because the **practice remains in its infancy**. **"I would tell you ecological restoration is not yet a science,"** said Keith Underwood, an Annapolis-based contractor who was one of the region's pioneers in the field**, starting his first projects in the mid-1990s. "It's still very much in the era of an art."**

AND BY 2020 IT WAS INDISPUTABLE – BUT THEY KEPT ON SPENDING OUR TAX DOLLARS ON AN ECOLOGICALLY HARMFUL PROCESS

R. Hilderbrand's 2020 meta- analysis of 40 Natural Channel Design (NCD) and Regenerative Stormwater Conveyance (RSC) "stream restoration"-type projects concluded, "There simply were few ecological differences between restored and unrestored sites. **In fact, the unrestored sections upstream [from the restoration sites] were often ecologically better than the restored sections or those downstream of restorations."**

On 9/12/2019 Bill stack from the Center for Watershed Protection stated in a presentation for the Bay Program "I helped lead the effort in developing the recommendations of the expert panel to define removal rates for individual stream restoration projects with Tom Schueler of the Chesapeake Stormwater Network…I can no longer hide from the turmoil that I helped to create in the stream restoration industry…This action unleashed an unprecedented flurry of stream restoration projects identified in Watershed Implementation Plans and MS4 Implementation Plans across the Bay watershed which are now being implemented by a thriving billion-dollar stream restoration industry comprised of engineers, hydro-geomorphologists and a few biologists. I forget to mention big-time financiers.

Also, take note of what I said about "few biologists". The expert panel noted "the root causes of stream bank erosion: impervious cover…as a result, municipalities are spending ENORMOUS amounts of money on projects that generate the necessary water quality credit but have no real impact on stream function…Perhaps [change] will come after we spend billions of dollars on these projects and the taxpayers ask "why can't I catch fish in this stream?".

Members of Protect Our Streams are those taxpayers and we're asking the question – what has happened to all of the money, why don't we see improvements?

(11)THE 2023 CESR REPORTED SPELLED IT OUT – STREAM RESTORATIONS ARE NOT THE SOLUTION

https://www.chesapeakebay.net/what/publications/achieving-water-quality-goals-in-the-chesapeake-bay-a-comprehensive-evaluation-of-system-response-cesr

When we have road salt in our sources of drinking water it is clearly obvious that we must reduce the stormwater runoff before it reaches our streams.
https://marylandmatters.org/2026/02/08/slightly-salty-water-could-come-out-of-your-faucet-soon-in-these-maryland-suburbs/?emci=6167d5e4-b405-f111-832f-000d3a1f0e4c&emdi=f6e92d6c-c105-f111-832e-000d3a18942f&ceid=261412

Road salt and pollutants are detrimental to aquatic species. Aquatic species are the "bioindicators" that determine the health of the waterway.
https://www.researchgate.net/publication/236334718_Developing_Biological_Indicators_Lessons_Learned_from_Mid-Atlantic_Streams

(10)There are numerous "upland" Best Management Practices (BMP's) of various sizes that are used in places as small as our backyards to large cities with limited space for stormwater controls. Here are a few articles for your review-

Green Infrastructure for Stormwater Control Information –
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NE3S.

Harvesting the value of stormwater -
https://www.ezview.wa.gov/Portals/_1965/Documents/Background/2017%20Harvesting%20the%20Value%20of%20Water.pdf

(9)Another Alternative Practice -
Catch basin inserts are stormwater filtration devices installed under storm drain grates to remove pollutants like trash, sediment, oil, and heavy metals from stormwater runoff. They act as post-construction BMPs that improve water quality, especially in urban areas, with some studies showing 60–97% total suspended solids (TSS) removal.

(8)Stream Restorations decrease property values and require large spaces for "access" for their construction machinery and restoration sites **"within 0.5 miles of restoration sites decrease surrounding property values".**

https://www.sciencedirect.com/science/article/abs/pii/S0301479713002971

Stream restorations cause flooding and additional challenges for the Eastern Shore due to Rising Sea Levels and Salt Water Intrusion.

Saltwater Intrusion, Climate change and flooding-
https://baltimorefishbowl.com/stories/climate-change-is-a-local-issue-and-heres-whats-happening-in-every-part-of-maryland/

https://soils.ifas.ufl.edu/media/soilsifasufledu/sws-main-site/pdf/technical-papers/Savoy_Melissa_6_Month_Embargo.pdf

(7) Forest Bathing is beneficial for human health
https://e360.yale.edu/features/ecopsychology-how-immersion-in-nature-benefits-your-health

https://pmc.ncbi.nlm.nih.gov/articles/PMC9665958/#:~:text=Wen%20et%20al%20%5B63%5D%20conducted,indexes%2C%20immunity%20and%20inflammatory%20 indexes%2C

Link to Washington Post Op-Ed https://www.washingtonpost.com/opinions/letters-to-the-editor/maryland-help-us-save-our-streams/2021/06/06/073c1638-c3d1-11eb-89a4-b7ae22aa193e_story.html

The following is a series of pictures that are of the same location starting from a few weeks before a stream restoration took place in 2020 to shortly afterwards and what it looks like today – in year 6.

The contractor has been out working in the **now** de-stabilized and eroding stream for the past month excavating sediment and lining the banks with more rocks. Stream restorations require ongoing maintenance once an area has been de-stabilized and disturbed by heavy machinery.

Also, stream restorations create flooding, they do not attenuate it.

Photo of our neighborhood forest and stream prior to the "restoration" 9/20/20 photo -s.boies

Notice the thick, lush, biodiverse forest.

This is the same location 1/2/2021. The stream is so far to the right it wouldn't fit in the picture. S.boies

This is the same location heading into year 6 of the recovery. 1/10/2026 Notice the invasive species and the dismal success of the reforestation effort. Photo s.boies

This is the same location on 2/21/2026 in year 6 of the restoration. This project cost our state 2.2 million dollars – just for credits for the SHA. Photo s.boies

Here’s the stream on 2/21/2026. The contractor will use the pump you see on the right - known as a “fish grinder” in the industry. They will pump the creek water out to be able to place more rocks along its banks. The stream never left its banks before the restoration. Photo s.boies

This is a section of the stream restoration after we received a little over 2 inches of rain leaving my neighbors wondering “what if we get a hurricane?”. This creek never left its banks before the ‘restoration”. This put our neighborhood in jeopardy of flooding. Photo from 6/18/2025 s.boies

We are asking for your help to reform the way that Maryland manages its stormwater runoff.
Thank you!

SB688 Wayne S Davis.pdf
Uploaded by: Sharon Boies
Position: FAV

Wayne S. Davis
8032 Red Jacket Way, Jessup, MD 20794
wayne.davis103@gmail.com
March 3, 2026

The Honorable Brian J. Feldman
Chair, Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
11 Bladen Street, Annapolis, MD 21401

Re: FAVORABLE REPORT for Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects

Dear Chair Feldman and Members of the Committee,

I am writing to express my strong professional support for **Senate Bill 688**.

By way of background, I am a retired senior environmental scientist formerly with the U.S. Environmental Protection Agency's Office of Environmental Information. My career has focused extensively on the development of environmental indicators, assessing environmental results, and establishing scientifically sound performance measures for aquatic systems. It is through the lens of objective performance measurement that I view the vital improvements proposed in this legislation.

The stream restoration industry provides valuable services to the State of Maryland, and this bill does not seek to end stream restoration. Rather, SB 688 represents a necessary maturation of our stormwater management strategy. It aligns state policy with four fundamental principles of environmental management:

1. It Establishes Accurate Environmental Indicators (Section 18-102) In any environmental program, the definition of "success" must be tied to actual ecological health. Currently, regulatory compliance in stream restoration relies heavily on modeled estimates of sediment or nutrient reduction. While models are useful, they are not direct indicators of a living ecosystem's recovery.

SB 688 introduces a critical quality control measure by mandating that "measurable functional lift" must include documented improvements in biological community conditions, assessed using scientifically accepted indices (such as the Benthic Index of Biotic Integrity, or BIBI). Establishing biological indices as the performance measure ensures that taxpayer funds and regulatory credits are awarded for actual ecological results, rather than solely for construction outputs.

2. It Shifts Investment to Practical Upland Methods (Section 4-203) SB 688 codifies the scientific hierarchy of "Upland First." It is a basic tenet of hydrology that stream channel instability is often a symptom of altered watershed hydrology, specifically uncontrolled runoff from impervious surfaces.

This legislation does not eliminate funding or MS4 credits for stormwater management; instead, it smartly shifts those resources toward proven, practical, and less invasive upland methods. By requiring the Department to prioritize source controls (like bioretention and permeable pavement), the bill ensures we treat the root cause of the degradation before resorting to heavy in-stream construction. This is a highly efficient, cost-effective way to manage watershed health.

3. It Protects Industry Integrity through "Right Project, Right Place" (Section 4-203) By prioritizing upland treatment and requiring rigorous site selection, this bill protects the restoration industry from the reputational risk of failed projects. It ensures that heavy in-stream construction is reserved for sites where it is technically the only viable option, rather than the default. This "right project, right place" approach will ultimately lead to a more sustainable, defensible, and scientifically credible restoration sector.

4. It Promotes Performance-Based Compliance (Section 4-203) The bill prohibits the awarding of pollution reduction credits based solely on the "completion of construction." In the scientific and regulatory community, this is a standard of accountability that is long overdue. Regulatory credit should be a currency exchanged for verified environmental outcomes. This provision ensures that the industry is incentivized to prioritize long-term project success and measurable environmental results.

Senate Bill 688 does not penalize compliance; it simply ensures that our investments are directed toward the most effective, least destructive, and most verifiable methods of watershed management. It is scientifically sound, fiscally responsible, and essential for the genuine recovery of our waterways.

I urge a **favorable report** on SB 688.

Sincerely,

Wayne S. Davis Retired, U.S. Environmental Protection Agency

Witness Testimony.pdf
Uploaded by: Sharon Boies
Position: FAV

Witness Testimony

Dear members of the environmental committee:

I strongly support SB 688. Environmental credits should only be awarded to projects with proven long-term success, demonstrated in evidence-based studies on similar projects. This is not the case with stream restoration, as proven by Margaret Palmer and other experts in the field, most notably in a landmark review of 149 studies covering 644 stream restorations, demonstrating a gross lack of favorable results. It is disappointing to me that our laws are not keeping up with published literature, and I hope that this will be considered from here on moving forward. I am asking you for a favorable report.

Sarah Kellett
4435465170

6350 Tamar Drive
Columbia MD 21045

SB0688_StreamandFloodplainRestoration_FAV_ClimateC
Uploaded by: Sonia Demiray
Position: FAV

SB 0688 - SUPPORT
Sonia Demiray
Climate Communications Coalition
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SB 0688
Environment - Stream and Floodplain Restoration Projects – Requirements and Limitations

Education, Energy, and the Environment
March 3, 2026

Dear Chair Feldman, Vice Chair Kagan, and Members of the Committee:

The Climate Communications Coalition is a Maryland-based grassroots climate and environmental justice non-profit, a member of the Mid-Atlantic Justice Coalition, and of the Maryland Climate Justice Wing, among others. The Climate Communications Coalition strongly supports SB 0688.

The success or failure of stream restoration depends on the ease of native biota to recolonize and effectively restore its processes after restoration. This success is directly impacted by the structure and composition of a restored creek, the potential for arrival of non-native species, in addition to the long-term viability and scale of the restoration (1). Needless to say that we cannot recreate the processes, structure and composition of a natural creek that took centuries to thousands of years to evolve, with the result that biota, from plant life to macroinvertebrates (2), tend to vary significantly from before to after restoration. This deceives the purpose of any restoration project. In fact, most creeks do worse after restoration than before and require long-term maintenance or re-restoration, a costly and burdensome undertaking. Many of Maryland's restoration projects seem to be spurred by mitigation banking, other types of credits, and even logging expeditions rather than environmental need, drawing into question the motivation of stream restoration companies which actively solicit landowners to work on their creeks. Examples of destructive restoration projects and expensive repairs abound, including:

- UMBC Spring Grove restoration, Baltimore County "A $27 Million waste" (3)
- Stony Run, Baltimore City, a $10 Million project with $500,000 in repairs (4)
- Lower Booze Creek, Montgomery County $700,000 restoration with $3.6 Million in repairs (6)
- Grosvenor Luxmanor Tributary, Montgomery County $4.796 Million project (5)

Not to mention these troubled restoration projects (6):

- Asbury Methodist Village, Montgomery County
- Upper Watts Branch, Montgomery County
- Whetstone Run, Montgomery County

- Longfellow Neighborhood Stream, Howard County
- Solitaire Court Creek, Montgomery County
- Font Hill Tributary, Howard County
- Scotts Level Branch, Baltimore County
- Charles Parkway Stream, Charles County
- Tinkers Creek, Prince George's County
- Bear Branch, Prince Georges County
- Joseph's Branch, Montgomery County
- Cabin John Creek, Montgomery County
- Long Branch, Montgomery County
- Snakeden Branch, Montgomery County
- Riva Landing, Anne Arundel County

SB 0688 requires taking into consideration the above-mentioned measures of success, as also recommended by the Chesapeake Research Consortium's Comprehensive Evaluation of System Response (CESR) Report. To restore streams, we need to look at the pollution, erosion, and run off sources, in addition to stormwater management – not at small, discrete segments of a stream. A landscape or watershed approach would focus on the up to 90% of runoff pollution which comes from only 5-20% of the land (CESR Report). Let's focus on mitigating that runoff by using a much cheaper riparian reforestation approach along the source, rather than shaping a segment of a stream to match a preconceived notion of what it should look like.

The Climate Communications Coalition respectfully requests a favorable report on SB 0688.

###

References:

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(5) Department of Environmental Protection. Grosvenor Luxmanor Tributary Stream Restoration. https://www.montgomerycountymd.gov/DEP/water/clean-water-montgomery/watershed/restoration-projects/grosvenor-luxmanor.html

(6) Bawer, K. (2023) Stormwater Control using Stream "Restorations" Presentation. https://www.sierraclub.org/sites/default/files/2023-10/02b-Bawer-Stormwater-Control-Using-Stream-Restoration.pdf

Sophia's Testimony.pdf
Uploaded by: Sophia Bang
Position: FAV

Senate Bill 688, Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Support

February 27, 2026

Dear Chairman Feldman, Vice-Chair Kagan, and honorable members of the Education, Energy, and the Environment Committee:

As a concerned citizen of Maryland, I am writing to express my support for the Stream and Floodplain Restoration Projects - Requirements and Limitations bill. I first learned about the terrible damage to waterways in Howard County during my Environmental Science G/T Seminar at Burleigh Manor Middle School, and I strongly agree that stream stabilizations are extremely unnecessary for our environment.

From research, I have learned that during stream stabilizations, workers usually bring in heavy machines to dig up parts of the stream, move large amounts of dirt, and add rocks, logs, or other materials to keep the streambanks from collapsing. Even though the purpose of this work is to stop erosion, prevent flooding, and make the stream safer during storms, the construction process can cause a lot of harm to the environment while it is happening. Trees, bushes, and other plants near the water may be cut down or destroyed, which can take away homes and shelter for animals like birds, frogs, turtles, insects, and small mammals. When the machines tear up the ground and disturb the streambed, the water can become very muddy and filled with sediment. This muddy water can block sunlight from reaching plants in the water and lower oxygen levels, which can make it harder for fish and other aquatic animals to survive. In addition, the noise, vibrations, and movement of the construction equipment can scare away wildlife, change the behavior of animals, and even drive them out of the area for a while. People who visit parks and natural areas near streams may also notice the noise and disruption, which can make it harder to enjoy the peaceful environment. In some cases, chemicals or oil from the machines could accidentally get into the water, which might harm both plants and animals. Overall, stream stabilization is meant to protect the area in the long run and reduce damage from storms, but it also has immediate impacts on the natural ecosystem, including plants, animals, and water quality, and it can take time for the environment to recover after construction is finished.

I am pleased that Senate Bill 688 calls for better rules and limits on stream and floodplain restoration projects in Maryland. This bill makes sure that the Department of the Environment carefully plans and monitors these projects so that rivers, streams, and natural areas are protected. Right now, some areas can get damaged by too much construction or poor planning, which can hurt the environment and make flooding worse. By having stronger rules, the bill can help prevent problems before they happen and make sure restoration projects actually help the land and water instead of causing more harm. This is important because clean water and healthy rivers affect not only the environment but also the people who live near them. I like this bill because it focuses on long-term thinking and responsible planning. When restoration work is done correctly, it can reduce flooding, prevent erosion, and make waterways cleaner. That means fewer problems for towns and neighborhoods near rivers and streams. It also helps wildlife by protecting their homes and keeping their water clean. When people plan carefully, it benefits both the environment and the communities that rely on it. Bills like this show that the government can make choices that consider both nature and people, and that is something I think is very important for our state. Even though this bill is not about schools directly, it still matters to students and families in the Howard County Public School System. Healthy streams and safer flood areas make communities stronger and safer for everyone. It also means that outdoor areas near schools, parks, and neighborhoods are healthier, which is important for kids who play and learn outside. Supporting Senate Bill 688 shows that we are thinking about the future, keeping communities safe, and protecting the environment for the next generation. By caring about these issues now, we can make sure that students and families have cleaner water, safer neighborhoods, and better places to live and learn for many years to come.

On behalf of the children of Maryland, who will inherit the environment you leave for us, I support Senate Bill 688.

Signed,
Sophia Bang
3302 Coventry Ct. Dr.
Ellicott City, MD
21042

SB 688,HB 1465.pdf
Uploaded by: Susan Bannister
Position: FAV

SUPPORT bills SB688 & HB1465 - “Stream and Floodplain Restoration Projects.”

I have been an advocate for out-of-stream solutions to storm water issues in the Little Patuxent watershed since 2020. Along with other community activists, we were able to prevent a potentially highly destructive in-stream channel engineering project that would have removed miles of stream forest buffers from the beautiful streamside paths that meander through our neighborhoods. The project we stopped involved massive in-stream channel engineering coupled with a financing tool called a Mitigation Bank, that would have disrupted a cherished community environment for several generations.

My neighbors and I needed to undertake our own crash course in the so-called ‘stream restoration’ industry in order to save our streams. This involved researching local and regional scientific papers on the processes used and their results. We found rapid failures of the vast majority of suburban/urban in-stream projects, with few to no measurable benefits to the stream, the watershed, or the wildlife and human environments, and at great public financial cost before, during and after the work was done. At the same time, we were looking at actual on-the-ground results of these failed projects in neighboring communities, and speaking with residents and experts who knew, firsthand, what had been lost, and the untold downsides of these projects. Thankfully, as a community, we rallied to prevent the worst in our Village, but we were soon getting calls from others in our County and beyond, who were facing similar threats to their own cherished woodland streams and paths, so our advocacy continues, as we share what we have learned, and continue to learn, with others.

These bills encourage only necessary, effective stream restorations. The proposed law is an important step to protect our streams and their forested buffers from destruction and profiteering at the expense of our outdoor natural environments. Our interconnection with the natural world is irreplaceable to the wellbeing of our communities, now and for future generations.

These bills include an important requirement that an analysis of alternatives be done to evaluate out-of-stream bed stormwater control options. Some common alternatives include rain water harvesting, dry swales, permeable pavement, and forest planting with proper maintenance. Many, possibly most, out-of-stream practices are less expensive in overall short and long term costs, than most in-channel engineered ‘stream restorations’, and can provide more reliable, longer lasting and environmentally sound solutions to the problems presented.

Please vote a FAVORABLE report on SB688 and HB1465.

March 2026 SB 688_ BMMS Stream Team Presentation.p

Uploaded by: Tasnia Niti

Position: FAV

Save Our Streams!

Presentation by the Burleigh Manor MS Stream Team

Table of Contents

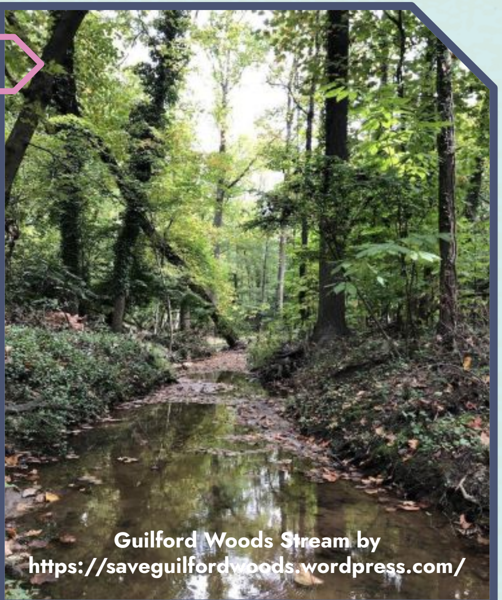
01

Stream Stabilizations 101

What are Stream Stabilizations?

- Stream stabilizations (also known as restorations) are projects categorized as best management practices (BMP) and performed for MS4 and mitigation credits.
- Developers purchase mitigation credits to offset the harm caused by developing wetlands and sensitive habitats.

BEFORE



Guilford Woods Stream by https://saveguilfordwoods.wordpress.com/

AFTER

Photo courtesy of S. Boies

02

Environmental Harms

Environmental Harms

Stream stabilization projects have arguably caused more harm than good. Some of these harms are caused by the removal of mature trees, which:

- Heats up the stream due to more sunlight reaching the stream, which harms fish and aquatic invertebrates.
- Mature trees can store up to 48 pounds of carbon dioxide, but their removal releases it back into the atmosphere (Androff).

