HB942_MDSierraClub_fav 3March2023.pdf
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SIERRA CLUB

P.O. Box 278
Riverdale, MD 20738

Committee: Environment and Transportation
Testimony on: Bill HB 942 "Protection of Maryland Streams and Waterways"
Position: Support
Hearing Date: March 3, 2023

The Maryland Chapter of the Sierra Club supports HB 942. This legislation will strengthen Maryland's commitment to reaching its pollution-reduction goals for cleaning up the Chesapeake Bay, while at the same time safeguarding local natural resources and helping local communities become more resilient to the impacts of climate change.

Specifically, this legislation will:

1. Protect our natural resources and environment by incentivizing alternatives to stream restorations using less destructive out-of-stream stormwater control methods.
Streams and stream valleys are essential parts of our communities and ecosystems. They sometimes are 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. Wooded natural stream valleys provide critical services such as recreational opportunities for local communities, connections with plants and animals, and mental health promotion. They provide habitat for diverse aquatic and streamside plant and wildlife communities. Healthy watersheds absorb stormwater, replenish and purify groundwater, and provide ecosystem services such as carbon sequestration, oxygen production, cooling of the community and waterways, and biodiversity protection.

Land development in Maryland has resulted in large areas of impervious surface due to increased land areas covered by streets, parking lots, rooftops, and turfgrass. Impervious surface represents over 30% of land in many municipalities. These impervious surfaces, along with increased storm intensity, cause excessive stormwater runoff, which rushes into streams, carrying with it sediment, pollution, and trash. These flows cause increased erosion along stream banks and flooding that in turn causes property damage to communities, as well as damage to the streams and surrounding natural areas.

Maryland municipalities that hold stormwater discharge permits must meet local municipal separate storm sewer systems (MS4) permit targets for sediment and pollution reduction and Chesapeake Bay Total Maximum Daily Load (TMDL) goals to reduce sediment and pollution flowing into the Bay. There are a variety of methods, called Best Management Practices (BMPs), allowed by the Maryland Department of the Environment (MDE) to reach these goals. Quite often municipalities employ engineered stream restoration BMPs. These projects employ heavy construction equipment to modify stream channels to handle stormwater runoff. This typically involves a mix of straightening or changing stream's natural meander patterns, placing heavy boulders to armor-plate sections of the stream and to alter the natural water flow, scraping away stream bank soil, using plastic and other types of soil stabilization mats,

dumping fill material into the stream channel to raise its level, clearcutting steam valleys, and then removing dump truck loads of soil to lower the stream valley closer to the stream, or even filling in the stream channel and moving it to a different location.

Exhibits 1 and 2 below are typical examples of stream restoration projects. The stream-side forest buffer and topsoil have been completely removed. Construction projects like these require cutting down mature riparian forests along the stream corridor to access the stream channel. New trees are planted, but it takes decades to regain the ecosystem services provided by the mature riparian forest.

Exhibit 1: Stream restoration in Upper Watts Branch, Rockville, MD; photo by City of Rockville

Exhibit 2: Stream restoration at Solitaire Court, in Gaithersburg, MD. 12/3/21 photo by K. Bawer

Stream "restorations" are only one practice among many that can be used to control excess stormwater and keep sediment and pollution out of the Bay. Out-of-stream practices that control stormwater at its source include rain gardens, bioretention techniques, tree plantings, permeable pavement, and replacement of turf lawns with native trees, bushes, and herbaceous ground cover. These upland practices control stormwater before it enters streams, are less destructive to the environment, and may eliminate the need for stream "restorations."

Exhibit 3: Upland stormwater control practices. Photo by Montgomery County Department of the Environment.

This bill requires Maryland Department of the Environment (MDE) to incentivize stormwater discharge applicants to treat stormwater runoff closer to its source (for example, near

impervious surfaces such as roads and roofs), rather than allowing stormwater to firehose into our waterways causing stream erosion.

The total lifecycle cost of stream restorations can be much greater than other BMPs, because impervious surface coverage in the watershed, the source of the stormwater runoff, has not been addressed. Observations in the field confirm that stream restorations are only temporary fixes. When upland stormwater runoff is not controlled, the result is that stream restorations are blown out as post-construction storms initiate structural failures. This will be a continually greater problem since precipitation levels are increasing due to the warming climate. We are not aware of any rigorous comparisons of the total cost of ownership, or lifecycle cost of the various BMPs permitted. The costs include the sum of construction, maintenance, repair, and replacement, and a quantification of the value of lost ecosystem services. For example, trees have been shown to reduce air conditioning costs. Taxpayers must pay the cost for these failures of stream restorations. Exhibit 4 below is just one example of a blown-out section of a stream restoration project.

Exhibit 4: Stream restoration failure in Snakeden Branch, Potomac MD. Photo by K. Bawer

2) Require stream restoration mitigation projects be located in the same watershed as the stream for which mitigation is required.

This bill will also require MDE to specify that stream restoration mitigation projects be located in the same watershed as the stream for which mitigation is required. The purpose of mitigation projects is to meet a goal of "no net loss" of stream function, so damage done in one location by a construction project is theoretically balanced by repair work to a stream in a different location. If a mitigation project is done in a different watershed than the one in which the damage is done by a construction project, there may be a regional no net loss, but the damaged watershed itself experiences an "uncorrected" degradation. This is inherently harmful to natural resources at the local level and unfair to local residents, especially to communities of Environmental Justice concern.

3) Promote more effective and beneficial stream restoration projects.

By requiring improvement of in-stream biology (biological uplift) and the protection of trees, HB942 promotes more effective and less destructive stream restoration projects.

The scientific literature shows that the results of engineered stream restorations rarely, if ever, show evidence for biological uplift (biological improvement) for aquatic organisms.[1][2][3][4][5]

The intent of stream restoration projects for Municipal Separate Storm Sewer System (MS4) permits is to promote biological uplift in the Bay (i.e., to increase aquatic vegetation and fish, crab, and oyster stocks). But MS4 permits do not require local biological uplift to be demonstrated at the actual project site which can be very far from the Bay itself. We should not have to sacrifice our local natural areas while saving the Bay.

This bill also requires that tree removal be minimized and that the remaining trees are better protected, including critical root zone protection by fencing around trees to prevent heavy construction equipment from compacting the soil around trees since soil compaction usually leads to tree death.

To be clear, the requirements of this bill do not apply to "infrastructure protection" projects which are done in the immediate area of an infrastructure problem such as an undercut road or bridge abutment or exposed sewer line. Infrastructure protection projects are not stream restorations and are not impacted by this bill.

4) Enhance monitoring requirements for stream restorations to ensure that goals are achieved.

HB942 also enhances project monitoring requirements by requiring monitoring of stream restoration projects for ten years after project completion to ensure that all stated goals are achieved. Currently, MS4 permits require only one stream restoration project to be monitored, no matter how many are done by a jurisdiction, and the monitoring is required for only five years[6]. In addition, current MS4 permits only require the measurement of sediment and nitrogen and phosphorus, but are not required to demonstrate biological uplift. In fact, jurisdictions can opt out of monitoring altogether by paying into a "shared pool" to support research projects. Enhanced monitoring requirements will allow biological systems time to recover so that biological improvement can be demonstrated.

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5) Improve public notification and participation for stream restoration projects.
Typically, only immediately adjacent property owners are notified even if a project will impact an entire community. HB942 will require MDE and municipal permittees to notify all interested parties who have requested, via a web site, to be notified via email of requests for restoration project permits. The U.S. Army Corps of Engineers (USACE) web site to sign-up for permit request notifications could be used as a model.

The web site should allow the public to register for a tracking account which would push update notifications to the registrant. This could be patterned after the Maryland General Assembly website where one can register to be notified of the progress on selected bills.

Summary
In summary, stream restorations are currently ineffective since they do not address the source of our stormwater problem – runoff from developed areas and agricultural fields outside of streams – and therefore must often be repaired at great cost. This bill addresses the root cause of the problem and encourages jurisdictions to obtain credits for out-of-stream solutions to excessive stormwater runoff. Out-of-stream stormwater control will reduce, if not eliminate, the need for stream restorations. If stream restorations continue to be built, this bill will enhance their effectiveness.

Sierra Club Maryland urges the Committee's favorable report on HB 942.

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Testimony on House Bill 942.pdf
Uploaded by: Dara Baker
Position: FAV

Testimony in support of House Bill 942
Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

This statement is on behalf of Protect Our Streams (PrOS), a community group started in 2019 in response to a proposed stream restoration project in Columbia, Maryland, in support of House Bill 942. In the past 16 months, our community group has communicated with over 800 Maryland residents educating them about the real world environmental and community impacts of these invasive projects. Our self-education about in-stream engineering projects leads us to support increased oversight and regulation for these projects across the state. Dozens of projects are planned in our communities and open spaces that will significantly affect Columbia, Howard County, and the state's few remaining forests, streams, and riparian buffer zones. A single project in Columbia will affect over 10,000 residents.

A private corporation headquartered in Ohio is proposing a project that would fundamentally change the community's green spaces, specifically our stream systems and has asked for a statewide funding instrument that would allow them to propose projects like this across the state with a funding mechanism already in place. These projects provide exclusive benefits to private corporations and to future developers who have a need for credits to offset tree removal or other negative environment impacts on their own projects at the expense of current and future generations of residents, native wildlife and our environment.

The stream construction project will use the most invasive and destructive methodology available to address a hypothetical problem. In addition, the proposed project is not guaranteed to improve or even address the issues they have identified. In fact, proposed projects do not have to deliver on their promises for the companies to benefit financially from the destruction of our semi-wild, forested, areas since they often request an advanced release of credits, rather than waiting for the full monitoring period of 10 years.

The stream and land affected in a single project proposed in Howard County and Columbia covers 33,000 linear feet of streams (including forested buffers), and 133 acres of Open Space land. This proposed channel-engineering and construction project (called stream restoration) uses invasive and scientifically controversial methods in the streambed and along the woodland banks. These projects are unproven experiments in corporate development. The creation of a Mitigation Bank Instrument means that a future developer can avoid being environmentally responsible and use the credits instead. The current approval process that approved a funding instrument before the full plans for the project are approved incentivizes companies to act and denies the public the opportunity to fully review and understand the process.

The project in my community is opposed by the Chesapeake Bay Foundation, Sierra Club, Maryland Native Plant Society, Maryland Ornithological Society, U.S. Fish and Wildlife agency, Patuxent Riverkeeper. State and federal regulatory bodies, Maryland Department of Environment, Maryland Department of Natural Resources and Army Corps of Engineers have

identified serious flaws with the plan. HB 942 would strengthen the state and the community's ability to ensure that only valid, well-researched, and needed projects are proposed and approved.

The reasons given for the projects I have reviewed and comments on in 2021 and 2022 in 3 counties across the state do not take into account greater watershed issues, nor do they address the sources of upland storm water management, which is a large part of the stated problem. This failure means that two other factors are unlikely to be successful: functional uplift, and self-maintenance. This project will not raise the ecological value of the waterway and land, and may, in fact, degrade it. This project, like others of its type, is not self-maintaining. These are serious issues that are important for the community and the larger public, as they create higher risks for project failure. The public deserves to provide direct and impactful input on these projects and we urge you to pass this bill and to support the creation of transparent and accountable processes for the communities affected.

These projects drastically change the natural areas and established ecosystems of the watershed. Bulldozers and other heavy construction equipment, construction materials staging areas, construction vehicles, and earth movers will remove and/or damage large areas of trees, topsoil, plant life, and wildlife habitat along the stream bank on each side of the stream, and within the streambed. Human activity will be disrupted along bike paths and in open spaces during construction, Maryland residents who live nearby and whose homes may be as close as 20 feet from the construction zone will be impacted on a daily basis without the usual protections for a construction project, and wildlife activity will be interrupted and deleteriously affected, some for the long term, even permanently, due to the invasive nature of the construction taking place. The wooded trails we walk every day, and the backyards we enjoy will be noticeably changed, with greatly diminished forest areas, trees, birds, animals, and shade, for decades, if not forever. This bill helps ensure that developers and communities don't choose the cheapest most-destructive choice, but instead are required to present a truer and more accurate picture of the drawbacks, threats, and long-term impacts to stream restorations.

Current permitting allows the companies incredible power to define what biological uplift is, to ignore criticisms from subject matter experts including the Chesapeake Bay Foundation and the agencies responsible for Interagency Review, and incentivize in-stream construction along every inch of stream to receive credits even if parts of the stream are stable and healthy. The invasive process of stream engineering involved in stream restoration that includes heavy equipment, removal of soil to be replaced by foreign riprap and soils, pose direct threats to threatened and endangered species (flora and fauna), open these spaces to increased threats from invasive species, and threaten those trees left behind. The removal of tree cover actually increases warming of the stream and the community, completely counter to any efforts for environmental improvement.

Additionally there are no regulations for when a vendor/bank sponsor attempts to subvert the permitting/regulatory process by proposing more than one Umbrella mitigation bank instrument as happened in 2021-2022. Vendors are targeting the few areas left in suburban/urban

Maryland that have been left untouched for 10 - 50 years, the last bastions of migratory songbird populations, with incredibly diverse wildlife, hundred year old beech trees, and established ecosystems that have adapted to and grown since houses were built. These areas should be protected, not advertised and incentivized for takeover and construction.

We were told repeatedly that there was no point in commenting on the project proposed in our area or even opposing it since there was no plan: the fact that this process could go so far without a plan is not something the vendor should have been proud of or that the permitting/regulatory agencies should have allowed. As House Bill 942 secures: a community cannot know, and the regulatory agencies should not approve any project or funding for a project without detailed, researched, and well-documented plans clearly identifying the areas of impact, the trees and other fauna to be removed or threatened, the actual health of the stream and the reason it was selected for a stream restoration rather than a different TMDL or MS4 permit project type, and the long-term stream and community impacts.

Projects begin with a Mitigation Bank, a private, commercial financial Instrument, that underwrites the project costs by creating monetized credits to be sold to developers, governments, and others, who may cause, have caused, or expect to cause, environmental damage elsewhere in the State, then sells these credits on a financial market. The financial incentives for this, and similar projects, provides a strong profit motive apart from stated environmental ones. The Howard County and Maryland community is entitled to transparency on the creation of any project for Mitigation Bank credits. The community taxpayer/residents must have full disclosure concerning the financial aspects of these projects, including potential conflicts of interest of those responsible for granting easements on community land, as well as future plans for use of the credits. These projects raise the question “Are our streams for sale?” and why does a company outside of Maryland benefit when Maryland residents will suffer from decades of environmental degradation.

Bank sponsors have taken advantage of the regulatory process/permitting process by developing small and large scale projects with single or minimal landowners, in fact, a project proposed in Maryland used land owned by the parent corporation proposing the project. It is essential that these efforts to stack the deck on behalf of corporations at the expense of the larger community must be stopped. Our community group gathered more signatures on a petition opposed to a stream restoration project in 2 weeks than the vendor/bank sponsor was required to get by law. Bank sponsors have no incentive, and are encouraged to avoid providing valid, truthful information to communities where they propose the projects. Increasingly, to ensure the profits available in the Mitigation Bank Instrument market, companies are identifying private lands on which to do these projects, which have minimal to no impact for the larger community, in order to provide future offsets in the form of mitigation credits for developers across the region. Choosing a property that does not require additional oversight or interest by the local community, specifically because no other landowners are affected, is a perversion of the process. Maryland should be discouraging, not encouraging the creation of MBIs solely for the creation of future credits and projects in areas where ecological, hydrological, and environmental uplift are minimal. MBIs should only be approved where the

work is required NOW, not to ensure credits for future construction; MBIs were intended as the incentive, not the purpose.

The project our group has focused on had so many problems once we, and environmental groups pointed it out, that MDE submitted a 10 page letter to the vendor. But the vendor had unlimited time to respond and was not required to engage with any of the stakeholders, subject matter experts, or the larger community during that process. Multi-million dollar stream restoration corporations have benefited from the lack of public knowledge in this area and have used marketing techniques and stated that the "lack of a plan" is actually a good thing. Even worse, they have only presented the best case scenario for these projects, and have provided no information on potential risks. Even having incorrect information in the application was not sufficient to pause the process: The application type they have submitted is incorrect given the scope of the full project and they have identified the incorrect watershed (Patapsco) that might benefit. In addition, the proposal includes incorrect information including where erosion is currently happening and the amount of impermeable land. The proposal says it is only 26% where U.S. Fish and Wildlife noted that the United States Geological Survey StreamStats webtool calculates the drainage area as 42.8 percent impervious making the area completely unsuitable for mitigation credits. Project designs threaten flora and fauna in one of the largest contiguous Forest interior dwelling birds (FIDS) areas remaining in Howard County with nothing in the proposal that would improve riparian forest. The vendor/bank sponsor is basically able to state that they will improve the stream without a true assessment of the ecology that depends on the stream--not just the in-stream environment.

The new bill will provide essential protections lacking from the current process and closes loopholes that these corporations have taken advantage of at the expense of Maryland residents and resources.

Thank you.

Dara Baker
Protect Our Streams (PrOS)

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Position: FAV

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Support for House Bill 942

Dear Chairman Barve and Members of the Committee:

The Chesapeake Legal Alliance supports HB 942 because we believe it represents a great opportunity to reexamine the current incentive structure that directs which environmental management practices are selected to meet various goals and regulatory mandates. We certainly appreciate the important role of a well-designed stream restoration project. However, a stream restoration project should never be undertaken simply as a replacement for an alternative environment management project or practice. With finite, even scarce, public resources to put toward environmental investments, it is critical that our State and local governments be thoughtful about how to allocate resources to maximize their impact.

Maximizing impact requires careful consideration of the availability of co-benefits from different stormwater management or other environmental projects, as well as the highly variable needs of different watersheds and different communities. In the 21st century, all of us understand how many different functions and features a single smart phone possesses, replacing the job of 50 gadgets we might have had to purchase two decades ago. In that same vein, it is important to recognize that certain environmental projects confer a vast array of social, environmental, and economic benefits, while others serve a single or few purposes; we must prioritize these projects that deliver numerous benefits and quantify all of these benefits, not just the ability to control one or a small number of pollutants.

With very limited public resources relative to the massive public health, environmental, and climate needs and threats we face, we must be mindful to invest carefully in projects and practices that address as many of these threats as possible. We cannot afford to make decisions based on the path of least resistance, administrative simplicity, or based on past contractual relationships. It is not clear why, according to data from the Maryland Department of the Environment, stream restoration projects were used to satisfy municipal stormwater permit requirements more than any other project or practice and more than five times more than all stormwater filtration and infiltration projects combined.

HB 942 will have the effect of requiring us to take a fresh look at the state of the science, at our past decisions, and our future needs and help chart a new course that could maximize climate resilience, environmental justice, and water quality restoration for decades to come.

For these reasons, the Chesapeake Legal Alliance **s**upports HB 942 and urges a favorable report. For more information, contact Evan Isaacson at evan@chesapeakelegal.org.

HB_942_FAV_Tutman
Uploaded by: Fred Tutman
Position: FAV

Patuxent RIVERKEEPER®

Patuxent Riverkeeper Center, 17412 Nottingham Road, Upper Marlboro,MD 20772

Maryland General Assembly
Environment and Transportation Committee
Room 251
House Office Building
Annapolis, Maryland 21401

March 3, 2023

To Whom It May Concern:

Surely you have noticed, these are dark days for the health of the Chesapeake Bay and for local water. As water quality scores flux and wane after some 40 years of hard work and expenditure, a separate industry has nonetheless sprung up doing stream and other restoration work that literally provides the basis for even more destruction of the environment statewide.

Let's be clear that mitigation banks are a means of breaking something in one place, and then fixing it elsewhere. Literally the purpose being to create more construction and development opportunities and satisfy a mandate to minimize and offset environmental harms caused by all that economic activity.

So, the harsh truth is that these projects are not always really driven by the best science but rather by the need to maximize credits and to meet various economic goals. But the logic of fixing something in one place in order to generate credits-- while breaking something elsewhere is basically a form of "liar's poker"—or ultimately a "pyramid scheme". It is also driven by construction industry demand and not so much by an ethic of stewardship. Mitigation projects presently are often reviewed on the basis of their capacity to generate or expend maximum credits against outlay, but almost never on the basis of maximizing ecosystem services, humanitarian concerns, or any other factors beyond the monetization of the environment. Where the benefits are conferred somewhere else. A transfer of natural resource wealth or value. Sadly, we are stuck with these absurd contradictions by law and so we need to get it right going forward. That is why this law revision is needed. Because restoration has literally become not so much a mean towards and end, but rather and end unto itself. It monetizes the environment in a way that makes environmental quality quite portable.

The spirit behind the intent of these well-meaning restoration efforts has been lost-- which is part of the reason why there is so much dissatisfaction with the end results in many of the neighborhoods and communities where these "practices" have been installed. In the attempt to get the most bang for the buck, very few of these projects actually copy or restore nature's plan, but instead they permanently change and sometimes greatly harm the landscape, wetlands and natural stream ecology they sought to protect and restore.

So, this legislation is needed in order to better clarify the criteria and boundaries surrounding how to specify and build these projects for the purpose intended. Mitigation should be a last resort—and not the first. We should be doing as little mitigation as possible. It's cheaper and better in the long run to conserve streams rather than restore them. Especially since few of these projects actually attack the root cause of the original degradation. Many restore streams that will have to restored again and again. Moreover, it stands to reason that if you keep mitigating all over the place, eventually you just run out of places to do so. And so in a worst case, you can wreck an entire watershed with lots of mitigation projects.

Recently I was corresponding with a friend of mine who is a Scientist in Japan. He explained to me that in his country they build seawalls that are 15 meters high in order to protect coastal areas from Tsunamis. But the problem he says, is that an actual Tsunami is usually many times higher than they can afford to build the seawalls-- but the government keeps building them because they create lots of jobs and people feel safer. Many in Japan understand that those seawalls are neither effective nor a sustainable solution. This analogy, brings me to the environmental justice aspects of this approach to managing our dwindling natural resource wealth.

Have you ever wondered why all the best restoration and mitigation projects are also in all the best neighborhoods? You see, rough places, fence-line, borderline, and poorer neighborhood almost never get credits! They always get trades. Offsets and such. We learned this through a research study we participated in with the University of Maryland a few years back. It's a published peer reviewed study. I've attached the maps from the study in an Appendix to make my point. Environmental Justice communities are often the places where pollution trades, mitigation and offsets are used by polluters to pay their way out of strict compliance. These are exactly the places that produce the need and demand for "mitigation banks"! of course, it is generally cheaper and easier to buy credits from a mitigation bank than it is to cleanup your pollution act.

So, by upgrading and improving the currently very low standards and criterion for these projects and transactions we are basically enhancing the protections and the interpretive guidelines needed to save untold acres of valuable lands and many miles of natural streams from the unpredictable outcomes of market driven mitigation practices. Nature is not a marketplace. Those belong in shopping malls. Our streams are beyond cost and should be treated like gold.

Respectfully,

Frederick L. Tutman
Patuxent Riverkeeper, CEO
fred@paxriverkeeper.org

APPENDIX:

MAPS PORTRAYING MARYLAND RESTORATION ACTIVITY BY REGIONAL DEMOGRAPHICS

Figure 2: Programmatic Wetlands Acreage by Race

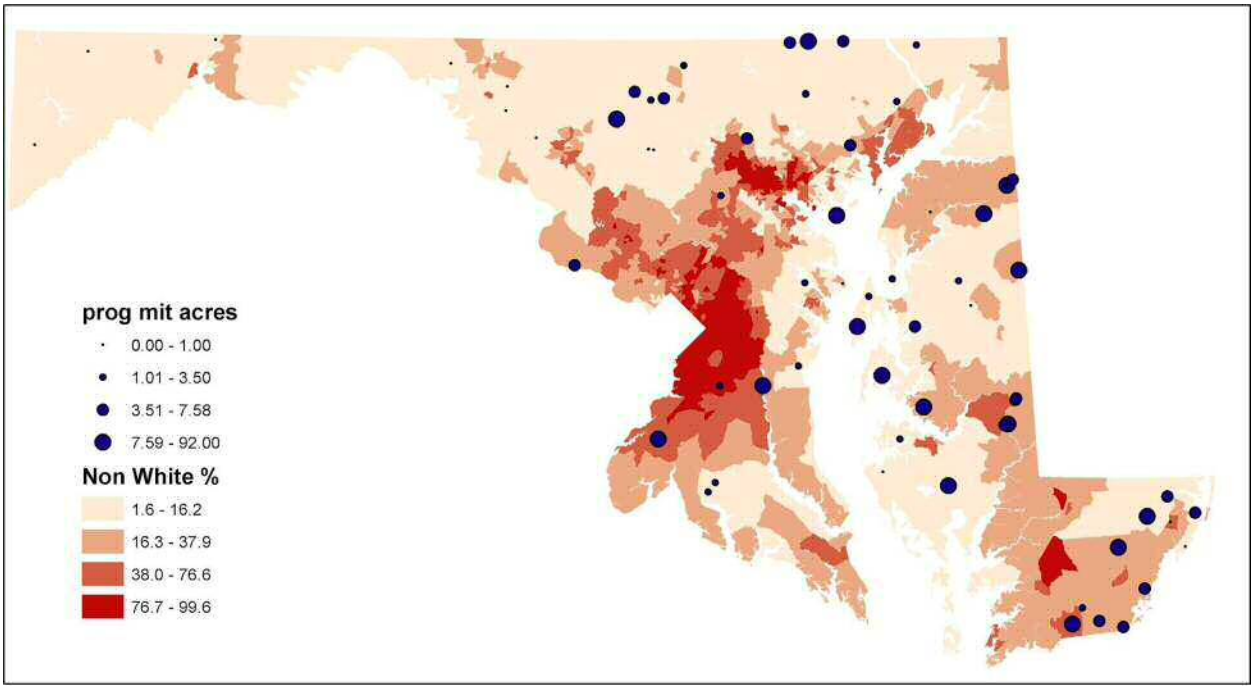
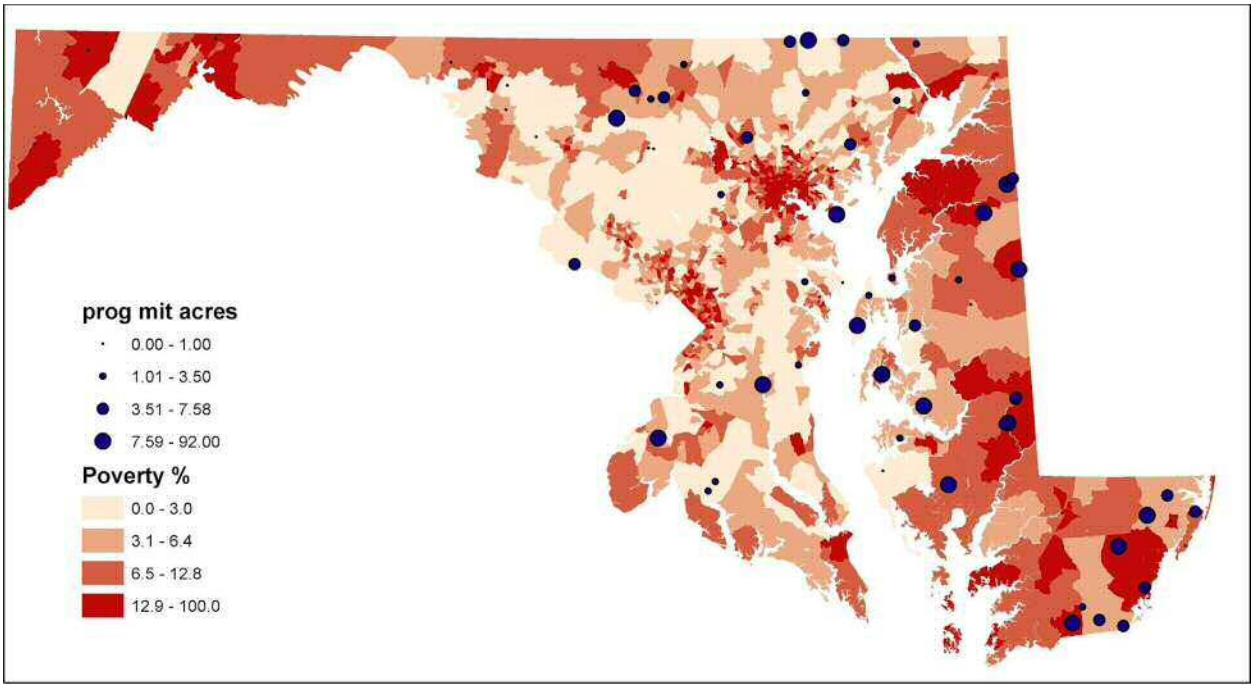


Figure 3: Programmatic Wetlands Acreage by Poverty



The results for all registered wetlands impacts, the bulk of which are permittee originated indicate no clear pattern of inequity. There are some majority minority watersheds that have gained wetlands and others that have lost. Likewise, some high poverty areas of the state have

lost wetlands, while others have gained. Additional maps for African Americans and Hispanics are in the appendix.

