

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

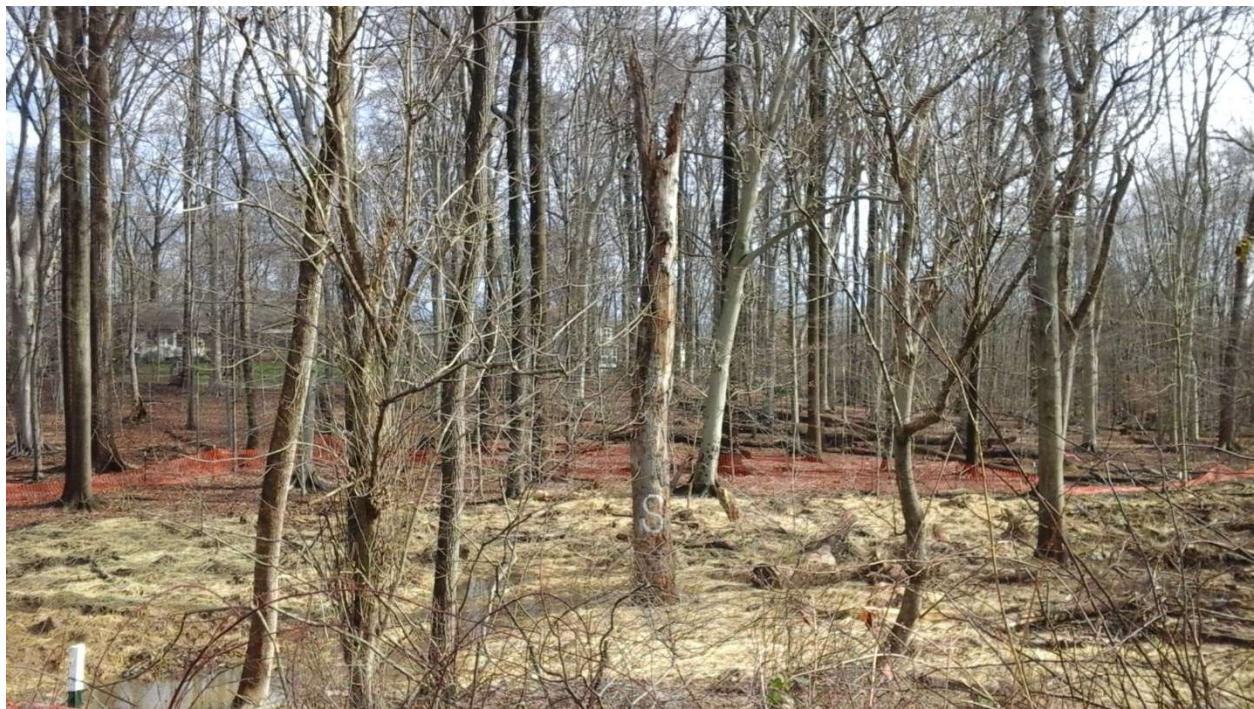
The contractor has been out working in the **now** de-stabilized and eroding stream for the past month excavating sediment and lining the banks with more rocks. Stream restorations require ongoing maintenance once an area has been de-stabilized and disturbed by heavy machinery.

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!