Photo courtesy of S. Boies

Environmental Harms (continued)

Other harms caused by stream stabilizations include:

- Animals lose their habitats due to habitat loss and are crushed by heavy machinery
- Heavy machinery compacts the soil, making it less absorbent, increasing runoff
- Soil disturbance leads to invasives taking roots
- Plantings by contractors lack biodiversity, and struggle to become an established forest

Before Stream Restoration Work (2017) –
Wooded stream banks useful for run-off and stream surge control

https://data.howardcountymd.gov/InteractiveMap.html?Workspace=HistoricAerials, 2017 Aerial Photo

After Stream Restoration Work (2022) –
Heavy tree loss which contributes to stormwater surges

https://data.howardcountymd.gov/InteractiveMap.html?Workspace=HistoricAerials 2022 Aerial Photo

Font Hill Stream Stabilization Years Later

Stream Stabilizations in Columbia

Photos courtesy of S. Boies

"...the practice of stream restoration has far outpaced the science, due to limitations of science-based research, such as multiple interdependent variables control stream functions, biological processes cannot be scaled for laboratory studies, and the response time of stream systems is typically much longer than human planning or funding horizons"

(Thompson et al.).

03

Upland Water Management

Clean Water Act

The Clean Water Act (CWA), Title 4, Subtitle 2 of the Environment Article of Annotated Code of Maryland states that "the management of stormwater runoff is necessary to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding, all of which have adverse impacts on the water and land resources of Maryland" (Center for Watershed Protection).

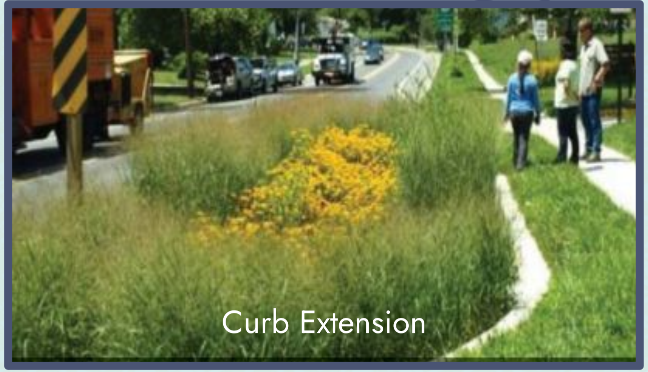
Photo courtesy of S. Boies

Upland Water Management

Managing runoff *before* it gets to streams is the ideal way to protect streams and our community.

We would like Howard County to employ upland management strategies to prevent slit, sediment, phosphorous, and nitrogen from entering our waterways and the Chesapeake Bay.

See Montgomery County's "Green Streets" PDF for more examples.



Photos taken from *Green Streets*

Rain Gardens

Rain gardens come in all sizes and are designed to collect stormwater runoff by using plants to filter and absorb polluted stormwater, allowing it to soak into the ground instead of entering our streams and waterways.

Bio-retentions and Bioswales

Bio-retentions and bioswales slow down the rate of water flow, creating temporary areas of pooled water. As the water is absorbed, pollutants from the stormwater are filtered out before they reach waterways and streams.

Curb Extensions with Bioswales

Curb extension create safer crossing for pedestrians. Those that contain bioswales are BMPs, and serve a bigger purpose. Curb extensions also provide traffic calming and creates minimal impact to parking.

Photos taken from *Green Streets*

Riparian Buffers

- Riparian buffers are strips of trees, shrubs, and native vegetation that naturally occur along the sides of streams and rivers.
- These areas can also be reforested for MS4 credits.
- Control erosion, stabilize streambanks, reduce flood impacts, provide shade for animals and improve water quality.

04

Our Solution

Our Solution to Stream Restoration Projects in HoCo

- We would like for the remainder of this permit period (ending on July 1, 2027), for Howard County to ban any more stream stabilizations.
- Residents of Howard County should be notified in advance of the county seeking a renewal of the 5 year MS4/NPDES permit to MDE of all stream stabilization projects, and all in-stream channel work. There should be sufficient time for Howard County to hold a public hearing and public comment period before the application is submitted to MDE.

Our Solution (continued)

- Additionally, the public should be notified of each individual project and have an opportunity to attend a hearing with a public comment period before a project is approved for a permit.
- After the permit period has ended, Howard County should put a cap on the amount of impervious surface that will be converted into stream stabilizations and 'in-stream channel' work performed for the MS4 credits. To be able to meet the MS4 goals of each five year MS4 permit, at no more than 20% should be allocated into stream stabilizations.

Our Solution (Continued)

- The other 80% of credits should come from upland, out of stream BMPs that are scientifically proven effective.
- Stream stabilization credit values should be halved after the current permit period (July 1, 2027).
- The county should provide additional credits toward the maintenance of existing BMP’s, like the ones we’ve mentioned earlier.

We are the future of Howard County....

Save Our Streams!

05

Sources

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Questions?

Tasnia's Testimony.pdf
Uploaded by: Tasnia Niti
Position: FAV

Senate Bill 688, Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Support

February 27, 2026

Dear Chairman Feldman, Vice-Chair Kagan, and honorable members of the Education, Energy, and the Environment Committee:

As a concerned citizen of Maryland, I am writing to express my support for the Wetlands and Waterways Program - Stream Stabilization Projects bill. I first learned about the terrible damage to waterways in Howard County during my Environmental Science G/T Seminar at Burleigh Manor Middle School, and I disagree with these practices and believe they are upsetting.

From research, I have learned that stream stabilization projects are performed for MS4 and mitigation credits. Stream stabilizations are said to restore and improve streams, yet they end up creating more harm than good. To complete these projects, heavy machinery is needed to cut through narrow spaces, endangering wildlife and cutting down trees. Not only does it affect the life near the stream, but it also compacts the soil, enabling runoff. These projects also require an unnecessary amount of trees to be cut down. The main issue is that mature trees are being replaced with young saplings that will not have the same environmental impact. These saplings also lack biodiversity and are often reduced to only one species. Because these immature trees do not provide stability, the banks are not well enough protected and are left bare. Additionally, by cutting down mature trees, we are releasing 40 pounds of carbon dioxide into the atmosphere. The stripped land creates overheating in the stream, causing issues for aquatic life. Stream stabilizations do not help or sustain the environmental needs. After all of this, the contractors put in little to no effort to maintain their work. The small trees are left unprotected, leading most of them to be eaten or damaged by the local animals. The contractors then plant new ones, do nothing to protect them, and then they keep the cycle going. Instead of taking responsibility for the damage they have caused, they only let more and more harm impact the streams. Streams that have gone through these processes are still untreated. The water quality often gets worse, and the fauna is heavily affected by these changes. They have not faced any improvement; they have seen the opposite. Stream stabilizations are doing the opposite of what we are seeking, hence why we need to stop them.

I am pleased that Senate Bill 688 calls for regulating the projects that will occur, maintaining the aftermaths of these projects, and reducing the harm that is being inflicted upon the environment. By overseeing what will be happening, streams are more likely to be enhanced and improved. The fauna will be better protected as there is thought being put behind these projects. This bill ensures that there will be control over the entire project; maintaining budgets, preventing further sediment and erosion, and keeping the water quality, something that was lacking in stream stabilizations.

On behalf of the children of Maryland, who will inherit the environment you leave for us, I support Senate Bill 688.

Signed,
Tasnia Niti
3410 Font Hill Drive
Ellicott City, MD
21042

MD SB 688 Testimony - 2026 - WRees.pdf
Uploaded by: William Rees
Position: FAV

SB 688 – Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

COMMITTEE – Education, Energy and the Environment

POSITION - FAVORABLE

HEARING DATE - February 27, 2026

Thank you for the opportunity to submit this testimony on behalf of the Spring Grove Arboretum Association and the Catonsville Tree Canopy Project prepared by Jim Himel and William Rees.

Background

The Spring Grove Arboretum Association and the Catonsville Tree Canopy Project were on a trajectory to develop an arboretum on the campus of the Spring Grove Hospital. We had been working with MD Health Department officials and were on the verge of developing a pilot MOU to memorialize the arrangement. In the meantime, in cooperation with the on-site Hospital leadership, our groups and affiliated environmental organizations, planted 1,000+ trees on the campus. Many of the trees were provided by the MD DNR Forest Service Tremendous program and were planted with the help of a multitude of community volunteers including local elected officials. An Eagle Scout project was included in this effort. Unfortunately, the COVID shutdown temporarily halted the MOU negotiations. They were permanently ended once UMBC acquired ownership of the campus.

It is useful to point out that the area of the campus where the Arboretum was slated to be situated was along the Herbert Run stream valley on the east end of the campus that is tributary of the Patapsco River, entering the river not far from the Guinness Brewery in Halethorpe. The area surrounding the stream valley was heavily wooded with large old growth trees with a mid and lower level understory. The Forest floor had a deep and rich organic layer that provided a healthy biome and effectively acted as a sink and a sponge to absorb and regulate the distribution of rainwater within the stream valley. The stream and surrounding buffer area was in a steady state without bank scouring and undermining of the abundant and healthy adjacent tree canopy.

Current Situation

In the early fall of 2025, the Catonsville community was surprised to encounter a large scale construction project underway on the Spring Grove Campus in the stream valley. Large swaths of trees had been removed and the early stages of grading around the stream valley were evident.

Our team immediately began to try to understand who and why the work was occurring. Contrary to standard practice for large construction projects, there was no identified construction trailer nor was there any signage to indicate the purpose of the project or under whose authorization it was occurring.

We contacted our elected officials and through them learned that the work was being done by UMBC using Whiting-Turner as the general contractor. Our elected officials contacted their UMBC contacts and solicited information about the project. We were seeking background information including but not limited to a project narrative, sediment and erosion control documents, forest conservation plans, etc. We also unsecsessfully tried to have a meeting with the appropriate UMBC officials about the project.

While the attempted engagement was playing out, more construction work occurred until today, most of the campus forest along the stream valley has been removed and the stream valley is unrecognizable subsequent to extensive grading and large scale tree removal along Herbert Run and tributaries. It is important to also note that the last spring on the campus for which the campus was named was and still is literally on the very edge of destruction, without adequate protection from the heavy construction machinery.

We noticed what we believed to be extensive sediment and erosion control violations and illegal intrusions into wetlands. In advance of this work and until this writing, there has been absolutely no direct outreach to the community about the project. In the absence of any engagement forthcoming from UMBC, we contacted MDE who subsequently issued 30+ non-compliance violations to the contractor(s). After that, with still no engagement by UMBC, we reached out to a reporter from the Baltimore Sun who has since documented the debacle in two related articles. After the articles were published, we received documents related to the forest conservation aspects of the work, while the Sun reporter received sediment and erosion control plans in a read-only format almost impossible to decipher on a computer screen.

Conclusion

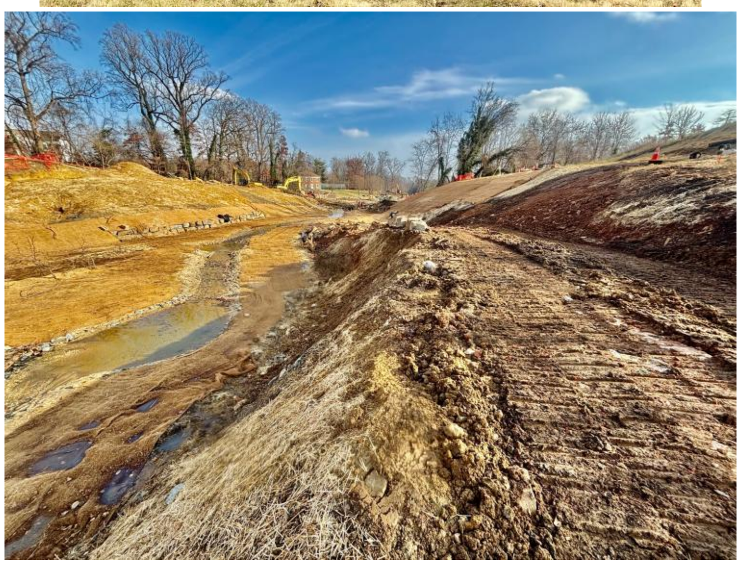
The upshot of this message is that a State Institution implemented a large scale project ostensibly to upgrade force mains and sewer lines combined with a stream restoration project. A significant amount of the land dedicated to stream restoration was well beyond the ‘pipe’ project, required massive grading and soil relocation, and included large scale tree removal - all with no community contact whatsoever. Additionally, historic infrastructure such as the spring and potential unmarked gravesites were absent from the planning and implementation process.

SB 688 if implemented would address each and every wrong turn made in the Spring Grove Project that unnecessarily destroyed the intricate ecology that existed in the Herbert Run stream valley. It was clearly a boiler plate, heavy-handed stream restoration project that ignored less expensive, more environmentally sensitive solutions that would not have destroyed the complex ecology that had developed over the past century along the stream valley. It was a solution in search of a problem that didn’t exist.

We look forward to your favorable consideration of this bill.

Respectfully Submitted,

Jim Himel, MD Licensed Forester #155; William Rees, MD Licensed Forester #262



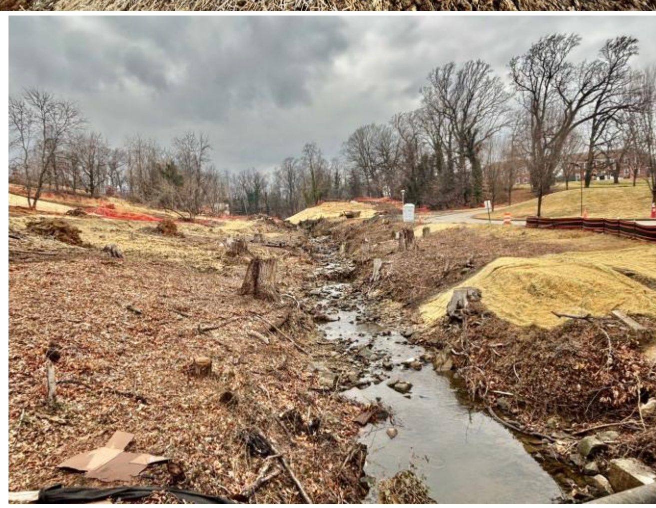


Exhibit 1, Cooper Branch, Baltimore County, 2016.p
Uploaded by: Winnie Carpenter
Position: FAV

Exhibit One
2016 Cooper Branch, Oella Avenue, at Waters Avenue.

Exhibit 2 Cooper Branch Project 2019.pdf

Uploaded by: Winnie Carpenter

Position: FAV

Exhibit Two.
Cooper Branch Stream Restoration Project 2019
(North of Oella Avenue, East of Trolley Trail #9, Catonsville, Baltimore County.)

Exhibit 3 Cooper Branch Project, 2019.pdf
Uploaded by: Winnie Carpenter
Position: FAV

Exhibit 3
Cooper Branch Stream Restoration Project, Catonsville 2019

Exhibit 4, Cooper Branch Erosion 2020.pdf
Uploaded by: Winnie Carpenter
Position: FAV

Exhibit 4
Cooper Branch erosion, Catonsville 2020

Exhibit 5, Cooper Branch flooding, 2018.pdf
Uploaded by: Winnie Carpenter
Position: FAV

Exhibit 5
Cooper Branch flooding, Frederick Road, Catonsville, 2018

SB688. Carpenter Testimony. 2026.pdf
Uploaded by: Winnie Carpenter
Position: FAV

February 27, 2026

SB688. Environment— Stream and Floodplain Restoration Projects — Requirements and Limitations

Testimony by Winnie Carpenter, on behalf of Oella-Catonsville Flood Solutions

WE SUPPORT SB688, in particular:

SECTION 1(4-203) (D) (2) MINIMIZE DISTURBANCE TO EXISITING STREA, FLOODPLAINS, AND RIPARIAN AND UPLAND FORESTS.

A forest buffer waiver was granted for a redevelopment in the floodplain, in Baltimore County. The use of a "forest bank" in another watershed was utilized. Removed forest buffer within the floodplain should be restored and remain in its original watershed to preserve natural water flow and ecological balance.

SECTION 1(4-203) (E) (1) EXCEPT AS AUTHORIZED UNDER TITLE 18 OF THIS ARTICLE, THE DEPARTMENT MAY NOT APPROVE THE USE OF A STREAM RESTORATION PROJECT THAT INVOLVES IN-STREAM CONSTRUCTION USING HEAVY EQUIPMENT TO MECHANICALLY ALTER THE DIMENSIONS, PATTERN, OR PROFILE OF A STREAM, INCLUDING ACTIVITIES THAT RELOCATE CHANNEL ALIGNMENT, REGRADE STREAM BANKS, OR CHANGE STREAMBED ELEVATION THROUGH EXCAVATION OR FILLING.

A project was designed to address the historic, and continuing, flooding along Cooper Branch in Catonsville, Baltimore County. (See exhibit 1)
Heavy equipment was involved in the stream restoration project in 2019. (See exhibit 2 & 3)
Cooper Branch flooding occurred again in 2020, 2024 and 2025 as it did in 2018, closing Frederick Road in two locations. (See exhibit 5)
Cooper Branch flooding continues to erode Trolley Trail #9, after the project, was completed, causing the trail to erode and sediment to flow downstream to the Patapsco River. (See exhibit 4)

SECTION 1(18-102) (c) (7) WHETHER PROJECT COMMUNITY NOTIFICATIONS AMD PRESENTATIONS WERE COMPLETE AND CONSISTENT WITH THE TECHNICAL MATERIALS SUBMITTED TO THE DEPARTMENT, AND

SECTION 1(18-102) (c) (8) ANY OTHER FACTORS THE DEPARTMENT CONSIDERS RELEVANT.

Individual home/property owners, and their communities, are impacted by projects near their neighborhoods. They should be involved in development decisions since these projects influence the safety, enjoyment, and overall well-being of their families, as well as the economic value of their home/property.

SB0688.pdf
Uploaded by: Jerry Burgess
Position: FWA

BRENTWOOD Maryland

February 26, 2026

THE TOWN OF BRENTWOOD SUPPORTS PRIORITIZING NON-MECHANICAL STREAM RESTORATION PRACTICES.

The Town of Brentwood urges you to support the 2026 legislative session SB688, Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

Streams and stream valleys are essential parts of our communities and ecosystems and historically some restoration projects have been destructive or heavily engineered "re-engineering" projects that destroy these mature forests and natural habitats under the guise of ecological restoration. Streams are sometimes the only natural areas present in urban and suburban areas. Stream valleys are integral to lessening heat island effects, countering the impacts of global warming, and providing a healthy environment for people, plants, and wildlife. We therefore support additional restrictions on projects involving mechanical, in-stream construction such that they must document that non-disturbing alternatives are infeasible and demonstrate "measurable functional lift" through long-term monitoring, rather than relying on modeled, pre-construction outcomes.

Further, we support limiting reengineering projects to streams that are in fact in a degraded state; require that community notification and engagement be conducted; ensure that best management practices are used to promote ecological uplift and preserve wildlife habitat, including preserving trees to the maximum extent practicable; and require long-term monitoring for a minimum of five years after project completion of stream water quality, biological integrity, and related measures. We support the mandating that the Department of the Environment prioritize methods that do not disturb existing streams and forests and maintain or increase ecological integrity. Our recommendations are:

1. Maintain municipal flexibility so local governments can address unique urban conditions where engineered restoration may still be necessary.

2. Provide clear implementation guidance and timelines to avoid delays in active or planned projects.

3. Ensure funding alignment so municipalities are not burdened with additional mandates without financial support.

Town Hall | 3712 Utah Avenue | Brentwood, Maryland 20722 (301) 927-3344 | info@brentwoodmd.gov
www.brentwoodmd.gov

4. Include stakeholder consultation requirements, particularly with local governments and watershed groups, during rulemaking.

Thank you,

Jerry L. Burgess

Mayor Rocio Tremino-Lopez and V. Mayor Jerry L. Burgess

Town of Brentwood

Town Hall | 3712 Utah Avenue | Brentwood, Maryland 20722 (301) 927-3344 | info@brentwoodmd.gov
www.brentwoodmd.gov

MBIA Letter of Support with Amendment.pdf
Uploaded by: Lori Graf
Position: FWA

February 27th, 2026

The Honorable Brian J. Feldman
Chair, Senate Education, Energy and the Environment Committee
2 West Miller Senate Office Building
Annapolis, Maryland 21401

RE: MBIA Letter of Support with Amendments SB 688 Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

Dear Chair Feldman,

The Maryland Building Industry Association, representing 100,000 employees of the building industry across the State of Maryland, appreciates the opportunity to participate in the discussion surrounding **SB 688 Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations.**

SB 688 is a big shift in policy regarding how we treat stream and floodplain restoration within its stormwater, MS4, and TMDL compliance framework. Stream restoration has been an accepted, state-endorsed tool used to generate regulatory credit and meet watershed restoration obligations. This bill moves away from that model by restricting the use of in-stream restoration for compliance credit and requiring post-construction biological proof of "functional lift" before credit can be awarded. This will significantly alter the current mitigation and watershed compliance strategy, reducing flexibility in how we meet environmental obligations, and introduces new uncertainty into development planning and housing production.

The primary reason our industry utilizes stream restoration onsite is to mitigate an unavoidable impact to a stream to satisfy MDE or Army Corps mitigation requirements for that impact. Impacts are generally related to unavoidable crossings to provide access to sites from a public right-of-way or to meet some other local requirements. Page 5 of this bill appears to prohibit stream restoration to meet compensatory mitigation requirements which includes compensatory mitigation to satisfy MDE and Army Corps requirements for unavoidable impacts as part of the Joint Permit application process.

The bill also elevates non-disturbance practices as the preferred stormwater approach, effectively treating restoration as a last-resort option that must be justified as infeasible to avoid. Under our current framework, credit generation is largely predictable. Credits are determined using established MDE-approved methodologies that rely on modeled pollutant reductions, hydraulic calculations, linear feet restored, or predefined mitigation ratios. SB 688 would shift us from a modeling-based compliance framework to a biological performance standard that depends on post-construction monitoring, which changes the timing, predictability, and financial certainty of credit generation. It would also expand agency discretion, introduce potential delays in compliance confirmation, and create tension with long-standing MS4, TMDL, and Chesapeake Bay restoration strategies.