Figure 4: Net Wetlands Impacts by Race

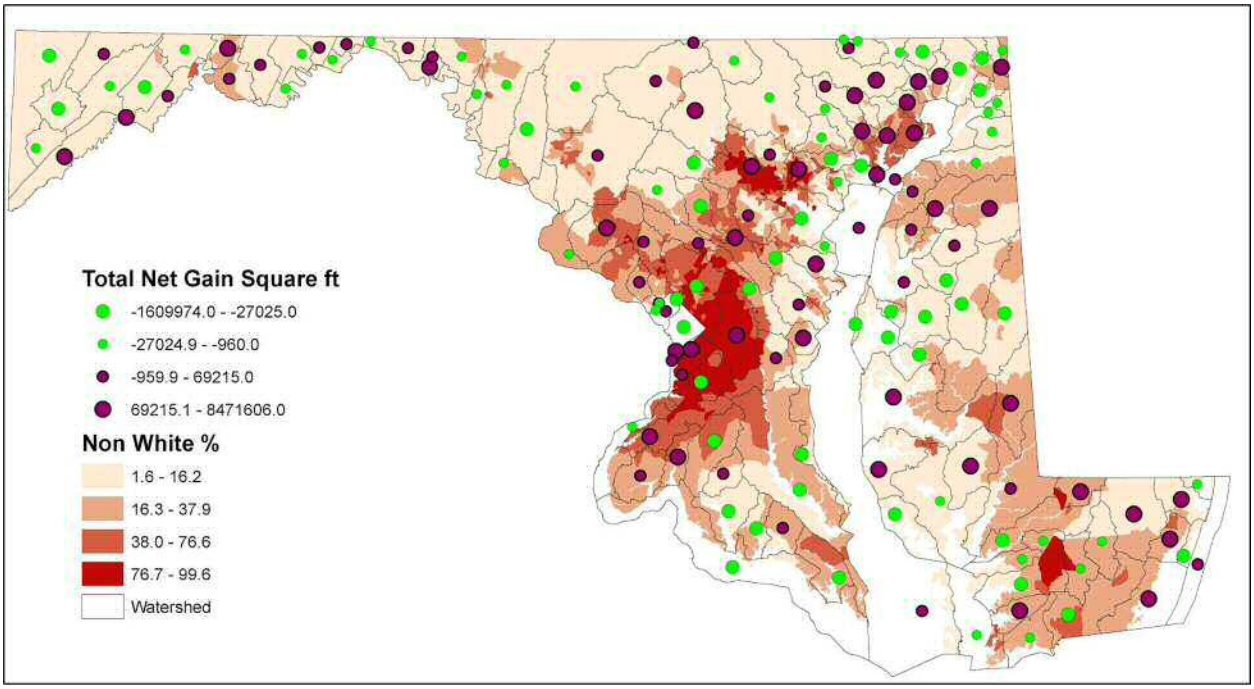
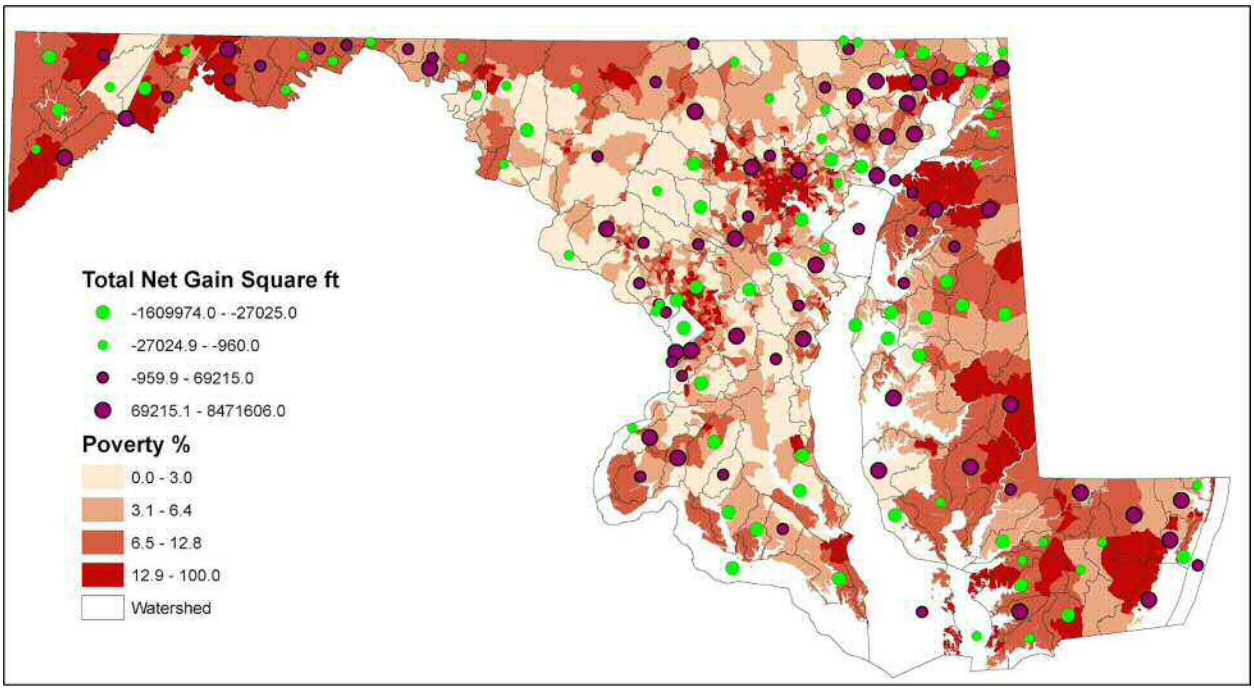
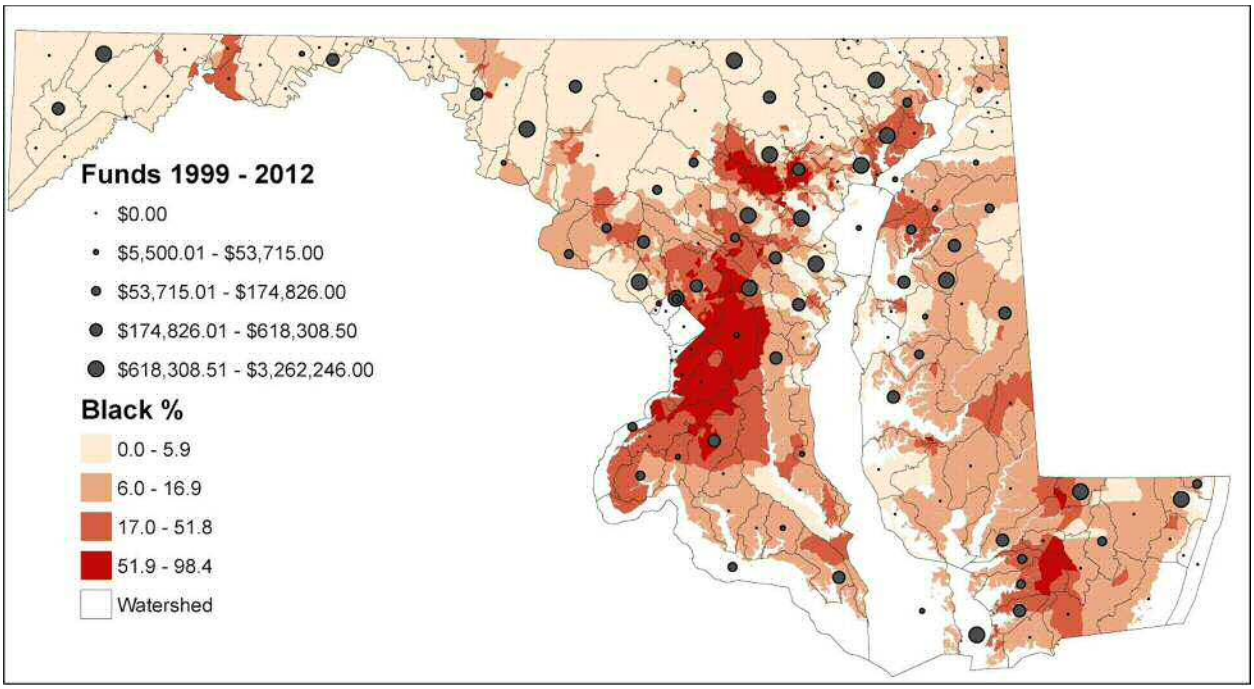


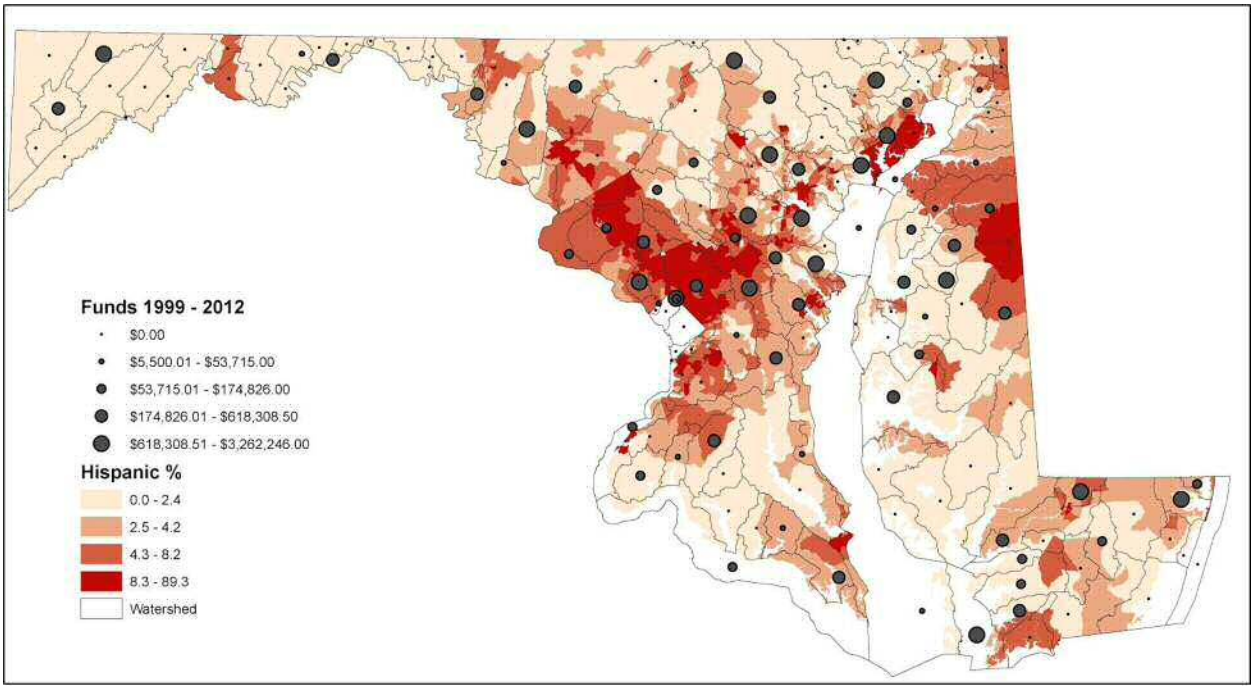
Figure 5: Net Wetlands Impacts by Poverty

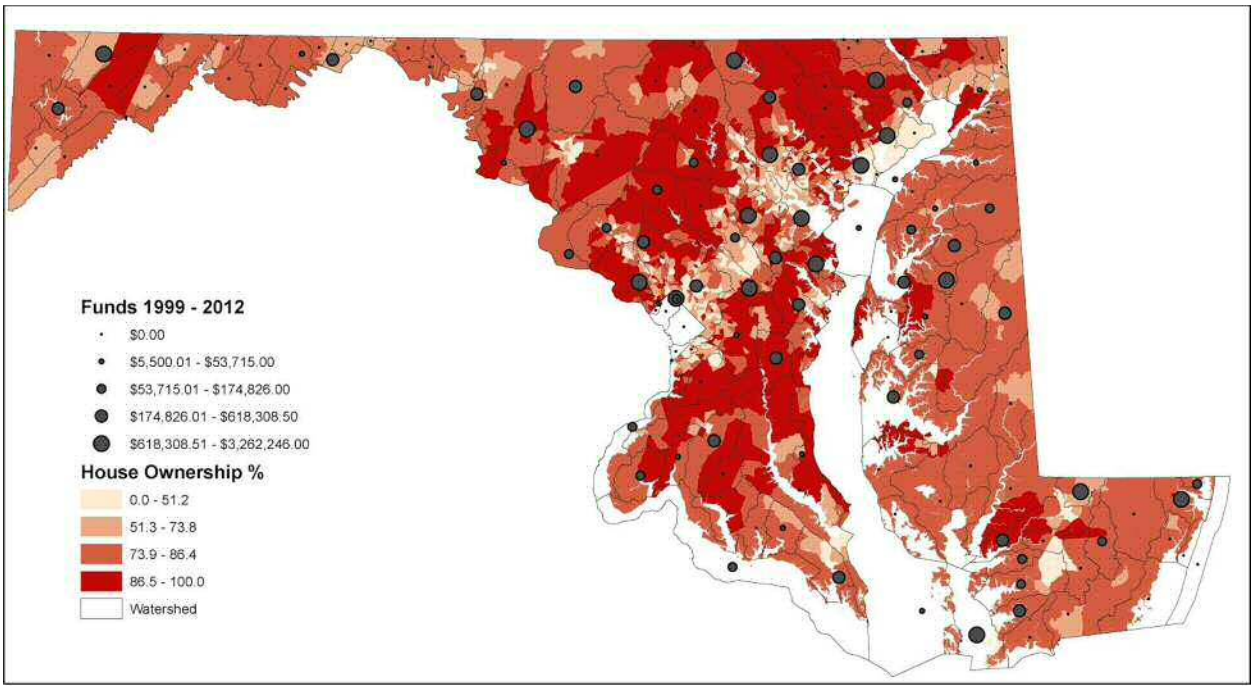


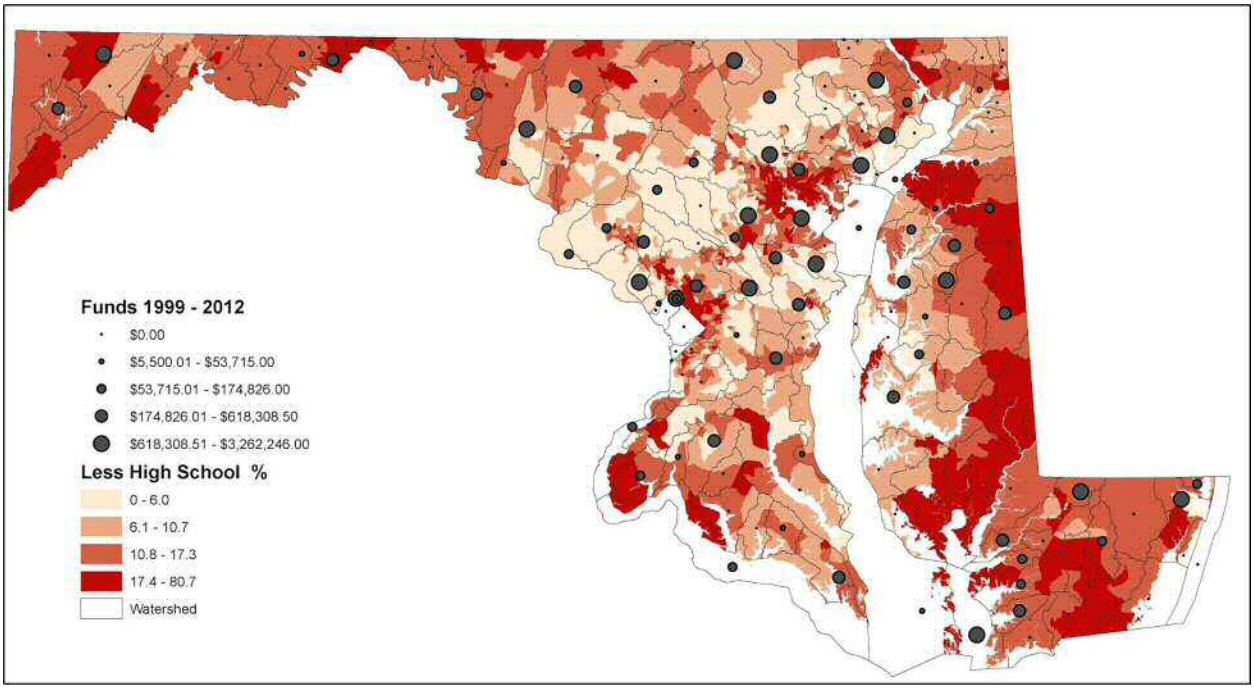
Background on Clean Water Act Section 319 Money

Maps


Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Black %
0.0 - 5.9
6.0 - 16.9
17.0 - 51.8
51.9 - 98.4
Watershed


Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Hispanic %
0.0 - 2.4
2.5 - 4.2
4.3 - 8.2
8.3 - 89.3
Watershed


Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
House Ownership %
0.0 - 51.2
51.3 - 73.8
73.9 - 86.4
86.5 - 100.0
Watershed


Funds 1999 - 2012
$0.00
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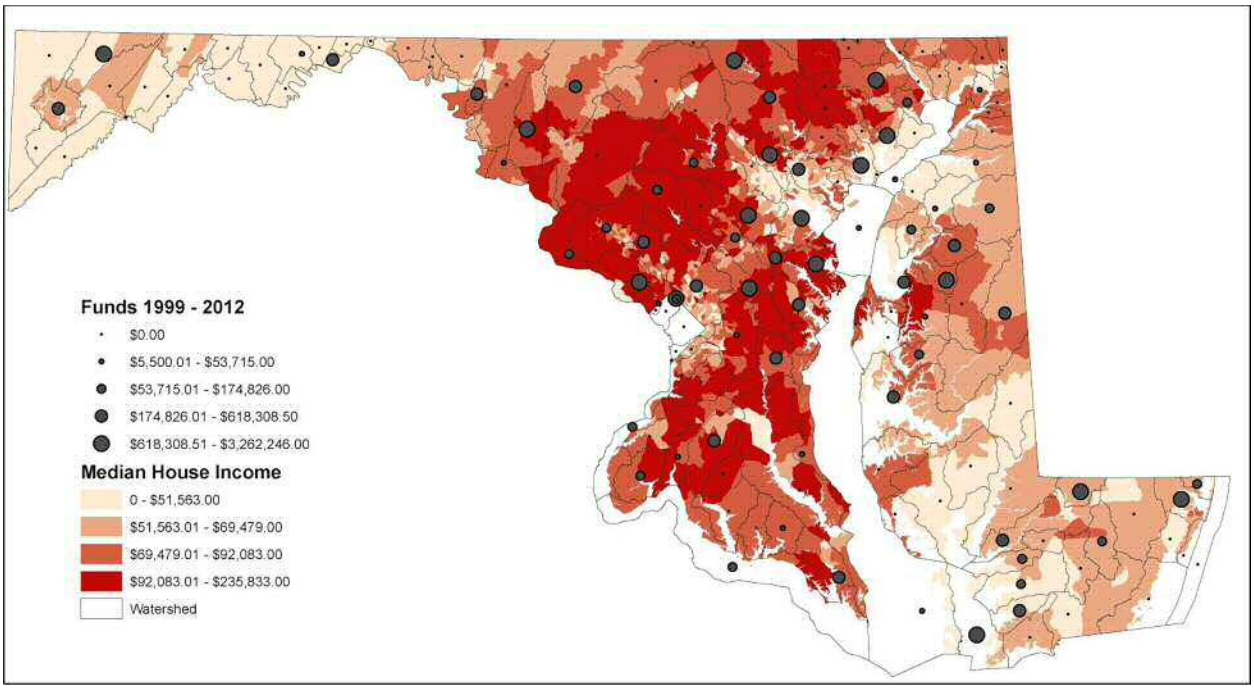
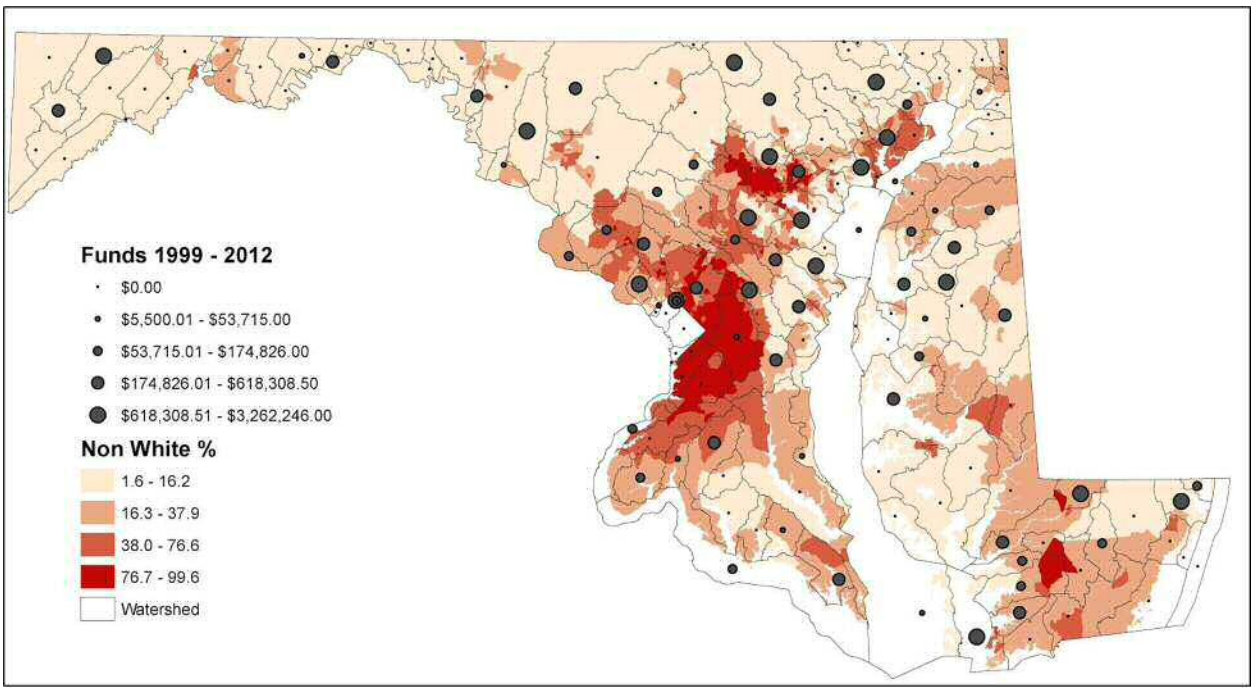
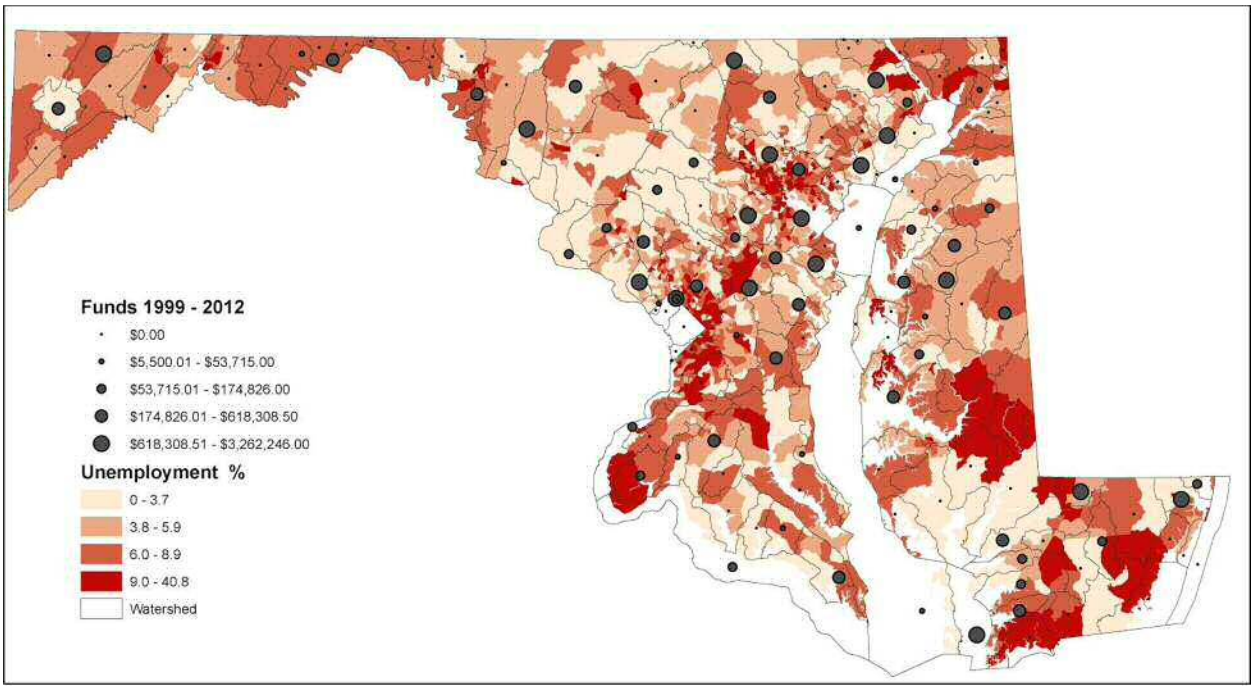
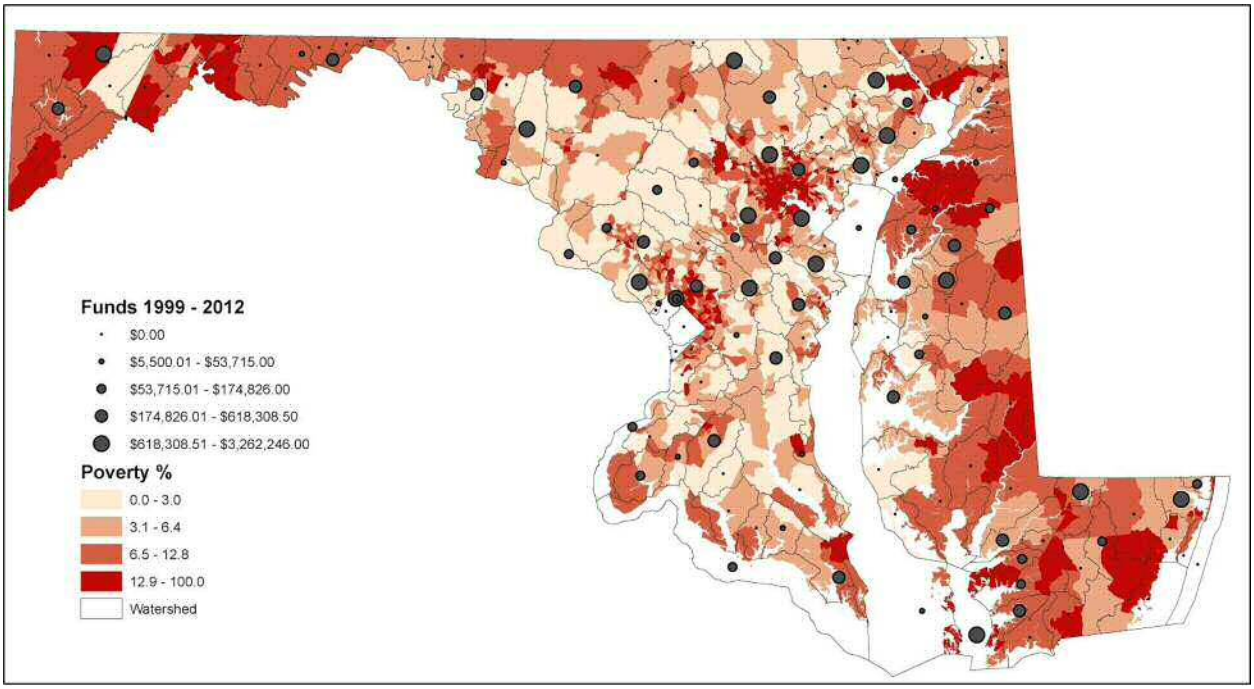
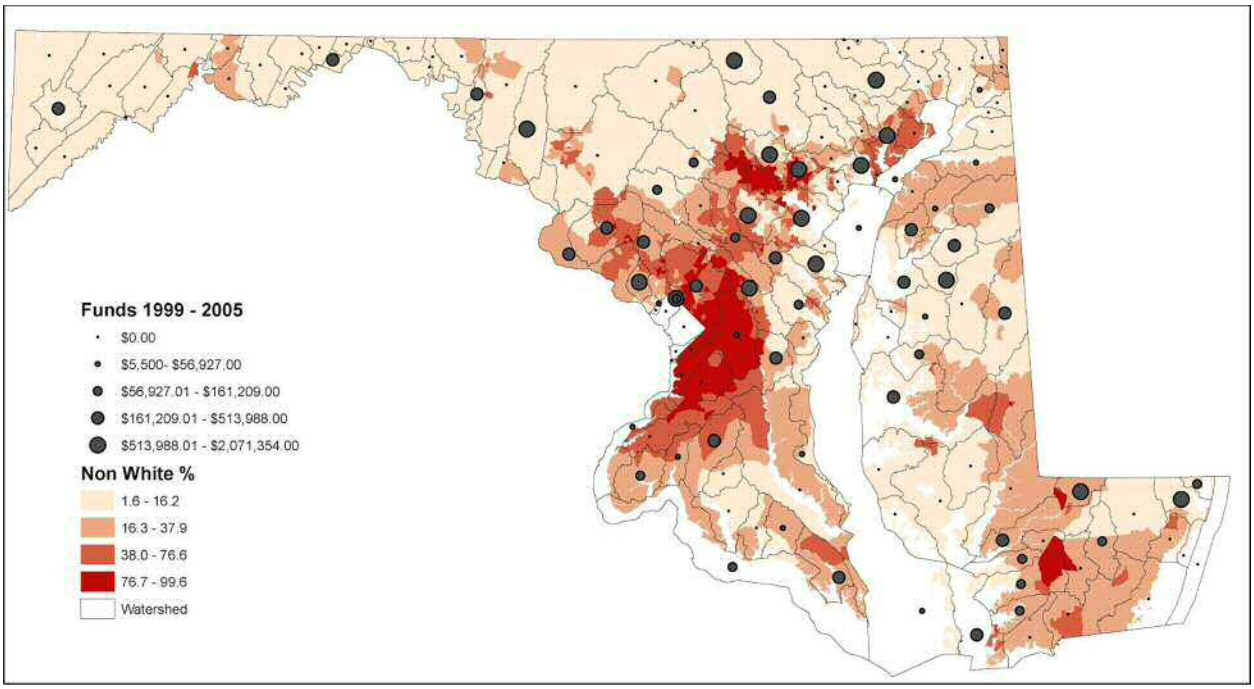
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Less High School %
0 - 6.0
6.1 - 10.7
10.8 - 17.3
17.4 - 80.7
Watershed

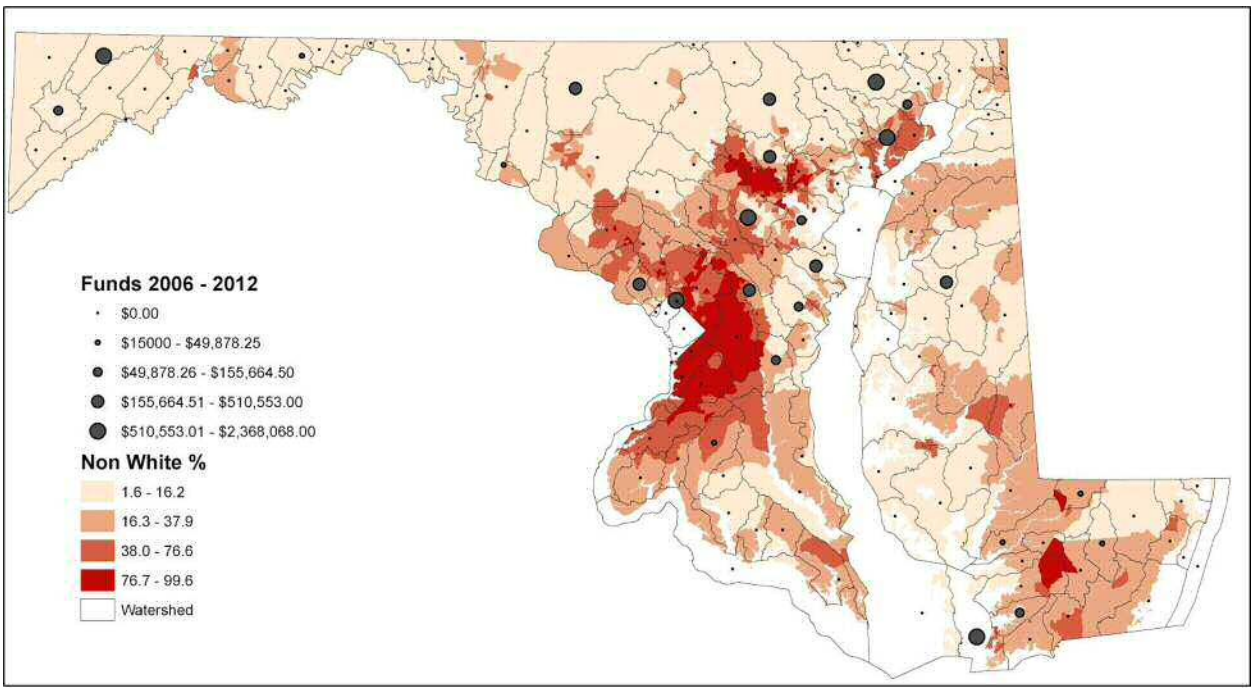

Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Median House Income
0 - $51,563.00
$51,563.01 - $69,479.00
$69,479.01 - $92,083.00
$92,083.01 - $235,833.00
Watershed

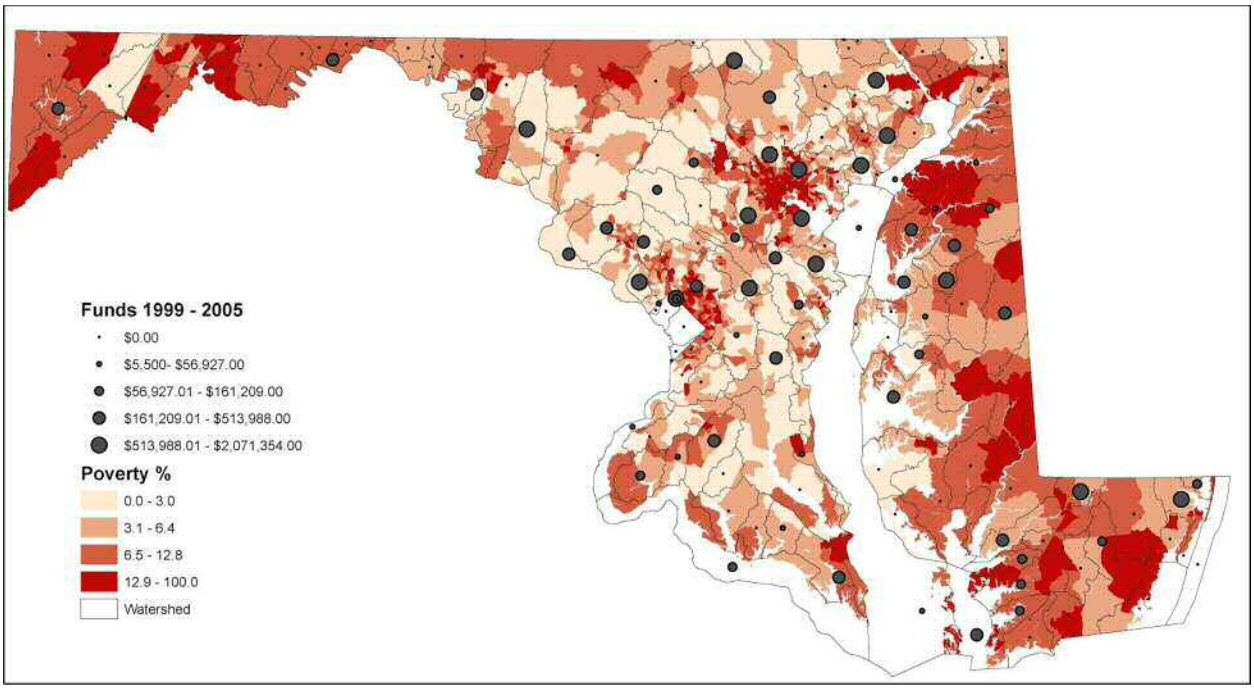

Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Non White %
1.6 - 16.2
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed

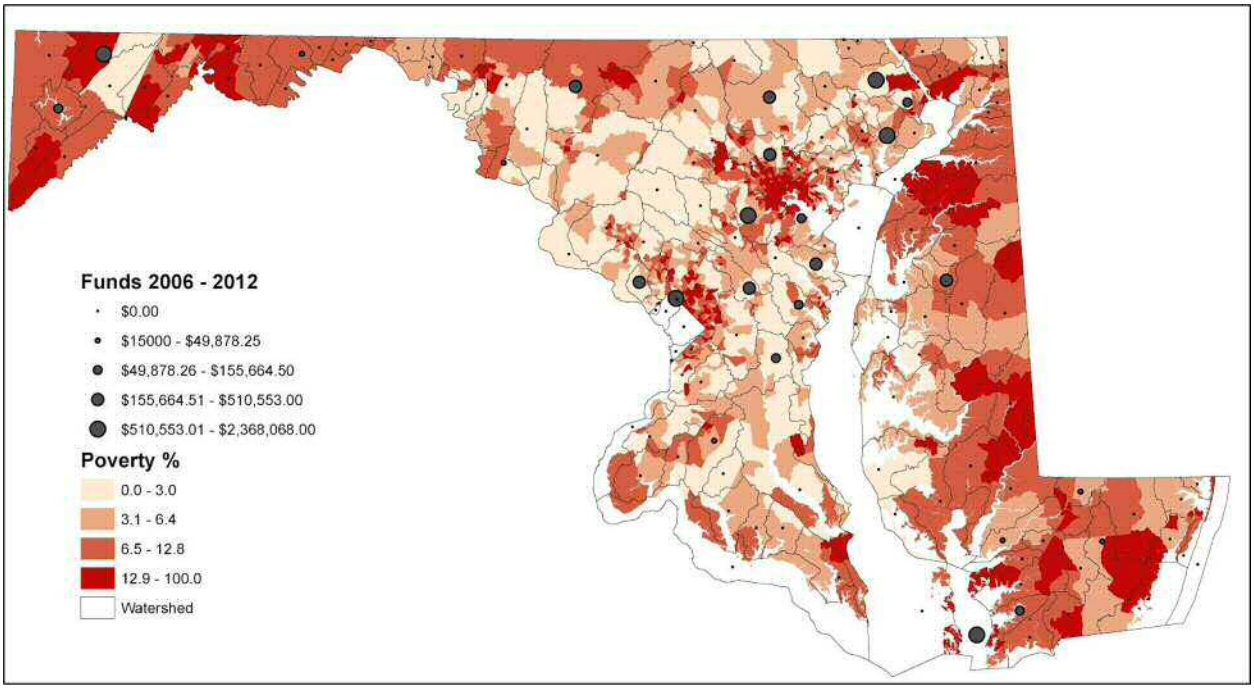

Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Unemployment %
0 - 3.7
3.8 - 5.9
6.0 - 8.9
9.0 - 40.8
Watershed


Funds 1999 - 2012
$0.00
$5,500.01 - $53,715.00
$53,715.01 - $174,826.00
$174,826.01 - $618,308.50
$618,308.51 - $3,262,246.00
Poverty %
0.0 - 3.0
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed


Funds 1999 - 2005
$0.00
$5,500- $56,927.00
$56,927.01 - $161,209.00
$161,209.01 - $513,988.00
$513,988.01 - $2,071,354.00
Non White %
1.6 - 16.2
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed


Funds 2006 - 2012
$0.00
$15000 - $49,878.25
$49,878.26 - $155,664.50
$155,664.51 - $510,553.00
$510,553.01 - $2,368,068.00
Non White %
1.6 - 16.2
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed


Funds 1999 - 2005
$0.00
$5,500- $56,927.00
$56,927.01 - $161,209.00
$161,209.01 - $513,988.00
$513,988.01 - $2,071,354.00
Poverty %
0.0 - 3.0
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed


Funds 2006 - 2012
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$49,878.26 - $155,664.50
$155,664.51 - $510,553.00
$510,553.01 - $2,368,068.00
Poverty %
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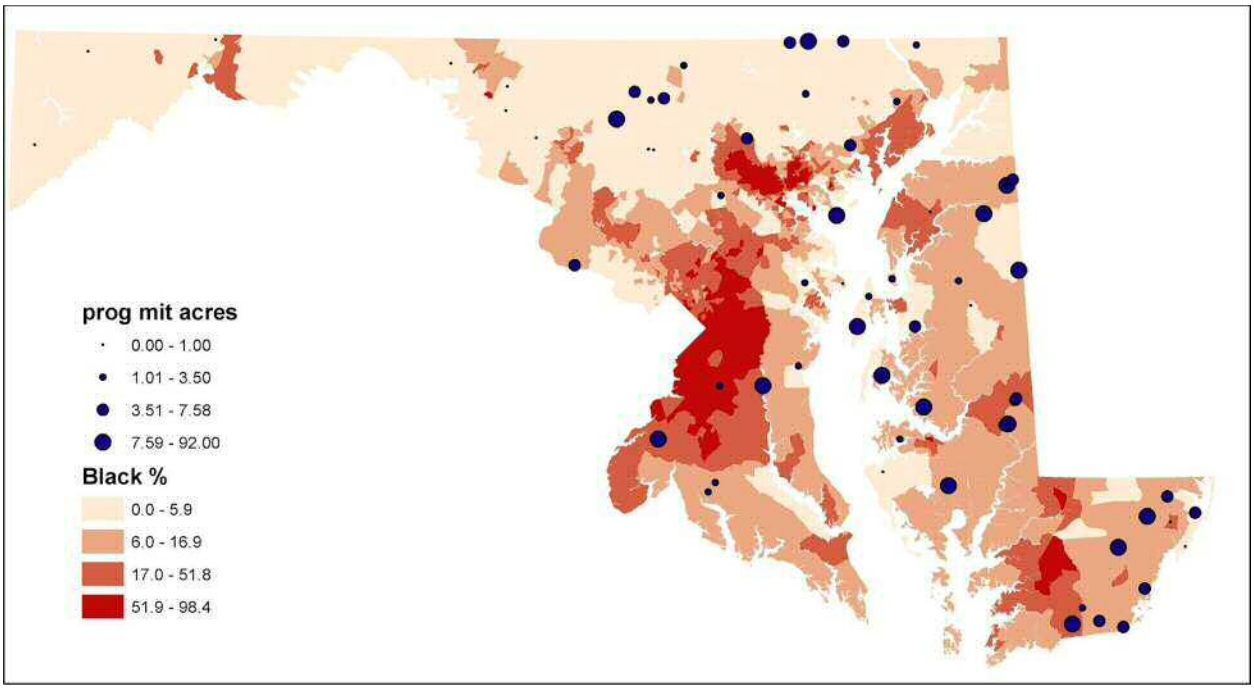
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed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1.01 - 3.50
3.51 - 7.58
7.59 - 92.00
Black %
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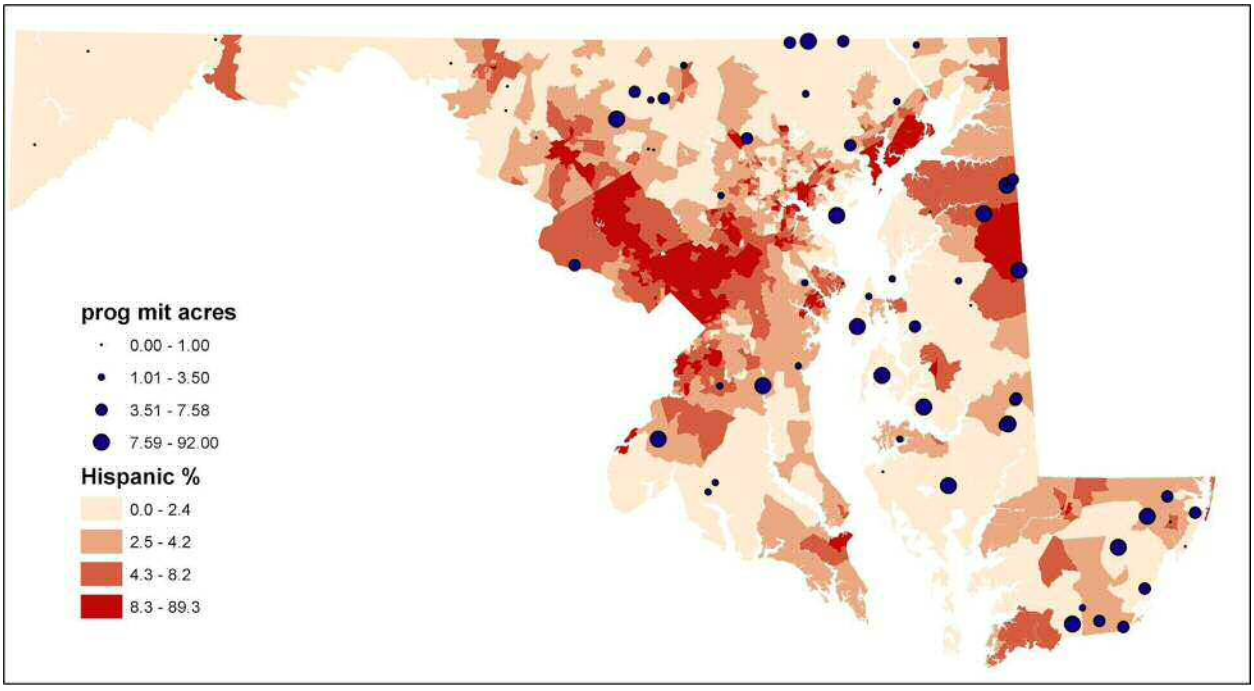
6.0 - 16.9
17.0 - 51.8
51.9 - 98.4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1.01 - 3.50
3.51 - 7.58
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Hispanic %
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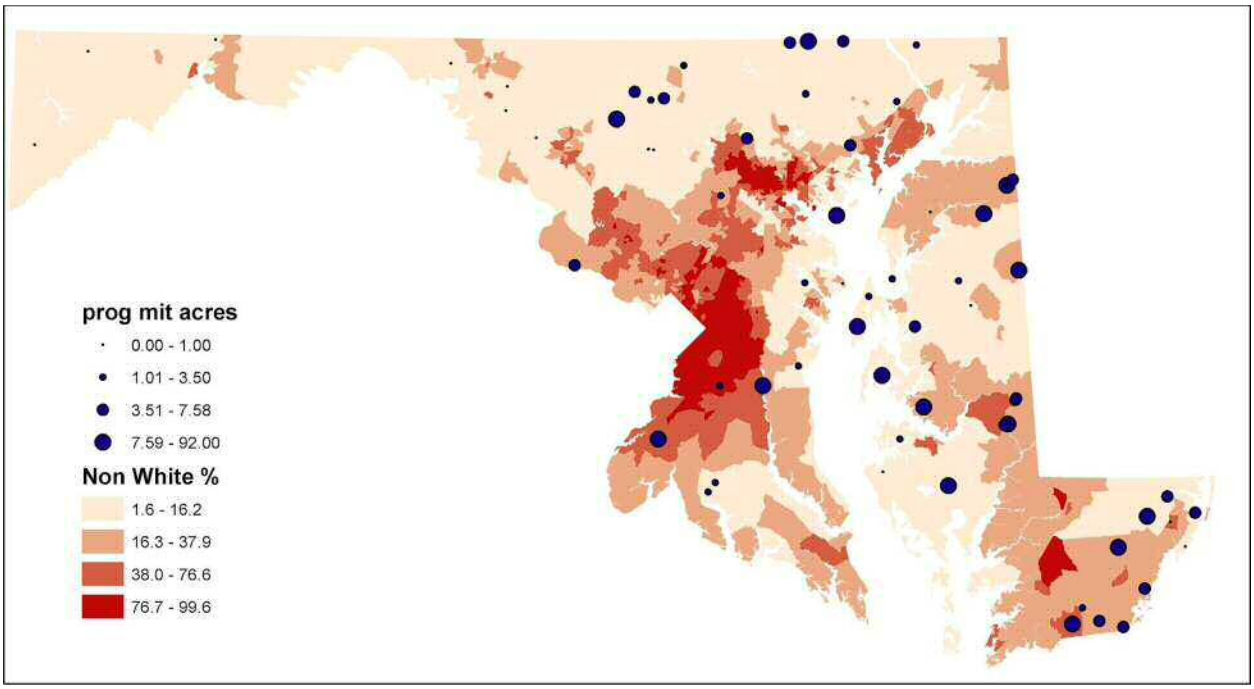
2.5 - 4.2
4.3 - 8.2
8.3 - 89.3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1.01 - 3.50
3.51 - 7.58
7.59 - 92.00
Non White %
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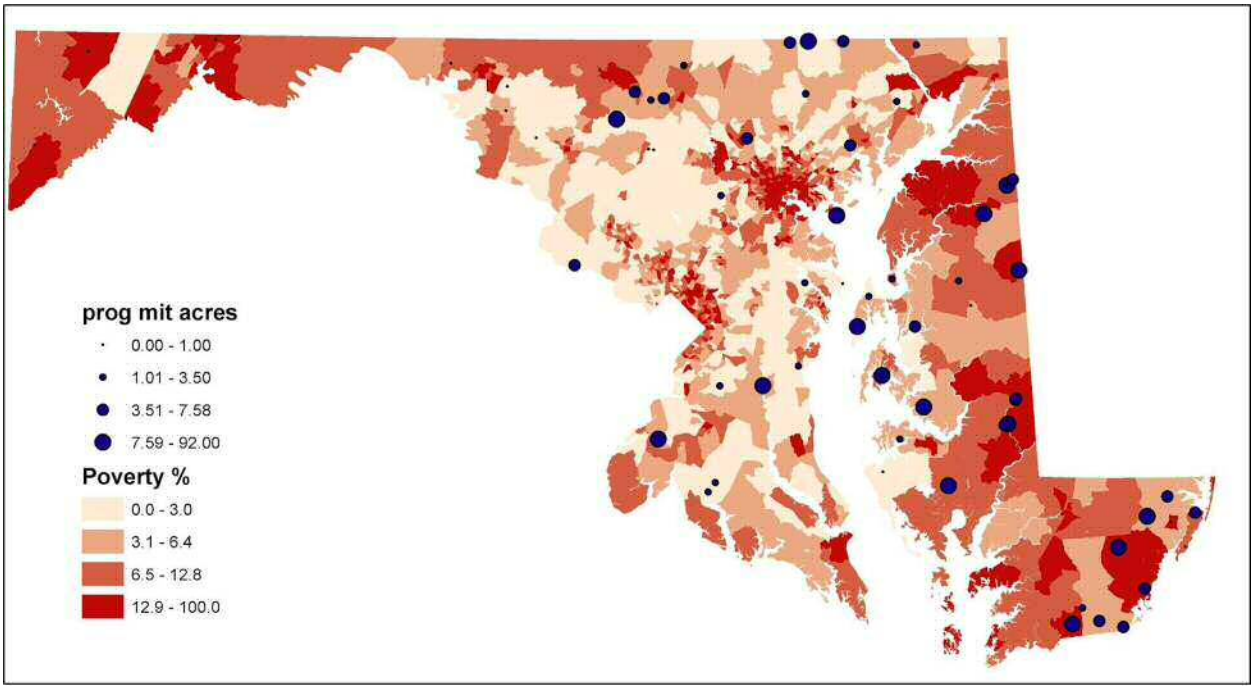
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6


prog mit acres
0.00 - 1.00
1.01 - 3.50
3.51 - 7.58
7.59 - 92.00
Poverty %
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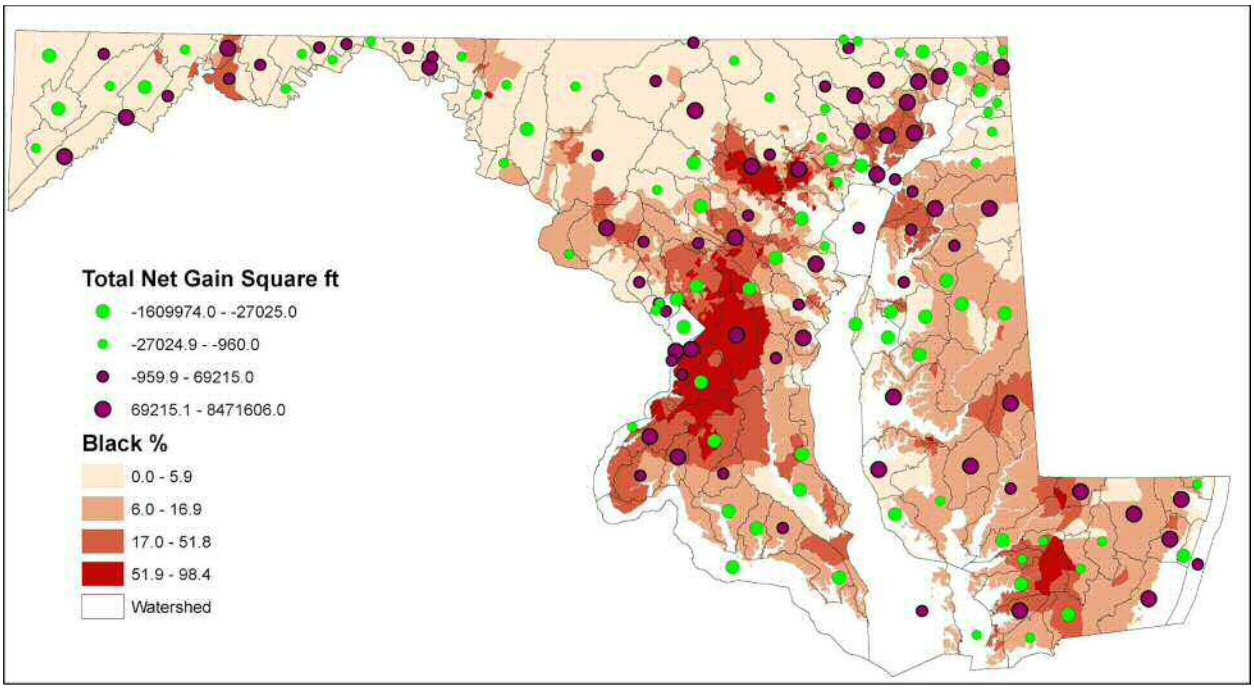
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0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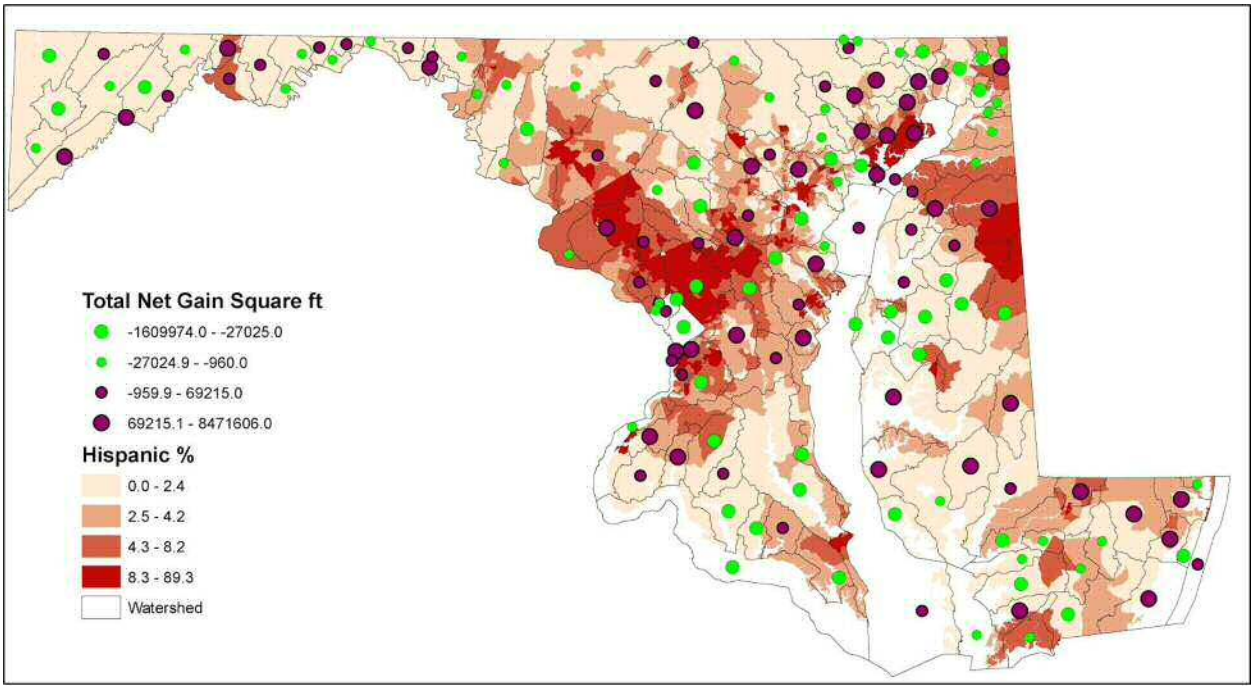
-27024.9 - -960.0
-959.9 - 69215.0
69215.1 - 8471606.0
Black %
0.0 - 5.9
6.0 - 16.9
17.0 - 51.8
51.9 - 98.4
Watershed


Total Net Gain Square ft
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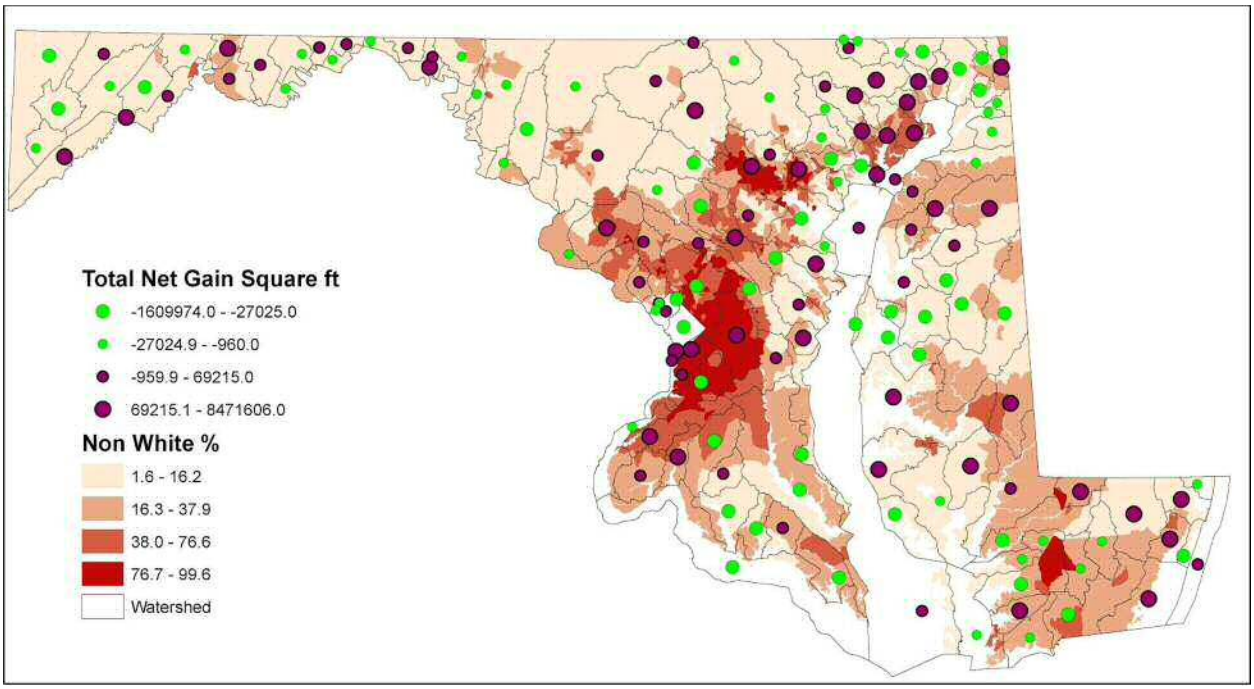
-27024.9 - -960.0
-959.9 - 69215.0
69215.1 - 8471606.0
Hispanic %
0.0 - 2.4
2.5 - 4.2
4.3 - 8.2
8.3 - 89.3
Watershed