At a minimum, the bill should be amended to:

- Page 5 this bill appears to prohibit stream restoration to meet compensatory mitigation requirements which includes compensatory mitigation to satisfy MDE and Army Corps requirements for unavoidable impacts as part of the Joint Permit application process. We would propose eliminating the compensatory mitigation from the prohibition on page 5 line 29. The other option would be to clarify that the bill does not apply to stream restoration required by the Maryland Department of the Environment or the US Army Corps of Engineers to meet compensatory mitigation requirements.
- The term “infeasible” is concerning and we hope to have more conversations on this section of the bill.

We have concerns with any legislation that will complicate or prolong housing projects at a time when housing is greatly needed. For these reasons, MBIA respectfully requests the Committee give this measure a favorable report with amendments. Thank you for your consideration.

For more information about this position, please contact Lori Graf at 410-800-7327 or lgraf@marylandbuilders.org.

cc: Members of the Senate Education, Energy, and the Environment Committee

SB 688 - CBF - FWA.pdf
Uploaded by: Matt Stegman
Position: FWA

CHESAPEAKE BAY FOUNDATION

Senate Bill 688

Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

Date: March 3, 2026
To: Education, Energy, & Environment Committee

Position: **FAVORABLE WITH AMENDMENT**
From: Matt Stegman,
MD Staff Attorney

The Chesapeake Bay Foundation (CBF) **SUPPORTS Senate Bill 688 WITH AMENDMENT.** The bill would direct MDE to prioritize less intensive stormwater management practices over invasive in-stream construction practices (stream restoration). The bill would also disallow the awarding of mitigation credits for most in-stream construction projects.

"Stream Restoration" has become a popular tool for local governments to derive pollution reduction credits under their Municipal Separate Storm Sewer System (MS4) permits. Some of the same techniques are used in rural areas as part of farm best management practices aimed at improving ecological function of streams which have been degraded by various past legacy land uses such as mill dams, deforestation and tillage of adjacent fields. To date, the techniques and watershed positions of these project are highly variable as are their success in meeting restoration objectives.

As a common principle, it is better to treat pollution at its source rather than attempting to reverse damage done by upstream development runoff or altered hydrology. Without treatment of the root cause, stream restoration can cause more harm than good. However, when paired with treatment of the cause of stream degradation and with care toward minimizing the impact of the project on tree canopy and hydrology, stream restoration can be an effective tool in a broader watershed approach to restoration.

Currently, certain cost and pragmatic decisions limit the perceived feasibility of source reduction in favor of instream construction located on available properties offered by willing landowners or controlled by local government entities. These decisions may further reduce success in reaching restoration goals as well as give rise to unintended consequences such as loss of mature riparian forests and associated wildlife and recreational habitat, over-armoring of newly constructed stream channels, and increased water temperature and altered sediment geochemistry which could be toxic to sensitive fish and invertebrate species, among others.

While CBF agrees with the goal of de-emphasizing in-stream projects in favor of more cost-effective upland practices, we think that any efforts to change current mitigation crediting practices should be done in consultation with relevant stakeholders including scientists, practitioners, and regulators. We understand the aversion the General Assembly has shown in recent years to legislation directing the creation of issue studies, but feel that restoration practice crediting and weighting is a subject that would benefit from that type of focused, collaborative discussion that is often not possible during the legislative session.

CBF urges the Committee's FAVORABLE WITH AMENDMENT report on SB 688.

For more information, please contact Matt Stegman, Maryland Staff Attorney, at mstegman@cbf.org.

Response Letter to MD SB688.pdf

Uploaded by: Alexi Boado

Position: UNF

RE: OPPOSE SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

2/27/26

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Alexi Boado and I am a **watershed ecologist, former watershed manager for Washington DC DOEE** and longtime Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction.

This bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

The controversy created around stream restoration is being pushed by few individuals who don't understand the suite of tools required by jurisdictions to meet sediment reductions goals. The same controversy could be directed at wet ponds, dry ponds, underground detention facilities, street tree boxes and the massive industries that support them. None of them are perfect. They all require maintenance, monitoring, reengineering, perfecting.

- **In many developed and urban areas, upland stormwater controls alone are not enough <u>or they simply do not exist at a reasonable cost.</u> Please stop and consider that statement.**
- Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.
- **The bill ignores Maryland's own recent work to improve restoration outcomes.** The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—

not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Don’t limit the tools available to MS4 permittees.

Sincerely,

Alexi Sanchez de Boado

Hyattsville MD 20782 (PG County)

Lee C SB688 Position Statement.pdf
Uploaded by: Cooper Lee
Position: UNF

February 27, 2026

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Cooper Lee and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

C Lee

Cooper Lee
Silver Spring, Montgomery County, MD

SB0688_OCChamber_Thompson_UNF.pdf
Uploaded by: DENNIS RASMUSSEN
Position: UNF

2/27/2026 **SB0688**

Ocean City, Maryland
Chamber of Commerce
410-213-0144 info@oceancity.org
oceancity.org 12320 Ocean Gateway, Ocean City, MD 21842

TESTIMONY OFFERED ON BEHALF OF
THE GREATER OCEAN CITY MARYLAND CHAMBER OF COMMERCE

IN OPPOSITION TO:
SB0688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Before:
Senate Education, Energy and the Environment Committee
Hearing: 3/3/2026 at 1:00 PM

SB0688 requires the Department of the Environment to prioritize stormwater management practices that capture runoff at or near its source to promote infiltration and delay its release into streams, and to minimize disturbance to existing streams, floodplains, and surrounding forests. It also establishes significant restrictions on using stream restoration projects, which involve physically altering a stream's dimensions or profile with heavy equipment, to satisfy requirements for compensatory mitigation, municipal separate storm sewer system permits, or total maximum daily load (TMDL) requirements. Furthermore, any stormwater management plan that includes in-stream construction or mechanical alteration of a stream must first analyze non-stream-disturbing alternatives and demonstrate that these alternatives are infeasible, or that the stream project is necessary to address documented public safety or infrastructure issues that cannot be resolved otherwise. The bill also outlines specific criteria for authorizing stream and floodplain restoration projects, emphasizing the assessment of ecological benefits, community engagement, and the necessity of the project to address documented stream degradation that cannot be resolved by non-stream-disturbing methods, while prioritizing the preservation of intact ecological functions.

The Greater Ocean City Chamber of Commerce, representing more than 700 regional businesses and job creators, **IS OPPOSED TO HOUSE BILL 0988.**

SB0688 may impose excessive regulatory burdens on restoration projects, hindering timely implementation. It could also limit local flexibility in addressing unique environmental challenges specific to each region. Stakeholder engagement could be undermined, reducing community involvement in restoration initiatives. The mandated requirements may lead to increased costs, diverting funds from actual restoration efforts. The bill could lead to potential delays in project approvals and exacerbate existing environmental issues. Unfortunately, the focus on strict limitations might overlook innovative and adaptive restoration techniques.

For the above reasons, including the economic and operational impact **SB0688** would have on our small business community, the Greater Ocean City Chamber respectfully requests an **UNFAVORABLE REPORT on SB0688**. Please feel free to contact the Chamber directly on 410-213-0144 should you have any questions.

Respectfully submitted,

Amy Thompson
Amy Thompson
Executive Director
amy@oceancity.org

Bob Thompson
Bob Thompson
Legislative Committee Chair
bob@t1built.com

Senate Bill 688

Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

MACo Position: **OPPOSE**

To: Education, Energy, and the Environment Committee

Date: March 3, 2026

From: Dominic J. Butchko

The Maryland Association of Counties (MACo) **OPPOSES** SB 688. The bill would effectively prohibit the core stream restoration techniques counties rely on for watershed implementation planning, specifically those using heavy equipment to reshape or stabilize stream channels.

Counties strongly support sound watershed policy, environmental site design, and upstream stormwater practices whenever feasible. Stream restoration is often the only practical way to restore the health and function of a degraded stream, particularly in older or built-out watersheds where erosion, collapsing banks, incised channels, and failing infrastructure create immediate public safety and flooding hazards. Stream restoration can stabilize channels, reduce sediment and associated nutrient loads, protect roads and utilities, and help jurisdictions meet pollutant reduction obligations tied to Chesapeake Bay restoration.

SB 688 would substantially undercut that work by establishing restrictions that, in practice, eliminate stream restoration as an implementable tool. The bill prohibits MDE from approving heavy-equipment, in-stream channel restoration for compliance with a Municipal Separate Storm Sewer System (MS4) permit (a federal/state stormwater permit for local storm sewer systems), a Total Maximum Daily Load (TMDL) requirement (a pollution "diet" limiting pollutant loads to impaired waters, including Bay restoration targets), or compensatory mitigation requirements.

Even where projects could proceed, the bill conditions credit on a narrowly defined showing that non-stream-disturbing alternatives were "infeasible," while explicitly excluding cost, property ownership, and administrative practicality, constraints that often determine whether upland alternatives can actually be implemented.

Counties remain committed to partnering with the State on effective, science-driven restoration and resilience. But SB 688 would remove a primary, field-tested tool that counties rely on to restore degraded streams, address urgent flooding and erosion hazards, and meet Chesapeake Bay nutrient and sediment reduction goals. For these reasons, MACo respectfully urges the Committee to issue an **UNFAVORABLE** report on SB 688.

SB688 Written Testimony_Final.pdf
Uploaded by: Donald Dorsey
Position: UNF

SB0688 - Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

DATE:	March 3, 2026
COMMITTEE:	Senate Education, Energy, and the Environment Committee
POSITION:	Oppose
FROM:	Donald Dorsey, Stormwater Department Head, Division of Energy & Environment, Frederick County Government

Thank you for your consideration of **SB0688 - Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations**. As the Department of Stormwater in the Division of Energy & Environment in Frederick County, I urge the committee to give SB0688 a UNFAVORABLE report.

The proposed bill will halt all existing stream restoration projects associated with any National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit that requires restoring 10 percent of uncontrolled runoff within a five-year permit term. As part of the MS4 Permit's Maximum Extent Practicable (MEP) analysis, conducted prior to the issuance of all MS4 Phase I permits, stream restoration projects were identified as a key component of the County's comprehensive strategy to improve water quality and receive impervious surface restoration credits. These stream restoration projects are intended to improve water quality in local waterbodies that have been identified as severely degraded, with steep unvegetated vertical banks, or with County infrastructure assets that are exposed or threatened.

This legislation would prevent Frederick County from meeting its current MS4 Permit requirements and would likely result in consent decrees for failing to achieve its already challenging impervious surface restoration goals.

Frederick County has determined that when stream restoration is performed in conjunction with regenerative stormwater conveyance practices or stormwater pond retrofits, reductions in streambank erosion, improved connectivity with the stream's floodplain, and increased protection of assets are achieved. In Frederick County, degraded stream banks do not self-heal when they consist of 15-foot vertical banks with little to no vegetation. These exposed banks contribute nutrient-rich sediment through frost heave, negatively affecting the water body and suffocating critical aquatic habitat. Frederick County Studies have shown the value of stream restoration, particularly where instream structures can reduce flooding impacts and create new fish passages that allow species to migrate past existing road, sewer, or other infrastructure barriers. Frederick County has also received praise from communities experiencing severe stream degradation, and residents have expressed strong support for the County's efforts to improve water quality by using stream restoration as a key tool to halt continued degradation and prevent further uncontrolled tree loss.

Please see three examples of how this legislation would negatively impact Frederick County below:

- Example 1: Point of Rocks high hazard dam decommissioning and stream restoration - Frederick County utilized stream restoration practices to remove an existing high hazard dam in the Point of Rocks Community Park while receiving MS4 restoration credit. The stream restoration created storage within the stream channel that allowed the decommissioning of the high hazard dam, which prevented a four foot wall of water from potentially washing downstream across the heavily used Maryland State Route 28 and into the MARC Train station, thereby proactively protecting lives from a potentially catastrophic event. This project was widely praised and received Fiscal Year 2022 Congressionally Directed Spending support from United States Senator Ben Cardin, as well as funding from the Federal Emergency Management Agency's Building Resilient Infrastructure and Communities program to complete the stream restoration necessary to decommission the dam. The project also enabled the removal of an existing dwelling within the floodplain and provided additional wetland and riparian buffers along the restored stream reach. Residents immediately next to the stream corridor praised the return of water obligatory amphibians including green frogs, spring peepers, and bullfrogs. Nearby residents were also extremely concerned that the heavily eroded vertical stream banks were causing significant tree loss, leaving trees vulnerable to heavy winds and creating hazardous conditions where trees could fall unpredictably on or near their properties and the community park trails and fields. With the removal of the inline embankment in 2025, the County anticipates the reconnection of the anadromous native American Eel to this restored tributary.
- Example 2: Ballenger Creek Stormwater Pond retrofits and stream restoration – During the County's holistic feasibility study for the Ballenger Creek Community, several storm water ponds and three sections of stream were identified for restoration. The project is currently at the 60 percent design stage, where the stream restoration component will address an exposed sewer line created by multiple head cuts that are producing significant amounts of sediment. The design will also reconnect the floodplain to slow erosive flows and reduce the existing ten- to fifteen-foot vertical banks. The entire HOA community fully supports the need to provide stream restoration to protect the unraveling stream and ensure the sewer line is adequately protected to ensure no sewage leaking will occur.
- Example 3: Lower Monocacy Watershed Study - Windsor Knolls HOA. The Windsor Knolls HOA has expressed significant concern about the uniquely steep terrain within their community, which has caused extensive head cutting, a lack of vegetation on the stream banks, and substantial tree and sediment loss along their stream corridors downstream of existing storm water controls. Risks to the HOA's assets, infrastructure, and remaining trees continue to be at the forefront of their concerns. The HOA fully supports the need for stream restoration within their severely degraded stream valley, which will provide opportunities for the County to slow erosive forces, reestablish vegetated stream banks, and increase riparian canopy cover that has been reduced by undermined trees falling along the stream corridor.

Frederick County urges an unfavorable report on SB0688 because the bill would halt essential stream restoration projects that are required for compliance with the County's MS4 Permit and for meeting federally mandated water quality goals. Stream restoration is one of the County's most effective tools for reducing erosion, protecting infrastructure, restoring habitat, and addressing severely degraded stream systems that do not recover on their own. Residents across multiple communities have consistently voiced strong support for these projects because they see firsthand the benefits to safety, water quality, and long-term stream stability. Passing SB0688 would jeopardize public safety, undermine environmental progress, and expose the County to significant regulatory and legal consequences.

Thank you for your consideration of SB0688. On behalf of Frederick County Government, I urge a UNFAVORABLE report.

Donald Dorsey

Donald Dorsey
Department Head Stormwater
Division of Energy & Environment
Ddorsey1@frederickcountymd.gov
301-600-1416

Actaeon SB688 Position Statement.pdf
Uploaded by: Donna An
Position: UNF

Testimony in OPPOSITION of Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Education, Energy, and the Environment Committee
February 27, 2026

Dear Chair Feldman and Members of the Committee,

We appreciate the opportunity to submit testimony in **STRONG OPPOSITION of SB 688** on behalf of Actaeon, LLC. We are a minority, woman-owned *family business* experienced in the construction and maintenance of aquatic habitat and water resource projects, including streams and floodplains. At Actaeon, our goal is to restore our ecosystems to the highest environmental and professional standard while rooted in a strong ecological foundation. SB 688 significantly impedes the ability of Maryland's watershed protection communities and partners, including local governments, non-profits, and private companies, to protect and restore our natural resources and meet water quality standards that improve the health of the Chesapeake Bay. Furthermore, this bill directly undermines the Clean Water Act and Whole Watershed Act. By prohibiting the use of stream restoration projects towards meeting MS4 permit and Chesapeake Bay TMDL requirements, SB 688 is firmly disagreeing with federal regulations under the Clean Water Act that require state and local governments to utilize adaptive, whole watershed approaches which reduce nutrient and sediment loading. This bill also directly contradicts the Maryland Whole Watershed Act, which is based on science-driven facts that show us how paramount in-stream and floodplain restoration techniques are in Maryland's impaired and impervious watersheds. Ultimately, it is our position that this bill harms the Chesapeake Bay, all Maryland tributaries and our vibrant community and economy.

The Consequences of SB 688

SB 688's aim to limit stream channel restoration practices in Maryland and emphasis on non-stream-based stormwater management practices is misguided. While we recognize the importance of these stormwater management practices, these are often most effective in combination with stream channel alterations and on their own cannot attain the level of value that stream restorations hold. We perform restoration work in some of the most degraded and overdeveloped watersheds in Maryland and regularly observe extreme bank erosion, channel scour and gully formation. The cause is increasing rates of development which rapidly increases impervious surfaces and piped stormwater that overwhelm natural streams. It is a narrow opinion that the singular use of stormwater management practices built at the source of stormwater runoff (i.e., before it enters a stream) will have effects on existing streams that are severely degraded. Regardless of the use of a stormwater management practice, such as a pond, to capture some runoff, our streams will continue to experience flowing water. Given the state of our streams, evidence which points towards a future of more extreme storm events and rapidly increasing imperviousness in our catchments, these practices alone will NOT be sufficient to reduce nutrient and sediment loading. If this bill is enacted, inevitable overflow events at these BMPs will simply lead to continual erosion of existing streams. **We present to the Committee the ecological, human health and economic consequences of SB 688:**

- Increased rates of erosion throughout Maryland catchments which will:
    - Continue to lower stream bottoms which drain groundwater, limit recharge, and ultimately dry out land and worsen drought conditions; and
    - Destabilize all property types and increase the risk of erosion and flooding.

- Increased nitrogen, phosphorus and sediment loading in downstream systems including the Bay which will:
    - Increase the risk of harmful algal blooms;
    - Increase rates of disease for fish and other key members of food webs;
    - Significantly decrease dissolved oxygen, leading to massive die offs of organisms such as vegetation, fish, shellfish, and other important invertebrates;
    - Decrease light penetration and ultimately smother submerged aquatic vegetation and other important benthic organisms; and
    - Threaten water resource usage such as drinking water and recreational and industrial use.
- Degrade local habitat which will:
    - Threaten protected and endangered species, including migratory birds which are protected under federal law;
    - Significantly reduce biodiversity since in-stream restoration practices are proven to improve biodiversity, especially in degraded systems[1,2,3]; and
    - Decrease already struggling oyster[4] and blue crab yields via habitat degradation and poor water quality conditions leading to negative economic outcome.
- Decrease construction jobs, STEM training opportunities and remove an important local economic support of material and supplies businesses.[5,6,7]

SB 688 Lacks Broader Perspective

Given the breadth of water resource concerns, it is our opinion that this **bill does NOT account for the ability for in-stream restoration practices to mitigate the numerous threats to hydrological conditions and ecosystem and human health in Maryland posed by growing rate of development**. About 830,000 Maryland residents rely on private wells, which pull from groundwater, for their drinking water.[8] By impeding municipalities from being able to install in-stream restoration techniques and protect Maryland residents' access to groundwater, this bill is actively harming Maryland constituents. Under this bill, we will actively allow our stream channels to degrade and impact groundwater availability. This is not only an ecological issue, but a threat to human health since we rely on groundwater for drinking water and other uses. Furthermore, flooding was noted above as a major consequence of this bill. **Increasing the incidence of flooding**, especially in areas where this bill's stormwater BMP emphasis is less applicable (i.e., rural areas where in-stream and floodplain restoration are relevant and NEEDED), will **harm human safety and health**. Therefore, this bill is also in direct conflict with the 2023 Maryland Private Well Safety Act, which aims to protect Maryland residents' access to clean drinking water, especially those on the Lower Eastern

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[1] The State of the Science and Practice of Stream Restoration in the Chesapeake: Lessons Learned to Inform Better Implementation, Assessment, and Outcomes. (2024, November 4). *STAC Publication (Number 24-006)*. https://www.chesapeake.org/stac/wp-content/uploads/2024/11/STAC-Report_Stream-Restoration_24-006-1.pdf

[2] Protecting and restoring habitats to benefit freshwater biodiversity. (2023, July 23). *Environmental Reviews*. https://cdnsciencepub.com/doi/full/10.1139/er-2023-0034

[3] The role of stream restoration in enhancing ecosystem services. (2022, July 4). *Hydrobiologia*. https://link.springer.com/article/10.1007/s10750-022-04918-5

[4] Maryland oyster season collapse prompts calls for federal disaster aid. (2026, February 8). Baltimore Sun. https://www.baltimoresun.com/2026/02/08/maryland-oyster-season-collapse-disaster-relief/

[5] The Economic Case for Watershed Restoration. (2025, May 5). *Stroud Water Research Center*. https://stroudcenter.org/news/the-economic-case-for-watershed-restoration/

[6] Assessing the size and growth of the US wetland and stream compensatory mitigation industry. (2023, Sept 27). *PLOS One*. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0285139

[7] Socio-economic Benefits of Habitat Restoration. (n.d.). NOAA. https://media.fisheries.noaa.gov/dam-migration/factsheet_socioeconomic_benefits_habitat_restoration.pdf

[8] A Legislative Win for Marylanders Who Drink Private Well Water. *(2023, April 11)*. Center for Progressive Reform. https://progressivereform.org/cpr-blog/a-legislative-win-for-marylanders-who-drink-private-well-water/

Shore where nitrate levels are increasing due to agricultural land use[8]. Nitrate is not the only concern following flooding events (which are common in agricultural areas, especially on the Coastal Plain of Maryland)[8]. Bacterial contamination rates in private wells are exceedingly common.