Total Net Gain Square ft
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-959.9 - 69215.0
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Non White %
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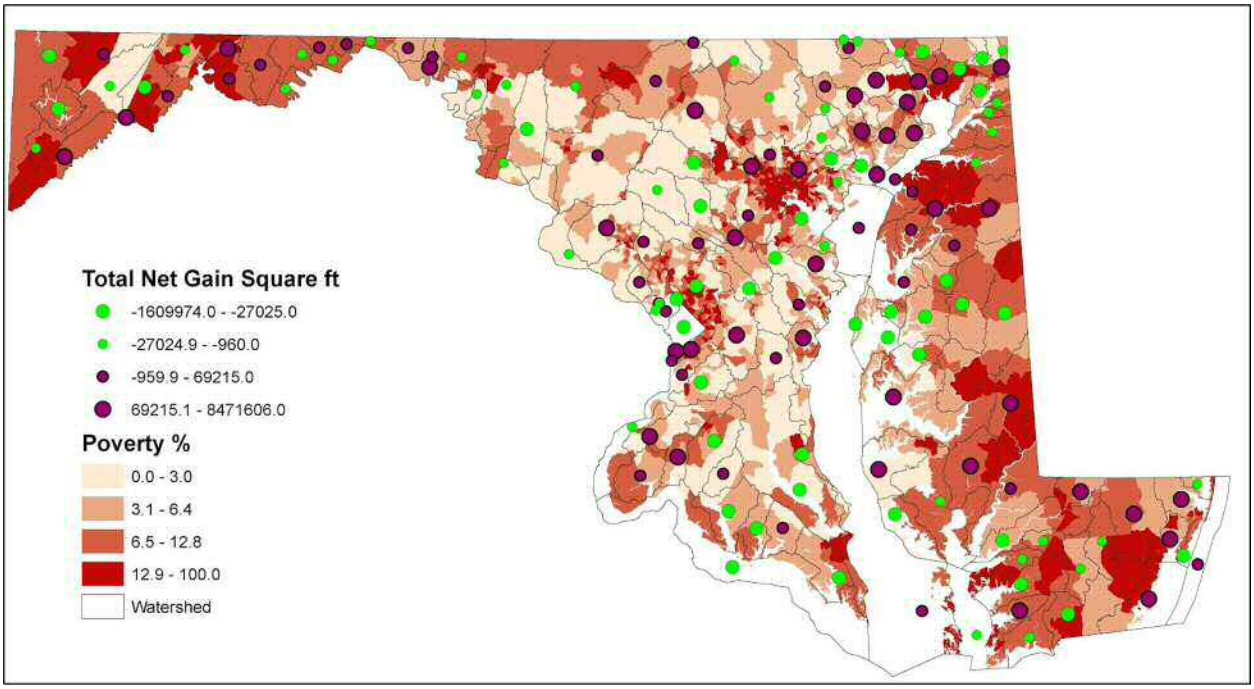
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed


Total Net Gain Square ft
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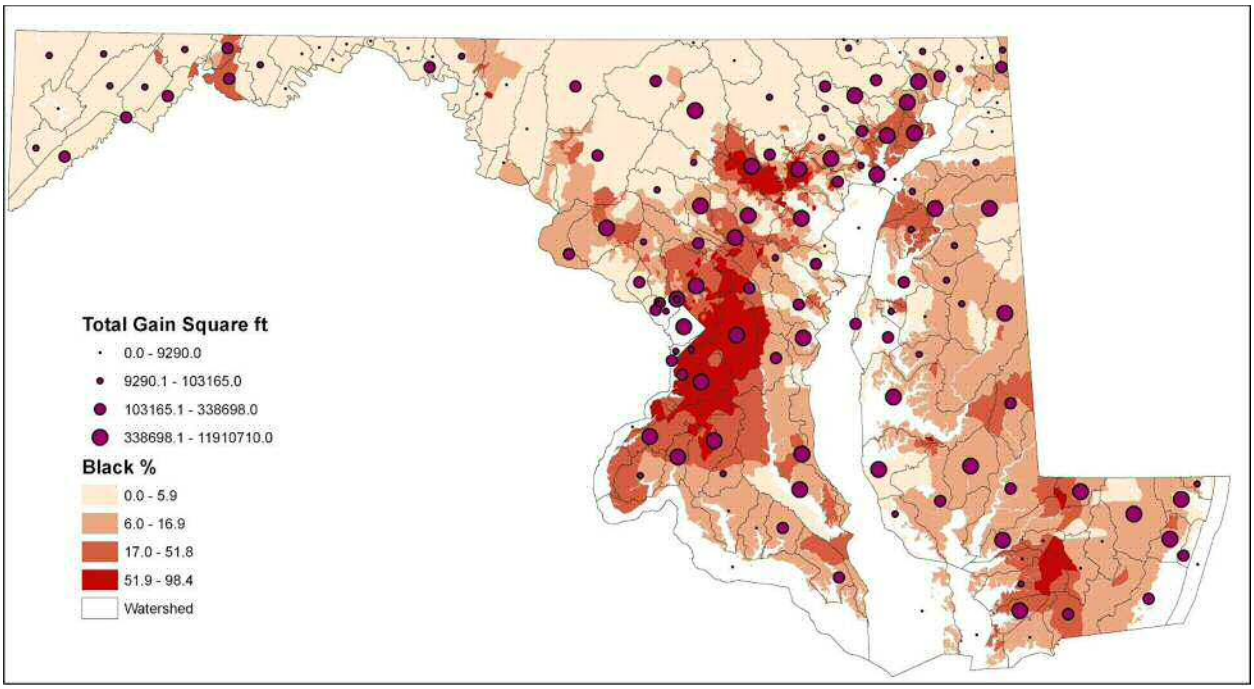
-27024.9 - -960.0
-959.9 - 69215.0
69215.1 - 8471606.0
Poverty %
0.0 - 3.0
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed


Total Gain Square ft
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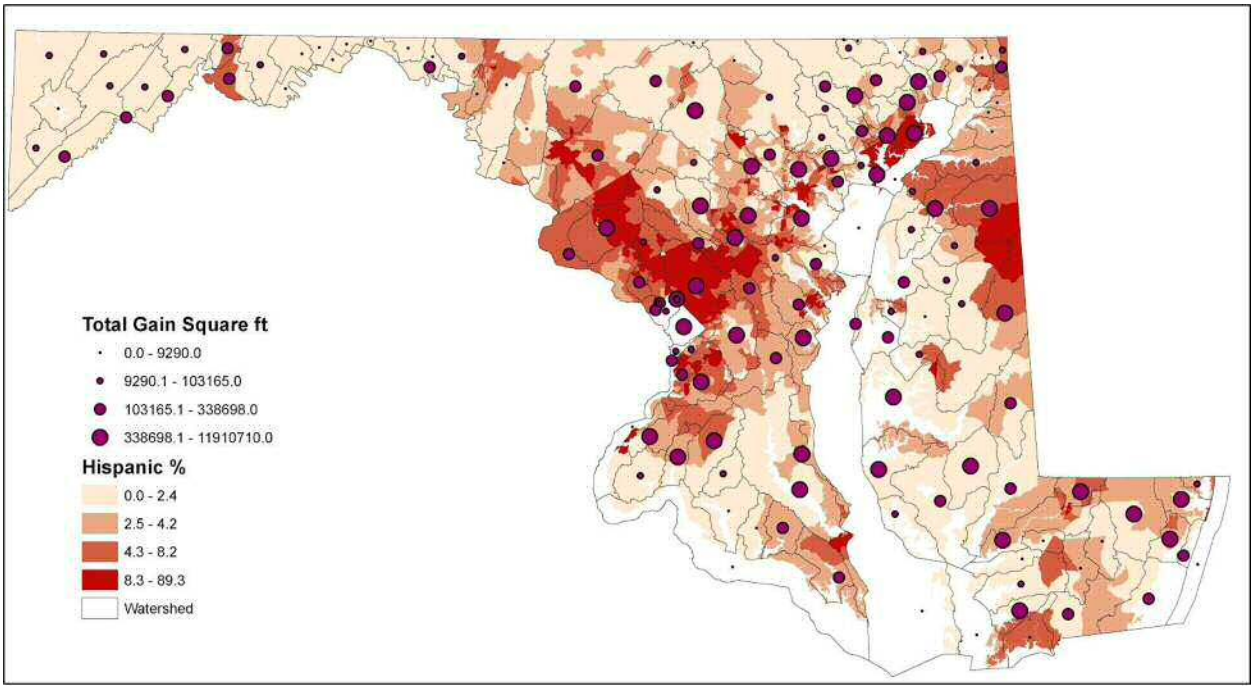
9290.1 - 103165.0
103165.1 - 338698.0
338698.1 - 11910710.0
Black %
0.0 - 5.9
6.0 - 16.9
17.0 - 51.8
51.9 - 98.4
Watershed


Total Gain Square ft
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103165.1 - 338698.0
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Hispanic %
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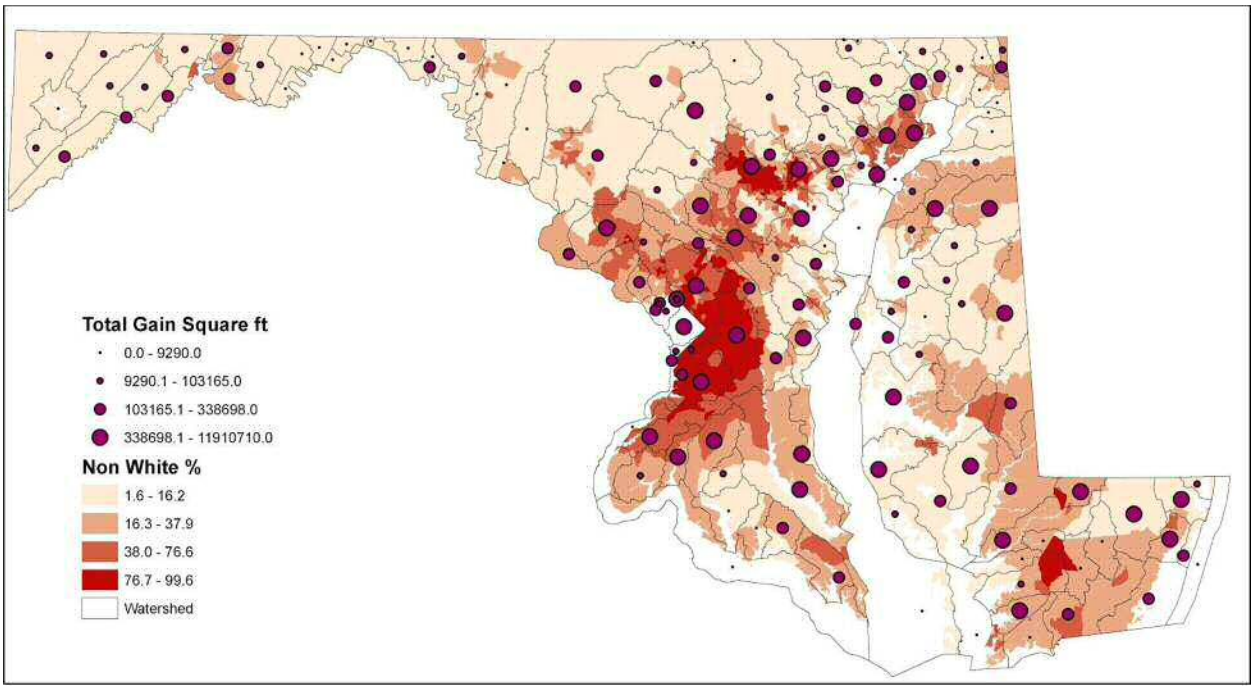
2.5 - 4.2
4.3 - 8.2
8.3 - 89.3
Watershed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103165.1 - 338698.0
338698.1 - 11910710.0
Non White %
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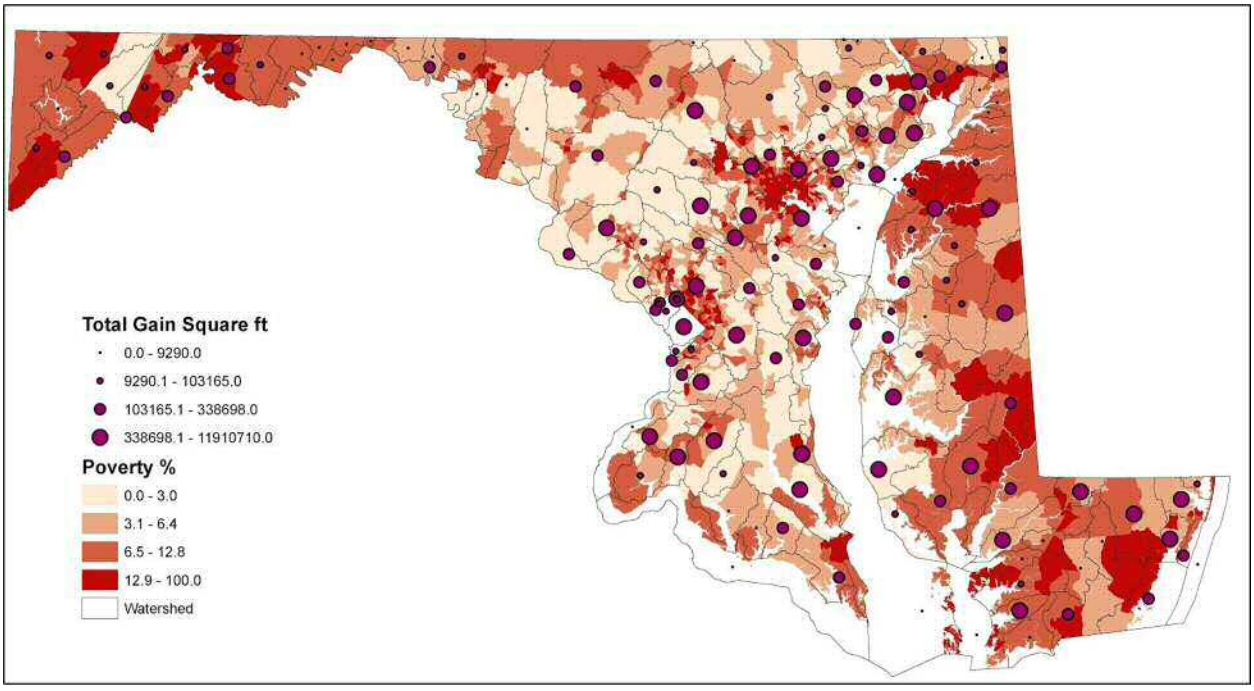
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed


Total Gain Square ft
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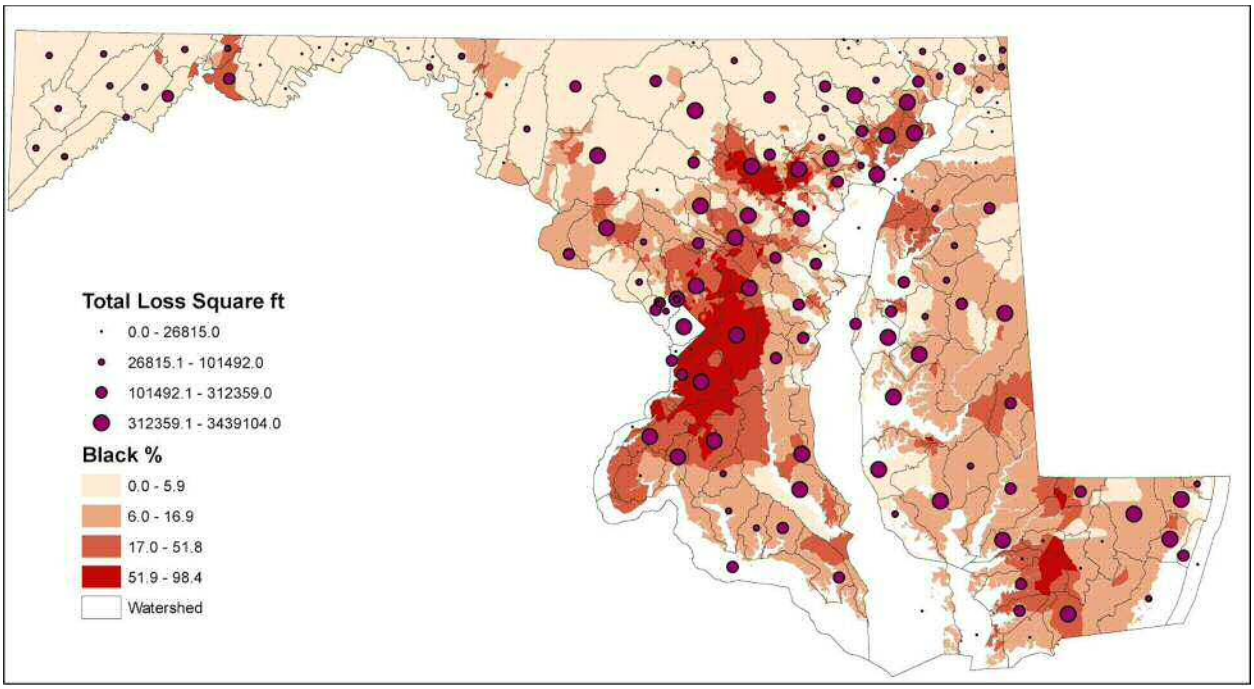
9290.1 - 103165.0
103165.1 - 338698.0
338698.1 - 11910710.0
Poverty %
0.0 - 3.0
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed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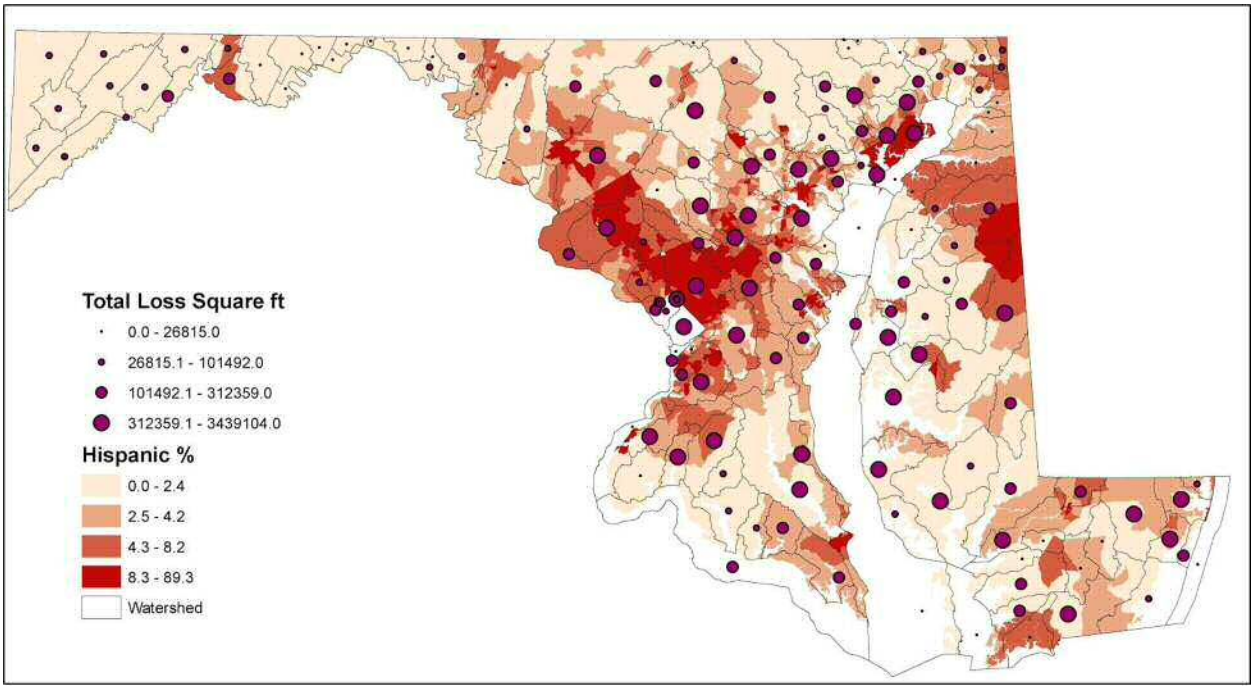
26815.1 - 101492.0
101492.1 - 312359.0
312359.1 - 3439104.0
Black %
0.0 - 5.9
6.0 - 16.9
17.0 - 51.8
51.9 - 98.4
Watershed


Total Loss Square ft
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26815.1 - 101492.0
101492.1 - 312359.0
312359.1 - 3439104.0
Hispanic %
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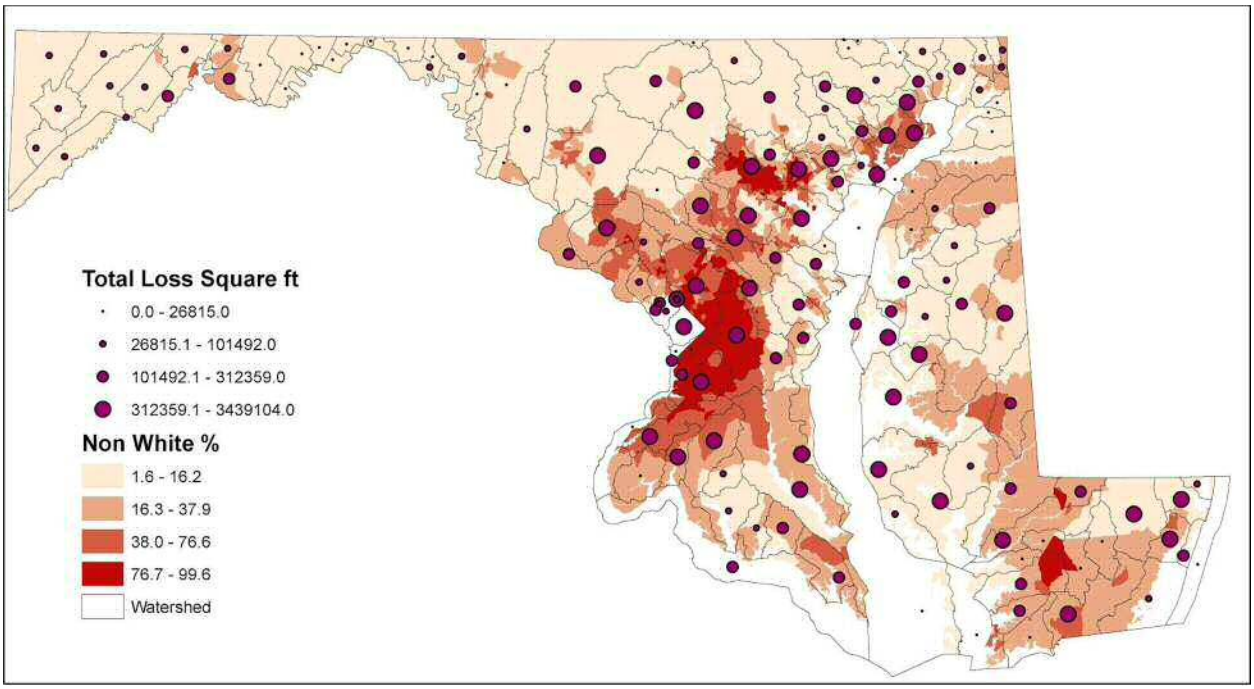
2.5 - 4.2
4.3 - 8.2
8.3 - 89.3
Watershed


Total Loss Square ft
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26815.1 - 101492.0
101492.1 - 312359.0
312359.1 - 3439104.0
Non White %
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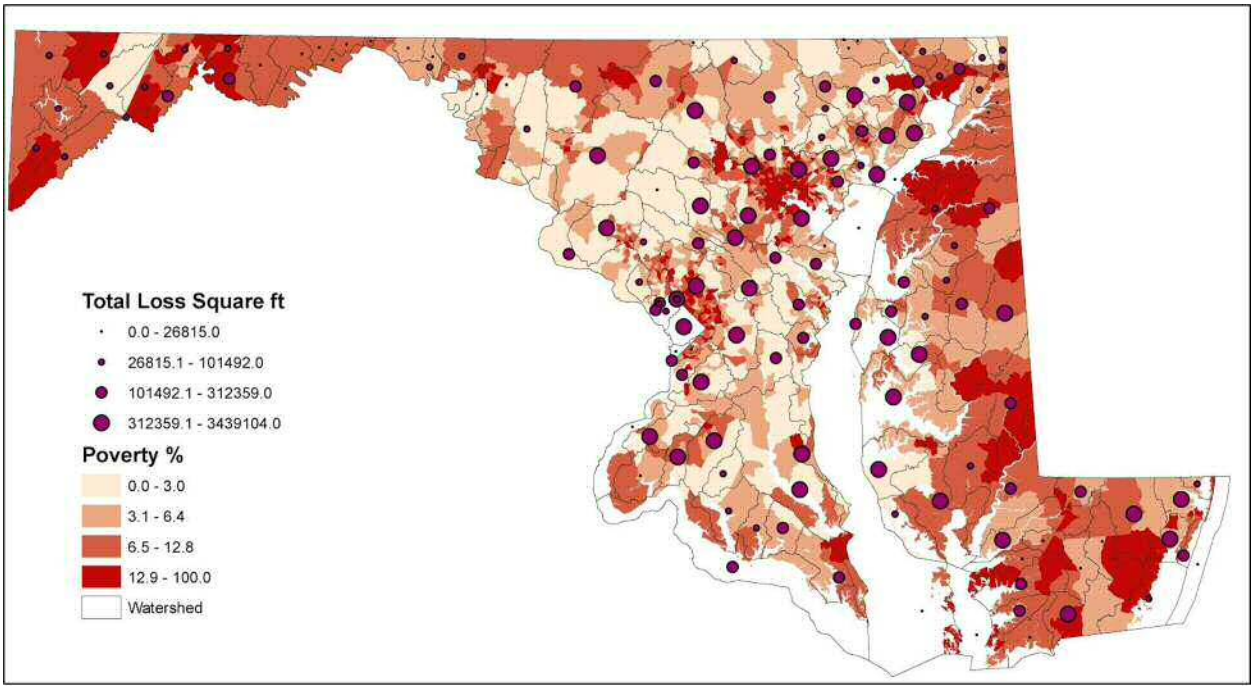
16.3 - 37.9
38.0 - 76.6
76.7 - 99.6
Watershed


Total Loss Square ft
0.0 - 26815.0
26815.1 - 101492.0
101492.1 - 312359.0
312359.1 - 3439104.0
Poverty %
0.0 - 3.0
3.1 - 6.4
6.5 - 12.8
12.9 - 100.0
Watershed

Sponsor Testimony, HB942.pdf
Uploaded by: Jen Terrasa
Position: FAV

JEN TERRASA
Legislative District 13
Howard County

Environment and Transportation Committee

House Chair
Joint Committee on Children, Youth, and Families

THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

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March 3, 2023

To: The Honorable Kumar P. Barve
Chair, Environment and Transportation Committee

From: Delegate Jen Terrasa
District 13, Howard County

Re: Sponsor Testimony in Support of HB942 Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

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Dear Chairman Barve, Vice Chair Stein, and Members of the Environment and Transportation Committee,

Thank you for the opportunity to present HB942, which would require the Department of the Environment to revise the criteria it currently uses to approve stream restoration projects based on the perceived impact it would have on wetlands and waterways. While stream restoration may sound overall good on its face, the concern this bill addresses is that in some cases these projects also cause a significant amount of destruction, including removal of mature trees and habitat for existing wildlife.

There has been a recent push in past years to support stream restoration projects with the goal to lessen stream erosion and ultimately promote biological uplift in the Chesapeake Bay. However, these projects have not resulted in their intended effects. Some current stream restoration projects tear out forests and vegetation to alter the channel structure of streams. These changes disrupt the surrounding habitats and ecosystems, hurting various wildlife that depend on these environments. In addition, these projects have not been effective in stopping stream bank erosion and, in some cases, have left the stream and its water health in worse shape.

In order to support the habitats both in and surrounding the streams, HB942 requires that biological uplift and improvement be proven throughout this process, as well as tree removal be minimized. Since one of the main goals of stream restorations and MS4 permits are to promote the biological uplift of the Chesapeake Bay, it should also be a main goal of the stream restoration projects. These steps will protect natural vegetation and wildlife around the streams.