In a similar vein, sewer overflow events and failing infrastructure are becoming increasingly common[9]. Maryland sewer infrastructure has historically been designed to integrate sanitary sewer overflows into the natural topography of our catchment basins to facilitate the conveyance of sewer overflow away from human populations. As such, many Maryland sewer pipelines eventually intersect with streams. A large component of urban stream restoration also includes the need to restore or mitigate sewer or water line issues within relevant catchment areas. These projects are paramount in protecting drinking water and repairing failing infrastructure. This bill will severely limit the ability of MDE to fund programs like WSSC Water's Sustainable Sewer Solutions (S3) Program which aims to "rehabilitate aging sewer infrastructure, decrease sanitary sewer overflows, and protect local waterways."[10] Ultimately, this bill will **harm the ability of the state of Maryland to protect ecological and human health**, and it **completely ignores the evidence-based, effective frameworks developed over decades by multitudinous numbers of scientists and professionals to protect and restore the Chesapeake Bay.**

Our Request

SB 688 is in conflict with the Clean Water Act, Maryland's Whole Watershed Act and Private Well Safety Act, threatens Maryland's already aging infrastructure and Maryland's restoration economy and ability to compete for federal funding, and would damage the human health and the health of the Chesapeake Bay demoting proven and effective science-supported restoration tools. For these reasons, we respectfully but vigorously urge the Committee to issue an **UNFAVORABLE report on SB 688.**

Respectfully submitted,

Donna An, PMP
Principal
Actaeon, LLC
4600 Powder Mill Road STE 450-C
Beltsville, MD 20705
202-630-7090 | admin@actaeongroup.com

[9] The latest updates from the Potomac Interceptor Sewage Spill. (2026, February 20). *Potomac Conservancy*. https://potomac.org/blog/2026/1/30/potomac-interceptor-sewage-spill-updates

[10] Sustainable Sewer Solutions (S3) Program. *(2026, January 21).* WSSC Water. https://www.wsscwater.com/S3-program#mc

An Personal SB688 Position Statement.pdf
Uploaded by: Donna An
Position: UNF

February 27, 2026

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Donna An and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Donna An
Silver Spring, Montgomery County, MD

SB0688 Opposition Letter_GreenVest_signed.pdf

Uploaded by: Douglas Lashley
Position: UNF

February 27, 2026

Re: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations – UNFAVORABLE

Thank you for the opportunity to provide written comments on Senate Bill 0688. GreenVest would like to register our strong opposition to this bill.

GreenVest is a small business headquartered in Prince George's County, with a nearly 20-year history of providing both economic and environmental benefit to the state. Our ownership team and employees are primarily Maryland residents, and GreenVest is deeply committed to pursuing sound policy in the state.

GreenVest is a developer of environmental assets: we find environmental needs, craft nature-based solutions to meet them, and fully-deliver resilient, self-sustaining, natural projects that are fully compliant with all local, state, and federal regulatory requirements. Over our history in Maryland, GreenVest has delivered extensive water quality mitigation work throughout the state, including stream restoration work as evidenced by the following list of accomplishments:

- Over 150,000 linear feet of stream created, restored, or enhanced
- Over 300 acres of habitat created, restored, enhanced, and preserved
- 25,322,212.91 pounds per year of suspended solids reduced
- 8,219.88 pounds per year of phosphorus reduced
- 20,846.27 pounds per year of nitrogen reduced

As a small business, GreenVest does not do this important work on our own. Each of our projects is implemented by a team of local businesses, from surveyors to engineers to landscapers to contractors and more, all of which employ Maryland residents. We use minority- and women-owned business enterprises on each of our projects, and work to help other small businesses get a foothold in the ever-growing green economy.

GreenVest's approach to environmental uplift, including stream restoration, allows us to provide exceptional value for our clients. We are very proud that our client list includes municipalities, counties, state government agencies, the federal government, and non-profit organizations. For our government clients, GreenVest's work saves taxpayer money, by bringing private-sector efficiency to publicly beneficial projects. Our work with non-profit clients allows local organizations to bring federal grant dollars into the state and accomplish environmentally beneficial projects that are more complex than the non-profit could do on its own.

Collectively, GreenVest's stream restoration projects have brought tens of millions of dollars of economic impact to Maryland, invested in small businesses and their employees.

SB 688 includes requirements that are unnecessarily duplicative of a suite of current Maryland Department of the Environment permit requirements, rules, and regulations that already effectively regulate stream restoration. In 2024 the General Assembly passed the Whole Watershed Act, which

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covered this same ground and added additional protections around stream restoration. SB 688's redundant provisions would take away our ability to implement projects that are good for our government clients, good for local small businesses, and good for the environment.

GreenVest is exceptionally proud of all the work we've accomplished in Maryland, especially our stream restoration work. Our Maryland staff is proud of the projects we've done to uplift our state's environment. We strongly urge an UNFAVORABLE report on SB 688.

Sincerely,

Douglas Lashley
Managing Member

Arundel Rivers
FEDERATION

PO Box 760 Edgewater, MD 21037
410-224-3802 www.arundelrivers.org

Testimony in OPPOSITION of Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Education, Energy, and the Environment Committee
March 3, 2026

Dear Chair Feldman and Members of the Committee,

Thank you for the opportunity to submit testimony in **OPPOSITION OF SB688**, on behalf of Arundel Rivers Federation. Deeply rooted in the South, West, and Rhode Rivers, Arundel Rivers Federation heals and protects our waterways and champions clean water across Maryland. Our vision is healthy waterways for all, and we achieve our mission through restoration, education and outreach, and Riverkeeper programs.

Today's streams are not what they once used to be. Developmental pressures have increased runoff so many of our streams have become incised, degraded, and have significantly reduced habitat value. What were once meandering streams or wetland complexes, are now eroding gullies with exposed, steep banks. Every time we have a large rain event, large amounts of stormwater runoff will rush down these pathways, carrying nutrient and sediment pollution to our waterways and further eroding the already degraded stream, draining wetland habitat, and even putting infrastructure at risk.

Stream restoration is a tool that repairs stream habitat, enhances public spaces, all while also benefiting downstream water quality. According to the Department of the Environment, the goals and objects for any stream restoration project include improving stream habitat, preventing erosion, restoring hydrology, reconnecting floodplains, reducing sediment and nutrient delivery downstream, improving water quality, removing invasives and replacing with riparian vegetation with natives, and re-establishing continuous stream channels. With the increasing threats from climate change and increasingly intense storms, stream restoration also works to protect public infrastructure, address flooding issues, and increase the overall resiliency of our communities. Additionally, this catalyst for environmental restoration is also a driver of local economies across our state. Setbacks to stream restoration would have direct economic impact on the engineers, construction workers, truck drivers, landscape professionals, quarry workers, and so many other local laborers that work on these projects every that in effort to reduce local pollution and create more resilient communities.

We have seen instances of large-scale stream restoration, often associated with mitigation work, resulting in excessive tree clearing. However, we have also seen many incredibly successful stream restoration practices that have resulted in minimal tree loss, biological uplift, increased community resilience, and reduced sediment loading downstream. **While SB688 has good intentions, it invertedly will make *all* stream restoration projects difficult to implement, halting voluntary projects that seek to provide improved habitat, public resources, resiliency, and downstream water quality implemented by non-profit partners.**

Arundel Rivers supported the Whole Watershed Act, passed by this Committee in 2024, which outlined new, rigorous standards for stream and floodplain restoration, which only recently took effect this past July. Arundel Rivers is eager to be a part of the discussion in evaluating these new standards and discussing if there is room for improvement after they have had time to be properly assessed.

Arundel Rivers Federation strongly supports the implementation of stream restoration practices that result in improved stream habitat and improved downstream water quality. **We have implemented numerous stream restoration projects on private and public lands – in community neighborhoods and public parks – within 15-minute driving distance from the Senate and we enthusiastically invite all members of this Committee to join us for a tour of any of them.** Arundel Rivers respectfully requests an UNFAVORABLE REPORT on SB688.

Sincerely,

Elle Bassett
South, West and Rhode Riverkeeper

Jennifer Carr
Director of Restoration

SB 688 - MoCo DEP - (GA 26) OPP.pdf

Uploaded by: Garrett Fitzgerald

Position: UNF

Montgomery County
Office of Intergovernmental Relations

ROCKVILLE: 240-777-6550 **ANNAPOLIS: 240-777-8270**

SB 688 **DATE: March 3, 2026**

SPONSOR: Senator M. Washington

ASSIGNED TO: Education, Energy, and the Environment

CONTACT PERSON: Garrett Fitzgerald (garrett.fitzgerald@montgomerycountymd.gov)

POSITION: Oppose (Department of Environmental Protection)

Environment - Stream and Floodplain Restoration Projects – Requirements and Limitations

Senate Bill 688 would prohibit the Maryland Department of the Environment (MDE) from allowing Municipal Separate Storm Sewer System (MS4) permit restoration and Total Maximum Daily Load (TMDL) credit for projects that involve in-stream construction. The bill also creates an unreasonable level of work to perform any in-stream work completed not for credit but for the protection of infrastructure or for public safety.

SB688 would prohibit MDE from approving stream restoration projects that rely on in-stream construction or the mechanical alteration of a stream unless non-stream-disturbing stormwater management practices have been evaluated and found to be technically infeasible. This language is inappropriately restrictive in requiring non-stream-disturbing stormwater management practices be employed first without consideration of costs, project feasibility, private property rights, and administrative convenience. Counties and MDE each have a responsibility in the public interest to deploy limited taxpayer resources cost-effectively and to comply with MS4 permit requirements and TMDL pollution reduction obligations. Many of the non-stream-disturbing stormwater management practices, such as upland green infrastructure, are significantly more expensive to implement than stream restoration (stream restoration costs approximately $80,000 per impervious acre vs $250,000 per impervious acre for green infrastructure). Restricting Montgomery County from using stream restoration to meet regulatory obligations would result in tens of millions of dollars in additional costs. Failure to meet these requirements could subject the County to fines, administrative penalties, and further mandatory restoration actions.

This bill also imposes new requirements for stormwater management plans associated with stream restoration projects. These requirements, including mandating full watershed studies considering non-stream-disturbing alternatives, would increase project planning costs and delay essential services to communities. Many stream restoration sites are experiencing severe erosion; delaying or complicating their restoration would not only place ecological resources at greater risk but also deprive surrounding communities of needed environmental and public safety improvements.

The use of stream and floodplain restoration are essential tools for recovering the hydrological and ecological functions of waterways that have been degraded over time by land development. These restoration approaches have been rigorously evaluated within the Chesapeake Bay watershed by multiple Chesapeake Bay Program Expert Panels, representing a broad cross-section of the scientific community.

We respectfully request that the Education, Energy, and the Environment Committee issue an unfavorable report on Senate Bill 688.

SRA Oppose SB688--Stream Restoration.pdf

Uploaded by: jesse iliff

Position: UNF

Severn River ASSOCIATION

It's a New Day at SRA!

Committee: **Senate Education, Energy and the Environment**
Legislation: **SB 688**
Position: **OPPOSE**
Date: **March 3, 2026**

Dear Chair Feldman, Vice Chair Kagan, and Members of the Committee:

Thank you for the opportunity to testify in opposition to SB688. Notwithstanding the well-intentioned attempt to encourage ecologically optimal restoration projects of the bill, the Severn River Association believes that reasonable safeguards currently exist to for stream project regulatory review, and that this bill:

- Is vague and would lead to misinterpretations and inconsistent enforcement;
- Would unreasonably curtail beneficial restoration practices; and
- Would make compliance with federal permitting mandates difficult if not impossible.

For these reasons, we request an unfavorable report.

1. **Stream Restoration projects are already subject to many of the bill's review requirements**

Many of the well intentioned and reasonable regulatory reviews called for in the bill are already in place. As noted in Appendix H of MDE's Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated[1]:

a. Stream restoration projects that are primarily designed to protect public infrastructure by bank armoring or rip rap do not qualify for MS4 credit;
b. Stream reaches proposed for restoration must be greater than 100 feet in length and be actively enlarging or degrading in response to upstream development or adjustment to previous disturbances in the watershed;
c. A qualifying project must meet certain presumptive criteria to ensure that high functioning portions of the urban stream corridor are not used for in-stream stormwater treatment, including one or more of:
    i. Geomorphic evidence of active stream degradation,
    ii. An IBI (i.e., index of biological integrity) of fair or worse
    iii. Hydrologic evidence of floodplain disconnection
    iv. Evidence of significant depth of legacy sediment in the project reach;
d. Before credits are granted, stream restoration projects will need to meet post-construction monitoring requirements; and
e. A qualifying project must demonstrate that it will maintain or expand existing riparian vegetation in the stream corridor, and compensate for any project related riparian losses in project work areas.

These provisions are designed to locate stream restoration projects in places that are actively eroding and already degraded, as well as establishing procedures to demonstrate efficacy and prevent

[1] MS4 Accounting Guidance FINAL 11 05 2021.pdf

P.O. Box 146, Annapolis, MD, 21404 · SevernRiver.org · info@severnriver.org · 410-774-0317

generation of permit credits for non-restorative work, and that any ecological losses resulting from the project are mitigated.

2. **The bill suffers from critically vague drafting**

SB688 intends to prohibit the use of "heavy equipment" in stream projects, but does not define this term, which could lead to absurd interpretations and arbitrary and inconsistent bureaucratic review processes. Exactly what type of equipment is too heavy? Would working within the stream channel be acceptable if an ATV were used to carry shovels to the work site? What about a Jeep? A mini-excavator? Does it follow from this prohibition that ten thousand laborers with hand tools trampling through the stream channel and disrupting the stream for ten times as long would be permissible?

3. **Stream restoration is a critical part of Chesapeake Bay restoration efforts**

Stream restoration projects are a critical piece of the overall Chesapeake Bay restoration effort. As the watershed is developed, more roads and buildings introduce greater and greater amounts of impervious surfaces to the watersheds of our creeks and streams. Consequently, the accelerated stormwater running off of these impervious surfaces carves streambeds deeper and deeper into their floodplains. This phenomenon of stream incision makes the streams not just vectors of pollution from upstream, but *sources* of pollution because heavy rain scours the streambanks away, eroding the stream deeper into the floodplain and delivering sediments and nutrients downstream. This phenomenon is especially pronounced in more heavily developed watersheds.

Stream restoration arrests this stream incision and erosion, and reconnects streams to their floodplains, allowing stormwater to spread out, slow down, and soak into the ground. In the process, restoration projects replenish wetland vegetation, create habitat for aquatic life, recharge the groundwater table, and deliver cooler, cleaner water to our rivers and the Bay. Additional co-benefits often include the eradication or reduction of invasive plant species, extensive planting of native species of plants, and creation or rehabilitation of walking trails to enhance public access and enjoyment of the restored streams.

4. **The bill would hamstring effective restoration work**

The bill would prevent permitting of stream restoration projects to meet requirements imposed by the Chesapeake Bay Total Maximum Daily Load (TMDL) or Municipal Separate Storm Sewer System (MS4) permits. Both the TMDL and MS4 programs are critical strategic pieces of the federal Clean Water Act and jurisdictions throughout the State rely on stream restoration practices (along with a suite of other restoration practices) to meet their permit requirements. The Severn River Association recognizes and appreciates that upland stormwater best management practices (BMPs) are another vital tool to be pursued to help improve the health of downstream waterways. However, as noted above, upland practices cannot fix streams that have been seriously degraded by decades or centuries of land uses that have rendered them sources of pollution in addition to vectors of pollution from these upland areas.

Moreover, the bill prohibits considerations of costs or property ownership when assessing the feasibility of implementing these hoped-for upland BMPs. This arbitrary proscription indicates a complete lack of experience with taking any type of restoration project from a mere idea to an actual investment in clean water. State agencies, local jurisdictions, and nonprofit partners that implement restoration practices of all types understand that one cannot build a restoration BMP without landowner permission. We understand that cost-efficiency matters when strategizing about how to restore a natural resource. Pretending that cost-efficiency and the legal right to perform work are irrelevant considerations will do nothing to help improve the health of the Chesapeake Bay or its rivers and streams and would instead stymie the efforts of countless environmental professionals who make restoring this resource their life's work.

Conclusion

We understand the intent behind this bill is to eliminate the type of net negative projects repeatedly pointed to by advocates against stream restoration, and we appreciate the benefits of upland BMPs for delivering clean water. However, SB688 is an overly blunt instrument to accomplish what is a technically nuanced objective better managed by the many expert panels convened by the Chesapeake Bay Program, the local civil servants who have implemented restoration projects within their jurisdictions for decades, and the State's environmental regulatory agencies, all of whom recognize that the vast majority of stream restoration projects deliver a net environmental benefit and are a critical part of the overall Chesapeake Bay restoration strategy. SB688 would rob practitioners of proven techniques for improving water quality, cripple the ability of local governments to meet federal permit requirements, and ensure that massive amounts of pollution from degraded streams continues to flush into the Bay and its rivers.

For these reasons, we respectfully urge the Committee to issue an unfavorable report on SB688.

Respectfully submitted,

Jesse L. Iliff
Executive Director
Severn River Association
jesse@severnriver.org

FINAL SB 688_HB 1465 Stream and Floodplain Restor

Uploaded by: Jordan Baucum Colbert

Position: UNF

THE MARYLAND-NATIONAL CAPITAL
Park and Planning Commission

POSTION STATEMENT

Bill: HB SB 688/ HB1465 Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: OPPOSE **Date:** March 3, 2026

Contact: Debra Borden, General Counsel

Jordan Baucum Colbert, Senior Government Affairs Analyst

Dear Chair Brian Feldman,

The Maryland-National Capital Park and Planning Commission ("M-NCPPC" or the "Commission") has voted to oppose this bill.

What this Bill Does. This bill requires the Department of the Environment to prioritize certain practices when carrying out certain duties related to stormwater management; establishing certain restrictions on the use of a stream or floodplain restoration project to satisfy certain compensatory mitigation, MS4 permit, or total maximum daily load requirements; establishing requirements for stormwater management plans that include certain stream–related projects. It also alters certain responsibilities of the Department related to the review and assessment of stream and floodplain restoration projects.

This bill proposes that Stream Restoration projects would not be approved for compliance with MS4 permits, TMDL requirements, or Compensatory Mitigation. This would effectively remove one of the most important land management tools that we utilize in our stream valleys to restore them from degradation caused by decades of upstream development.

- In our most recent Phase II NPDES MS4 Permit, stream and outfall restoration projects accounted for 60% of the credits toward our 20% Impervious Surface Restoration Requirement. Future permit requirements will be much more expensive to implement if stream restoration is not in our toolbox, and the resulting effort would be less effective in managing the health and integrity of our aquatic resources. The practices that would

Office of the General Counsel
6611 Kenilworth Avenue, Suite 200, Riverdale, Maryland 20737
301.454.1670 tel.

replace stream restoration would not only be exponentially more expensive to install, but also would require routine operational maintenance in perpetuity, further stressing our already tight operational budget.

- Montgomery Parks benefits greatly from the implementation of stream restoration projects on parkland that fulfill MS4, TMDL, and Compensatory Mitigation requirements for outside agencies.
- The bill proposes that projects involving in-stream construction undertake an alternatives analysis to justify the use of stream work over other stormwater management practices. This costly and laborious exercise would be triggered for stream restoration projects as well as bridge, culvert, and trail projects that are completed on parkland to provide stabilization where the stream is influenced by this infrastructure. Stream restoration is a critical tool for the Department to manage a stream valley park system where our ownership is often limited to the outfalls of storm drain systems. When presenting the justification for an instream approach, the definition of infeasible does not consider cost or property ownership, which raises the concern that no stream restoration project would be permitted if this bill passes. While there may be infrastructure protection and rehabilitation projects that would be able to proceed, it would not be without additional costs and delays.
- Montgomery Parks is supportive of installing upstream stormwater management practices that capture and manage stormwater runoff at and near the source. However, the existing damage to our stream valleys cannot be reversed with the installation of upstream stormwater management practices alone. Stream restoration is an essential tool for the ecological health of our Parks.

Overall, this bill appears to have the goal of minimizing stream restoration projects implemented by public agencies and jurisdictions, as well as developers. The negative environmental and financial impacts from this bill will be widespread and particularly burdensome to our stream valley park system.

We therefore urge this committee to give an unfavorable report on SB 688.

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301.454.1670 tel.

JVA_Crew Response SB688.pdf
Uploaded by: Jose Vera
Position: UNF

Testimony in OPPOSITION of Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Education, Energy, and the Environment Committee
February 27, 2026

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Jose Vera Arroyo and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**. I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water requirements.

I built my career on the construction of stream and floodplain restorations. I specifically chose this career path instead of college in order to support my family and develop a strong profession in something I believe in. I am proud of the meaningful work that I perform and the functional systems that I build. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment, including myself and my family. Maryland has been a leader in stream restoration that many states look to for advanced science and techniques.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination via flooding—costs that fall directly on homeowners.

For all of these reasons, I plead with you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,
Jose Vera Arroyo

Response Letter to MD SB688_LiamOdean.pdf
Uploaded by: Liam Odean
Position: UNF

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Liam Odean, and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting

local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Liam Odean
Baltimore City

2026-02-27 MAMSA Ltr OPP SB 688.pdf
Uploaded by: Lisa Ochsenhirt
Position: UNF

MARYLAND MUNICIPAL STORMWATER ASSOCIATION

February 27, 2026

The Honorable Brian J. Feldman
Chair, Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
Annapolis, MD 21401

Re: OPPOSE -- SB 688 (Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations)

Dear Chair Feldman:

On behalf of the Maryland Municipal Stormwater Association (MAMSA), I am writing to **OPPOSE** SB 688, which would prohibit the Maryland Department of the Environment (MDE) from allowing any pollution reduction credits associated with a stream restoration project by itself (p. 6, l. 1-3), add requirements to stormwater management plans involving in-stream construction or the mechanical alteration of a stream (p. 7, l. 1-11), and tighten the requirements for stream and floodplain restoration under the Whole Watershed Act (MD Code ENV. Title 18, Stream and Floodplain Restoration Projects) (p. 11, l. 7-13; p. 12, l. 16 - p. 13, l. 3) which the General Assembly passed just two years ago.

MAMSA is an association of the State's local governments and leading stormwater consultant firms who work for clean water and safe infrastructure based on sound science and good public policy.

MAMSA strongly supports stream restoration projects as a tool to help recover the hydrological and ecological functions of streams that have been damaged over time by land development. These projects have been thoroughly vetted in the Chesapeake Bay Watershed by multiple Chesapeake Bay Program Expert Panels that represent a broad scientific community. MAMSA Members stand by the implementation of these projects based on their positive impacts to the natural environment.