HB942 works to solve these issues by changing the incentives surrounding stream restoration projects. Instead of incentivizing large projects that negatively affect the habitats surrounding streams, and consequently streams' water health, this bill will provide more credits for smaller, upland projects through the Maryland Department of Environment's (MDE) Municipal Separate Storm Sewer System (MS4) Permits and Total Maximum Daily Load (TMDL) goals. Upland projects, including rain gardens and permeable pavements, work to limit the amount of stormwater that ends up flowing into streams and causing destruction. Without incentivizing projects that will control stormwater before it reaches the streams, they will continue to be destroyed.

Stream restorations have become a multi-billion-dollar industry. Municipalities are spending enormous amounts of money on projects to generate the necessary water quality credits for MS4 permits. MS4 permits are issued by MDE under authorization of the federal Environmental Protection Agency. In Maryland, the MS4 permit system requires certain jurisdictions to reduce the amount of nitrogen, phosphorus, and sediment that enters the Chesapeake Bay **but** not all require them to demonstrate biological uplift in streams.

Mitigation projects are another driver of stream restorations. These mitigation projects are used to compensate for environmental harms created in one place, typically by a construction project, by making attempted environmental enhancements such as a stream restoration in a different location. Mitigation projects must meet the Federal Mitigation Rules and state requirements. Current laws and regulations enable the frequent use of stream restorations for both mitigation projects and MS4 permits.

WHAT THE BILL DOES:

HB942 has five main goals. The first is to incentivize use of alternatives to stream restorations that are less destructive to the environment, such as rain gardens, tree plantings, permeable pavement, etc. The second is to require projects to focus on biological uplift of instream biology and net overall impact on the environment. Third, to require projects to minimize tree removal and protect remaining trees. Fourth, to improve public notice/transparency regarding these projects. Fifth, to require that stream restoration mitigation projects be located in the same watershed as the stream for which mitigation is required. And lastly, to monitor and evaluate projects to ensure stated goals are achieved before credits are issued. (However, we are working with stakeholders to reduce that timeline for when credits are released.)

This bill works to reduce stream degradation, incentivize solutions that will actually protect our streams and their surrounding environments, and set up safeguards to ensure their effectiveness.

I respectfully urge a favorable report of HB942.

HB942_WMCCA_Bawer Written Testimony_45.pdf
Uploaded by: Kenneth Bawer
Position: FAV

WEST MONTGOMERY COUNTY CITIZENS ASSOCIATION

P.O. Box 59335 ● Potomac, Maryland 20854

Founded 1947

Committee: House Environment and Transportation Committee

Testimony on: Bill Number HB 942 "Wetlands and Waterways Program - Authorizations for Stream Restoration Projects"

Position: Favorable

Hearing Date: March 3, 2023

The West Montgomery County Citizens Association (WMCCA) supports HB 942 "Wetlands and Waterways Program - Authorizations for Stream Restoration Projects."

WMCCA welcomes the opportunity to provide written testimony on this bill. It will strengthen Maryland's commitment to cleaning up the Chesapeake Bay while at the same time recognizing the need to safeguard local natural resources. The focus of this testimony is to make Delegates aware of the damage done by stream "restorations". Bill HB 942 promotes more effective and beneficial stream restoration projects and incentivizes alternatives to stream restorations using less destructive out-of-stream stormwater control methods such as rain gardens, bioswales, green roofs, permeable paving, and conservation landscaping to replace turf grass.

This testimony includes a video link and numerous photographs of the unconscionable damage done to our natural areas by numerous stream restoration projects. Please take a few minutes to watch this video of the Solitaire Court stream restoration in Gaithersburg that was completed in May of 2022. Without exception, everyone who sees this video is appalled by the destruction of what once was a lovey stretch of wooded stream. What you see are typical activities that take place during a stream restoration such as chain sawing large mature trees, clearcutting mature stream-side forests, and dumping rocks into streams to make dams that fish and other aquatic animals cannot cross. The narrator describes the results that we can see with our own eyes: a landscape that is "…clearcut, demolished, torn out, stripped to bare dirt, leaving no trace of life. A desert landscape. …The canopy gone, leaving the entire corridor open to hot, baking sun and drying winds." One viewer said, "I do not understand how this is legal." Another person asked, "Why do they call it restoration?"

Stream "Restorations" Don't Restore Streams

Stream restorations typically clear-cut mature stream-side forests. Young trees are replanted, but these will take decades or longer to approximate what was destroyed. The complex web of interactions between fauna, flora, geology, and hydrology in natural areas can't be recreated by engineering projects using bulldozers, trucked-in rock rubble, and some replanted saplings.

The following photographs show examples of stream restorations that have been done in several jurisdictions around the state and illustrate the need for stream restoration reform. The photo below is a stream restoration at Nature Forward (formerly Audubon Naturalist Society) in Chevy Chase.

This was once a fully wooded area. It shows the heavy construction equipment being used. Visible are the plastic sheets used and large boulders dumped in the stream channel.

(Above: Nature Forward, Chevy Chase; https://conservationblog.anshome.org/tag/stream-restoration/)

The next photo at this same site shows a series of rock dams built with rock rubble that has been dumped into the stream channel. Now there is no way for aquatic creatures to move up and down this stream.

(Above: Nature Forward, Chevy Chase; https://conservationblog.anshome.org/tag/stream-restoration/)

The aerial photo of a stream restoration at the Asbury Methodist Village in Gaithersburg shows how rock rip rap has been dumped at intervals into the stream to create a series of dams. These dams prevent the migration of fish and other aquatic organisms. You can get an idea of scale compared to the large trees at the bottom.

(Above: Asbury Methodist Village, Gaithersburg, https://www.youtube.com/watch?v=hGZN-L0Qrj0)

The next photo is an example of the utter destruction caused by a stream restoration in the City of Rockville in the upper Watts Branch. This project was completed in 2018. The riparian, or stream-side, forest buffer has been completely destroyed and scraped down to bare soil. Before it was clearcut, the trees along this stream provided shade which lowered the water temperature required by some sensitive aquatic organisms.

(Above: Stream "restoration" in Upper Watts Branch, Rockville; photo by City of Rockville)

What happens to the stream during these construction projects? Below is the Falls Reach project in Potomac, MD. The entire stream was forced to run through this black pipe during construction. How hot do you think that water gets? No longer can frogs, turtles, and other animals access the water. And it gets worse. According to a U.S. Department of Agriculture National Engineering Handbook called "Stream Restoration Design", "Aquatic life would be either be prevented from passing the project or pulverized by the pumps."[1] So not just fish but frogs, crayfish, northern water snakes, baby snapping turtles, spotted turtles, etc. are at risk.

(Above: Falls Reach Stream Restoration Project; photo by K. Bawer, 3/19/2019)

The pre-construction photo of Whetstone Run in Blohm Park, Gaithersburg shows a riparian, or stream-side, forest that was quite dense and lush.

(Above: before construction, Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer, 5/03/2021)

[1] "Stream Restoration Design," National Engineering Handbook, Part 654,August 2007, United States Department of Agriculture, Natural Resources Conservation Service, Case Study 6, p. CS6–13

The post-construction photo below, taken at the exact same location, shows the total destruction of the stream-side forest. The original stream channel was filled and a whole new stream channel was dug. The original, natural stream never had this kind of artificial meander pattern, or sinuosity, that was created by the heavy machinery. Some of the paltry replanting is barely evident.

(Above: after construction: Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer on 5/03/2021)

This is another view of the Whetstone Run project just to show that there were, in fact, lots of mature trees cut down.

(Above: Whetstone Run , Gaithersburg from https://www.youtube.com/watch?v=1XLXRNmN9L8&t=61s)

To show how the original, pre-construction stream was moved, a trace of the original stream channel location in green is overlaid with a trace of the new stream channel in red. The image is quite shocking.

(Above: photo for "before" green trace from https://earthexplorer.usgs.gov/, photo for "after" red trace from Google Maps)

The next several photographs show different views of a destructive stream restoration in Columbia.

(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 1/8/2021)

(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 4/6/2021)

(Above: Columbia stream restoration; by S. Boies)

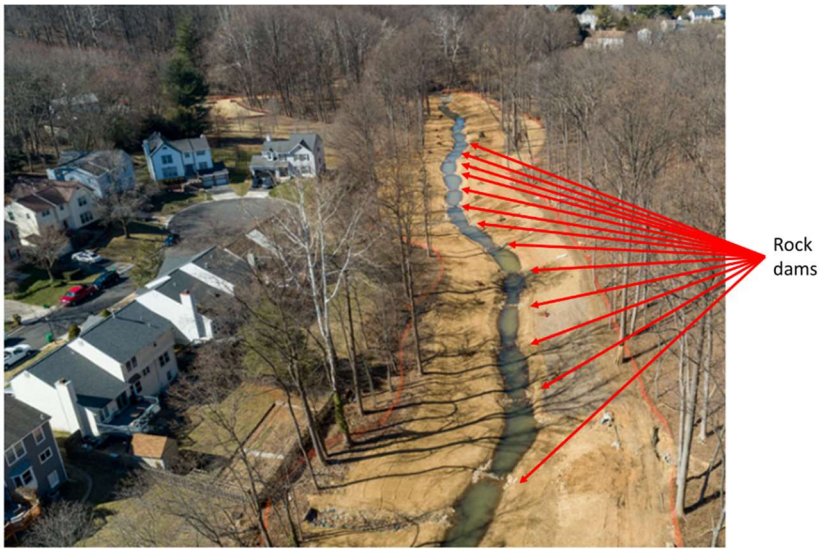
Next is the Solitaire Court stream restoration in Gaithersburg (the location of the video link on page 1). Before construction, none of the houses below were visible through the narrow strip of forest. At the pre-construction walk-through, the city program manager was asked what will happen to little animals like frogs, turtles and salamanders. That person responded with a straight face, “Oh, they’ll just move away and come back after the construction.”

(Above: Solitaire Court stream restoration in Gaithersburg; photo by K. Bawer, 10/23/2021)

In another photograph, the former forest can be seen reduced to a giant pile of logs.

(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portonova, 12/3/2021)

In another view of the Solitaire Court project, the arrows point to some of the rock dams created by dumping rocks into the stream. These will totally block fish and other aquatic organisms. Plus, the stream will drastically heat up now that a large number of the shade trees were cut. Note that the critical root zones of the trees (the area around the base of a tree containing most of a tree's roots that are critical for its survival) near the orange construction fences (on both sides of the clear-cut area) were not protected, so many of these edge trees will die due to soil compaction.



(Above: Solitaire Court project in Gaithersburg; https://www.gaithersburgmd.gov/government/projects-in-the-city/solitaire-court-stream-restoration-project)

Below is another view of the Solitaire Court project from further downstream. Again, this was a fully wooded forest. All of the trees on the left with the vertical wood scape protectors (the red arrow points to one) will probably die because their critical root zones have been severely compacted. And the line of big trees on the right at the edge of the clear cut will also likely die due to soil compaction.

(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portanova, 2/7/2022)

The following photos are “before” and “after” pictures of the Takoma Branch project in Takoma Park.

(Above: before construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

After construction, it can be seen that the natural character of the forest was wiped out including removal of woody debris such as the fallen trees that woodpeckers and other animals depend on.

(Above: after construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

Below is the Briers Mill Run in Prince Georges County after restoration. Before this project, the area was a natural strip park with lots of trees and understory plants – a great place for kids to explore and animals to live. Not so much anymore. This is now merely an engineered drainage ditch.

(Above: Briers Mill Run, Prince Georges County; https://www.facebook.com/PGCCWP/posts/1299726287063844)

Next is the Scotts Level Branch stream restoration in Baltimore County. The county web site says that they are concerned about providing essential habitat and vegetative buffers for streams. Why then are they destroying what they already have?

(Scotts Level Branch stream restoration, Baltimore County; from https://www.youtube.com/watch?v=ix42pr9t3ts)

The following photo shows the pre-restoration St. Charles Parkway stream in Charles County. This was a fine-looking stream valley until the riparian forest was clearcut.

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

What remained was a pile of logs, some of which are shown in the photo below.

(Above, St. Charles Parkway stream restoration, Charles County, from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

Two other views of the St. Charles Parkway stream restoration are shown below.

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

The Mayberry Stream Restoration in Carroll County was completed in spring of 2022. Heavy construction equipment destroyed a wide swath right through the forest. Note how the trees on the edges have no protection. This photo shows a bulldozer running over trees' critical root zones and compacting the soil. Many trees along both sides of the project will probably die due to soil compaction.

(Above: Mayberry Stream Restoration in Carroll County; from https://www.carrollcountymd.gov/media/16472/mayberry-stream-restoration.pdf)

The next photo is the post-construction Bacon Ridge stream restoration in Anne Arundel County. They cut down about 400 trees for this project!

(Above: Bacon Ridge stream restoration, Anne Arundel County; by K. Bawer, 7/14/2021)

The slide below illustrates more of the collateral damage done by stream restorations aside from the trees and larger shrubs that get most of the attention. These are just a tiny sampling of Maryland native wild flowers and small animals that can't outrun the bulldozers. Look at the baby box turtle pointed to in the left column in the red box. It is about the size of a quarter. Stream valleys are where the babies live for about the first five years of their life. Not even the full-grown adult box turtle in the photo can outrun a bulldozer.

(Above: wildflowers and small animals that are native to Maryland; all photos by K. Bawer except middle photo by City of Rockville)

Stream restorations fail due to uncontrolled or inadequately controlled stormwater

Adding insult to injury, since stormwater is not being controlled at its source (e.g., runoff from impervious surfaces such as roads, roofs, etc.), stream restorations have failed or will fail, especially given the more intense storms that are expected due to global warming. All the rocks, boulders, fill dirt, and soil stabilization fabrics brought in by these projects will eventually get blown out by future storms. A blow-out means the disruption of the armor-plating and stream bank engineering caused by large rainstorms. This renders them useless and a waste of taxpayers' money. Photographic evidence of stream restoration failures is provided below.

The next picture is a failed Cabin Branch stream restoration in Montgomery County showing how uncontrolled stormwater has eroded out the stream bank behind the rock armor-plating rendering it useless. This is an example of why stream restorations are only a temporary fix to stream bank erosion.

(Above: Cabin Branch Stream in Cabin John Regional Park, Montgomery County; by K. Bawer, 3/19/2021)

The photo below shows blown-out armor plating along Long Branch in Takoma Park. Notice the huge size of these boulders compared to the people.

(Above: Long Branch, Takoma Park; photo by K. Bawer, 10/2/2021)

The next photo is Snakeden Branch in Potomac. The blown-out area can be seen on the right bank. The water has gone over and behind the rock wall and has continued to erode the stream bank behind it. Also visible is exposed plastic geotextile fabric which will break down and add to the micro plastics problem.

(Above: Snakeden Branch, Potomac; by K. Bawer, 11/23/2021)

Below is a photo of an unnamed tributary to Great Seneca Creek in Gaithersburg. Note the disrupted rock structure exposing plastic fabric. Stormwater has continued to erode the stream bank behind the rocks despite the stabilization attempt.

(Above: unnamed tributary to Great Seneca Creek, Gaithersburg; by K. Bawer, Fall, 2022)

The Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, “Storm damage occurred very soon after construction, initiating structural failures”. This photo shows some of the damage to the original stream restoration project at one location.

Lower Booze Creek - Erosion downstream of imbricated wall structure from original stream restoration.

(Above: Lower Booze Creek, Potomac; photo from https://www.montgomerycountymd.gov/water/Resources/Files/restoration/streams/Lower-Booze-Creek-Restoration-Repair-Fact-Sheet.pdf)

The repair work cost an additional $3.6 million. Since stream restoration companies typically only guarantee their work for one year, when they are destroyed after that it is the taxpayers who pick up the bill. The photo below was after the repair work at one location which was formerly fully wooded.

(Above: repair of the restoration in Lower Booze Creek, Potomac; photo by K. Bawer, 12/4/2021)

On top of all that, the scientific literature[2] [3] [4] [5] says that these projects rarely, if ever, result in improved in-stream biology.

In summary, the current problems with stream restorations are clearly visible if only we will acknowledge what can be seen with our own eyes. These photographs provide irrefutable evidence that stream restorations don't actually restore streams, that projects get blown-out because upland stormwater has not been adequately controlled, and that stream restorations are, in fact, devastating to both the stream itself and the local environment where they are constructed. Bill HB 942 would incentivize less destructive out-of-stream alternative stormwater control methods while promoting more effective and beneficial stream restoration projects. This bill will help us achieve another Rachael Carson moment for environmental protection in Maryland.

We urge the Committee's FAVORABLE report on HB 942.

Kenneth Bawer
Board Member, West Montgomery County Citizens Association
kbawer@msn.com

[2] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)
[3] 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)
[4] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)
[5] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

Wetlands and waterways program

Uploaded by: Kenneth Bawer

Position: FAV

Bill Number HB 942 "Wetlands and Waterways Program - Authorizations for Stream Restoration Projects"

ENT Committee Hearing on 3/3/2023

Corrections to Industry (and Other) Misinformation

Installment #1

3/8/2023

NOTE: because of the vast amount of misinformation, half-truths, and greenwashing put forth in both written and oral testimony, this document will be sent out in installments so as to provide Delegates at least some information before the ENT voting.

By

Kenneth Bawer

Contents

COMMENTS ON "FISCAL AND POLICY NOTE"

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COMMENTS ON ORAL TESTIMONY

THIS SECTION NOT COMPLETE

Oral testimony recording link from March 3

https://mgaleg.maryland.gov/mgawebsite/Committees/Media/false?cmte=ent&clip=ENV_3_3_2023_meeting_1&ys=2023rs from 1:43:50 to 3:43:00

Oral testimony in response to Del. Stewart's question about Hilderbrand's research

Below corrects an outright falsehood perpetrated by the industry during the 3/3/2023 ENT hearing. I reached out to Dr. Robert Hilderbrand for his comments on industry statements about his research.

Per Del. Stewart's question about Robert Hilderbrand's research, I contacted Bob (I do know him on a first name basis) and asked him to comment on the industry employees' criticism that his study only looked at one type of stream restoration (which they mischaracterized as a specific type of "stream armoring", and which is not even an MDE-recognized stream restoration technique) which, they said, did not represent the whole universe of practices that are used in stream restoration. In fact, the universe of stream restorations techniques is a very small universe, consisting of only 3 different techniques: Prevented Sediment (Natural Channel Design (NCD)), Hyporheic Exchange (wet channel Regenerative Stormwater Conveyance (RSC)), and Floodplain Reconnection. In his response (see his note below), Bob states that he looked at both NCD and RSC which encompasses 66% of the "universe" of stream restoration techniques - hardly a tiny subset of techniques as was stated by the industry person. Furthermore, NCD is the most common technique used for stream restorations.

Bob refuted their assertion saying, "…many of the projects I looked at were not what I would consider armoring projects. However, they did armor specific areas of channel banks in order to prevent erosion," which is done in virtually all projects. His paper (Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf) says, "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."

Bob says that his more recent paper found "that restorations usually end up with no better, and often worse, benthic macroinvertebrate responses [which is an industry-standard for measuring in-stream biology] than were the stream left alone." This paper looks at mostly, but not exclusively, NCD-type projects.

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My note to Robert Hilderbrand on 3/5/2023: "At about 3:09:45, Delegate Stewart referred to the Chesapeake Bay Journal from 2020 in which you are quoted about your research showing the lack of biological uplift. He asked the industry reps for their comments. The industry panelist was dismissive of your study as being specifically applicable only to a type of stream armoring where you have not reduced the level of flow [their words, and I'm not sure what that means], and that you were only looking at a subset of very specific practices that do not represent the whole universe of practices that are used in stream restoration. Would you be able to comment on that? They seem to be saying, for example, that you only looked at projects using e.g., Natural Channel Design, but not Regenerative Stormwater Conveyance or Floodplain Reconnection, or vice versa, whatever the case may be. Is that a valid criticism of that study. As I recall, the article and your comments were based on your paper, Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020."

Robert Hilderbrand's response on 3/6/2023:

"Hi Ken,

Feel free to pass this along to anyone.

My study looked at 2 types of restorations: natural channel design (NCD) in piedmont streams and both Regenerative Stormwater Conveyance (RSC) and NCD in the coastal plain. Technically, they are correct that I did not explore the entire universe of techniques, but RSC and NCD approaches represent the vast majority of restorations in the area to my knowledge. I'm not fluent in restoration engineer/practitioner speak so there may be differences in opinion here, but many of the projects I looked at were not what I would consider armoring projects. However, they did armor specific areas of channel banks in order to prevent erosion. I would like to know how their approach substantively differs from those that I and others have studied. I would also like to see strong evidence, and not just anecdotes, that their proposed method works in most of their restoration projects.

My more recent work (see attached final report) examined what we can realistically expect from a stream restoration given the landscape setting of each specific project. That is, we need to be realistic and cannot expect a restoration to produce a really high quality biotic response if it is in a highly urbanized watershed. My research corrected for the watershed impervious surface cover (ISC) to forecast what we can realistically expect given the ISC levels. It turns out that most (not all, but most of them) restored streams achieved lower benthic invertebrate scores than unrestored streams having similar levels of ISC in their upstream catchment. It's a pretty technical research project, but the gist is that restorations usually end up with no better, and often worse, benthic macroinvertebrate responses than were the stream left alone. The projects were almost exclusively in Montgomery County and were mostly NCD-type projects for which the county had monitoring data. I looked at all restorations that had monitoring data in the county."

COMMENTS ON WRITTEN TESTIMONY

American Council of Engineering Companies/MD (ACEC/MD)

THIS SECTION NOT COMPLETE

Chesapeake Watershed Restoration Professionals (CWRP), by Liam O'Meara

NOTE: CWRP is essentially a lobbying arm of the stream restoration industry including construction companies and mitigation bankers. Their web site does not list its members.

CWRP: "This bill is unnecessary in that the issues raised are already adequately addressed in current requirements."

FACT: This is a demonstrably false statement given the documentation in the West Montgomery County Citizens Association's (WMCCA) written testimony[1] and the Chesapeake Bay Program's Expert Panel Report[2], Figure 1) that stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff and 2) the scientific reports that stream restorations do not result in biological uplift. (See the comments below on MDE's written testimony).

CWRP: "Furthermore, there is already a study underway as directed by HB896 [sic] of the 2022 legislative session to study how MDE reviews and permits ecological restoration projects."

FACT: Unfortunately, the HB 869 study is flawed from the start and will not result in an unbiased report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE's current mindset in favor of stream restorations[3] and will be tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final

[1] Not yet posted to the Maryland General Assembly site at https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0942

[2] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019 (https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf)

[3] For example, Director Lee Currey of MDE's WSA touted the benefits of the flood plain reconnection type of stream restoration (during a 2/21/2023 meeting with Delegate Boyce, Ken Bawer, Blue Water Baltimore, and Chesapeake Bay Foundation) while ignoring their obvious destructive nature. In addition, MDE ignored the common-sense recommendations of the Choose Clean Water Coalition that MS4 permits require a greater emphasis on out-of-stream stormwater control by "…requiring some minimum amount of green infrastructure to be undertaken by jurisdictions to comply with these newest permits," that "…MDE cap the amount of credits a single jurisdiction can generate toward compliance with their [stream] restoration[s]…," and that stream restorations "…demonstrate biological uplift as proposed by the Expert Panel Report," per CCWC's Jan. 20, 2021 letter to Mr. Raymond Bahr, MDE, WSA.

report will be authored solely by MDE (per Kenneth Bawer, a participant in the study representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations from the study group members. Thus, MDE is free to "listen and ignore." Another problem is that since MDE is apparently satisfied with current stream restoration construction techniques and MS4 permit crediting schemes, this study is being controlled by a group arguably with a predisposition to maintain the status quo. The study is therefore flawed from its inception due to this conflict of interest. The only way to ensure that the results of a study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany, etc. who conduct a study based on the science, not based on considerations of the for-profit, engineering-based stream restoration industry or entrenched MDE thinking.

CWRP: "On changing restoration criteria: The Chesapeake Bay Program has utilized expert scientific panels composed of the leading scientists and practitioners that study, collect data, and model current stream restoration and techniques. Through the work of these dedicated professionals, the credit generation practices for stream restoration have been refined several times through exhaustive research and the utilization of the most modern data available. This process is rigorously scientific and objective in nature, and it should be kept that way."

FACT: This is a false and misleading statement. First, HB 942 does not the credit generation practices for stream restoration. Second, the CBP's approval process is neither "rigorously scientific" nor objective: it was not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel included employees of the for-profit, engineering-based stream restoration industry who are primarily engineers, not scientist, and who had a vested interest in ensuring that the crediting calculations maximized their profits. This was a blatant conflict of interest. As such, the use of these Expert Panel reports is arguably a corrupt process.

Furthermore, the panel members as a whole did not have expertise in all the disciplines required to evaluate the total impact of stream restorations including, but not limited to, fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, habitat ecology, total environmental impact analysis, and ecosystem services analysis.

CWRP: "On disincentivizing stream restoration as a BMP: Any impervious acre credit to any BMPs must be scientifically defensible and be determined through the currently accepted process for determining pollution reduction. Current crediting of BMP's has undergone extensive research and peer review."

FACT: This is a misunderstanding of HB 942 since it does not require disincentivizing steam restoration via changes to impervious acre credits. Plus, as noted above, current crediting of BMPs was based on input from industry employees having a conflict of interest. In addition, the current impervious acre credits are not scientifically defensible. As explained more fully in the comments on MDE's written testimony (below), the Expert Panel is so unsure of the results of their estimation calculations that they take what falls out of the bottom and

randomly cut it by 50% "…to account for the presumed efficiency of stream restoration practices."[4] So much for being scientifically defensible. As far as we know, there is no peer reviewed scientific literature to support using the Expert Panel recommendations.

CWRP: "No BMP practice can simply be incentivized over others if they do not result in greater pollutant load reductions."

FACT: This is a misunderstanding of HB 942 since it is not prescriptive about how MDE should incentivize out-of-stream (upland) alternative BMPs (project types). There are many ways to incentivize BMPs besides pollutant load reductions. The provision of additional incentives for upland stormwater control may require some out-of-the-box thinking. For example, DEP could award bonus credit for the rainfall depth treated for structural practices to greater than the current one inch maximum. Or, MDE could put an MS4 permit cap on the percentage of credits that can be achieved via stream restorations and a minimum percentage for out-of-stream stormwater control credits. MDE could incentive upland stormwater control by combining certain MS4 Permits, such as Montgomery County and Montgomery Parks. Currently, Montgomery Parks has no ability to do upland stormwater control at its source when the stormwater comes from outside their parks in the county itself. Combining MS4 permits for the county and parks would eliminate that finger pointing. Another idea: MDE could recommend laws requiring existing buildings to meet new-build stormwater control requirements upon property transfer (i.e., at the time of sale) which would be eligible for MS4 permit credits.

This bill does not require, nor suggest, that credits for efficiencies be changed, but it should be noted that the current credits for stream restoration are numbers developed with the help of industry employees with a conflict of interest as described above.

CWRP: "On defining geographic limits for restoration: The Maryland Department of the Environment (MDE) and the US Army Corp of Engineers (USACE) currently require resource impacts to be mitigated within an 8-digit Hydrologic Unit Code (HUC) Watershed. This is consistent with how resource impacts and associated mitigation are managed across the entire US."

FACT: Per the written testimony of the Stormwater Partners Network, "This clause [of HB 942] is clearly meant to apply to mitigation banks…. These types of mitigation banks are permitted by the U.S. Army Corps of Engineers, in partnership with MDE. Under the Mitigation Rule,3 the Army Corps is already directed to prioritize mitigation within the same watershed where impacts occur, but has great latitude to define the scale of watershed to be used as well as to use their best judgment if they find in-watershed mitigation to be impractical. … The bill's sponsors could consider requiring that the Department and the Army Corps require that the applicant mitigate their impacts in the same HUC-12 or, at largest, HUC-10 sub-watersheds where the impacts occur."

[4] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 8; https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

CWRP: “On requiring biological uplift: Currently, the MDE and USACE require that stream restoration projects result in ecological uplift through use of the Stream Functions Pyramid. Biological improvement is Step 5 of the Pyramid.”

> **FACT: This is purposely misleading statement that industry employees make repeatedly. While stream restorations done for mitigation projects are required to demonstrate biological improvement, those done for MS4 permits are NOT required to demonstrate biological uplift. MDE should also require biological uplift for stream restorations done for the MS4 permit since a stream restoration is a stream restoration.**

CWRP: “Consequently, the existing process requires that practitioners create the conditions [emphasis added] for biological uplift to occur as regional environmental conditions allow.

> **FACT: This is a misleading statement. Only stream restorations done for mitigation projects are required to show biological uplift. However, the existing MS4 permit process does NOT require that practitioners even create the conditions for biological uplift to occur, nor does it require that biological uplift actually occurs for MS4 permit credit to be granted. Again, if mitigation stream restoration projects require biological uplift, then so should MS4 permit projects as well as other TMDL projects.**

CWRP: “It is not practical to require biological uplift of in-stream biology as there are limiting factors that cannot be controlled on the stream restoration sites. These ubiquitous negative externalities include road salt pollution, offsite barriers to wildlife migration, extreme temperatures, and general poor water quality.”

> **FACT: This is a false statement. The Federal Mitigation Rule already requires that stream restorations done for mitigation projects require biological uplift of in-stream biology. Since there have already been numerous stream restoration mitigation projects, the assertion is demonstrably false.**

CWRP: “It is absolutely the goal of stream practitioners to improve biological function through in-stream habitat creation, but it may take decades, if ever, for recolonization to occur of imperiled populations of aquatic dependent wildlife.”

> **FACT: This is a misleading statement. Currently, per MDE the only goal of stream restorations done for MS4 permits is to prevent stream-bank erosion. The purpose of HB 942 is to add the goal of biological uplift. If mitigation stream restoration projects currently require biological uplift, then so should MS4 permit projects as well as other TMDL projects. In addition, this bill has nothing to do with recolonization of imperiled populations.**

CWRP: “On minimization of tree impacts: A requirement already exists for stream restoration projects to achieve no-net-loss of forest cover and to minimize tree impacts to the extent possible.”

> **FACT: This is a misleading statement. In practice, any no-net-loss requirement currently results in the clear-cutting of mature stream-side forests, as well documented in the WMCCA written testimony, and replacing them with young saplings that will take decades to achieve the pre-construction forest cover. Thus, during the decades it takes for young tree growth to**

reach the no-net loss cover target, we have lost decades worth of mature forest habitat and carbon sequestration which exacerbates global warming. Plus, "no-net-loss of forest cover" only refers to trees and ignores the loss of the forest as an interdependent community of understory shrubs, wildflowers, and animals which will take even longer recover, if ever.

Photographic evidence in the WMCCA written testimony also shows the complete lack of critical root zone protection in many projects which will lead to eventual death of "spared" trees.

CWRP: "The implementation of mulch and mat roads through the woods to gain access to the stream corridor are specifically designed to protect the critical root zones of trees."

FACT: This is a misleading statement. There is ample photographic evidence in the WMCCA testimony that not all projects use mulch and mat roads. Many projects run heavy equipment directly on bare forest floor soil. Plus, photographs of the Solitaire Court project in Gaithersburg show trees with vertical wood scape protectors tied to tree trunks – a clear indication that heavy construction equipment is close enough for someone to be concerned about scraping the tree trunks. The tens of feet of critical root zone protection is non-existent.

CWRP: "Additionally, the forest impacts of restoration are almost always temporary, but the protection of the restored riparian corridor is permanent."

FACT: This is a false statement. It takes decades or hundreds of years for clear-cut forests to recover, if they ever do. Plus, the science shows that biological uplift is rarely, if ever, achieved. It is also demonstrably false that stream restorations are permanent. The WMCCA written testimony provides photographic evidence that stream restorations are being blown out and require expensive repairs due to the lack of out-of-stream stormwater control. The Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, "Storm damage occurred very soon after construction, initiating structural failures." The repair work cost an additional $3.6 million. Since stream restoration companies typically only guarantee their work for one year, when they are destroyed after that it is the taxpayers who pick up the bill.

CWRP: "On delaying credit certifications by 10 years: A full decade of monitoring before any credits are issued would render ecological restoration completely unworkable for the purposes of the Chesapeake Bay Program and severely limit what restoration work is even possible in the State of Maryland."

FACT: We agree, as does the bill's sponsor, and suggest that credits be released according to a timed schedule determined by MDE.

CWRP: "On public notice: Currently, public hearings can be requested and are granted. We absolute do not oppose public hearings, but they are expensive and if they are required for every project, this will add significant expense and time for any applicant, the majority of whom are local governments, non-profits, and government agencies. Furthermore, the planning and implementation of public hearings are time consuming for state agencies and would require more staff to manage."

FACT: This is a false statement. Zoom meetings cost a trivial amount of money and a small amount of time. While it is true that public hearing can be requested, the problem is that most residents are rarely aware of these projects and therefore don't request public hearings. The reason there has not been massive outcry about "restoration" projects is that the public notification process is broken.

While bill HR 942 is not prescriptive, one would hope that MDE would be begin by requiring that more than immediate property owners or communities be notified about projects since restoration sites are often in natural areas used by entire jurisdictions. Plus, the impact of projects can be felt far outside the immediate community as evidenced by the fact that stream restorations are meant to impact the Bay. Communities should also be notified of projects proposed for private property since the impact of projects is never confined solely within private property boundaries.

One could envision that MDE and local jurisdictions could be required to notify all interested parties who have requested, via a web site for electronic sign-up, to be notified via email of requests for stream restoration project permits. Such web sites could allow interested parties to be notified of all projects statewide, or just for selected jurisdictions. Note that the USACE already has a web site to sign-up for permit requests at https://www.nab.usace.army.mil/Missions/Regulatory/Public-Notices . MDE has a site where notices are posted at https://mde.maryland.gov/programs/Water/WetlandsandWaterways/AboutWetlands/Pages/publicinformation.aspx, but it is almost impossible to find with a common sense web search and it doesn't link to any of the detailed project proposal information (it does provide an email address to request more information, but why not cut out the middle man?). Furthermore, all public comments should be responded to and all public comments as well as department and permittee responses could be posted on the web site without the need for a public information act request by the public. Currently, these comments all go into a black hole.

If there are any vendor (permittee) modifications to their proposals, either required by MDE, the USACE or for any other reason (except for trivial changes such as fixing typographic errors), the modified proposal could be posted and interested parties could be notified. Non-trivial changes could trigger another round of public hearings and comments. Additional rounds of public hearings and comments could be held as additional, non-trivial modifications to proposals are made. Expediting any review process only serves to limit government oversight and citizen review, input, and comment. Quality proposals should not require modifications post submittal.

The public could be kept informed of the status of each permit via postings to the web site. This site could show all the steps in the process leading up to a final determination (i.e. permit approval or denial or withdrawal by the applicant) and where in this process each permit currently resides. The web site should allow the public to register for a tracking account which would push update notifications to the registrant. This could be patterned after the MD General Assembly website (https://mgaleg.maryland.gov/mgawebsite/) where one can register to be notified of progress on a bill of interest.

CWRP: “This would slow, not just stream restoration projects, but the review, approval, and enforcement of all projects that require MDE approvals. This does not just include housing and commercial development but importance public works projects such as schools, transportation improvements, and affordable housing.”

> **FACT: This is both a false and a self-serving statement by a for-profit industry. This is a bill about stream restorations. HB 942 has absolutely nothing to do with housing and commercial development or schools, transportation improvements, and affordable housing. Expediting any review process only serves to limit government oversight and citizen review, input, and comment. If the concern is that the speed of permitting for stream restorations could be slowed by necessary oversight, the US Army Corps of Engineers has the authority to authorize out-of-stream projects for mitigation per the Federal Mitigation Rule.**

CWRP: “For transparency and efficiency CWRP recommends the adoption of a permit tracking system similar to the Virginia Department of Environmental Quality’s Permitting and Evaluation Platform.

> **FACT: The Virginia site (https://portal.deq.virginia.gov/peep-search) is only for businesses, not for use by the general public. Per this site, “This system is intended solely for users conducting business with DEQ for the purposes of fulfilling obligations under a permit, regulation, statute or other DEQ program. Those who need to review DEQ records for other purposes may submit a request under the Freedom of Information Act.” This is hardly a model of transparency.**

Ecosystem Investment Partners (EIP), by Nicholas Dilks

EIP: “Impervious acre crediting methodologies used to meet the TMDL already make scientific benefit comparisons between upland BMPs versus stream restoration, and there is strong evidence that while both provide benefit, stream restoration is far more cost effective.”

> **THIS SECTION NOT COMPLETE (see revised FAP).**

Maryland Association of Counties (MACo), by Dominic Butchko

MACo: “This bill would impose stringent barriers on stream restoration projects, effectively hampering one of counties’ most effective tools for stormwater management.”

> **FACT: This is not a true statement – it is not supported by the documented photographic evidence in the West Montgomery County Citizens Association’s written testimony that stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff. (See the WMCCA comments on MDE’s written testimony).**

MACo: “Stream restoration has been a widely approved practice to meet state and federal requirements under municipal separate storm sewer system (MS4) permits.

FACT: This is a misleading statement. While stream restorations are widely approved, that does not refute the fact that the approval process is flawed due to Expert Panel conflicts of interest and that stream restorations are a failed practice, both physically and biologically. To use an analogy, the promoters of DDT would say that its use was a widely approved practice. (See our comments on MDE's written testimony).

MACo: "The Chesapeake Bay Program has accepted stream restoration projects as a best management practice (BMP) for years and already has a rigorous and scientifically based approval process for updating its BMP."

FACT: This is a false statement. CBP's approval process is not scientifically based and is not created by an independent panel of scientists with no financial conflicts of interest. The current CBP Expert Panels includes employees of the stream restoration industry who, by definition, have a conflict of interest. (See our comments on MDE's written testimony).

MACo echoes the concerns and opposition of the Maryland Municipal Stormwater Association (MAMSA) – whose members represent nearly all counties and are the subject matter experts in stormwater and stream restoration.

FACT: This is a false statement. MAMSA's membership is primarily people with engineering backgrounds. They clearly are not experts in all the disciplines involved in evaluating the total impact of stream restorations including, but not limited to fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, identification and habitat expertise, total environmental impact analysis, and ecosystem services analysis.

Maryland Municipal Stormwater Association (MAMSA), by Lisa Ochsenhirt

MAMSA: The Chesapeake Bay Program has a BMP approval process that involves having a panel of experts undertake a rigorous scientific examination of a proposed BMP. There is no basis for revising the requirements for stream restoration given the level of review that has already occurred.

FACT: This is a false statement. CBP's approval process is not scientifically based and is not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panels include employees of the stream restoration industry. The panel members as a whole do not have expertise in all the disciplines involved in evaluating the total impact of stream restorations including, but not limited to fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, identification and habitat expertise, total environmental impact analysis, and ecosystem services analysis.

There <u>is</u> a basis for revising the requirements for stream restoration given 1) the documented photographic evidence in the West Montgomery County Citizens Association's written testimony and the Chesapeake Bay Program's Expert Panel Report, including Figure 1[5], that

[5] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18,

stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff and 2) the scientific reports that stream restorations do not result in biological uplift[6] [7] [8] [9]. (See the WMCCA comments on MDE's written testimony).

Maryland Department of the Environment (MDE), by Gabrielle Leah

MDE: "Ongoing House Bill 869 Study and MDE Stream Restoration Analysis: Currently MDE's Wetlands and Waterways Protection Program is undertaking a study on ecological restoration permitting as mandated by HB 869 Permitting for Ecological Restoration Projects - Required Study enacted during the 2022 legislative session, which is due to be completed on or before June 1, 2024. The parameters of the study required by HB 869 overlap with many of the proposed requirements under HB 942. The current participants in the study represent a diverse group of community and environmental organizations, restoration practitioners, academia/research, and other government agencies. The Department is concerned that this legislation predetermines a review and permitting framework for stream restoration projects which will not allow for a thorough and meaningful completion of the HB 869 study and does not consider input from across the regulated community."

FACT: Unfortunately, the HB 869 study will not result in an independent report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE and tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final report will be authored solely by MDE (per Ken Bawer, a participant in the study representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations of the study group members. Thus, MDE is free to "listen and ignore." Another problem is that MDE was apparently satisfied with current stream restoration construction techniques and MS4 permit crediting schemes prior to this study, so this study is being controlled by a group with a predisposition to maintain the status quo. The study is arguably flawed from its inception due to this conflict of interest. The only way to

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2019 (https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf)

[6] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[7] 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)

[8] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[9] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

ensure that the results of the study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany, etc. conduct a study based on the science, not based on considerations of the for-profit stream restoration industry or entrenched MDE thinking.

MDE: "In addition, MDE is charged with protecting Maryland's waterways from loss and degradation as well as meeting Chesapeake Bay restoration and TMDL goals. As part of these responsibilities, MDE has undertaken many initiatives related to stream restoration to analyze Maryland's progress towards these goals and ensure our resources (including riparian forests) are protected."

FACT: Empirical observation clearly shows that MDE is clearly not protecting riparian forests. See Ken Bawer's written testimony which includes a video link and numerous photos showing the damage done to riparian forests in natural areas by stream "restorations" around the state.

MDE: "Mitigation Banking: HB 942 would have serious negative consequences for mitigation banking in Maryland. As written, HB 942 significantly discourages mitigation banking and may incentivize permittee-responsible mitigation, including largely unsuccessful "postage stamp" sized mitigation projects."

FACT: There is no evidence provided to support the assertion that "HB 942 HB 942 significantly discourages mitigation banking and may incentivize permittee-responsible mitigation."

FACT: There is no evidence provided to support the assertion of "largely unsuccessful "postage stamp" sized mitigation projects." The Mitigation Rule states, "The studies that we have reviewed have shown that mitigation banks have experienced many of the same problems as permittee-responsible mitigation." The fact is that stream restorations done for any purpose, including mitigation banking, are unsuccessful because they destroy large areas of riparian forests, destroy wildlife habitat, and rarely, if ever, result in biological uplift of in-stream biology[10] [11] [12] [13].

MDE: "The 2008 Federal Mitigation Rule sets a preference for mitigation banks and the current mitigation program…."

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[10] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[11] 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)

[12] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[13] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

FACT: This is not true. The Federal Mitigation Rule[14] states, "There are three mechanisms for providing compensatory mitigation: permittee-responsible compensatory mitigation, mitigation banks and in-lieu fee mitigation. Permittee-responsible mitigation is the most traditional form of compensation and continues to represent the majority of compensation acreage provided each year." Furthermore, the Fed Mitigation Rules states that "economic factors should not supersede ecological considerations."

MDE: "TMDL/MS4 Crediting: TMDL credits 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. It would not be possible for MDE alone to alter them. Any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations will require an update to the 2021 Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits ("2021 Accounting Document")."

FACT: MDE misreads what is in HB 942. This bill does not request, nor require, any changes to TMDL credits nor any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations. However, MDE does control which practices are allowed within its Accounting Guidance[15] document. For example, while HB 942 does not suggest this, MDE could completely disallow the practice of stream restorations to be used for MS4 permit crediting.

MDE: "Alteration of the accounting and credit calculations would require a major permit modification for all 10 issued MS4 Phase I permits, which must be approved by the U.S. Environmental Protection Agency and go through the state required public notice process."

FACT: This bill does not request, nor require, any changes to TMDL credits nor any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations. However, if MDE deems it prudent to do so, there is no need for permit modifications for the 10 issued MS4 Phase I permits. The new accounting and credit calculations, once approved by EPA and going through the public notice process, could apply to the new permits after the current permits expire.

MDE: "Biological Uplift Goal: While stream restoration projects are designed to address acute bank stability and instream habitat impacts, impacts to biology cannot be remediated through stream restoration alone as upland pollution also contributes to biological impacts."

FACT: This is misleading and inaccurate. First, stream restorations done for MS4 permits do not require that biological uplift be achieved. However, stream restorations built as mitigation projects are <u>required</u> to remediate impacts to biology and demonstrate biological uplift.

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[14] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules") (https://www.epa.gov/sites/default/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)

[15] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

Another misleading implication of MDE's statement is that stream restorations are an important and essential component of remediating impacts to biology along with upland pollution (read: stormwater) control. This is the "we must use all the tools in our toolbox" argument that is not supported by scientific evidence. The science says that that stream restorations do not result in biological uplift (see the 4 references above from Hilderbrand et. al., Jepsen et. al., Palmer et. al., and Pedersen, et. al.).

Having said that, the missing scientific link is that no one has studied the results of the impact of relatively complete upland stormwater control, in the absence of a stream restoration, on in-stream biological uplift. However, one part of the equation has been examined: what happens to the eroded banks of a stream when relatively complete upland stormwater control is done in the absence of a stream restoration? Upland, out-of-stream stormwater control would remove the primary cause of active stream bank erosion and thus eliminate the need for stream restorations. There is scientific evidence by Fraley McNeal, et. al.[16] that after controlling stormwater upland, stream banks will self-recover. But the industry doesn't like passive, self-recovery solutions because there is no money to be made.

MDE: "Biological uplift is the goal of a holistic watershed management approach which utilizes a suite of best management practices (BMPs) (including stream restoration where necessary and approved) to address a multitude of pollutants that impact biology."

FACT: This is misleading. Although MDE states that biological uplift is someone's goal, biological uplift is apparently not one of MDE's goals. MDE curiously does not require biological uplift to be demonstrated for MS4 permit credit. That is why HB 942 makes this a requirement for all stream restoration projects. And as stated above, another misleading implication of MDE's statement is that stream restorations are an important and essential practice to achieve biological uplift along with upland pollution (read: stormwater) control. This is the "we must use all the tools in our toolbox" argument that is not supported by scientific evidence.

MDE: "Monitoring: Under the proposed legislation, stream restoration projects must be monitored for a period of 10 years (prior to release of any credits) to verify achievement of stated goals."

FACT: Delegate Terrasa stated that she would offer an amendment which would defer to MDE in setting a credit release schedule.

MDE: "It will require a considerable undertaking for MDE to develop monitoring plan requirements to assess biological uplift goals (which may not be attainable) for individual projects independent of the monitoring and verification procedures that already exist."

FACT: MDE misunderstands the bill's requirements. Bill HB 942 does not require monitoring which is independent of the monitoring and verification procedures that already exist. Rather, this bill simply requires that more projects be subjected to the currently existing type of monitoring and verification procedures. This bill does not require MDE to recreate the wheel.

[16] "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

MDE's current monitoring plan requirements are wholly inadequate and are not even a firm requirement. Currently, no matter how many stream restorations a jurisdiction does for MS4 permit credits, only one stream restoration project is required to be monitored. Adding insult to injury, the monitoring results from that one project can be totally useless. For example, the one stream restoration project out of many that Montgomery County chose to monitor is called the Breewood project. Unfortunately, it is impossible to attribute the results of the Breewood stream restoration monitoring to the stream restoration project itself. This is because the instream monitoring station is downstream from not just the stream restoration but also other stormwater control practices including Green Streets projects such as bioretentions and pervious pavement.

But even doing one stream restoration monitoring for an MS4 permit is not a firm requirement. MDE actually allows jurisdictions to completely opt out of that requirement by instead paying into a pool of money which is used to fund research.

MDE: "As stated above MDE believes that biological uplift is not a realistic goal for every stream restoration project."

FACT: If MDE does not believe that biological uplift can be achieved by a specific project, MDE should not grant a permit for that project in the first place. In fact, stream restorations done for mitigation projects are required to demonstrate biological uplift as required by the Federal Mitigation Rule. Therefore, MDE should also require biological uplift for stream restorations done for the MS4 permit. A stream restoration is a stream restoration.

The ultimate purpose of stream restoration projects done for MS4 permits is to promote biological uplift in the Bay (i.e., to increase aquatic vegetation and fish, crab, and oyster stocks). Incomprehensibly, MDE's MS4 permits do not also require local biological uplift to be demonstrated at the actual project site which can be very far from the Bay. Aside from checking the MS4 permit box, there is no point to the destruction caused by a "restoration" project which only enhances a stream's physical attributes (i.e., decreases erosion) if the end result does not also provide biological uplift at the project site. We should not have to sacrifice our local natural areas, even if they are not in pre-colonial condition, on the altar of saving the Bay.

MDE: "Best Available Science: The 2021 Accounting Document directs jurisdictions to use protocols from the 2014 Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects ("Expert Panel") to calculate Stream Restoration credit, which incorporates the most recent science on crediting and verification methods and is written by a panel of local scientists, practitioners, and watershed managers."

FACT: This is a demonstrably false statement about the Expert Panel report[17]. First, these reports are not based on science, they are based on engineering principles. In fact, the crediting methods are based on irreproducible techniques. The crediting scheme is based on

[17] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23;
Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

gross estimates of how effective stream restorations are in reducing erosion, and the report recommends using calculations which are estimates on top of estimates. This including using the highly unreliable BANCs method to estimate stream bank erosion which is not reproducible. The Expert Panel report says of the BANCS method that these theoretical calculation tools are "…susceptible to high variability when performed by different practitioners in the field." If a measurement cannot be reproduced by different people using the same methodology, it is scientifically useless.

On top of that, the Expert Panel is so unsure of the results of their estimation calculations that they take what falls out of the bottom and cut it by 50%. So much for having confidence in their work. There is no peer reviewed scientific literature to support using the Expert Panel recommendations.

To make matters worse, the Expert Panel included stream restoration industry employees who had a vested interest in ensuring that the crediting calculations maximize their profits – this is blatant conflict of interest. As such, the use of these Expert Panel reports is arguably a corrupt process.

MDE: "As MDE defers to the Expert Panel report, credit for MS4 EIA and TMDL progress as well as the reductions reported to the CBP for Bay TMDL progress already consider the best available science with regards to stream morphology, geology, biology, hydrology, ecology, watershed management, and wildlife corridors."

FACT: This is a misleading statement. Although MDE and the Expert Panel reports may consider the best science, they certainly do not follow the science. As stated above, the science shows that stream restorations don't result in biological uplift.

MDE: "Upland Alternatives: MDE is required under HB 942 to incentivize upland alternatives (deemed to be "less destructive to the environment") to stream restoration through the crediting mechanisms for TMDL, MS4 targets, mitigation goals, or other restoration goals. Credits for non-stream restoration practices are consistent with efficiencies from the CBP and match the credit provided in the Chesapeake Bay Phase 6 Model.

In order to provide additional incentives, MDE will have to develop additional unapproved BMPs, or be provided with (or conduct) studies demonstrating nutrient and sediment reductions that are greater than those already established by the current literature."

FACT: These are false statements. This bill does not prescribe how MDE incentivizes upland alternatives. MDE will not, in fact, have to develop any additional BMPs. There are already dozens of upland BMPs in MDE's Accounting Guidance[18] document that can be used for upland stormwater control such as green roofs and rain gardens. The more upland BMPs that are installed by a jurisdiction, the more credits will be garnered.

[18] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

The provision of addition incentives for upland stormwater control may require some out of the box thinking. For example, DEP could increase credit for the rainfall depth treated for structural practices to greater than the current one inch maximum. Or, MDE could put an MS4 permit cap on the percentage of credits that can be achieved via stream restoration and a minimum for upland stormwater control credits. MDE could recommend laws requiring existing buildings to meet new-build stormwater control requirements upon property transfer (buying/selling). MDE could incentive upland stormwater control by combining certain MS4 Permits, such as Montgomery County and Montgomery Parks. Currently, Montgomery Parks points out that they have no ability to do upland stormwater control at its source when the stormwater comes from outside their parks in the county itself.

This bill does not require, nor suggest, that credits for efficiencies be changed, but it should be noted that the current credits for stream restoration are bogus numbers developed with the help of industry employees with a conflict of interest as described above.

MDE: "In addition, compensatory mitigation to offset impacts to stream impacts cannot be offset through upland projects under federal requirements."

FACT: This is a false statement. The Federal Mitigation Rule[19] does allow stream impacts to be offset through upland projects. It states that the district engineer may determine "that out-of-kind compensatory mitigation will better serve the aquatic resource needs of the watershed."

[19] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules") (https://www.epa.gov/sites/default/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)

testimony HB 942.pdf
Uploaded by: Marion Edey
Position: FAV

Committee: Environment and Transportation

Testimony on: HB 942 Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

Position: Support

Hearing Date: March 3, 2023

My name is Marion Edey and I am testifying on behalf of Friends of the Earth, in support of HB 942.

In our cities and suburbs, nearly all our remaining nature is in the stream valleys. We need these riparian forests to cool our cities, bring children close to nature, mitigate stormwater and support wildlife populations which are crashing. A 50% decline in beneficial insects. A similar decline in many songbirds. And 30% of amphibian species at risk of extinction.

There are many causes, but two of the biggest are habitat loss and invasive species. Both are greatly accelerated by stream restorations as they are often done now. All the big trees along the banks are removed, to make room for heavy construction equipment, which digs up the entire streambed to change its shape, killing all aquatic life there.

What rushes in to fill the void are invasive species – especially Japanese stilt grass, which grows thick and tall, blocking access to the stream. Native species can't eat the invasives and the whole food chain collapses. What was once a place for children to play becomes a biological dead zone, of no use to anyone.

And it's only a temporary fix, which treats the symptoms but not the cause – the firehosing of streams when too much is paved. HB 942 directs the Maryland Department of the Environment to shift its priorities toward prevention, to green infrastructure, rather than this destructive cure.

The industry would have you believe that prevention is too expensive – that stream restorations are cheaper. Even if this were true in the short run, it's not true in the long run. Green infrastructure requires little maintenance, while stream restorations must be done again and again. This makes them the gift which keeps on giving, for contractors, who will oppose this bill.

In calculating costs, we must consider too the loss of forest cover which we so desperately need to cool our cities in a time of climate change. Yes, contractors will plant seedlings before they leave, but most of them won't do well in soil devoid of micro-organisms and crushed by bulldozers. They are no substitute for the hundreds of mature trees that are removed.

This bill does not ban stream restorations. The MDE has the flexibility to authorize them when no good alternatives exist, and I know there are times when this is true. HB 942 is in many ways a soft bill; it does not define exactly how many credits must go to upland controls, or what it means to minimize tree damage. Biological uplift is only a goal. Claims that the bill would somehow prevent MDE from doing its job to control stormwater are therefore unfounded.

For all these reasons, we support HB 942

Marion Edey

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WRITTEN TESTIMONY HB942 LEHMAN (002).docx FINAL.pd
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THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

HOUSE BILL 942

WETLANDS AND WATERWAYS PROGRAM – AUTHORIZATIONS FOR STREAM RESTORATION PROJECTS

March 3, 2023

SUPPORT

GOOD AFTERNOON CHAIR BARVE, VICE CHAIRMAN STEIN, AND ESTEEMED COLLEAGUES: I AM PLEASED TO SUPPORT HB 942 ALONG WITH DELEGATES TERRASA AND RUTH. THIS BILL REVISES CRITERIA AND STANDARDS FOR STREAM RESTORATION ELIGIBILITY CRITERIA AND REVIEW STANDARDS, ENSURING THAT THESE PROJECTS WILL RESULT IN A NET POSITIVE IMPACT ON THE ENVIRONMENT.

STREAM RESTORATION PROJECTS ARE NOT CREATED EQUALLY: SOME ARE WELL DESIGNED AND EXECUTED. OTHERS MAY BE DOING MORE HARM THAN GOOD ECOLOGICALLY AND ENVIRONMENTALLY. OF PARTICULAR CONCERN ARE THOSE THAT RESULT IN EXTENSIVE DEFORESTATION AND LONG-TERM, POSSIBLY PERMANENT NEGATIVE IMPACTS ON FISH, WILDLIFE AND THE LONG-TERM BIOLOGICAL HEALTH OF THE PROJECT AREA.

SO WHY THE DISCREPANCY? WE BELIEVE THE PROBLEM WITH STREAM RESTORATION IS THAT IT IS OVERLY INCENTIVIZED BY THE MD DEPT OF ENVIRONMENT AS A MEANS OF HELPING COUNTIES ACHIEVE THEIR MUNICIPAL STORMWATER (MS4) RUNOFF REDUCTION GOALS AS WELL AS EFFORTS TO DECREASE THE TOTAL MAXIMUM DAILY LOAD (TMDL) OF NUTRIENTS IN THE BAY.

WE ARE AWARE OF RESTORATION PROJECTS THAT HAVE CREATED UNNATURAL, DEEPLY ALTERED LANDSCAPES. DAMAGED STREAM CHANNELS, CAUSED EXCESSIVE DEFORESTATION, AND LED TO THE

PROLIFERATION OF INVASIVE PLANTS REPLACING THE NATIVE UNDERSTORY THAT EXISTED PRIOR TO THE PROJECT.

STREAM RESTORATION PROJECT CREDITS ARE DIRECTLY ASSOCIATED WITH THE LENGTH OF STREAM MILES AFECTED AND THE INTERVENTION METHODS THAT ARE USED. OVER THE LAST FIVE YEARS, THE NUMBER AND AVERAGE LENGTH OF RESTORATIONS **TRIPLED**; HOWEVER, NOT ENOUGH DOCUMENTATION EXISTS ON WHY AND HOW STREAM RESTORATION PROJECTS ARE SELECTED, DESIGNED, AND IMPLEMENTED. MANY OF THESE PROJECTS HAVE NO POST-EVALUATION, AND THE MONITORING IS LACKING TO THE EXTENT THAT THERE IS NO POSSIBLE WAY TO EFFECTIVELY CORROBORATE THAT STREAM RESTORATION MEETS ITS GOALS – EVEN MINIMALLY. AN ESTIMATED $400 MILLION HAS BEEN SPENT ON STREAM RESTORATION PROJECTS IN THE CHESAPEAKE BAY WATERSHED SINCE 1990 (HASSET ET AL. 2005). HOWEVER, ONLY 5.4% OF THE PROJECT RECORDS INDICATED THAT RELATED MONITORING OF PROJECT PERFORMANCE HAS OCCURRED (MATTERN ET AL. 2020). ALSO, MITIGATION BANKS SOMETIMES FUND PROJECTS THAT ARE THE CHEAPEST AND LONGEST, NOT NECESSARILY THE ONES THAT ARE THE MOST EFFECTIVE.

THE BILL ADDRESSES THESE CHALLENGES AND INCONSISTENCIES BY REQUIRING MDE TO REVISE:

- PROJECT ELIGIBILITY CRITERIA AND STANDARDS FOR PROJECT REVIEW; AND
- CONSIDERATION OF MS4 PERMIT TARGETS; TMDL REDUCTION; MITIGATION AND OTHER RESTORATION GOALS.

THE BILL ALSO INCENTIVES ALTERNATIVES TO STREAM RESTORATION BY GRANTING MORE CREDITS ON AN EQUIVALENT BASIS TO UPLAND PROJECTS THAT AFFECT IMPERVIOUS ACREAGE. LIKE STREAM RESTORATION PROJECTS, UPLAND PROJECTS MUST HELP COUNTIES ACHIEVE MS4 AND TMDL REDUCTION GOALS, MITIGATION AND OTHER WATERSHED RESTORATION GOALS.