MAMSA Members rely on having stream restoration projects as an option as they seek to comply with MDE-issued municipal separate storm sewer system (MS4) permits. The 11 large and medium MS4 permittees, the 35 small municipal MS4 permittees, and dozens of state and federal permittees must all comply with mandatory restoration requirements meant to reduce nutrients and sediment to the Chesapeake Bay. Legislation that strips permittees of this option or increases the requirements associated with these projects (e.g., adding requirements for a stormwater management plan to consider non-stream-disturbing stormwater management practices) will not only **drive up costs**, which are paid by **your constituents and our citizens**, but will deprive local communities of needed improvements to these stream corridors.

For these reasons, MAMSA urges the Committee to vote **NO** on SB 688. Please feel free to contact me with any questions at Lisa@AquaLaw.com or 804-716-9021.

Sincerely,

Lisa M. Ochsenhirt
MAMSA Deputy General Counsel

cc: Education, Energy, and the Environment Committee Members, SB 688 Sponsor

2026-02-27 MAMWA Letter OPP SB 688.pdf

Uploaded by: Lisa Ochsenhirt

Position: UNF

Maryland Association of Municipal Wastewater Agencies, Inc.
Washington Suburban Sanitary Commission
14501 Sweitzer Lane, 7th Floor
Laurel, MD 20707
Tel: 301-206-7008

February 27, 2026

The Honorable Brian J. Feldman
Chair, Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
Annapolis, MD 21401

Re: OPPOSE -- SB 688 (Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations)

Dear Chair Feldman:

On behalf of the Maryland Association of Municipal Wastewater Agencies (MAMWA), I am writing to **OPPOSE** SB 688, which would add requirements to stormwater management plans involving in-stream construction or the mechanical alteration of a stream (p. 7, l. 1-11).

MAMWA is a statewide association of local governments and wastewater treatment agencies that serve approximately 95% of the State's sewered population. Many of MAMWA's members also operate a public water system. MAMWA Members often seek approval for drinking water and wastewater capital projects that involve in-stream construction.

SB 688 would add requirements to projects if stormwater management plan approval is required. For example, a MAMWA Member working in and around a stream would need to provide "a reasonable range of non-stream-disturbing stormwater management practices capable of achieving the project objectives;" (p. 7, l. 7-9). Not only is this pointless for a project that is needed to supply potable drinking water and that must occur in and around a stream, but it would result in delays in submitting plans, delays in plan approval, and higher project costs. MAMWA questions whether the financial burden borne by our wastewater and drinking water customers and your constituents would provide any environmental benefit.

For these reasons, MAMWA urges the Committee to vote **NO** on SB 688. Please feel free to contact me with any questions at Lisa@AquaLaw.com or 804-716-9021.

Sincerely,

Lisa M. Ochsenhirt
MAMWA Deputy General Counsel

cc: Education, Energy, and the Environment Committee Members, SB 688 Sponsor

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations – UNFAVORABLE

As a Maryland resident with over 20 years experience in stormwater management, watershed protection, and ecological restoration, I strongly oppose SB 688. The proposed legislation would significantly limit the ability of local government, nonprofit partners, and private sector partners to conduct work to meet federal water quality obligations and Chesapeake Bay restoration goals. If enacted, SB 688 will add significant challenges and more expense for Maryland to meet its share of Bay TMDL reductions, and will slow or stall restoration in the exact same urban and suburban streams that are known to deliver pollution to the Bay. From a Bay-health perspective, this bill is a significant step backward at the precise moment Maryland should be doubling down on what works.

SB 688 is not grounded in the best available science or best management practices in the industry today. Removing, or even deprioritizing, stream restoration as an effective practice in Maryland's watershed management toolbox would be shortsighted and environmentally detrimental. SB 688 would significantly decrease the capacity to improve the environmental quality of degraded creeks and streams in Maryland, increase nutrient and sediment pollution, and hamper outcomes desired by this Committee and the General Assembly, who have repeatedly advocated for the health of Maryland's rivers and the Chesapeake Bay. This bill is not just misguided policy; it is affirmatively harmful to Bay health. Furthermore, it is out of step with the Clean Water Act and the Whole Watershed Act. Taken together, the provisions in SB 688 would delay, discourage, or effectively shut down many restoration projects that are already delivering, or poised to deliver, water-quality benefits. SB 688 offers no credible alternative strategy to meet Maryland's Clean Water Act and Bay obligations.

SB 688 would also inflict economic harm on Maryland's environmental restoration economy. The State has built a recognized coalition of specialized practitioners, engineering firms, nonprofit implementers, environmental consultants, monitoring scientists, and nursery and materials suppliers whose livelihoods depend on watershed restoration work. By categorically prohibiting the use of stream and floodplain restoration for MS4, TMDL, and compensatory mitigation compliance, which are the very regulatory drivers that create demand for these services, SB 688 threatens jobs, contracts, and the institutional capacity that Maryland has spent years cultivating. Moreover, the bill jeopardizes Maryland's ability to compete for and draw down federal restoration funding. Programs administered by the U.S. Environmental Protection Agency, National Fish and Wildlife Foundation, USDA Natural Resources Conservation Service, and other federal partners prioritize states and localities that demonstrate regulatory certainty, credible implementation plans, and alignment with Chesapeake Bay TMDL commitments. SB 688's restrictions and uncertainty send exactly the wrong signal to federal funders, putting Maryland at a significant disadvantage relative to states that maintain flexible, science-based approaches to restoration.

In total, SB 688 is out of alignment with the Clean Water Act's watershed-based implementation framework, conflicts with the Whole Watershed Act's science-driven restoration vision, contradicts MDE's own 2024 Ecological Restoration Study findings and recommendations, threatens Maryland's restoration economy and federal funding competitiveness, and would do real damage to Chesapeake Bay health by sidelining effective, science-supported restoration tools. For these reasons, I respectfully but strongly urge the Committee to issue an UNFAVORABLE report on SB 688. Thank you for your consideration.

Matt Weber
3100 Taylor Street
Mount Rainier, MD 20712
mattdweber@gmail.com
202-553-8063

Response Letter to MD SB688.pdf
Uploaded by: Megan Gaesser
Position: UNF

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Megan Gaesser, and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements. I have dedicated my career to studying and building functional streams and aquatic systems that protect our waterways and reduce pollution. I understand the importance of utilizing stormwater BMPs at the source of pollution – but it **is not accurate to assume that stormwater BMPs are enough to limit the spread and effect of pollution. Given the broad sources of pollution and diversity in chemical structures and their impacts on ecosystems and human health, it is paramount that we utilize every tool we have to mitigate these dangerous pollutants. Stream and floodplain restoration is an essential tool that has been proven effective in Maryland.**

Especially in developed and urban areas, upland stormwater controls alone are insufficient. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this **bill would affect drinking water, private wells, and groundwater availability**. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real **economic consequences**. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment, including myself. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Megan Gaesser

Harford County, MD Resident

SB 688_MTBMA_UNF.pdf
Uploaded by: Michael Sakata
Position: UNF

MTBMA
MARYLAND TRANSPORTATION
BUILDERS AND MATERIALS ASSOCIATION

Senator Brian J. Feldman
Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
Annapolis, MD 21401

March 3, 2026

RE: SB 688 – UNFAVORABLE – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Committee:

The Maryland Transportation Builders and Materials Association ("MTBMA") has been and continues to serve as the voice for Maryland's construction transportation industry since 1932. Our association is comprised of 250 members. MTBMA encourages, develops, and protects the prestige of the transportation construction and materials industry in Maryland by establishing and maintaining respected relationships with federal, state, and local public officials. We proactively work with regulatory agencies and governing bodies to represent the interests of the transportation industry and advocate for adequate state and federal funding for Maryland's multimodal transportation system.

Senate Bill 688 would require the Department of the Environment (MDE) to prioritize certain practices in stormwater management and impose limits on how and when stream or floodplain restoration projects can satisfy environmental requirements. The bill also changes how MDE reviews and assesses these restoration projects.

MTBMA opposes SB 688 because the bill will increase costs, reduce flexibility, and create additional hurdles for infrastructure projects. By narrowing when and how stream and floodplain restoration projects can be used to satisfy environmental requirements, such as compensatory mitigation, stormwater permit compliance, or Total Maximum Daily Load (TMDL) obligations, the bill removes an important compliance option that many projects currently rely on under existing law. Under SB 688, a restoration project cannot qualify for use in lieu of other requirements unless non-stream alternatives are first evaluated and found infeasible and the project demonstrates measurable ecological uplift through post-construction monitoring — criteria that are undefined and difficult to meet in practice. This change will slow permitting, create uncertainty, and limit the ability of engineers and project designers to select the most practical and cost-effective compliance methods for a given project.

For these reasons, MTBMA urges an unfavorable report on SB 688.

Thank you,

Michael Sakata
President and CEO
Maryland Transportation Builders and Materials Association

MVA_Crew Response SB688.pdf
Uploaded by: Miguel Vera
Position: UNF

Testimony in OPPOSITION of Senate Bill 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Education, Energy, and the Environment Committee
February 27, 2026

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Migel Vera Arroyo and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**. I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water requirements.

I built my career on the construction of stream and floodplain restorations. I specifically chose this career path instead of college in order to support my family and develop a strong profession in something I believe in. I am proud of the meaningful work that I perform and the functional systems that I build. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment, including myself and my family. Maryland has been a leader in stream restoration that many states look to for advanced science and techniques.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination via flooding—costs that fall directly on homeowners.

For all of these reasons, I plead with you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,
Migel Vera Arroyo

SB 688.pdf
Uploaded by: Nancy Almquist
Position: UNF

From: **Nancy Almquist** nancyalmquistsoprano@gmail.com
Subject: SB 688
Date: February 27, 2026 at 5:46 PM
To: Maryland General Assembly

Dear Sir/Madame,

I am writing to oppose consideration of bill SB 688 which would restrict environmental restoration of unhealthy streams in our state (Maryland). The health of streams depends upon financial support guaranteeing clean water in rivers and streams throughout the state feeding into the Chesapeake Bay.

Sincerely yours,
Nancy Almquist

SB 0688 Comment from EIP.pdf
Uploaded by: nicholas dilks
Position: UNF

5550 Newbury Street
Baltimore, MD 21209
www.ecosystempartners.com

February 27, 2026

The Honorable Brian Feldman, Chair

The Honorable Cheryl Kagan, Vice Chair

Members of the Senate Education, Energy, and Environment Committee

Dear Chair Feldman, Vice Chair Kagan, and Members:

I write in opposition to SB 0688 and request an unfavorable report.

My name is Nick Dilks, and I am a Founder and Managing Partner of Ecosystem Investment Partners (EIP). I am proud to say both our company headquarters and my home are in Senator Mary Washington's District in Baltimore City.

Founded in 2006, EIP is a private investment manager and one of the nation's leading providers of large-scale environmental restoration and conservation outcomes. Over the past 20 years, EIP has invested over $1 billion of institutional capital in nature-based solutions including wetland and stream restoration, endangered species habitat conservation, and water quality improvement projects nationwide. In our home state of Maryland, EIP has invested over $25 million in stream and wetland restoration projects that significantly reduce nonpoint source water pollution of the Chesapeake Bay watershed while supporting economic growth and creating lasting environmental value for local communities.

SB 0688 proposes to essentially ban stream restoration projects. We find this troubling for several reasons:

First, after an extensive study and debate with a large group of stakeholders three years ago, the legislators who co-chaired the Committee sponsored the Whole Watershed Act which embraces a science-driven, "all of the above" strategy in a limited number of priority watersheds, directing resources "where they'll have the greatest impact, with the ultimate goal of restoring impaired streams and removing them from the federal impaired waters list once water quality standards are met." SB 688 moves in the opposite direction: it elevates one narrow category of practice (upland stormwater controls) while sidelining in-stream and floodplain restoration techniques that are often indispensable in built-out catchments with minimal upland retrofit opportunities. That is inconsistent with the Whole Watershed Act's core intent and will make it harder to deliver measurable improvements in impaired waters. To address the concerns around stream restoration techniques, the WWA included several sections of conditions, prohibitions and requirements for citizen involvement that applicants for stream restoration projects have to meet to be granted permits. The landscape is still settling in on all these requirements so it is premature to consider yet another proposal like SB 0666.

Second, SB 0688 stream restoration is one of the most essential US EPA credited practices to curtail sediments and nutrients from flowing into Chesapeake Bay waters from impaired streams. The Bay TMDL focuses on state-by-state goals to reduce sediments and nutrients from Bay waters. We all know

Ecosystem Investment Partners

5550 Newbury Street
Baltimore, MD 21209
www.ecosystempartners.com

that the major states have yet again failed to achieve these goals. Eliminating one of the most important and scalable pollution-reducing practices, stream channel restoration is a move in the wrong direction. We need more tools, not fewer, to achieve the TMDL goals.

Third, far from improving environmental protection, SB 688 would make it harder to restore degraded creeks and streams, reduce nutrient and sediment pollution, and deliver the outcomes this Committee and the General Assembly have repeatedly said they want for Maryland's rivers and the Chesapeake Bay. Stream restoration in Maryland is a strategic, science-based investment that repairs degraded waterways, protects communities, and restores the health of the Chesapeake Bay. Most of Maryland's streams eventually flow into the Bay, carrying sediment from eroding stream banks and polluted runoff from urban development and agriculture, degrading water quality and threatening habitat. Stream restoration addresses this problem at its source by returning stream channels to a natural form and function, reconnecting streams to their floodplains, and restoring natural habitat structure so that sediment and nutrient pollution are trapped on the floodplain rather than delivered downstream. In doing so, restoration projects not only create healthier streams and a cleaner Chesapeake, but also rebuild resilient ecosystems where native plants and wildlife can thrive, and nearby homes, roads, and utilities are better protected from flooding and erosion.

Fourth, SB 688 would directly conflict with the permitting requirements of Section 404 of the federal Clean Water Act, which mandates mitigation for unavoidable impacts to streams in Maryland. Under the "*Maryland Stream Mitigation Framework Version 1, Final Manual for Stream Impact and Stream Mitigation Calculation,"* issued by the U.S. Army Corps of Engineers' Baltimore District in September 2023, viable compensatory mitigation projects must include some component of stream channel enhancement and/or restoration. Preservation of existing high-quality streams may be used as a component of a larger mitigation package, but **preservation alone cannot satisfy compensatory mitigation requirements or meet the Clean Water Act's no-net-loss provisions**. Accordingly, if SB688 were to prohibit stream channel restoration and/or enhancement as compensatory mitigation activities in Maryland, stream mitigation projects would be unable to comply simultaneously with federal Section 404 requirements and state-level prohibitions. In practice, this conflict would impede, if not effectively halt, the issuance of Section 404 permits for projects with stream impacts, thereby delaying or preventing associated economic development and public infrastructure projects that depend on such permits.

We thank you for taking the above into account as each of you decide how to vote on this Bill.

Sincerely,

Nicholas Dilks
Managing Partner

BRANDON M. SCOTT
MAYOR

Office of Government Relations
88 State Circle
Annapolis, Maryland 21401

SB0688

March 3, 2026

TO: Members of the Senate Education, Energy, and the Environment Committee

FROM: Nina Themelis, Director, Mayor's Office of Government Relations

RE: Senate Bill 688 - Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

POSITION: OPPOSE

Chair Feldman Vice Chair Kagan, and Members of the Committee, please be advised that the Baltimore City Administration (BCA) **opposes** Senate Bill (SB) 688**.**

SB 688 establishes new requirements and limitations for stream and floodplain restoration projects related to stormwater management. The bill requires the Department of the Environment to prioritize non-stream-disturbing stormwater management practices, limits when in-stream restoration projects may be used to satisfy permit, mitigation, or total maximum daily load requirements, and establishes additional planning, review, and monitoring requirements for projects involving stream or floodplain alteration. The bill also enhances public notice, assessment, and long-term monitoring standards to ensure ecological protection and measurable environmental benefits.

The Baltimore City Administration acknowledges the importance of stream restoration projects as a tool for preserving and restoring the ecological functions of streams that have been degraded by land development and urbanization. Currently, stream restoration projects are subject to rigorous scientific review and oversight, including evaluation under Chesapeake Bay Program protocols, and remain an approved and effective option for compliance with Maryland Department of the Environment requirements and Municipal Separate Storm Sewer System (MS4) permits.

SB688 would significantly limit the use of these projects by adding new requirements and restrictions on instream restoration, including expanded alternatives analyses and higher approval thresholds. These changes would increase projects costs, delay implementation, and create additional fiscal challenges for local governments.

As an MS4 permittee, Baltimore City is required to meet watershed restoration obligations intended to reduce nutrient and sediment pollution to the Chesapeake Bay. Stream and floodplain restoration projects play a critical role in meeting these requirements, particularly in urban environments.

Additionally, existing sections of State law already govern the approval and oversight of stream restoration projects. Currently the language in SB 688 does not clearly result in substantive improvements to environmental outcomes related to these projects. Instead, the bill conflicts with existing science-based systems that already determine how pollution-reduction credit is earned through comprehensive pre-project assessments, established design standards, and long-term post-construction monitoring requirements.

These systems ensure that stream restoration projects are implemented only where appropriate, designed to maximize ecological benefits, and verified through years of monitoring. By adding overlapping and potentially conflicting requirements, SB688 would complicate existing guidance without clearly improving environmental protection.

For these reasons we respectfully request an **unfavorable** report on SB688.

SB0688 - LOO - SHA - Environment - Stream and Floo
Uploaded by: Nora Corasaniti
Position: UNF

MARYLAND DEPARTMENT OF TRANSPORTATION

Wes Moore
Governor
Aruna Miller
Lieutenant Governor
Kathryn Thomson
Acting Secretary

March 3, 2026

The Honorable Brian J. Feldman
Chair, Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
Annapolis, MD 21401

RE: Letter of Opposition – SB 688 – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Committee Members:

The Maryland Department of Transportation (MDOT) opposes Senate Bill 688 and offers the following information for the Committee's consideration.

SB 688 restricts the Maryland Department of the Environment (MDE) from approving stream or floodplain restoration projects for compensatory mitigation purposes, imposes new stormwater management plan requirements that include stream-related projects, and limits local government approvals of such plans. These provisions would have significant consequences for the State Highway Administration (SHA) and are summarized below.

<u>Wetland and Waterway Permitting</u>

The US Environmental Protection Agency (EPA) indicates "A large amount of funding for stream restoration is related to compensatory mitigation required as part of Clean Water Act, Section 404 permits issued by the US Army Corps of Engineers. As part of a Section 404 permit authorizing impacts to streams in one location, the Section 404 permit may require the permittee to conduct stream restoration or enhancement activities in a nearby stream to compensate or offset the loss of stream functions at the permitted impact site."

SB 668 would effectively prohibit SHA from obtaining wetland and waterway permits for projects requiring stream mitigation, as it would be impossible to simultaneously satisfy both State and federal compensatory mitigation requirements. Stream mitigation is a science-based solution for effectively reducing sediment loads to provide compensatory mitigation. Any SHA project triggering stream mitigation thresholds could not be constructed without reducing impacts below the stream mitigation threshold, resulting in the cancellation or delay of highway safety and critical infrastructure projects currently programmed in the Consolidated Transportation Program.

<u>Municipal Separate Storm Sewer System (MS4) Permit Compliance</u>

SHA's current MS4 permit (No. 24-DP-3313 MD0068276) requires restoration of impervious surface acres across 15 Maryland counties, with 4,092 acres to be completed by August 21, 2030.[i] Stream restoration is a critical and approved strategy for meeting this obligation – particularly where project rights of way limit other options.

Among other requirements, by excluding cost from the definition of "infeasible," SB 688 would effectively eliminate SHA's ability to earn MS4 credit for stream restoration projects, forcing a costly shift to alternative Best Management Practice types. SHA estimates this transition would increase Transportation Trust Fund expenditures by $20 million if stream restoration is shifted to outfall stabilization, and upward of $640 million if stream restoration is shifted to stormwater management over the current permit cycle. That's up to $160 million per year – not including right of way acquisition costs.

The MDOT's capital program is already fully subscribed; therefore, to account for the increased costs associated with the limitations and requirements proposed by SB 688, SHA would have to redirect funding from other project commitments to these stormwater projects. This would significantly reduce the number of critical safety and infrastructure investments in SHA's capital program.

The Maryland Department of Transportation respectfully requests the Committee consider this information during its deliberation of Senate Bill 688 and issue the bill an unfavorable report.

Respectfully submitted,

April Moeller
Director
Office of Government Affairs
Maryland State Highway Administration
410-210-5780

Matthew Mickler
Director
Office of Government Affairs
Maryland Department of Transportation
410-865-1090

[i] https://mde.maryland.gov/programs/water/StormwaterManagementProgram/pages/storm_gen_permit.aspx

Response Letter to MD SB688.pdf
Uploaded by: Nora Snyder
Position: UNF

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Nora Snyder and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to strongly **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting

local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Nora Snyder

Nora Snyder
Prince George's County, MD

Schiller Response Letter to MD SB688 (1).pdf
Uploaded by: Oliver Schiller
Position: UNF

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Oliver Schiller, and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting

local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Oliver Schiller
Montgomery County, MD

MD Trout Unlimited UNFAVORABLE findings of SB688.p
Uploaded by: Rich Dennison
Position: UNF

A Trout Unlimited Gold Chapter

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations – UNFAVORABLE

On behalf of over 400 members of Maryland Trout Unlimited, we strongly oppose SB 688. As a cold-water conservation organization, Trout Unlimited recognizes the significant degradation our waterways have incurred since Post-Colonial Development (Jacobsen and Coleman 1986) and have seen firsthand the habitat and water quality improvements created by stream restoration across the country, including locally on the property of River Valley Ranch and the Eccleston Mitigation sites in Baltimore County, Maryland. These projects have increased habitats for cold-water species like our native Brook Trout and wild Brown Trout populations, as well as many bird, mammal, and amphibian species. SB 688 disregards many of the positives of stream restoration projects and appears to be written from a narrow, biased perspective that is ignorant of practical considerations and the overall state of the science on stormwater and ecological restoration. Implementation of stormwater and stream restoration together has proven beneficial where development has impacted our watersheds.

From our work with local government partners, we recognize that SB 688 eliminates tools and strategies for those teams to meet water quality obligations, significantly reducing Maryland's ability to meet environmental commitments under the federal Clean Water Act and the Chesapeake Bay Watershed Implementation Plan. This bill will result in fewer projects, that are more expensive and less effective at removing sediment from our waterways.

Sediment is one of the most important contributors to impairment within the Chesapeake Bay Watershed, impacting light penetration, altering stream bed morphology, and degrading aquatic habitat such as SAV beds. Research has found that erosion of upload sources and stream corridors are among the largest sources of sediment in the Bay, with studies finding that stream banks can contribute over 50 percent to the fine-grained suspended sediment load in certain tributaries. Studies have found that stream restoration projects successfully improve bank stability, reduce total suspended solids, increase floodplain connectivity and nutrient processing, and improve aquatic habitat, all of which support meeting goals of reducing downstream sediment and pollutant loads.

While a variety of stormwater control measures can reduce runoff and peak discharges, they often do not consider sediment transport dynamics thus leading to channel instability over time. Thomson et al. (2018) performed a study in Montgomery County, Maryland to compare the impacts of different types of stormwater management on watershed hydrology and channel stability. Coupling a calibrated hydrologic and hydraulic model with a sediment transport model, the study revealed that infiltration practices aid hydrologic control and reduce long-term rates of erosion, but channel degradation continues regardless of the level of implemented stormwater management.

Our members recognize SB 688 is harmful to the health of the Chesapeake Bay. The bill likely represents the vision of short-sighted individuals, upset about the short-term loss of trees near their homes, not focused on long-term health of our waterways. We strongly recommend the Committee to issue an unfavorable report on SB 688.

Sincerely,

Rich Dennison

Vice President, Maryland Chapter of Trout Unlimited

References

Jacobsen, R. and D. J. Coleman. 1986. Stratigraphy and recent evolution of Maryland Piedmont floodplains. American Journal of Science 286: 617-637.

Thompson et al. 2018. The multi-scale effects of stream restoration on water quality. Ecological Engineering. 124:7-18.

SB 688 Opposition Letter (2026).pdf
Uploaded by: Rory Murray
Position: UNF

RE: SB688/HB1465 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations – UNFAVORABLE

On behalf of the American Council of Engineering Companies of Maryland (ACEC/MD) and the Chesapeake Watershed Restoration Professionals (CWRP), whose member firms design, implement, monitor, and steward restoration and stormwater projects across the State, we strongly oppose SB688/HB1465. The bill would strip away science-based tools that local governments and nonprofit partners currently rely on to meet water quality obligations, directly undercutting Maryland's commitments under the federal Clean Water Act, the Whole Watershed Act, and the Chesapeake Bay restoration framework.

Our organizations work on the ground in some of Maryland's most impaired and overdeveloped watersheds. Far from improving environmental protection, SB688/HB1465 would make it harder to restore degraded creeks and streams, reduce nutrient and sediment pollution, and deliver the outcomes this Committee and the General Assembly have repeatedly said they want for Maryland's rivers and the Chesapeake Bay. In our view, this bill is not just misguided policy; it is affirmatively harmful to Bay health.

This letter lays out the fundamental issues with this bill in the following order:

- **Conflict with The Revised Chesapeake Bay Watershed Agreement**
- **Conflict with federal law.**
- **Conflict with the Whole Watershed Act**
- **Contradicts the Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study, completed pursuant to Chapter 465 of 2022**
- **This bill is bad for Chesapeake Bay Health**
- **Current Science: What It Actually Says About Stream Restoration**
- **Harm to Maryland Companies**
- **Harm to Compensatory Mitigation**

Overview

Stream restoration in Maryland is a strategic, science-based investment that repairs degraded waterways, protects communities, and restores the health of the Chesapeake Bay. Most of Maryland's streams eventually flow into the Bay, carrying sediment from eroding stream banks and polluted runoff from urban development and agriculture, degrading water quality and threatening habitat. Stream restoration addresses this problem at its source by stabilizing and reshaping eroding banks, reconnecting streams to their floodplains, and restoring natural habitat structure so that sediment and nutrient pollution are trapped on the floodplain rather than delivered downstream. In doing so, restoration projects not only create healthier streams and a cleaner Chesapeake, but also rebuild resilient ecosystems where native plants and wildlife can thrive, and nearby homes, roads, and utilities are better protected from flooding and erosion.

These environmental gains translate directly into economic value for Maryland. Analyses of the Chesapeake Clean Water Blueprint estimate that fully implementing Bay restoration will increase the total annual value of the watershed's natural benefits to nearly $130 billion, including an additional $4.6 billion per year in ecosystem service value for Maryland alone. Maryland's own "Return on Environment" assessment finds that the state's streams, wetlands, forests, and coastal waters already provide about $11.4 billion in benefits each year, including nearly $6 billion annually in stormwater and flood protection and about $2 billion from recreation and wildlife-related value. Stream and wetland restoration are key practices within this portfolio: every dollar invested in source water protection can save many times that amount in downstream treatment costs, and restoration projects that slow and safely convey stormwater help avoid billions in long-term infrastructure repairs and flood damages. In short, healthy streams are not just an environmental priority; they are a core piece of Maryland's economic resilience strategy, aligning with new tools like the Whole Watershed Act to deliver measurable, transparent benefits for both communities and the Bay.

Conflict with The Revised Chesapeake Bay Watershed Agreement

Stream work is central to how the new commitments in the revised Chesapeake Bay Watershed Agreement that Governor Moore and the other Bay leaders approved in December 2025, will be met. The agreement's clean water objectives focus on reducing nitrogen, phosphorus, and sediment loads by 2040, which translates on the ground into projects like stabilizing eroding streambanks, reconnecting floodplains, and retrofitting local drainage so less polluted runoff reaches the Bay. Likewise, its habitat and brook trout outcomes are explicitly tied to improving conditions in headwater streams, including cooler temperatures, better in-stream structure, and reconnecting fragmented reaches. In practice, that means states will rely heavily on stream and riparian restoration as core implementation tools to achieve the pollution-reduction and habitat targets embedded in the new agreement.

Conflict with Federal Law

SB688/HB1465 would directly conflict with the permitting requirements of Section 404 of the federal Clean Water Act, which **mandates mitigation** for unavoidable impacts to streams in Maryland. Under the "Maryland stream mitigation framework version 1, final manual for stream impact and stream mitigation calculation," issued by the U.S. Army Corps of Engineers Baltimore District in September 2023, **viable compensatory mitigation projects must include some component of stream channel enhancement and/or restoration.** Preservation of existing high-quality streams may be used as a component of a larger mitigation package, but preservation alone cannot satisfy compensatory mitigation requirements or meet the Clean Water Act's no-net-loss provisions.

Accordingly, if SB688/HB1465 were to prohibit stream channel restoration and/or enhancement as compensatory mitigation activities in Maryland, stream mitigation projects would be unable to comply simultaneously with federal Section 404 requirements and state-level prohibitions. **In practice, this conflict would impede, if not effectively halt, the issuance of Section 404 permits for projects with stream impacts**, thereby delaying or preventing associated economic development and public infrastructure projects that depend on such permits.

Out of Step with the Clean Water Act and the Whole Watershed Act

The federal Clean Water Act, MS4 permits, and Chesapeake Bay TMDL explicitly rely on a portfolio of best management practices, upland, floodplain, and in-stream, to reduce nitrogen, phosphorus, and sediment loads to levels that meet water quality standards. SB688/HB1465 would categorically prohibit the use of many in-stream restoration practices for MS4, TMDL, and compensatory mitigation compliance, even where site conditions make these the only practical way to stabilize channels, reconnect floodplains, and intercept legacy sediment and nutrients. That rigid prohibition is fundamentally at odds with the adaptive, watershed-based implementation approach that federal law expects states and localities to use.

The General Assembly's own Whole Watershed Act embraces a science-driven, "all of the above" strategy in a limited number of priority watersheds, directing resources "where they'll have the greatest impact, with the ultimate goal of restoring impaired streams and removing them from the federal impaired waters list once water quality standards are met." SB688/HB1465 moves in the opposite direction: it elevates one narrow category of practice (upland stormwater controls) while sidelining in-stream and floodplain restoration techniques that are often indispensable in built-out catchments with minimal upland retrofit opportunities. That is inconsistent with the Whole Watershed Act's core intent and will make it harder to deliver measurable improvements in impaired waters.

New “post Whole Watershed” Requirements

The Whole Watershed Act requirements create multiple layers of environmental protection, public oversight, and long-term accountability that ensure stream restoration projects deliver genuine ecological benefits while respecting community concerns and existing natural resources. These requirements make it virtually impossible for poorly conceived projects to proceed, while still allowing science-based restoration of truly degraded waterways.

Enhanced Public Engagement and Transparency

Mandatory Community Notification: All projects must provide written notice to every residence and business within 200 feet of the project boundary at 30% design completion. This early notification allows neighbors to understand and respond to proposals before designs are finalized.

Required Public Meetings: At 60% design completion, applicants must hold in-person public meetings with virtual attendance options, ensuring all community members can participate regardless of schedule or mobility constraints.

Online Transparency: Within 24 hours of application submission, applicants must post the complete application, notification of submission, and submission date on their website—creating a permanent public record.

Comprehensive Environmental Assessment Requirements

Biological Function Assessment: All projects must demonstrate degradation through Maryland Biological Stream Survey protocols or equivalent MDE-approved methodologies. Projects cannot proceed in healthy streams, restoration is only authorized where ecological degradation is documented.

Multi-Parameter Analysis: Projects require assessment of both biological function (Benthic Index of Biotic Integrity scores) AND geomorphic/hydraulic parameters (lateral stability, floodplain connectivity, bank erosion rates). This dual-track approach ensures comprehensive evaluation.

Forest Protection Requirements: Applicants must provide Forest Stand Delineations identifying every tree to be removed, demonstrate efforts to avoid specimen trees (30+ inches diameter), use best management practices to minimize tree loss, and clearly depict Limits of Disturbance and Limits of Clearing on all design drawings.

Riparian Best Practices: All projects must follow the *Maintaining Forests in Stream Corridor Restoration* best practices guide, including site selection avoiding high-quality habitats, protection of mature trees, minimized construction footprints, and comprehensive replanting plans using native species.

Co-Benefits and Holistic Watershed Approach

Mandatory Co-Benefit Analysis: Applications must detail how projects incorporate wildlife habitat creation, aquatic resource restoration, carbon sequestration, climate resilience, public health improvements, and recreational access.

Watershed Context Required: Projects associated with MS4 permits or TMDL goals must submit watershed planning documentation demonstrating the project location is a restoration priority within a holistic watershed management strategy that includes both upland and in-stream practices.

Functional Uplift Requirement: Applicants must provide narrative and tabular descriptions of expected ecological improvements, quantifying anticipated changes to vegetation, hydrology, aquatic life, wildlife habitat, and water quality. Projects must demonstrate net overall resource improvement.

Long-Term Accountability Through Monitoring

Five-Year Monitoring Mandate: All authorized projects require post-construction monitoring for at least five years, with periodic reports documenting stream stability, floodplain function, and vegetation viability.

Adaptive Management: Monitoring reports must detail any corrective actions taken to ensure continued ecological performance, creating accountability for long-term success rather than "build and abandon" approaches.

Dedicated State Review: MDE's Wetlands and Waterways Program maintains a specialized team of two engineers and a natural resources planner who exclusively review restoration projects, ensuring expertise-driven evaluation distinct from development project review.

Protection of Sensitive Resources

Avoidance Requirements: Projects must avoid large native plant communities, specimen trees, State-listed rare and threatened species, wetlands of special State concern, temperature-sensitive streams, and high-quality vegetative communities.

No-Degradation Standard: Any resource conversions must not result in adverse impacts to significant wetlands, sensitive species habitat, ambient thermal regimes, or existing water quality parameters.

Spring Flow Protection: Projects must maintain existing spring flows to stream channels and adjacent wetlands.

MDE's Own Study Contradicts SB688/HB1465

The Committee should also be aware that the Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study, completed pursuant to Chapter 465 of 2022 and transmitted to the Governor and General Assembly, directly undercuts the premise of SB688/HB1465. MDE's comprehensive review, based on two years of stakeholder consultation, comparison with other Mid-Atlantic states, and an extensive literature review, recognizes that current science on ecological restoration shows "mixed results" across techniques and outcomes, and therefore calls for clearer definitions, streamlined and more holistic permitting, and better monitoring and staff training, not for categorical statutory prohibitions on stream and floodplain restoration.

Importantly, the Study does not identify any pattern of systemic complaints, violations, or enforcement problems with Maryland's stream and floodplain restoration program; instead, it focuses on process improvements, regulatory clarity, and alignment with the Whole Watershed Act and federal permitting tools. SB688/HB1465 ignores these findings and recommendations, substitutes anecdote for evidence, and moves policy in the opposite direction of MDE's own science-based, stakeholder-driven roadmap for making restoration more effective and accountable.

This is Bad for Chesapeake Bay Health

Chesapeake Bay Program partners have made progress reducing sediment and nutrients, but they remain behind on key nitrogen and phosphorus goals and rely on a full suite of watershed restoration practices, including stream restoration and floodplain reconnection, to close the remaining gap.[1] The Bay Program's expert panel on stream restoration concluded that qualifying projects can receive annual mass nutrient and sediment reduction credit because they prevent channel and bank erosion that would otherwise send pollutants downstream.[2] SB688/HB1465 directly attacks this proven pathway by forbidding the use of many stream restoration projects for credit and compliance, and by making it procedurally difficult to build them at all.

If enacted, SB688/HB1465 will make it harder and more expensive for Maryland to meet its share of Bay TMDL reductions, and will slow or stall restoration in exactly the urban and suburban streams that deliver pollution to the Bay. It would also undermine recent

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[1] Quick Reference Guide for Best Management Practices. (n.d.-a). https://www.chesapeakebay.net/files/documents/BMP-Guide_Full.pdf

[2] Recommendations of the expert panel to define removal rates for. (n.d.-b). https://www.chesapeakebay.net/files/documents/stream_panel_report_final_08282014.pdf

state and philanthropic investments in whole-watershed restoration pilots, which are premised on using the most effective mix of upland and in-stream interventions, not on pre-emptively disqualifying entire categories of science-supported practice. From a Bay-health perspective, this bill is a step backward at the precise moment Maryland should be doubling down on what works.

MDE's 2024 Ecological Restoration Study confirms that the right response to evolving science is to refine design standards, monitoring, and community engagement, not to eliminate major categories of restoration work that the Study explicitly seeks to support through clearer definitions, streamlined permits, and holistic evaluation. SB688/HB1465 would upend a program that MDE is actively improving and aligning with the Whole Watershed Act and Chesapeake Bay restoration goals.

Current Science: What It Actually Says About Stream Restoration

The scientific literature and recent Chesapeake-focused work show that, when properly designed and sited, stream and floodplain restoration can:

- Reduce concentrations of nutrients, salts, and metals as water flows through restored reaches; a recent longitudinal synoptic monitoring study across five watersheds found that as streams flowed through restoration features with floodplain reconnection, concentrations of nutrients, salts, and metals significantly declined or remained unchanged, whereas in unrestored streams with increasing impervious cover, salt ions increased.[3]
- Produce observable decreases in contaminants of concern downstream of restored reaches; work on Paint Branch Creek in Maryland documented water-quality improvements that persisted up to 200 meters below restoration activities.[4]
- Decrease sediment and nutrient loads in specific projects and case studies, with estimated post-restoration reductions in sediment on the order of hundreds of tons per year and measurable phosphorus and nitrogen reductions in modeled analyses.[5,6]

At the same time, recent synthesis reports underscore that outcomes vary and that projects must be designed, monitored, and evaluated carefully to maximize ecological lift and water-quality benefits over time.[7,8] A major synthesis of more than 600 river and stream

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[3] Longitudinal stream synoptic (LSS) monitoring to evaluate water quality improvements from stream restoration. (2024, April 8). *PubMed*. https://pubmed.ncbi.nlm.nih.gov/38592553/

[4] U.S. Environmental Protection Agency. (2024, August 22). Tracking downstream water quality benefits of urban stream restoration. https://assessments.epa.gov/risk/document/&deid=362499

[5] Stream Restoration as a Method of Improving Local Water Quality. (2019, December 14). *University of Richmond Scholarship Repository*. https://scholarship.richmond.edu/cgi/viewcontent.cgi?article=1038&context=environmentalstudies-seniorseminar

[6] Thompson, J., et al. (2018). The multiscale effects of stream restoration on water quality. *Ecological Engineering*, 124, 7-18. https://cbtrust.org/wp-content/uploads/Thompson_etal_2018_EcoEng_124_p7-18_Multiscale_effects_of_stream_restoration_on_water_qua

[7] U.S. Geological Survey. (2024, November 3). The state of the science and practice of stream restoration in the Chesapeake: Lessons learned to inform better monitoring, adaptive management, and optimization. https://www.usgs.gov/publications/state-science-and-practice-stream-restoration-chesapeake-lessons-learned-inform-better

[8] Chesapeake Bay Program Scientific and Technical Advisory Committee. (2024, November 3). The State of the Science and Practice of Stream Restoration. https://www.chesapeake.org/stac/wp-content/uploads/2024/11/STAC-Report_Stream-Restoration_24-006-1.pdf

restoration projects worldwide in the *Annual Review of Ecology, Evolution, and Systematics* finds that restoration has become a core tool for both ecological recovery and utilitarian goals such as water quality and climate resilience, but that success depends on restoring underlying processes and scaling efforts to the watershed, not on abandoning in-stream and floodplain work altogether.[9] The authors explicitly criticize over-reliance on purely morphological "channel-rebuild" projects and call for better design, monitoring, and functional goals, exactly the kind of refinement the General Assembly has already begun through the Whole Watershed Act and MDE's 2024 Ecological Restoration Study, and the opposite of SB688/HB1465's categorical prohibitions. The appropriate response to this science is to refine design standards, monitoring, and siting, not to enact a sweeping statutory ban on using in-stream restoration for Clean Water Act compliance and Bay credit. SB688/HB1465 does the latter, ignoring both the promise and the lessons of current science in favor of a blunt, one-size-fits-all restriction.

Floodplain Reconnection Studies Show Consistent Water Quality Improvements

Floodplain wetlands and connected riparian corridors created or enhanced through stream restoration act as powerful sinks for watershed sediment and nutrients, giving these projects enormous upside for water-quality improvement and TMDL implementation.[10,11,12,13] Craft and Casey showed that floodplain and depressional wetlands in Georgia accumulate substantial sediment and associated nitrogen and phosphorus over time, demonstrating the long-term pollutant-burial capacity that restoration seeks to harness. Fluvial modeling by Hardy, Bates, and Anderson further demonstrates that inundated floodplains are preferential zones for suspended-sediment deposition, confirming that reconnecting channels to their floodplains increases trapping efficiency during overbank events. In humid tropical basins, Gellis found that storm-generated suspended-sediment loads are strongly influenced by land use and hydrologic response, underscoring how strategically placed floodplain and wetland restoration can intercept high-energy storm pulses that would otherwise export large sediment and nutrient loads downstream. Complementing this process understanding, Noe and Hupp quantified that Coastal Plain floodplains retain large fractions of incoming riverine sediment and nutrient loads, especially where frequent inundation and broad floodplain surfaces are present conditions that are explicitly recreated by modern stream restoration designs.

Conversely, where channels have been straightened or incised and disconnected from their floodplains, the system loses this critical ecosystem service, sending sediment and nutrients downstream instead of storing them on the floodplain.[14,15] Kroes and

[9] Palmer, M. (n.d.). Ecological restoration of streams and rivers: Shifting strategies and shifting goals | annual reviews. https://www.annualreviews.org/content/journals/10.1146/annurev-ecolsys-120213-091935
[10] Craft, Curtis B., and William P. Casey. 2000. "Sediment and Nutrient Accumulation in Floodplain and Depressional Freshwater Wetlands of Georgia, USA." *Wetlands* 20 (2): 323–32.
[11] Gellis, Allen C. 2012. "Factors Influencing Storm-Generated Suspended-Sediment Concentrations and Loads in Four Basins of Contrasting Land Use, Humid-Tropical Puerto Rico." *Catena*.
[12] Hardy, Richard J., Paul D. Bates, and Michael G. Anderson. 2000. "Modelling Suspended Sediment Deposition on a Fluvial Floodplain Using a Two-Dimensional Dynamic Finite Element Model." *Journal of Hydrology* 229: 202–18.
[13] Hupp, C. R., G. B. Noe, E. R. Schenk, and A. J. Benthem. 2013. "Recent and Historic Sediment Dynamics along Difficult Run, a Suburban Virginia Piedmont Stream." *Geomorphology* 180–81: 156–69.
[14] Jacobson, Robert, and Thomas Faust. 2014. "Hydrologic Connectivity of Floodplains, Northern Missouri: Implications for Management and Restoration of Floodplain Forest Communities in Disturbed Landscapes." *River Research and Applications* 30: 269–86.
[15] Kroes, Daniel E., and C. Randel Hupp. 2010. "The Effect of Channelization on Floodplain Sediment Deposition and Subsidence along the Pocomoke River, Maryland." *Journal of the American Water Resources Association* 46 (4): 686–99.