FOR RESTORATION PROJECTS THAT MITIGATE WETLAND OR STREAM IMPACTS AND DONE SPECIFICALLY FOR CREDIT, THE BILL IMPOSES NEW STANDARDS. THE BILL REQUIRES THAT PROJECTS:

BE LOCATED IN THE SAME WATERSHED AS THE ONE WHERE THE WETLAND OR STREAM DAMAGE OR LOSS OCCURRED;

RESULT IN A NET "UPLIFT" OF INSTREAM BIOLOGY;

MINIMIZE TREE REMOVAL; AND

BE MONITORED AND EVALUATED FOR TEN (10) YEARS AFTER THEY ARE COMPLETED.

PUBLIC NOTICE: BEYOND THE CHANGES TO STREAM RESTORATION ELIGIBILITY AND REVIEW CRITERIA, THE BILL TACKLES THE LACK OF TRANSPARENCY AND THE ABSENCE OF PUBLIC NOTICE REGARDING FUTURE PROJECTS. THUS, FOR STREAM RESTORATION PROJECTS, MDE MUST INFORM THE PUBLIC OF THE GEOGRAPHICAL EXTENT OF THE PROJECT AND THE ESTIMATED AMOUNT OF TREE REMOVAL ASSOCIATED WITH THE PROJECT. FURTHERMORE, CITIZENS THAT WILL BE AFFECTED BY THESE PROJECTS MUST BE INFORMED ABOUT THE IMMEDIATE, MEDIUM- AND LONG-TERM IMPACTS OF STREAM RESTORATION PROJECTS.

HB942 SEEKS IN THIS WAY TO INCENTIVIZE ALTERNATIVES TO STREAM RESTORATION THAT ARE LESS POTENTIALLY DAMAGING TO THE ENVIRONMENT, FOCUSING ON BIOLOGICAL UPLIFT; REQUIRING PROJECTS TO MINIMIZE TREE REMOVAL IN RIPARIAN AREAS, PROTECTING THE REMAINING TREES; AND MANDATING PROJECT MONITORING AND EVALUATION TO ENSURE THAT GOALS ARE ACHIEVED BEFORE CREDITS ARE ISSUED.

MR. CHAIR, COLLEAGUES, I URGE YOUR FAVORABLE REPORT ON HB 942.

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President, Seneca Creek Watershed Partners

Uploaded by: Merikay Smith

Position: FAV

Seneca Creek Watershed Partners

IN FAVOR of HB 942

Seneca Creek Watershed Partners, an all-volunteer non-profit (www.senecacreekwp.org), appreciates the work of Delegates Tarrasa, Lehman, Ruth and others to respond to concerns that stream restorations are often destructive to local streams and related habitat. We have experienced 'stream restorations' in the Seneca Creek watershed with results viewed by many as devastating.

We strongly recommend that HB942 be brought out of committee to a vote. HB942 has the potential to help protect Maryland's streams and riparian habitat while still protecting the Chesapeake Bay.

Seneca Creek Watershed Partners is one of 33 groups that form the STORMWATER PARTNERS NETWORK OF MONTGOMERY COUNTY which has submitted testimony on HB 942 (Informational Only, March 1, 2023). We at Seneca Creek Watershed Partners want to highlight the following from that testimony as it reflects our position. We have also provided additional recommendations:

"…**we all agreed to encourage County agencies that perform stormwater management to ensure that if stream restorations are undertaken, they be done with extraordinary care, caution, and forethought to ensure that they result in benefits to the ecology of the local stream valley and riparian system, as well as downstream beneficiaries of reduced sediment pollution such as the Potomac River and Chesapeake Bay.**

Our membership also agreed that they should be tightly coupled with extensive upland retrofits, ideally before restoring the stream valley. We appreciate that HB942 shares our concerns and attempts to address many of them.

● §5–203.2.(B)(1) **requires the use of best available science in any decision-making on stream restoration** by the Maryland Department of the Environment (MDE). **We support these goals.**

● §5–203.2.(B)(2)(I) directs the Department to incentivize the use of alternatives to stream restoration, such as the use of upland projects, by providing more credits for these types of projects**. We support this approach to maximizing out-of-stream-valley projects and disincentivizing the use of stream restorations, ideally such that they will be used only when most appropriate and when other upland approaches have been exhausted.**

● §5–203.2.(B)(2)(II)1. Requires that any stream restoration being undertaken "**for the purpose of providing credits for wetland or stream impacts or losses resulting from future activities, be located in the same watershed as the wetland or stream for which mitigation is required.**" This clause is clearly meant to apply to mitigation banks, currently being developed and used across the state for such purposes as offsetting impacts to wetlands and streams from the proposed I-270 and I-495 expansions,

as well as other large-scale construction projects. These types of mitigation banks are permitted by the U.S. Army Corps of Engineers, in partnership with MDE. Under the Mitigation Rule, the Army Corps is already directed to prioritize mitigation within the same watershed where impacts occur, but has great latitude to define the scale of watershed to be used as well as to use their best judgment if they find in-watershed mitigation to be impractical. As written, this clause of HB942 will therefore be unlikely to change policies of MDE and the Army Corps in mitigation permitting**. The bill's sponsors could consider requiring that the Department and the Army Corps require that the applicant mitigate their impacts in the same HUC-12 or, at largest, HUC-10 sub-watersheds where the impacts occur."**

In addition to agreeing with the above, Seneca Creek Watershed Partners takes a decisively positive stand on the following elements of HB942.

● §5–203.2.(B)(2)(III) requires a ten-year monitoring period to ensure stated goals are achieved before issuing any mitigation or pollution reduction credits… **Seneca Creek Watershed Partners strongly agrees that a ten-year monitoring period is warranted. We ask that the bill include control of invasive plants within the ten-year monitoring period. After ten years, trees and other plants should be of sufficient size to compete with invasive plants. Without monitoring and removing invasive plants, many stream restoration sites become heavily infested with invasive plants. Disturbed soil and increased sun at stream restoration sites are perfect conditions for invasive plants to out-compete new stream restoration plantings.** With better monitoring and measurements pre- and post-restoration of biological uplift (see next paragraph), it will be possible over time to see which techniques and companies obtain the best results which should lead to better stream restoration practices.

● §5–203.2.(B)(2)(II)2**.** Requires net biological uplift of instream biology as a stated goal. **The City of Gaithersburg recently undertook a stream restoration in the Seneca watershed. The city did not conduct a pre-project biological assessment but relied on an outdated report from 2011 which said the stream was "unsuitable for colonization by macroinvertebrates". We asked someone experienced in macroinvertebrate monitoring to check the stream in the month that the City was voting to approve the project. He found macroinvertebrate species present indicating a stream in moderate condition. The City also claimed that "no wildlife would be harmed" during the stream restoration which is not believable as more than 3 acres of mature trees (many 100 years+) and associated woodland/riparian plants were destroyed or removed along with a substantial amount of soil from the area. Before the 'restoration' it was not unusual to hear frogs and see dragonflies, and various species of turtles and forest interior dwelling species of birds (FIDS) in the area which is no longer the case. With time as the area heals it would be very useful to assess the project's impact. There is currently no requirement for there to be a systematic assessment of the area's biology pre- and post-restoration. The language of the bill refers to instream biology, but all potentially impacted plant and animal communities -- terrestrial, riparian or aquatic -- should also have some level of assessment.**

● §5–203.2.(B)(2)(II)3. Requires that stream restoration projects "minimize tree removal and protect remaining trees, including the critical root zones of trees." **Seneca Creek Watershed Partners support this clause**. **The ten-year monitoring allows time to see if critical root zones have indeed been protected during stream restoration work as root damage generally doesn't appear immediately. Trees impacted by heavy equipment compacting soil decline over a period of years before dying.**

Stream restorations may reduce sediment and nutrients due to bank erosion, but they can be hugely disruptive to the ecology of a stream valley and divert resources from upland retrofits and impervious

surface removal, both of which address the root cause of stream bank erosion and could eliminate the need for stream restoration projects. Ideally upland control of stormwater should be required prior to installing a stream restoration to help ensure that ever-increasing storm flows won't just blow out the new channel.

Seneca Creek Watershed Partners agrees with the Stormwater Partners Network that if stream restorations are done, they should be done with extraordinary care and planning to ensure that they result in benefits to the ecology of the local stream valley and riparian system, as well as downstream benefits to the Potomac River and Chesapeake Bay. In current practice 'stream restorations' at times not only do not benefit a stream's ecology, they can also be extremely destructive. Without pre- and post-restoration measurements, it is not possible to know their actual impact, including to what degree there is a benefit to the Potomac and the Bay. HB942 is needed before millions more in public funds are spent and acres of mature woodlands and stream valleys are bulldozed and re-engineered as stormwater conveyance systems.

Thank you for carefully considering the language of HB942 to provide protection to the streams and woodland habitats of Maryland.

Merikay Smith

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House Bill 942 testimony - Wetlands and Waterways

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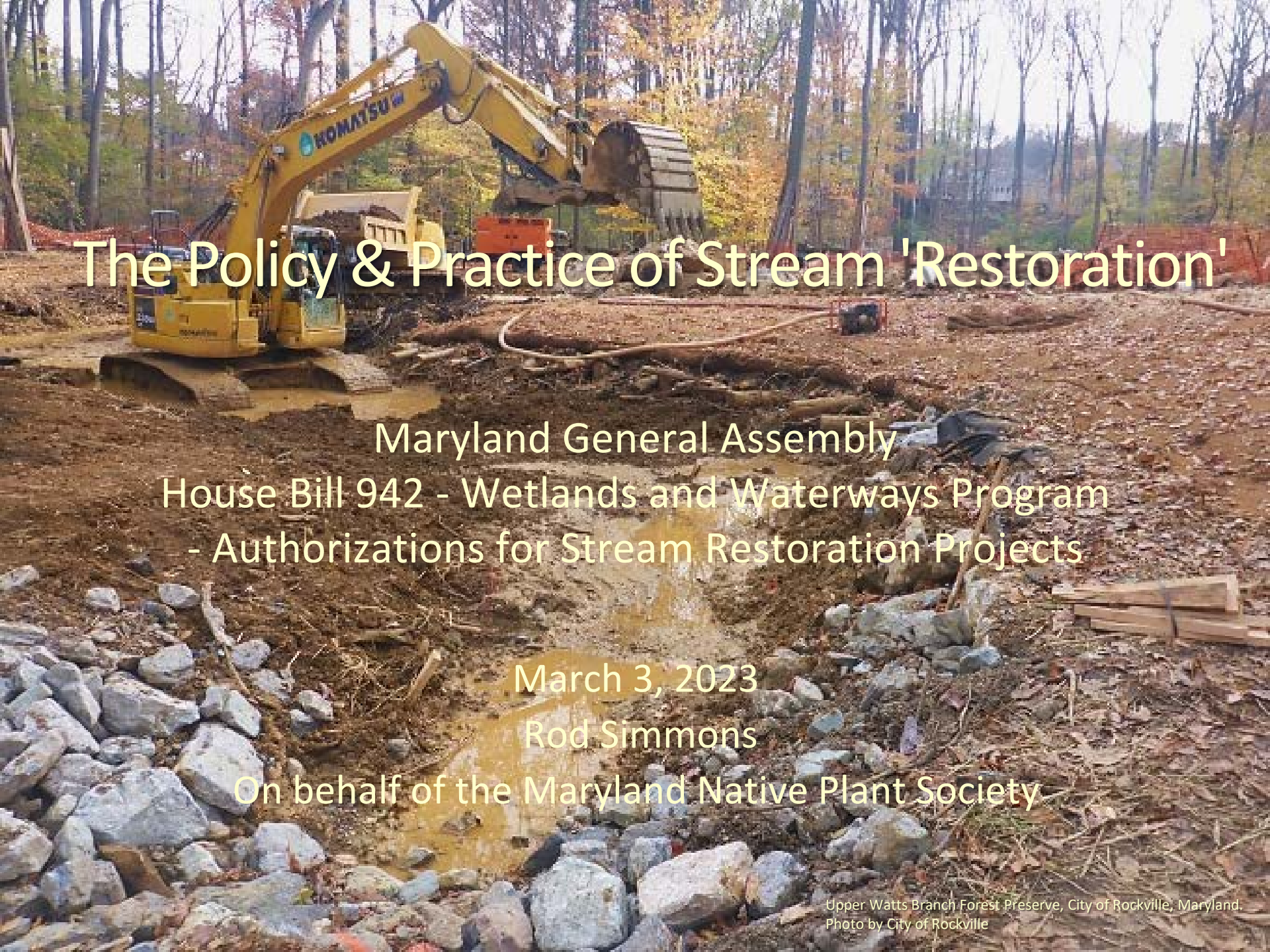


The Policy & Practice of Stream 'Restoration'

Maryland General Assembly
House Bill 942 - Wetlands and Waterways Program
- Authorizations for Stream Restoration Projects

March 3, 2023

Rod Simmons
On behalf of the Maryland Native Plant Society

Upper Watts Branch Forest Preserve, City of Rockville, Maryland.
Photo by City of Rockville

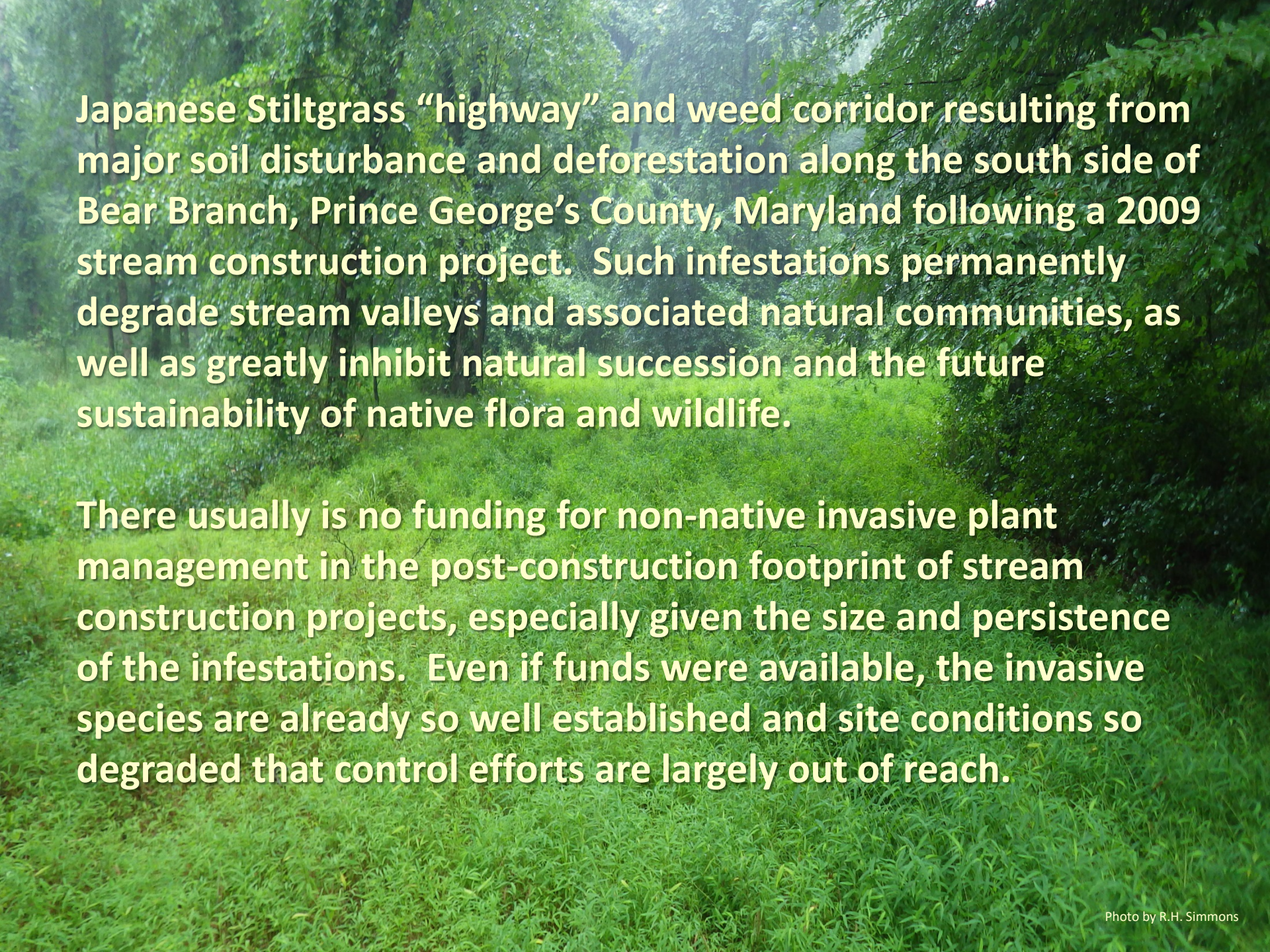
“Wrong Approach for Stream Restoration” [Letter to Editor]

The biggest problem with the so-called natural channel design approach to stream "restoration" in the greater Washington, D.C. region is that it is planned and implemented in completely the wrong places: small order, interior forested, upper headwater streams and wetlands. Natural channel design (Rosgen method) is mainly applicable to large order streams and rivers, especially the kinds one finds in the American west. Applying it to small order, upper headwater stream channels of our area is a misuse of the methodology, a misunderstanding of eastern Fall Zone hydrology and stream geomorphology, a sure recipe for failure, a mismanagement of public funds by inappropriately targeting sediment-control projects in places with low levels of the very nutrients for which funding is based, and an unacceptable loss of irreplaceable native forest, wildlife, and landscape memory…

Rod Simmons, environmental scientist and ecological restoration specialist
John Field, PhD, fluvial geomorphologist, instructor, and stream restoration specialist
Tony Fleming, professional geologist and geohydrologist
Barbara Southworth, environmental science and policy specialist
Greg Zell, natural resource specialist
Edd Barrows, PhD, Georgetown University biology professor
Andrew Macdonald, PhD, geologist and Environmental Council of Alexandria chair
Laura Anderko, PhD, Georgetown University professor, Health Studies and Climate Change
Jim Long, PhD, physicist and past president of the Mattawoman Watershed Society
Ken Bawer, ecologist and stream restoration researcher

Does aquatic wildlife matter? Amphibians, juvenile box turtles, crayfish and other aquatic macroinvertebrates, and fishes like the Eastern Blacknose Dace are particularly healthy and abundant in many upper headwater streams and wetlands. However, most such fauna are intolerant of wholesale disturbance to their habitats caused by stream construction, i.e., “root wad” and streamside forest above, and will perish. Many cannot repopulate sites because they no longer occur upstream or downstream.

Stream construction projects are major vectors for the growth and spread of non-native invasive plants that completely engulf sites following major soil disturbance.



Japanese Stiltgrass “highway” and weed corridor resulting from major soil disturbance and deforestation along the south side of Bear Branch, Prince George’s County, Maryland following a 2009 stream construction project. Such infestations permanently degrade stream valleys and associated natural communities, as well as greatly inhibit natural succession and the future sustainability of native flora and wildlife.

There usually is no funding for non-native invasive plant management in the post-construction footprint of stream construction projects, especially given the size and persistence of the infestations. Even if funds were available, the invasive species are already so well established and site conditions so degraded that control efforts are largely out of reach.

Photo by R.H. Simmons

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

Hold central the overarching concept of Do No Harm and for keeping sites natural and causing as little disturbance as possible.

It is critical that all irreplaceable natural resources affected by a stream construction project be thoroughly assessed and considered as necessary environmental review prior to construction. The environmental concerns need to be properly quantified and considered to enable effective resource protection.

All stream "restoration" projects in stream valley forests, where they are typically implemented, 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 the policy that disallows the construction of highly destructive, misapplied stream construction and stormwater management projects in small order, interior forested, upper headwater stream valleys.

It is essential that impervious surface stormwater runoff be effectively controlled before reaching storm drains. Bioretention cells, bioswales, and dry basins are the most effective infrastructure for achieving this.

The careful and *selective* armoring of stream banks and channels with wood, log jams, and snags that mimic natural processes are proven best practice recommendations for stabilizing and helping to restore eroded stream channels. Often, the No Build Option is the best alternative.

Be vigilant in controlling non-native invasive plants along waterways. It is also critical to acquire some funding for large-scale projects to accomplish work out of reach of staff and volunteers.


Thank you!
Photo by R.H. Simmons

Balto Sun article, 02Jan2020.pdf
Uploaded by: Sharon Boies
Position: FAV

ENVIRONMENT

As Maryland pours millions of dollars into ailing streams, research shows some projects don't help clean the bay

By Scott Dance
Baltimore Sun
•
Jan 02, 2020 at 5:00 am

To clean up the Chesapeake Bay, Maryland pours more money into streams every year.

In projects with million-dollar price tags, engineers reconstruct and redirect streambeds using boulders, earth and vegetation. When they're finished, the brooks appear more natural. They also are more hospitable to aquatic life and, perhaps most importantly, they more effectively filter out pollutants as water flows downstream toward the bay.

But analyses of limited data collected in streams around the state show that some projects don't help the estuary as much as hoped.

Urban stream projects surrounded by blacktop-laden watersheds are particularly prone to failure, researchers say. In isolated cases, projects that took months to build can wash away in an afternoon. They carry sediment, nitrogen and phosphorus into Chesapeake ecosystem, clouding waters and contributing to a "dead zone" that forms down the middle of the bay each summer.

After two decades of work to reverse the ecological damage of runoff coursing from roads, parking lots and rooftops, little is still known about why some stream reconstruction projects succeed and others don't, according to environmental scientists, water quality advocates and engineers. They agree the efforts are capable of ecological benefits, but also that there's no telling how long those gains will last.

While critics say that instead of stream reconstruction, there should be greater emphasis on slowing and filtering runoff before it reaches streams, local governments around the state are increasingly counting on rebuilt streams to help restore the Chesapeake's health.

The efforts already have accounted for $130 million in spending from a state trust fund dedicated to bay restoration, and that spending has been accelerating: The number of projects seeking state approval has grown 50% over the past four years and the average project size has more than tripled. State environmental officials said they expect the trends to continue.

At the same time, 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.

The data scientists have gathered show that the amount of that contamination being filtered and trapped by rebuilt streams varies widely, with plenty of success, to be sure.

But 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."

Some environmental advocates said there is too large an emphasis on stream restoration projects because, on paper, they are more cost-effective than projects focused on the sources of stormwater runoff. Those can include planting vegetation and placing stormwater retention ponds around parking lots and other paved areas, or removing pavement altogether.

To help achieve a larger goal of restoring the health of the Chesapeake by 2025, local governments in Maryland's most populous jurisdictions are obligated to remove large swaths of pavement, or employ other practices that lead to an equivalent reduction in pollution. 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.

Still, stream restorations are also popular because many believe the projects help.

Bill Stack, who formerly oversaw stream projects for the city of Baltimore and is now deputy director of programs at the Center for Watershed Protection in Ellicott City, said it’s just too soon to know for sure.

“The jury is still out, and the consensus that I see is that recovery of an ecosystem takes quite some time,” he said. “We just started monitoring these projects, and we need to continue to monitor them beyond five years to be able to see the true benefits.”

There have been more than 200 stream restoration projects over the past decade funded through the Chesapeake and Atlantic Coastal Bays Trust Fund. The state account, supported with state gas and rental car tax receipts, provides about $50 million a year for all kinds of initiatives that reduce the flow of sediment and nutrients into the bay.

In recent years, stream projects have accounted for an increasing share of that money, from less than $1 million a decade ago to nearly $20 million in the fiscal year that began July 1. And there are other waterway projects that don’t receive money from the fund.

Lee Currey, director of the Maryland Department of the Environment’s water and science administration, said the number and size of projects seeking permits from the state have increased as counties turn to them to meet their pollution-reduction obligations. The projects are often also popular in communities eager to enjoy streams in their neighborhoods, he said.

Five years ago, the state issued 78 permits for stream reconstruction; that rose to 129 in 2017 and 113 in 2018, he said. Over the same period, he said the average length of the average project, in linear feet, surged from 765 to 2,200.

Currey’s department also oversees the calculations of how much a stream project might reduce sediment and nutrient pollution. Regulators use research and past experience to estimate how much a project might improve

the environment, he said. There's a large menu of stream project designs that can be expected to perform differently in steep, rocky streams versus ones closer to the Chesapeake.

"We're not going to permit a project unless we really believe it's going to be a successful," Currey said.

Researchers have found that isn't always the case, though. Hilderbrand's research, focused on how aquatic life responds to stream reconstruction, found that habitats have markedly improved in more rural waterways, but sometimes not in urban streams.

Solange Filoso, an associate research professor at the environmental science center's Chesapeake Biological Laboratory, said she has found similar results when it comes to sediment and nutrient levels in streams. Tracking nine streams around the region, she found evidence of reduced flows of nitrogen, which bacteria can process out of slower-moving streams, but mixed results with sediment and phosphorus.

The best-performing stream projects tended to be near headwaters, at the top of a watershed, she said. Those farther downhill and closer to the bay fared worse. Filoso said that suggests runoff is so polluted and moves so quickly by the time it flows through an urban watershed that only a "superpower" stream would be able to handle it.

"There's no way a naturally functioning system would be able to get rid of all the pollutants," she said.

Thomas Jordan, a senior scientist at the Smithsonian Environmental Research Center, said he has seen similarly lagging results in one urban stream, while another in a more rural area outperformed expectations. He said regulators could be more transparent about what they know and what they don't when it comes to evaluating a stream project's impact.

"You have your best estimate, but some of those best estimates have a lot more uncertainty around them than others," he said.

Mitch Keiler, president of the Maryland Stream Restoration Association, said the engineers and other professionals who build the projects have learned a lot about what works and what doesn't over the past two decades. Now, more watershed analysis and planning goes into decisions about what parts of a stream could be improved, and where projects could create lasting benefits.

When built correctly and in the proper sites, stream projects can prevent erosion that adds even more sediment to the bay, said Stack of the watershed center. While it's important to address runoff upstream, he said, it could take "generations" to do that in a meaningful way.

Stony Run in North Baltimore is perhaps an example of the progress that can be made — and the challenges.

Most of the 4,600-foot-long project, completed last year after more than a decade of starts and stops, has held up in the months since, said Chris Streb, who oversaw the work as an ecological engineer at city contractor BioHabitats. Water flows around rocks and into pools where Streb said he has seen fish appear. Plants along the banks have helped to prevent erosion, and to filter water when it rises above the banks.

But downstream, just before the stream flows into a culvert beneath Remington, the water is scouring the east bank. Instead of flowing slowly over a bed of rocks, the water courses to the side of them, pouring over a slumping wall of rock-filled cages.

Alice Volpitta, recently named the Baltimore Harbor Waterkeeper at advocacy group Blue Water Baltimore, said she fears it's because there is more runoff (and pollution) than the stream project could handle.

"Things like this are never going to work unless we get a handle on our upstream stormwater first," she said.

Streb estimates that, overall, the Stony Run is sending 90% less sediment downstream to the Jones Falls and then the Patapsco River. But he can't explain why the lower portion of the project has fared so poorly. It will have to be rebuilt.

House Bill 0942 - Extracts being submitted as tes
Uploaded by: Sharon Boies
Position: FAV

HB 942 Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

House Environment & Transportation Committee

March 3, 2023

Sharon Boies - Position: Support.

Following is a list of references with extracts of press articles and scientific papers supporting my testimony on HB 942 Wetlands and Waterways Program – Authorizations for Stream 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

> o "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 orresponding 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

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

> o "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
>
> o "Urban stormwater runoff, delivered through conventional drainage systems, is a complex enviromental flow problem that can, in large part, be solved by harvesting stormwater before it reaches aquatic ecosystems." P. 8
>
> o "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

• 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/environment/bs-md-stream-restoration-20200102-hqwyeoa4m5bgfhtxybgdalrhby-story.html. Baltimore Sun. January 2, 2020.

> o "...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."

o "...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.'"

o "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."

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, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

o "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.

o "We sampled 40 urban stream restorations across the Piedmont and Coastal Plain physiographic regions in the grater Baltimore/Washington DC Metropolitan area of Maryland.

o 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.

o Unfortunately, the ecological aspects rarely improved despite the improved physical measures.

o 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.

o 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

o 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.

o 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."

o "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."

- o "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."

• "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, February 9, 2020, Prepared by Jesse Iliff, Wayne Martin, and Sarah Giordano, ARF

- o "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)

- o "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)

• Kaushal, Sujay S. et. al., 2018, "Tree Trade-offs in Stream Restoration Projects: Impact on Riparian Groundwater Quality," University of Maryland, State University of New York ESF, Maryland Department of Transportation State Highway Administration, 2018 Presentation.

- o Groundwater sampling studies of five Maryland streams (including Paint Branch) showed that sites where trees were removed had higher riparian groundwater nutrient concentrations than sites where no trees were removed. They also cite many other studies that show increased nutrient concentrations after tree removal in watersheds.

• Noe, G.B., C.R. Hupp, E.R. Schenk, and N.R. Rybicki., 2013, "Science Summary—Sediment and Nutrient Trapping in the Floodplain of Difficult Run, Virginia, and Implications for the Restoration of Chesapeake Bay." U.S. Geological Survey.

- o "Nitrate production by floodplain soils is minimized where the forests are shady, trees are most abundant, and herbs and grasses are least abundant."