Hupp showed that channelization of the Pocomoke River sharply reduced floodplain inundation, leading to diminished sediment deposition, enhanced subsidence, and greater downstream sediment delivery, precisely the degradation that restoration aims to reverse by re-establishing overbank flow. Work on Difficult Run in suburban Virginia demonstrated that both historic and recent sediment dynamics include substantial floodplain storage when connectivity is present, indicating that even developed watersheds can regain significant trapping capacity through reconnection. Jacobson and Faust's study of northern Missouri floodplains further highlighted that hydrologic connectivity governs not only forest community structure but also the functioning of floodplain processes, reinforcing that frequent, moderate flooding is essential for restoring ecosystem services along managed rivers. Building on these site-scale findings, Noe and colleagues developed regional predictions of floodplain and streambank geomorphic change, sediment and nutrient fluxes, and catchment inputs and exports for Chesapeake Bay and Delaware River stream reaches, showing that well-sited restoration in geomorphically favorable locations can measurably reduce loads at the watershed scale.[16]

SB688/HB1465's Specific Provisions Are Unworkable and Harmful

Several provisions in SB688/HB1465 are particularly problematic:

- The bill prohibits MDE from approving specified "stream restoration" projects that involve in-stream heavy equipment and mechanical alteration of the stream's dimensions, pattern, or profile for MS4, TMDL, or compensatory mitigation purposes, effectively removing a major category of tools from the restoration toolbox regardless of site conditions or design quality.
- It defines "infeasible" in a way that forbids consideration of cost, property ownership, or administrative convenience, disregarding the basic reality that easements, right-of-entry, landowner willingness, and funding constraints often determine whether upland retrofits are even possible.
- It requires an alternatives analysis and prohibits local approval of plans that rely primarily on in-stream work unless non-disturbing practices are evaluated and found "infeasible" and the in-stream project is needed to address public safety or infrastructure challenges, relegating ecological restoration, habitat, and water quality to second-class considerations.
- It bars using project completion alone as the basis for pollution-reduction or mitigation credits and restricts acceptable evidence of "functional lift," creating uncertainty about crediting under existing Chesapeake Bay Program protocols that already recognize stream restoration as a BMP when it meets defined criteria.

Taken together, these provisions would delay, discourage, or effectively shut down many restoration projects that are already delivering or poised to deliver water-quality benefits, while offering no credible alternative strategy to meet Maryland's Clean Water Act and Bay obligations. For nonprofits and on-the-ground practitioners, the bill would divert limited capacity into process fights and paperwork instead of building the projects communities urgently need.

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[16] Noe, Gregory B., and C. Randel Hupp. 2009. "Retention of Riverine Sediment and Nutrient Loads by Coastal Plain Floodplains." *Ecosystems* 12: 728–46.

Harm to Maryland’s Economy

SB688/HB1465 would also inflict significant economic harm on Maryland's robust restoration economy. The State has built a recognized cluster of specialized practitioners, engineering firms, nonprofit implementers, environmental consultants, monitoring scientists, and nursery and materials suppliers whose livelihoods depend on watershed restoration work. **All of these practitioners choose to work in Maryland, and want to see the Bay thrive!** By categorically prohibiting the use of stream and floodplain restoration for MS4, TMDL, and compensatory mitigation compliance, the very regulatory drivers that create demand for these services, SB688/HB1465 threatens jobs, contracts, and the institutional capacity Maryland has spent years cultivating.

Moreover, the bill jeopardizes Maryland's ability to compete for and draw down federal restoration funding. Programs administered by the U.S. Environmental Protection Agency, National Fish and Wildlife Foundation, USDA Natural Resources Conservation Service, and other federal partners prioritize states and localities that demonstrate regulatory certainty, credible implementation plans, and alignment with Chesapeake Bay TMDL commitments. SB688/HB1465's restrictions and crediting uncertainty send exactly the wrong signal to federal funders, putting Maryland at a competitive disadvantage relative to Virginia, Pennsylvania, and other Bay states that maintain flexible, science-based approaches to restoration. At a time when billions in federal infrastructure and climate resilience dollars are available, Maryland cannot afford to sideline the very tools and practitioners needed to secure those investments and put them to work restoring our waterways.

Harm to Compensatory Mitigation

SB688/HB1465 would also unintentionally weaken Maryland’s ability to use compensatory mitigation as a practical, lawful bridge between environmental protection and economic development. By effectively forcing local governments and permittees to rely almost exclusively on upland stormwater controls, the bill undercuts a mature framework in which stream and floodplain restoration projects, mitigation banks, and **in-lieu fee programs all work together to keep priority transportation, housing, and infrastructure projects on schedule** while still meeting Clean Water Act and state wetland and waterways requirements. In many built-out watersheds, upland stormwater retrofits alone are not technically feasible at the needed scale; categorical limits on in-stream and floodplain tools will not prevent growth, but they will make it slower, more expensive, and less predictable, as projects struggle to secure sufficient mitigation in the right place and at the right time.

The Committee should also understand that compensatory mitigation is not a niche environmental program; it is an established market and implementation system that channels private and public capital into restoration industries, rural land conservation, and long-term resilience. SB688/HB1465’s prohibitions sever the link between that restoration economy and the very permits and funding streams that sustain it, threatening jobs and institutional capacity at the same time it makes it harder to deliver the on-the-ground projects that protect communities from flooding and erosion.

Finally, by narrowing compensatory mitigation to a small set of upland stormwater controls and sidelining in-stream and floodplain work, SB688/HB1465 would make Maryland less competitive for federal water-quality, resilience, and infrastructure funding that assumes states will deploy a full suite of best management practices, including stream and floodplain restoration where appropriate. Federal programs seek credible, watershed-based implementation strategies that integrate upland stormwater controls with in-channel and floodplain reconnection to maximize pollution reduction and resilience benefits; a statutory scheme that pre-emptively takes key tools off the table will inevitably put Maryland at the back of the line. For counties, municipalities, and private partners trying to move lawful projects forward while protecting waterways, compensatory mitigation, properly regulated and monitored, is an economic development tool, not an obstacle, and SB688/HB1465 would sharply diminish its effectiveness.

Conclusion

SB688/HB1465 does not follow the science, is out of alignment with the Clean Water Act's watershed-based implementation framework, conflicts with the Whole Watershed Act's science-driven restoration vision, contradicts MDE's own 2024 Ecological Restoration Study findings and recommendations, threatens Maryland's restoration economy and federal funding competitiveness, and would do real damage to Chesapeake Bay health by sidelining effective, science-supported restoration tools. For these reasons, we respectfully but emphatically urge the Committee to issue an UNFAVORABLE report on SB688/HB1465.

Stream Before After_CWRP_2026.pdf
Uploaded by: Rory Murray
Position: UNF

STREAM RESTORATION – *Before & After*

Collington Branch – The Need for Stream Restoration

Chesapeake Watershed Restoration Professionals CWRP

The photos show pre-restoration conditions, demonstrating the clear need for stream restoration. This project will include upland stormwater management components.

Little Paint Branch Tributary Stream Restoration – The Need for Stream Restoration

Chesapeake Watershed Restoration Professionals
CWRP

The photos show pre-restoration conditions, demonstrating the clear need for stream restoration including deeply incised stream banks. This project will include upland stormwater management components.

Bacon Ridge Branch Stream Restoration – Pre-Restoration Conditions

These photos demonstrate the severely degraded condition of these streams and the need for restoration.

Note the deep incision and vertical banks. Streams were actively eroding from both bed incision and bank widening, due to intensive historic land use.

The large headcuts destroyed one critical pedestrian bridge used for access and severely threatened two others. The conditions also posed a safety hazard to the camp run on-site.

Bacon Ridge Branch Stream Restoration

Photos depict the stream system before (left) and after (right) restoration. The restoration corrected deep incisions and reconnected the stream to its floodplain. This project uplifted water quality, restored a large forested floodplain (hydrology and vegetation), provided educational opportunities, and restored breeding habitat for yellow perch.

Bacon Ridge Branch Stream Restoration

These photos show the stream corridor before (top) and after (bottom) restoration. The stream was realigned and reconnected with its floodplain.

Note the surgical construction technique that maximized tree conservation and forest restoration.

Bacon Ridge Branch Stream Restoration – Biological Uplift

The restored stream and floodplain generated uplift in local biodiversity, including Forest Interior Dwelling Species (“FIDS”) and yellow perch breeding activity, among others. Restoring the stream within the forested system enhanced the habitat for these species.

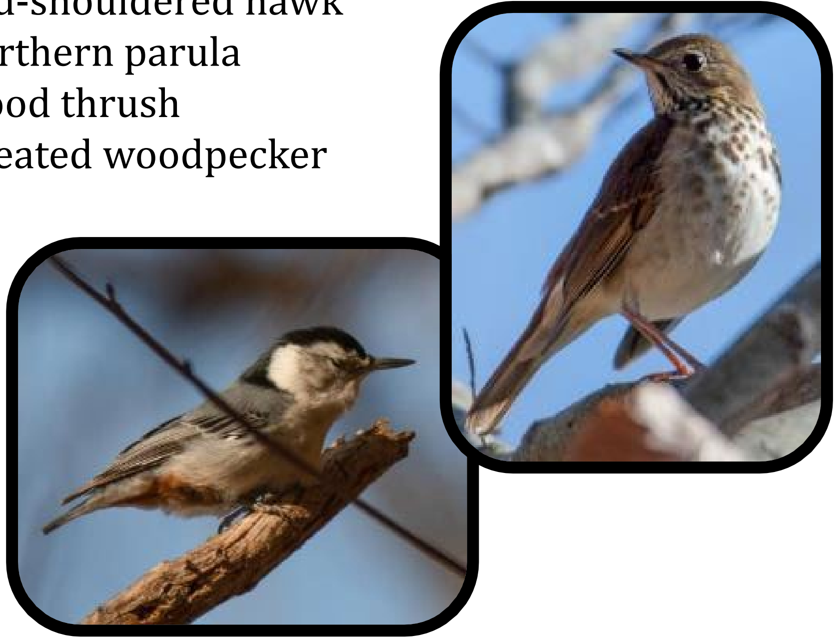
Species Observed Post-Construction

- Great blue heron
- Mallard and wood duck
- Red-tailed hawk
- Wild turkey
- Bald eagle
- Spring peeper
- Two lined salamander
- Wood frog
- American toad
- Eastern ratsnake
- Snapping turtle
- Box turtle
- Copperhead snake
- Beaver
- White-tailed deer
- Racoon
- Fish throughout project area

Two lined Salamander (top), Yellow Perch Egg Mass (middle), and Beaver Activity (bottom)

FIDS Observed Post-Construction

- Barred owl
- Red-shouldered hawk
- Northern parula
- Wood thrush
- Pileated woodpecker



White-breasted Nuthatch (left) and Wood Thrush (right)

Tinkers Creek Stream Restoration

Photos show this stream reach before (left) and after (right) restoration. The truck shown was removed along with tons of other garbage and debris. The stream was stabilized, realigned, and restored habitat structure and function. The project protected built infrastructure and reduced the flood surface elevation in the project corridor.

Tinkers Creek Stream Restoration

Photos depict the stream system before (left) and after (right) restoration. The restoration reduced planned impacts and installed a grade control to reduce erosion. The channel aggraded upstream as a result and is now functioning as a stable wetland complex.

Muddy Creek Stream Restoration

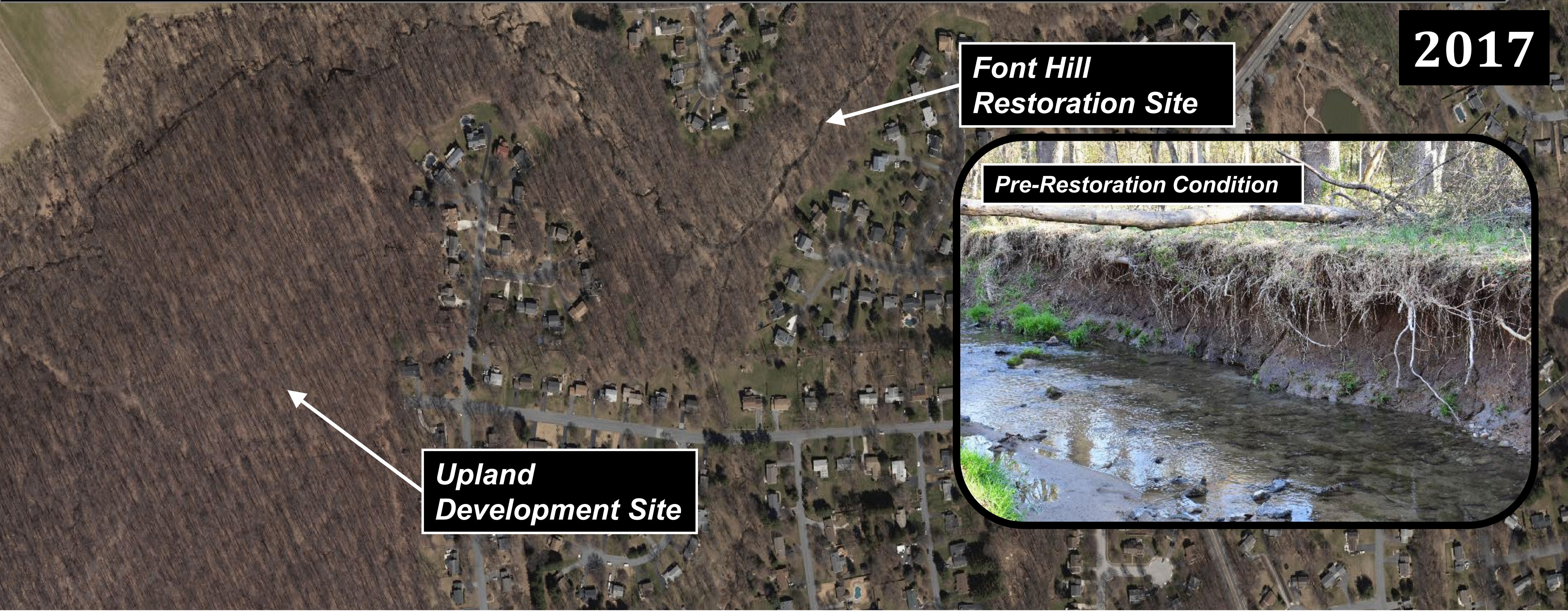
Photos depict the stream system before (left) and after (right) restoration. The restoration stabilized the stream, preventing further degradation that threatened on-site historic structures. The project provided flood attenuation, aquatic and terrestrial habitat improvements, and educational opportunities for this children's camp.

Muddy Creek Stream Restoration

Photos depict the stream system before (left) and after (right) restoration. The restoration provided flood attenuation and habitat improvements for a population of a Federally listed (endangered) species of reptile and breeding populations of brook and brown trout. Longhorn cattle activity degraded the stream and wetland complex. Cattle fencing around the stream excluded livestock impacts from threatening the protected species and degrading the restored system. The project restored forested habitat and integrated it with the surrounding forest.

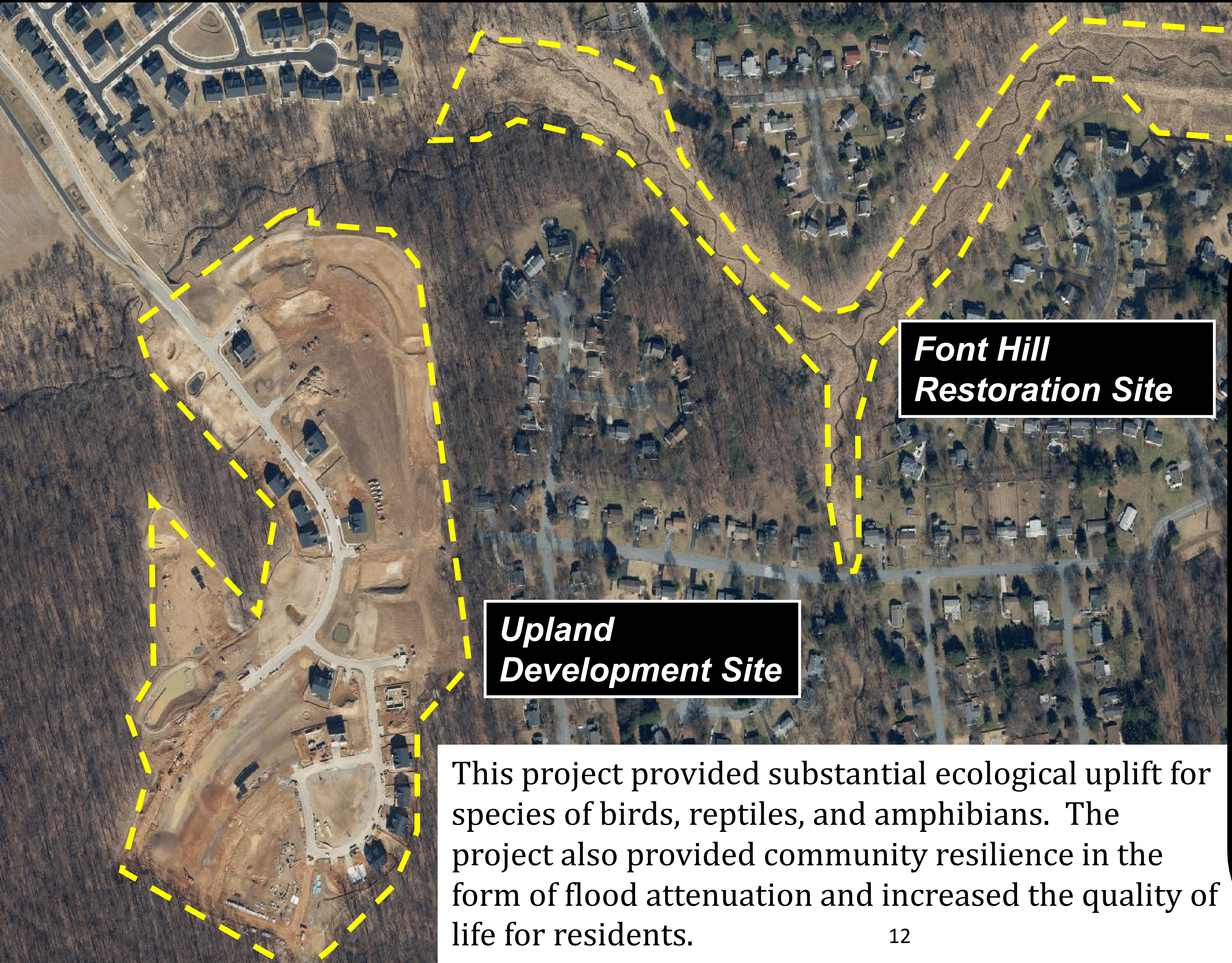
STREAM RESTORATION – Before & After

Font Hill Stream Restoration Project



These slides depict a before and after sequence for the Font Hill Stream and Wetland Restoration Project. The background photos show a temporal progression where hundreds of acres above this project were clear cut for development juxtaposing a temporary impact to install a very beneficial integrated stream and wetland project with permanent forest loss.

Font Hill Stream Restoration Project – After



This project provided substantial ecological uplift for species of birds, reptiles, and amphibians. The project also provided community resilience in the form of flood attenuation and increased the quality of life for residents.

Upper Watts Branch Stream Restoration

Photos depict the stream system before (left), during (middle), and after (right) restoration. This stream restoration project in Rockville, MD addressed severe erosion and significant tree loss due to undermining and is now flourishing ecologically.

Stream Restoration

Photos depict the stream system before (left) and 4 years after (right) restoration. Prior to restoration, the stream was actively eroding and disconnected from the floodplain. Restoration stabilized the stream bed and banks and reconnected the floodplain.

Stream Restoration

CWRP
Chesapeake Watershed Restoration Professionals

Photos depict the stream system before (left) and 2 years after (right) restoration. Prior to restoration, the stream was actively eroding and disconnected from the floodplain. Restoration stabilized the stream bed and banks and reconnected the floodplain.

Stream Restoration

Photos depict the stream system before and after restoration. Prior to restoration (top left), the stream was deeply incised with actively eroding banks that undercut and threatened mature trees.

Restoration stabilized the stream bed and banks by raising the channel invert, thus reconnecting the stream to its floodplain, as seen 9 months after restoration (top right). The stream restoration provided resiliency to the system during storm events (bottom left), attenuating flooding in the area with the newly reconnected floodplain. Twelve years after construction, the stream is fully functioning within the forested system and planted trees and live stakes are mature enough to provide shade and cover (bottom right).

Stream Restoration

Photos depict the stream system before (left) and 1 year after (right) restoration. Prior to restoration, the stream was highly eroded and disconnected from the floodplain. Active erosion exposed essential utilities and threatened a public trail. Restoration stabilized the stream bed and banks, reconnected the floodplain, and protected local amenities.

Downstream – Jabez Branch Stream Restoration

Photo taken February 20, 2026 after a rain event at the confluence of Jabez Branch.

The restored reach (left) is visibly clearer than the unrestored mainstem of Jabez Branch (right), highlighting the volume of sediment reduction provided by the restoration project, completed in 2024.

Chesapeake Watershed Restoration Professionals
CWRP

Broad Creek Stream Restoration

Floodplain Restoration

Regenerative Stream Conveyance

Photos depict the stream system before (left) and after (middle) construction, as well as 2 years after completion (right). This project restored 2,000 linear feet of stream and 0.5 acres of wetland in Annapolis, MD.

UT Flat Creek Stream Restoration

Photos depict the stream system before (left) and after (middle) construction, as well as 5 years after completion (right). This project restored 3,400 linear feet of stream and 0.5 acres of wetland in Annapolis, MD.

Fort Meade Stream Restoration

Photos depict the stream system before (left) and after (middle) construction, as well as 1 year after completion (right). This project restored 1,920 linear feet of stream in Laurel, MD.

Liberty Sports Park Stream Restoration

Photos depict the stream system before (left) and after (right) construction. The project restored approximately 7,833 linear feet of heavily eroded headwater tributaries, achieving channel protection volume, increased ecological function, and corridor resiliency during storm events.

Response Letter to MD SB688.pdf
Uploaded by: Taylor Anderson
Position: UNF

RE: SB 688 – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Education, Energy, and the Environment Committee,

My name is Taylor Anderson, and I am a Maryland resident who cares deeply about the health of our local streams, groundwater, drinking water, and the Chesapeake Bay. I am writing to respectfully **oppose SB 688**.

I support strong environmental protections and science-based solutions to reduce pollution and restore degraded waterways. Regrettably, SB 688 would move Maryland in the opposite direction. Rather than improving environmental outcomes, this bill would sharply limit the tools that local governments, nonprofits, and restoration professionals rely on to fix damaged streams, reduce flooding, and meet long-standing clean water obligations and federal requirements.

In many developed and urban areas, upland stormwater controls alone are not enough. Streams have already been deeply altered by decades of runoff, nutrient pollution, erosion, and legacy sediment. Carefully designed stream and floodplain restoration projects are often the only practical way to stabilize channels, reconnect floodplains, slow floodwaters, improve groundwater recharge, and protect nearby homes, roads, and businesses. By broadly restricting in-stream restoration and disqualifying it from credit toward MS4 permits, TMDLs, and mitigation requirements, SB 688 would make it much harder to address flooding risks that already threaten private property, public infrastructure and human health.

I am particularly concerned about how this bill would affect drinking water, private wells, and groundwater availability. Large-scale water users, including data centers, place growing demands on Maryland's aquifers through continuous withdrawals. At the same time, hundreds of thousands of Maryland residents rely on private wells as their sole source of drinking water. Stream and floodplain restoration helps slow runoff, increase infiltration, and naturally replenish groundwater supplies. Weakening these restoration tools risks reducing recharge, increasing competition for limited water resources, and making wells more vulnerable to failure or contamination—costs that fall directly on homeowners.

SB 688 would also have real economic consequences. Maryland has built a strong restoration economy that includes engineers, construction and maintenance crews, environmental scientists, nonprofit implementers, plant nurseries, material suppliers and small businesses that design, build, and maintain restoration projects. By limiting when and how stream restoration can be used, the bill would reduce demand for this work, threaten jobs, and shrink a homegrown industry that delivers environmental benefits while supporting local employment. It would also make Maryland less competitive for federal infrastructure, resilience, and clean water funding that depends on a clear, workable restoration framework.

Finally, the bill ignores Maryland's own recent work to improve restoration outcomes. The Maryland Department of the Environment's 2024 Ecological Restoration Permitting Study recommended better standards, monitoring, and accountability—not sweeping statutory prohibitions. SB 688 replaces a flexible, science-driven approach with rigid limits that fail to reflect real-world conditions and local needs.

For all of these reasons, I implore you to give SB 688 an **UNFAVORABLE** report. Maryland should continue refining and improving restoration practices—not eliminating essential tools that reduce flooding, protect property, safeguard drinking water and private wells and human health, support local jobs, and restore the Chesapeake Bay.

Thank you for your time and consideration.

Sincerely,

Taylor Anderson
Baltimore County

SB 688_MAA_UNF.pdf
Uploaded by: Tim Smith
Position: UNF

MARYLAND ASPHALT ASSOCIATION

ESTD 1954

Senator Brian J. Feldman
Education, Energy, and the Environment Committee
2 West Miller Senate Office Building
Annapolis, MD 21401

March 3, 2026

RE: SB 688 – UNFAVORABLE – Environment – Stream and Floodplain Restoration Projects – Requirements and Limitations

Dear Chair Feldman and Members of the Committee:

The Maryland Asphalt Association (MAA) represents approximately 110+ members, including 20 material producers, contractors, engineering firms, and associate members, supporting a 7,000-person workforce. MAA actively collaborates with regulatory agencies to advocate for the asphalt industry, ensuring fair regulations at both the state and federal levels. Additionally, we support adequate funding for Maryland's multimodal transportation system.

Senate Bill 688 would require the Department of the Environment (MDE) to prioritize certain practices when carrying out duties relating to stormwater management. The bill implements limits on when and how stream or floodplain restoration projects can be used to satisfy environmental requirements. Additionally, the bill will change responsibilities for how MDE reviews and assesses restoration projects.

MAA opposes SB 688 because the tighter restrictions for stormwater management will increase costs, reduce flexibility, and impose additional hurdles on infrastructure and paving projects. By narrowing the circumstances under which stream restoration projects may be used to satisfy permit requirements, SB 688 removes an important compliance option without providing clear, workable alternatives. The bill will slow permitting and create uncertainty for projects and our contractors. This one-size-fits-all mandate may not fit local conditions or available technologies. MAA values efficiency and this bill, if passed, will drastically slow our development. Restricting flexibility at the State level could limit the ability of engineers and project designers to select the most practical and cost-effective compliance methods for a given project.

For these reasons, we respectfully ask for an unfavorable report on Senate Bill 688.

Tim Smith

Tim E. Smith. P.E.
President
Maryland Asphalt Association

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ShoreRivers_Opposition_SB688.pdf
Uploaded by: Timothy Rosen
Position: UNF

Testimony in Opposition of Senate Bill 688
Stream and Floodplain Restoration Projects – Requirements and Limitations

February 27, 2026

To Chair Feldman and members of the committee,

Thank you for this opportunity to submit testimony in **OPPOSITION** to **SB688** on behalf of ShoreRivers. ShoreRivers is a river protection organization on Maryland's Eastern Shore with more than 2,000 members. *Our mission is to protect Maryland's Eastern Shore waterways through science-based advocacy, restoration, education, and engagement.*

ShoreRivers helps to fundraise, design, and manage millions of dollars' worth of restoration projects to help local governments, private landowners, and farmers achieve the pollution reduction goals established under the Chesapeake Bay Total Maximum Daily Load (TMDL). We focus on projects that address real resource concerns and water quality issues. Our restoration experience spans across agricultural, urban, and suburban landscapes. Our strategies include upland stormwater best management practices (BMPs), tree plantings and reforestation projects, and wetland and stream restoration practices. **We understand that each landscape is unique and requires different, and often multiple, restoration techniques to address resource degradation and water quality issues. SB688 will restrict the use of stream restoration as an effective restoration tool, and add unnecessary challenges and delays at a critical juncture in Bay restoration efforts as we strive to meet clean up and resilience goals.**

Focusing on upland stormwater projects alone won't fix the significant number of degraded streams across the state that are contributing sediment pollution to local waterways. According to the Department of Natural Resources (DNR) Stream Health Index Map, the current ecological condition of most streams throughout the state is fair to poor as stream health has declined significantly in the past 100 years and continues to this day. When a stream becomes channelized, disconnected from its floodplain, and otherwise degraded, it becomes prone to erosion and a source of sediment pollution adding to the impairment of local waterways. Addressing stormwater runoff at upland sources is a necessary part of the equation to capture and filter nutrient and sediment pollution, but it does not fix a degraded stream. **Opportunities for upland stormwater projects are limited, costly, challenging to secure landowner permission, and are highly demanding in terms of maintenance needs.** This bill's definition of infeasible does not include consideration of costs, property ownership, or administrative convenience. This puts local municipalities in a precarious position where, technically, an upland stormwater project(s) could be implemented, but because of cost and/or unwilling landowners, the municipality is unable to move forward with the project. Under this bill they would be unable to then rely on stream restoration to help achieve the necessary stormwater treatment and would have to look into much less feasible options such as eminent domain.

SB688 would also halt agricultural (non-urban) stream restoration. Available land and adequate space for upland projects is limited and usually on private property where landowner permission is required. As an example, in an agricultural setting, **finding opportunities for upland projects often requires taking viable farmland out of production, thus impacting a farmer's bottom line and creating a barrier to implementation.** Under this bill's definition of infeasible, this landowner hurdle would not allow Maryland Department of the Environment to approve a stream restoration project.

Pollution credits need to be based on outcomes. Requiring the Maryland Department of the Environment (MDE) to withhold or disallow pollution reduction or mitigation credits for stream restoration projects undermines the pollution crediting program and the science used to develop it. Stream restoration projects provide the opportunity to achieve many diverse habitat and water quality goals that stormwater retrofit projects do not provide. Pollution credits should remain based on measurable outcomes that consider a specific set of criteria and metrics established by experts and restoration professionals.

Creating unattainable authorization provisions puts a moratorium on stream restoration in the state of Maryland. The bill language makes almost all situations impossible to support a stream restoration project, even when it is the most practical and impactful option. Additionally, requirements for ***postconstruction*** *monitoring* creates an approval structure based on data that has not been collected and puts state agencies in a precarious position of approving projects without the needed information to justify the approval.

ShoreRivers understands the intention of this legislation is to help remedy issues with stream restoration projects in certain very specific regions of the state, but the all-encompassing language in this bill will have impacts on every stream restoration projects regardless of where they are located and the positive nutrient and habitat benefits those stream restorations will have**. For these reasons, ShoreRivers respectfully urges the Committee to issue an unfavorable report on SB688.**

Sincerely,

Timothy Rosen

Timothy Rosen, Director of Agriculture and Restoration on behalf of:

ShoreRivers

Scott Budden, Executive Director

Annie Richards, Chester Riverkeeper | Matt Pluta, Choptank Riverkeeper

Ben Ford, Miles Wye Riverkeeper | Zack Kelleher, Sassafras Riverkeeper

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SB 688
Uploaded by: Tom Ballentine
Position: UNF

NAIOP
MARYLAND CHAPTERS
THE ASSOCIATION FOR COMMERCIAL REAL ESTATE

March 3, 2026

The Honorable Brian J. Feldman, Chair
Senate Education, Energy, and the Environment Committee
2 West Senate Office Building
Annapolis, Maryland 21401

Unfavorable: SB 688 – Stream Restoration Projects – Requirements and Limitations

Dear, Chair Feldman and Committee Members:

On behalf of the NAIOP Maryland Chapters representing seven hundred companies involved in all aspects of commercial, light-industrial, and mixed-use real estate, I am writing to recommend your unfavorable report on SB 688.

Overview of SB 688

SB 688 makes major regulatory changes to how Maryland treats stream and floodplain restoration projects for permitting stormwater compliance and mitigation. The bill eliminates the automatic use of in-stream restoration projects for development, redevelopment, MS4 and TMDL stormwater compliance replacing it with a stringent biological-performance based system that requires proof of infeasibility of upland practices.

The most impactful components include: **(1)** in-stream restoration projects using mechanized equipment cannot be used for compliance; **(2)** upland stormwater practices must be used to capture stormwater on-site unless an alternatives analysis finds them to be technically infeasible; **(3)** new definition of infeasible does not consider cost, property control, or administrative complexity; **(4)** stream restoration projects cannot qualify for stormwater credits based on Chesapeake Bay Program modeled pollution reductions, instead, biological and ecological improvements must be demonstrated through 5 years of post-construction monitoring.

The implications for development and local government stormwater projects are substantial: higher costs, more on-site stormwater requirements, reduced availability of off-site mitigation, longer permitting timelines, greater approval uncertainty and reduced regional water quality benefits.

Rationale for NAIOP's Position

- Disallowing use of Chesapeake Bay Program water quality modeling of credits will lead to longer, more complex permitting and increased project uncertainty. Today, construction of a stream or floodplain restoration project is given credit for environmental improvements based on pollutant removal efficiencies developed through the Chesapeake Bay Program's water quality modeling. SB 688 disallows using these modeled stormwater credit values and awards credits only if documented via post-construction water quality monitoring. Because the post-construction monitoring requirement is 5-years, the attainment of credits will take years to verify.

- Narrow definition of "infeasible" eliminates practical considerations required for real-world site design. The new definition of "infeasible" turns that standard into an absolute requirement unless a developer can prove technical impossibility. Upland alternatives must be used unless they are impossible due to physical or engineering constraints. Costs, property control, and administrative complexity cannot be considered.

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For commercial sites—particularly infill, redevelopment, and industrial projects—stormwater solutions often compete directly with parking, truck loading, safety setbacks, and building footprints. These are legitimate constraints that are not captured in the narrow definition of infeasible. Developers will be required to redesign projects around upland stormwater practices even when doing so eliminates square footage, impairs functional site layout, or makes a project economically unviable. Equivalent water quality outcomes can be achieved without imposing these restrictions.

- The "infeasibility" standard converts routine engineering decisions into multi-year feasibility studies. Applicants are required to evaluate a "reasonable range" of non-stream-disturbing alternatives and provide documentation. This means development teams must generate extensive engineering, geotechnical and hydraulic data related to evaluating multiple alternatives,
- Much higher on-site stormwater requirement. Maryland's stormwater regulations already require the use of on-site Environmental Site Design (ESD) to the "Maximum Extent Practicable." Because SB 688 effectively eliminates off-site compliance options for stormwater management, developers and local governments will use more on-site stormwater management requirements such as large bio-retention ponds, infiltration systems, and underground stormwater infrastructure. These approaches will consume more land area, increase development costs, and reduce the regional water quality benefits that come from stream and floodplain restoration.

Conclusions and Recommendations

SB 688 takes an overly restrictive approach to determining when upland stormwater practices must be used and puts unnecessary limitations on stream and floodplain restoration projects. By excluding reasonable, real-world considerations, the new definition of "infeasible" will delay projects, increase costs, and undermine county MS4 compliance efforts.

For these reasons, NAIOP respectfully requests your unfavorable report on SB 688.

Sincerely,

T.M. Ballentine

Tom Ballentine, Vice President for Policy
NAIOP – Maryland Chapters, *The Association for Commercial Real Estate*

cc: Education, Energy, and the Environment Committee Members
Nick Manis – Manis, Canning Assoc.

MDE SB 688 LOC.pdf
Uploaded by: Jeremy D Baker
Position: INFO

The Maryland Department of the Environment
Secretary Serena McIlwain

Senate Bill 688
Environment - Stream and Floodplain Restoration Projects - Requirements and Limitations

Position: Letter of Concern
Committee: Education, Energy, and the Environment
Date: March 3, 2026
From: Alex Butler, Deputy Director of Government Relations

The Maryland Department of the Environment (MDE) offers the following **LETTER OF CONCERN** for SB 688.

Bill Summary

Senate Bill 688 proposes major changes to Maryland's stream restoration program. Broadly, the bill would: (1) require MDE to prioritize upland practices in implementing stormwater management (SWM) programs; (2) impose significant limitations on the use of stream and floodplain restoration projects for compensatory mitigation, Municipal Separate Storm Sewer System (MS4) permit credits, or Total Maximum Daily Load (TMDL) credits; and (3) establish additional monitoring requirements for stream and floodplain restoration projects seeking mitigation, MS4, or TMDL credits.

For mitigation, MS4, or TMDL credits, the bill would limit the use of the Chesapeake Bay Model and instead require at least 5 years of post-construction monitoring to verify the project's "functional lift" as demonstrated by biological, habitat, or ecological benefits.

Key Points

MDE offers the following comments regarding SB 688.

1. Chesapeake Bay TMDL Impacts: Credits for TMDLs and MS4s are determined by protocols approved by the Chesapeake Bay Program (CBP) in order to align MDE's crediting process with the Chesapeake Bay Phase 6 Model. MDE utilizes the Model to determine progress towards its Watershed Implementation Plan goals and the overall TMDL allocations for the State. By altering the credit for stream restoration, progress toward meeting TMDL goals will also be impacted. The stormwater sector makes up a significant portion of Bay TMDL's nutrient and sediment allocations. If the State can no longer rely on stream restoration as a significant method of impervious surface restoration, it will likely have to revise its strategy to meet the Bay TMDL's targeted pollution reductions in the stormwater sector.

2. MS4 Impacts: Any changes to impervious surface restoration accounting and MS4 credits will require an update to the *2021 Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated*

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Guidance for National Pollutant Discharge Elimination System Stormwater Permits (2021 Accounting Document). There are currently 11 issued MS4 Phase I permits that reference the 2021 Accounting Document. Requiring a permitted jurisdiction to use a modified 2021 Accounting Document will require a major permit modification for all 11 permits, which must be approved by the United States Environmental Protection Agency (EPA) and go through the State's required public notice process.

For currently issued MS4 permits, including the 11 Phase I permits, many local jurisdictions have made financial or legal commitments towards stream restoration projects that are likely no longer eligible for credit after the bill's October 1, 2026 effective date. Finally, given the bill's 5-year monitoring and functional lift requirements, it is doubtful that any local jurisdiction could qualify for MS4 credits under their current MS4 permit's 6-year term. This will jeopardize their compliance with their MS4 permits.

3. SWM Impacts: The bill's upland SWM provisions create a new statutory section within SWM law that may conflict with or duplicate existing statutory and regulatory provisions. Several of the bill's requirements mirror or potentially contradict existing provisions requiring Environmental Site Design (ESD) to the maximum extent practicable (MEP). The ESD to the MEP standard is already clearly defined and implemented through existing regulations. Adding parallel statutory language risks creating confusion for regulated entities and reviewing authorities and complicates consistent statewide implementation.

4. Functional Lift Monitoring: Currently stream and floodplain restoration projects are monitored for a period of 5 years for stream stability, stream and floodplain function, and vegetation viability. The functional lift improvements required under SB 688 can take much longer to be observed (possibly 10 years or longer) and may not be achievable under certain conditions, even with restorative actions or uplands alternatives.

5. Fiscal and Permit Impacts: Per the bill's fiscal note, SB 688 would mandate MDE to perform additional new duties, including: (1) in-stream construction assessments; (2) functional lift assessments; (3) uplands SWM prioritization; and (4) review of project community notifications and presentations. This will result in the need for additional positions and expenditures. Stream restoration projects are currently exempt from permit fees and the bill does not authorize MDE to charge a fee for any of these new functions. Given the complex and technical nature of these functions, permit reviews and issuances will take longer.

6. Whole Watershed Act Implementation: The Maryland General Assembly passed the Whole Watershed Act (HB 1165/SB 969) in 2024, which made substantial changes to the State's stream restoration process. MDE, local governments, and stream restoration practitioners are currently implementing that Act's requirements. The new stream restoration requirements under SB 688 would significantly disrupt or even negate those implementation efforts.

7. ACOE Wetlands Mitigation Requirements: The United States Army Corps of Engineers (ACOE) generally does not allow upland practices for purposes of wetlands mitigation because of their indirect relationship to the project subject to mitigation. SB 688 will generate conflict where the ACOE only authorizes in-stream projects for wetlands mitigation but MDE can only authorize uplands practices.

MDE appreciates the opportunity to offer this **LETTER OF CONCERN** for SB 688 and is available for questions.

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Uploaded by: Lydia McPherson
Position: INFO

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Wes Moore, *Governor*
Aruna Miller, *Lt. Governor*
Josh Kurtz, *Secretary*
David Goshorn, *Deputy Secretary*

March 3, 2026

BILL NUMBER: **SENATE BILL 688 - FIRST READER**

SHORT TITLE: **ENVIRONMENT - STREAM AND FLOODPLAIN RESTORATION PROJECTS - REQUIREMENTS AND LIMITATIONS**

DEPARTMENT'S POSITION: **LETTER OF CONCERN**

EXPLANATION OF DEPARTMENT'S POSITION

The Department would like to express concerns with Senate Bill 688 for the consideration of the committee. This bill would create a disproportionate regulatory burden on stream restoration by imposing unique costs and bureaucratic hurdles that are not required for other conservation methods. The bill also postpones the crediting for these projects until post-monitoring construction shows improvement in biological indices or ecological function, thereby creating a significant financial risk for local and state governments.

The bill's requirements will also increase project costs, due to additional permitting and post-construction monitoring. This would in turn reduce the number of projects that could be supported through existing funding streams, including the Chesapeake and Coastal Bays Trust Fund, the Whole Watershed Program, Resilience through Restoration, and other programs supported by the agency. Additionally, by increasing costs and financial risks, the bill will effectively eliminate a scientifically proven tool for managing damaged waterways and meeting Chesapeake Bay restoration goals, ultimately leaving the region's largest sources of sediment and phosphorus unaddressed.

Also of note is the fiscal and operational strains SB 688 imposes on the Department by mandating a complex "alternatives analysis" and enhanced post-construction monitoring for stream restoration projects. While the administrative burden officially rests on permit applicants, the Department anticipates that the resulting costs, including a projected 25% increase for engineering and 3–8% for "functional lift" monitoring, will be embedded directly into project grants such as the Chesapeake and Coastal Bays Trust Fund and the Whole Watershed Program. This financial burden is expected to increase the project costs, potentially reducing the total number of feasible restoration projects.

Finally, SB 688 directs restoration designs to minimize disturbance to floodplains for any stormwater management practice. Without a definition of the stormwater management practices that apply, it is unclear if the requirements within the bill, "alternatives analysis" and post-construction monitoring, would also apply to living shorelines, thereby increasing the costs and permit requirements for living shorelines. Imposing these requirements on living shorelines would create the same aforementioned significant fiscal barriers to implementation.

Contact: Lydia McPherson, Director, Legislative and Constituent Services
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BACKGROUND INFORMATION

Stream restoration is an important strategy in meeting the Chesapeake Bay goals and meeting the state's Total Maximum Daily Load (TMDL). Many of our state's streams are incised, trapping water in deep, narrow channels that are disconnected from the floodplain. This results in both the direct transport of sediment, phosphorus and nitrogen into the streams and can increase issues from flash flooding for communities. Stream restoration raises the stream bed and reconnects the channel to the floodplain, allowing adjacent wetlands to absorb sediment and nutrients, as well as providing allocation space for floodwaters.

Stream restoration has been implemented as a successful tool to meet our Chesapeake Bay goals to date. Restoring stream banks has been a key strategy in Maryland achieving 100% of its sediment reduction goal and 100% of its phosphorus goal, since phosphorus binds to soil particles. Stream restoration also promotes denitrification in the soils and contributes to the state's remaining nitrogen credits.

BILL EXPLANATION

The bill requires the Department of the Environment to:

1. Prioritize stormwater management practices that capture runoff at the source, promoting infiltration and delaying the release of water into stream channels.
2. Restricts restoration projects that involve heavy equipment to mechanically alter a stream's profile.
3. Adds new hurdles for project approval (e.g. Alternatives analysis, ecological proof, and 5-year monitoring).
4. Adds Public and Technical Accountability - Public Engagement and DNR consultation