• Palmer, M. A., K. L. Hondula, and B. J. Koch, 2014, "Ecological Restoration of Streams and Rivers: Shifting Strategies and Shifting Goals,", Annu. Rev. Ecol. Evol. Syst. 2014. 45:247-269. (https://palmerlab.umd.edu/publications/Palmerpublications/Palmer2014a.pdf)

- o "Improvements in the five metrics within the water quality category (Table 2) were found for only 7% of the channel reconfiguration projects and for none of the in-stream channel projects (Table 2)." P. 259

- o "Unfortunately, recovery of biodiversity was rare for the vast majority of stream restoration projects." P. 259

- o "Unlike diversity, taxa richness is not a particularly informative indicator of project outcome because it does not distinguish between tolerant and intolerant taxa. One of the most comprehensive studies of restoration outcomes (24 channel reconfiguration projects assessed) reported no significant change in diversity for two-thirds of the projects and only a slight increase

in taxa richness in the other third that was associated with the addition of a few tolerant taxa characteristic of urban streams (Tullos et al. 2009).” P. 262

o “A recent study has shown that watershed-scale, out-of-channel management practices to restore urban streams can be quite successful... (Smucker & Detenbeck 2014).” P. 262

o “We found that the highest success rates biologically were for those projects that involved a primary focus on enhancing the riparian zone as the restoration action. Typically, these involved either planting native vegetation or removing nonnative vegetation.” P. 262.

o “...the problematic ecological outcomes of many or most structurally based restoration projects are only now becoming more widely acknowledged. ... 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 (Table 2) suggest they are often ineffective in stabilizing channels when stability is the primary goal. Efforts at the watershed and riparian scales that target restoration of hydrological processes and prevention of pollutants from entering the stream appear to offer the most promise.” P. 262

o “Restoration is hard, and forestalling the socio-economic incentives to invent new ecosystems rather than restore existing ones or to manipulate channels rather than rehabilitate watersheds will require great revolutions indeed.” P. 263

• Pedersen ML, Kristensen KK, Friberg N (2014), “Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?” PLoS ONE 9(9): e108558. doi:10.1371/journal.pone.0108558. (brackets added to extract below)

o “Despite significant differences in physical habitat conditions, macroinvertebrate taxonomic richness, abundance and diversity showed a similar lack of response in channelized and restored reaches. A similar absence of response was reported from a meta-analysis study of 24 projects by Miller et al. Ernst et al. found that only one macroinvertebrate metric responded to restoration in small forested headwater streams in the Catskill Mountains in New York State.”

o “Such a lack of response is consistent with the results of numerous other studies recording little or no response of macroinvertebrates to restoration. Lepori et al. concluded that local scale restoration had little effect on macroinvertebrate communities compared to watershed scale factors. In a meta-analysis of stream restoration projects from 1975to 2008, Palmer et al. found that only 2 of 78 restoration projects generated increases in macroinvertebrate diversity.”

o “More investigations should be carried out with focus on developing biological indicators of habitat improvements. Macroinvertebrates are an important organism/functional group in streams, but their mixed response to restoration and habitat improvement suggests that other organism groups should be included [such as native plant diversity, habitat quality, soil microorganisms, etc.].”

• 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/

o “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.””

o 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?””

• 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, unpublished report.

o “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.”

o “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.”

o “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.”

• Wheeler, Timothy B., “Stream restoration techniques draw pushback,” Bay Journal, Oct.7, 2020, (https://www.bayjournal.com/news/pollution/stream-restoration-techniques-draw-pushback/article_ffc96960-0895-11eb-b36f-

efa466158524.html?utm_medium=social&utm_source=email&utm_campaign=user-share); extracts below

> o In addition to reducing sediment and nutrient pollution, stream restoration projects are supposed to provide "ecological uplift" to degraded streams, bringing back long-lost aquatic insects and fish like trout, which need cold, clear water to maintain their populations.
>
> o In reviewing 40 different projects across Maryland, researchers at the University of Maryland laboratory didn't find many ecological benefits. The number and type of aquatic insects — food for fish and key indicators of stream health — didn't improve.
>
> o According to ecologist Bob Hilderbrand, the study's lead author, there's evidence that a tream's ecosystem can benefit from restoration if the stream wasn't severely impaired to begin with. But in badly degraded urban and suburban streams, he added, "there's not much evidence ... that we can bring the ecology back."
>
> o And in some cases, he said, his research suggests the aquatic habitat and life in streams that have undergone restoration work actually wind up worse off than if left alone.
>
> o Hilderbrand said his team's study didn't look specifically at how tree removal during restoration affected a stream's ecology. But he noted that even if contractors replace the cleared vegetation along the banks, which is customary in restoration projects, "it's going to take decades for those trees to become re-established."
>
> o With their root networks, trees help prevent stream bank erosion. They also soak up rainfall, helping to keep nutrients and sediment from washing off into a stream during a storm. In dry weather, they shade the water from the sun, keeping the temperature down to help sustain fish and amphibians.

I urge the Committee's FAVORABLE report on HB942.

Thank you for your consideration.

Sharon Boies

Columbia, MD

House Bill 0942 Written Testimony Boies.pdf
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Position: FAV

Written Testimony – Sharon Boies

HB 942 - Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

House Environment & Transportation Committee - March 3, 2023

SUPPORT

If passed, HB 942 will help ensure that Maryland is seeing a return on its significant investments in stream restoration while protecting our forested stream corridors and mitigating the damage of upland stormwater runoff.

HB 942 will:

- adds measures to ensure that all stream restorations achieve their stated goals,
- ensure that alternative plans for the entire watershed and surrounding community are given stronger consideration and
- that projects that mitigate upland storm water runoff where it's occurring are given greater incentives and higher pollution credit values for doing so.

The term "Stream Restoration" is meant to end a conversation, not start one. To many, however, these projects are "restorations" in name only. Contractors say they are going to "restore" the stream" maybe even for free or they might even be willing to pay landowners for conservation easements, which then allows these contractors to be awarded additional credits by obtaining the easements.

Proponents say these actions reduce pollutants in the waterways and help clean up the Chesapeake Bay, but there is little evidence of them having done so. The latest Chesapeake Bay Foundation report card gave the bay a D+, despite millions to billions of dollars spent over many decades it appears their main focus is on producing obligatory pollution credits and for large profits to private contractors, to offset environmental losses and harm in other locations and to allow continued development in sensitive areas further exacerbating the root cause of stream bank erosion- unmitigated upland stormwater runoff and without ever addressing the actual root cause, the runoff.

The following is my personal account of a project that took place in my neighborhood.

Our community in Columbia had ONE in-person meeting in 2018 about the stream "restoration" that occurred in the fall of 2020 and the winter of 2021. The contractor was granted a waiver exempting them from certain requirements of the Forest Conservation Act.

The Contractor logged over nine acres of mature woodland wetland forests in three stream corridors, but the total "impact" area was over 13 acres. It is my understanding this is the actual amount of forest that could still be lost. The over 100-year-old forest in our neighborhood is, in function, a bird and wildlife sanctuary.

This forested stream corridor, and others, had been intentionally preserved for decades for the betterment of the community per the founder and developer of Columbia per the founder and developer of our city over 50 years ago.

In the case of Columbia, the" stream restoration" began by construction workers, not biologists, bulldozing the multi-layered, lush, bio-diverse forest and all the ground vegetation down, followed up by excavators scraping away the fertile stream banks including any living organisms that couldn't get out of the way of the heavy machinery in time.

Dump truck loads of soil left the area. To me, this was a "demolition" which is a more fitting description of the end result. The stream water was pumped through hoses to newly engineered channels or straight onto the ground. The neighborhood smelled like death. The stench of it all lingered in the air for months and still does at times.

The contractor removed some of the large, straight logs and left the stumps and undesirable logs behind. I was told the Army Corps of Engineers recognizes stumps and debris are expensive to remove, and in many cases, the local landfills will not take this type of material. They buried some of the stumps, a practice that is frowned upon in most all other instances.

The contractors say this is all a part of the plan to slow the flow of stormwater through the newly created floodplain, to provide habitat and eventually add nutrients back into the hardened clay soil left behind.

The restored stream corridor looked like a natural disaster had occurred. Three months of calls and letters with me complaining 'if a tornado had caused this harm, it wouldn't be left like this", went unheard. This was where the neighborhood kids used to play, dogs used to swim, neighbors used to meet, talk, and birdwatch, it was a living classroom. Finally, a call to the SHA who funded the project prompted the contractor to come out to one of three construction sites and spend nine days chipping up debris piles as big as cars and jagged limbs sticking straight up into the air.

The excavators connected the stream with the iron rich groundwater and soil, causing a fluffy, orange bloom called "iron flocculate" that initially killed all the remaining aquatic life in all 3 streams locations It is a process that will repeat itself, over and over affecting the stream biology for an undetermined amount of time ,and perhaps even forever.

To add to their TMDL credit, the contractors restored every foot of the streams instead of limiting their work to individual eroding banks.

They lined the streams with quarried dark grey stone (rip rap) that is not native to Maryland streams. These stones act like solar heaters sitting in the newly exposed stream raising the water temperature even more. I was told they used rip rap instead of native stone because it was cheaper. This stone does not have the same symbiotic relationship with the native aquatic species, I'm told it also changes the PH level in the water and invasive species are clearly attracted to it.

The approximately 100 year-old native acorn producing oaks, hickory nut, beech, maple, cherry, and towering poplar trees some several feet across in diameter were replaced with trees that are a completely different species, one inch in diameter or less. They will never

become the food source and habitat of the trees they replaced. The trees are planted in rock hard clay in the baking sun with no one watering them and will have a hard time surviving.

The clay left behind had pockets that hold rainwater and filled with countless mosquito larvae until the planted sedge and grasses then invasive species took over where the mature forest flora like Trillium, Jack in the pulpit, ferns, skunk cabbage and Bloodroot once grew in deep rich loam and leaf litter.

This had been a crystal clean stream. Many Maryland streams are the crucial headwaters for drinking water. Ours was like an aquarium full of minnows, crayfish, frogs, newts, salamanders, water snakes and there were 4 species of turtles in the stream corridor. There were resident Herons and a parliament of owls. Now the oxygen depleted, cloudy, shallow stream has difficulty sustaining any life except for the occasional insect larvae and frogs in the spring who produce in the warm stagnant pools.

Our neighborhood was told we were helping the bay. We were also told this would reduce the frequency of required dredging of our neighborhood lake, designed to be the silt and sediment catch pond for the neighborhood, by 30 percent. There was no mention of climate change or cloudbursts or this project's ability to mitigate flooding in the future.

In fact, Columbia paid for a climate resiliency study that said we were in good shape and that the stream banks were safely keeping the streams where they belong, and the height of the banks were reducing the potential for flooding way into the future.

These forested stream corridors provide tremendous eco-services from wildlife habitat to carbon sequestration, oxygen production, wildlife viewing. During this time of global warming and species die-off, why is Maryland spending so much money to plant trees and clean up the bay while spending equal amounts to reduce the number of mature trees and degrade the sources of our drinking water

The SHA was awarded the pollution credits from this stream restoration. The contractor was paid $2.2 million for the work.

The residents and existing wildlife were left with an unrecognizable, biologically impaired, rip rap lined, smelly, engineered stormwater management facility in a logged forest that's missing entire species of flora and fauna.

Homes that were built looking into mature forests now look into each other with exposure to sun and wind and lack of privacy at night.

The carbon footprint from the logging, topsoil removal, construction vehicles, workers vehicles and heavy machinery constantly coming and going on our small neighborhood roads for months and the loss of the carbon filtering trees is incalculable. The contractor paid $50 to be able to drive through the streams. A Logging operation would be fined heavily for doing so.

It was stunning to see how fast the silt and sediment immediately begin to fill the newly restored stream back in because the restoration didn't address the root cause of it, the unmitigated upland stormwater runoff, but the most devastating thing to learn is that the neighborhood lake will have to be dredged, costing our HOA money, 2 years after the

restoration and the loss of our forest and clean, healthy stream.

If our neighborhood had been given the option , 2.2 million dollars should have been enough to buy a rain garden for every home. There may have been money left over for pervious pavement grants or bio-retentions in the road right -of-ways. This would have mitigated the runoff, preserved the forest, protected the stream, enhanced our quality of life and provided biological uplift.

This bill is not anti- stream restoration, it is a forward-thinking bill that recognizes the need to make bold changes to current best management. This bill will help to incentivize projects where the runoff begins and in urban areas instead of expecting other locations to sacrifice their forested stream valleys to allow continued development of urban areas- the areas that could benefit from more trees and greenspace the most.

Even though roughly only 6 percent of these projects are monitored for long term success, I was repeatedly told “just wait a few years” don’t worry, the trees will grow back, and the animals will come back but the truth is what took a century to grow was wiped out in a matter of weeks. It will take a century to replace a century old ecosystem.

I urge the Committee’s FAVORABLE report on HB 942.

Thank you for your consideration.

Sharon Boies

Columbia, MD

HB942 Stream Restoration Testimony - House.docx.pd
Uploaded by: Taylor Smith-Hams
Position: FAV

March 3, 2023

Wetlands and Waterways Program - Authorizations for Stream Restoration Projects (HB0942)
Position: FAVORABLE

Dear Chairperson Barve and Members of the Environment and Transportation Committee,

Blue Water Baltimore is a nonprofit organization with a mission to restore the quality of Baltimore's rivers, streams, and Harbor to foster a healthy environment, a strong economy, and thriving communities. **We write today in support of Wetlands and Waterways Program - Authorizations for Stream Restoration Projects (HB0942).**

Stream restoration is a key strategy for Baltimore City and Baltimore County to meet their Municipal Separate Storm Sewer System (MS4) permits. When implemented in the right places, while controlling stormwater volumes, these projects can be effective in reducing sediment and nutrient pollution in our waterways. Unfortunately, there is limited evidence that urban stream restorations improve ecological uplift, and the models used to predict stream restoration performance rarely comport with the real-life outcomes of these projects in urban areas.[1] Additionally, upstream volume reductions do not always accompany the stream bank grading or armoring tactics employed in many stream restoration projects in the Baltimore region. Thus, poorly implemented or maintained stream restoration projects have caused ecological damage, particularly forest loss, in our watershed.

The Chinquapin Run stream restoration project is a key example. In 2018, at least 70 trees that Blue Water Baltimore and our volunteers had planted on city park property along Chinquapin Run, a tributary to Herring Run, were removed or severely damaged by a Department of Public Works (DPW) sanitary sewer realignment and stream stabilization project. We planted these trees with permission and funding from Baltimore City's Department of Recreation and Parks (BCRP) Forestry Division between 2009 and 2015. After that work was destroyed, we met with city agencies and learned that communication between DPW and BCRP Forestry was inadequate and that Forestry staff, as well as local residents, were not properly consulted about the planned project and its impacts along the stream's riparian corridor.[2]

This bill would implement important guardrails for stream restoration projects, including requirements for public outreach, which would reduce the likelihood of a similar outcome as occurred in Chinquapin Run. It would also incentivize Upland Best Management Practices (BMP), or Green Stormwater Infrastructure (GSI), which manages stormwater pollution before it enters streams and reduces flooding by mimicking the way water is soaked up, stored, and kept clean in a natural ecosystem. GSI

[1] Violin et al. 2011. Effects of urbanization and urban stream restoration on the physical and biological structure of stream ecosystems. Ecological Applications 21:1932-1949.
[2] Blue Water Baltimore. (2019). Green Stormwater Infrastructure: Challenges and Opportunities in Baltimore. P. 14.

also generates many co-benefits, including improved air quality, lower ambient temperatures, increased critical habitat for birds and other important wildlife, and greater social cohesion.[3]

Despite its numerous benefits, GSI remains an under-utilized approach to reducing stormwater pollution and flooding in Maryland due to lack of state incentives and the overreliance on practices such as stream restoration and street sweeping. This bill will help Maryland shift its stormwater management approach toward practices like GSI that center environmental justice, water quality, and climate resilience. We urge a favorable report on HB0942.

Sincerely,

Taylor Smith-Hams
Advocacy & Outreach Senior Manager

[3] Christopher Coutts and Micah Hahn. (2015). "Green Infrastructure, Ecosystem Services, and Human Health." International Journal of Environmental Research and Public Health, vol. 12. Pgs 9768-9798.

HB 942_CBF_FWA.pdf
Uploaded by: Doug Myers
Position: FWA

CHESAPEAKE BAY FOUNDATION

Environmental Protection and Restoration
Environmental Education

House Bill 942

Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

Date: March 3, 2023
To: House Environment and Transportation Committee
Position: **Favorable with Amendment**
From: Doug Myers, Maryland Senior Scientist

Chesapeake Bay Foundation (CBF) **SUPPORTS WITH AMENDMENT** HB 942, which requires the Maryland Department of Environment (MDE) to revise criteria for stream restoration projects associated with stormwater permits, bay restoration, mitigation and other restoration goals.

MDE, the US Army Corps of Engineers and the Chesapeake Bay Program have all had a hand in developing regulatory requirements, guidance and crediting systems that have made "stream restoration" a popular management practice for multiple restoration goals. The unintended consequence is that it has become a default practice when other best management practices would be more appropriate and beneficial to the environment. Goals for nutrient reduction, for example, may not be compatible with goals for improving the hydrology of streams or their biological function, especially when the site-specific practice ignores upstream impervious surface growth or requires the removal of mature trees.

MDE is beginning to address some of the permitting issues with stream restoration projects through a working group created by legislation during the 2022 session. CBF is participating in this forum but feels additional legislative clarification is warranted at this time. HB 942 expresses a review framework for such projects to take a larger landscape view of streams within the context of the watersheds in which they occur and values their existing functions without heavy-handed instream construction.

The sponsor's amendment corrects a drafting error to maintain the importance of post-construction monitoring while allowing credits to be awarded for appropriate projects in a fashion that protects the business model of restoration.

CBF urges the Committee's FAVORABLE WITH AMENDMENT report on HB 942.

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

Maryland Office ▪ Philip Merrill Environmental Center ▪ 6 Herndon Avenue ▪ Annapolis ▪ Maryland ▪ 21403

Additional INFO Rivers Association

Uploaded by: Elle Bassett

Position: FWA

HB 942, Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

ENT Committee Hearing on 3/3/2023

Corrections to Industry (and Other) Misinformation

Installment #1 (in Black and/or noted as "i1") – sent 3/8/2023

Installment #2 (in Blue and/or noted as "i2") – sent 3/13/2023

Installment #3 (in Red and/or noted as "i3") – sent 3/23/2023

NOTE: because of the vast amount of misinformation, half-truths, and greenwashing put forth in both written and oral testimony, this document will be sent out in installments so as to provide Delegates at least some information before the ENT voting.

By

Kenneth Bawer

Contents

Bill HB 942, Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

https://mgaleg.maryland.gov/2023RS/bills/hb/hb0942f.pdf

COMMENTS ON "FISCAL AND POLICY NOTE"

THIS SECTION NOT COMPLETE

COMMENTS ON ORAL TESTIMONY

THIS SECTION NOT COMPLETE

Oral testimony recording link from March 3

https://mgaleg.maryland.gov/mgawebsite/Committees/Media/false?cmte=ent&clip=ENV_3_3_2023_meeting_1&ys=2023rs from 1:43:50 to 3:43:00

Oral testimony in response to Delegate Stewart's question about Hilderbrand's research.

Recording at:
https://mgaleg.maryland.gov/mgawebsite/Committees/Media/false?cmte=ent&clip=ENV_3_3_2023_meeting_1&ys=2023rs .

Below corrects an outright falsehood perpetrated by the industry during the 3/3/2023 ENT hearing. I reached out to Dr. Robert Hilderbrand for his comments on industry statements about his research.

Per Del. Stewart's specific question during the testimony on HB 942, Stream Restorations about Robert Hilderbrand's research, I contacted Bob (I do know him on a first name basis) and asked him to comment on the industry employees' criticism that his study only looked at one type of stream restoration (which they mischaracterized as a specific type of "stream armoring", and which is not even an MDE-recognized stream restoration technique) which did not represent the whole universe of practices that are used in stream restoration. In fact, the universe of stream restorations techniques is a very small universe, consisting of only 3 different techniques: Prevented Sediment (Natural Channel Design (NCD)), Hyporheic Exchange (wet channel Regenerative Stormwater Conveyance (RSC)), and Floodplain reconnection. In his response (see his note below), Bob states that he looked at both NCD and RSC which encompasses 66% of the "universe" of stream restoration techniques - hardly a tiny subset of techniques as was stated by the industry person. Furthermore, NCD is the most common technique used for stream restorations.

Bob refuted their assertion saying, "…many of the projects I looked at were not what I would consider armoring projects. However, they did armor specific areas of channel banks in order to prevent erosion," which is done in virtually all NCD projects. His paper (Hilderbrand, Robert H., et. al.,

"Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf) says, "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."

Bob says that his more recent paper found "that restorations usually end up with no better, and often worse, benthic macroinvertebrate responses [which is an industry-standard for measuring in-stream biology] than were the stream left alone." This paper looks at mostly, but not exclusively, at NCD-type projects.

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My note to Robert Hilderbrand on 3/5/2023: "At about 3:09:45, Delegate Stewart referred to the Chesapeake Bay Journal from 2020 in which you are quoted about your research showing the lack of biological uplift. He asked the industry reps for their comments. The industry panelist was dismissive of your study as being specifically applicable only to a type of stream armoring where you have not reduced the level of flow [their words, and I'm not sure what that means], and that you were only looking at a subset of very specific practices that do not represent the whole universe of practices that are used in stream restoration. Would you be able to comment on that? They seem to be saying, for example, that you only looked at projects using e.g., Natural Channel Design, but not Regenerative Stormwater Conveyance or Floodplain Reconnection, or vice versa, whatever the case may be. Is that a valid criticism of that study. As I recall, the article and your comments were based on your paper, Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020."

Robert Hilderbrand's response on 3/6/2023:

"Hi Ken,

Feel free to pass this along to anyone.

My study looked at 2 types of restorations: natural channel design (NCD) in piedmont streams and both Regenerative Stormwater Conveyance (RSC) and NCD in the coastal plain. Technically, they are correct that I did not explore the entire universe of techniques, but RSC and NCD approaches represent the vast majority of restorations in the area to my knowledge. I'm not fluent in restoration engineer/practitioner speak so there may be differences in opinion here, but many of the projects I looked at were not what I would consider armoring projects. However, they did armor specific areas of channel banks in order to prevent erosion. I would like to know how their approach substantively differs from those that I and others have studied. I would also like to see strong evidence, and not just anecdotes, that their proposed method works in most of their restoration projects.

My more recent work (see attached final report) examined what we can realistically expect from a stream restoration given the landscape setting of each specific project. That is, we need to be realistic and cannot expect a restoration to produce a really high quality biotic response if it is in a highly urbanized watershed. My research corrected for the watershed impervious surface cover (ISC) to

forecast what we can realistically expect given the ISC levels. It turns out that most (not all, but most of them) restored streams achieved lower benthic invertebrate scores than unrestored streams having similar levels of ISC in their upstream catchment. It's a pretty technical research project, but the gist is that restorations usually end up with no better, and often worse, benthic macroinvertebrate responses than were the stream left alone. The projects were almost exclusively in Montgomery County and were mostly NCD-type projects for which the county had monitoring data. I looked at all restorations that had monitoring data in the county."

COMMENTS ON WRITTEN TESTIMONY

THIS SECTION NOT COMPLETE

(i2) West Montgomery County Citizens Association (WMCCA), by Kenneth Bawer

See attachment

(i3) Arundel Rivers Federation, by Elle Bassett

ARF: "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."

> **FACT: While this is a true statement, ARF ignores the fact that we must control this stormwater at its source. Failure to do so has resulted in stream restoration blowouts as documented by photographs in the West Montgomery County Citizen Association (WMCCA) written testimony (attached).**

ARF: "Stream restoration is a tool that repairs stream habitat while also benefiting downstream water quality."

> **FACT: This is a false statement. First, stream restorations do not repair stream habitat since scientific research shows that they do not result in improvements to in-stream biology.** [1] [2] [3] [4]

[1] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[2] 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)

[3] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[4] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/

Second, the benefit to downstream water quality is only temporary since stream restorations do not control the source of stream erosion - out-of-stream stormwater runoff. Therefore, steam restorations are being blown out rendering them useless. See photographs of disrupted stream restorations in the West Montgomery County Citizen Association (WMCCA) written testimony (attached).

ARF: "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.1 (1 Maryland Department of the Environment. Stream Restoration. https://mde.maryland.gov/programs/Water/Pages/Stream_Restoration.aspx)"

FACT: This is misleading since it misquotes the given web site. The implication of the misquote is that every stream restoration has those goals and objectives and that those goals and objectives are obtainable for every stream restoration. However, the web site actually says that, "The goals and objectives for any stream restoration project vary," and that the list is only possible, neither assured nor applicable to all projects. What is conveniently ignored is the scientific research that show that stream restorations do not result in improvement of in-stream biology.[5]

ARF: "We have seen instances of large-scale stream restoration often associated with mitigation work result in extensive tree clearing. While HB 942 had good intentions of trying to prevent those types of projects, it invertedly will make *all* stream restoration projects difficult to implement, including those projects that seek to provide improved habitat and downstream water quality improvements."

FACT: This is a false statement. Bill HB 942 will only make more difficult those stream restorations that propose to clear cut large areas of stream-side forests.

ARF: "Stream restoration is one of the most cost effective restoration tools we have to meet these targets and goals…."

FACT: This is a false statement with no evidence provided. First, while cost is always a legitimate concern, we are struck by the lack of data any used to bolster this assertion. One jurisdiction (Montgomery County DEP) admitted that they have never done fair cost comparisons, i.e., they have never asked for quotes on large numbers of out-of-stream projects in order to receive the cost benefits from "volume discounts" (i.e., economies of scale)[6]. In fact, on a statewide basis MDE data (per the 2022 FAP[7]) shows that there are 33 different types of out-of-stream projects (such as green roofs, rain gardens, and bio-swales) that are more cost effective (less cost per impervious acre treated) than stream "restorations." This is not even a comparison of the lifecycle cost or total cost of ownership

[5] Ibid (see the four footnotes immediately above)
[6] Department of Environmental Protection presentation to Montgomery County Water Quality Assurance Group on 4/12/2021.
[7] Watershed Protection and Restoration Program - Financial Assurance Plans, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx

(TCO) over time, which is the sum of construction cost, maintenance, repair, replacement costs and a quantification of the value of lost or gained ecosystem functioning (services) - for example, trees have been shown to reduce air conditioning expense. Lifecycle cost comparisons would probably tip the scales even further in favor of upland (out-of-stream) practices due in part to the fact that stream restorations are being blown out and repair is extremely expensive.

Second, the benefit of a stream restoration is entirely a short-term, temporary decrease in the amount of stream bank erosion. ARF's own written testimony shows a photograph of a blown out stream restoration with a large section of exposed plastic geotextile fabric at Annapolis Landing in Riva, MD that had to be repaired. The WMCCA's written testimony (see attachment) and the Expert Panel Report[8] both show photographs of stream restorations destroyed by rainstorms due to the failure to control stormwater from imperious surfaces such as roads and roofs. For example, the Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, "Storm damage occurred very soon after construction, initiating structural failures." The repair work cost an additional $3.6 million.

ARF: "Maintaining tree habitat is already a goal of stream restoration design."

FACT: This is a misleading statement. The documented photographic evidence (see WMCCA testimony attached) clearly shows that the goal of maintaining tree habitat is being missed by a mile. The photographs show many stream restoration projects where large areas of stream-side forests have been clearcut.

ARF: "…it is important to note that some tree species will likely naturally change due to the desired change in hydrology from the project. For example, a tree that has grown with dry roots may not adjust well to the reconnected floodplain and wetland-like conditions of the now frequently flooded habitat around a stream restoration project. That tree will likely die and be replaced with a tree that prefers wet roots."

FACT: This is a false statement. The two faulty premises are that 1) the stream restoration must be done, and 2) that all stream restorations involve reconnecting floodplains.

First, stream restorations never have to be done if the cause of stream erosion is eliminated by controlling stormwater runoff outside of the steams themselves using green stormwater infrastructure such as rain gardens and bio-retentions.

Second, not all stream restorations involve flood plain reconnection since not all streams have flood plains. The other methods of stream restoration are Natural Channel Design and Regenerative Stormwater Conveyance, neither of which change the hydrology of a stream valley into a "now frequently flooded habitat."

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[8] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019, Figure 1, https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf

ARF: "Upland projects alone will not restore eroded streams and crediting should be based on scientifically proven outcomes."

> **FACT: This is a false statement with no supporting evidence. However, there is scientific evidence by Fraley McNeal, et. al.[9] that after controlling stormwater upland, stream banks will self-recover. But the industry doesn't like passive, self-recovery solutions because there is no money to be made. We agree that crediting should be based on scientifically proven outcomes, and the science shows that stream restorations do not result in uplift of in-stream biology (see references above). We also believe that crediting should withheld when empirical evidence shows that stream restoration projects are blown out and become ineffective (see photographs from WMCCA testimony attached).**

ARF: "Often times, there is not adequate space for upland work to be accomplished and maintenance of upland projects has proven to be a challenge."

> **FACT: This is a false statement with no supporting evidence. Any required maintenance of upland projects, most of which are easily accessible from road-sides, is less challenging than maintenance of stream restoration projects which can be deep in natural stream valleys. In fact, the photographic evidence (see WMCCA written testimony attached) is that many stream restoration projects are simply not maintained after they are blown out.**

ARF: "Upland projects are often more costly for less nutrient and sediment reduction benefits. This will further delay Maryland in reaching our restoration goals."

> **FACT: This is a demonstrably false statement. This is a demonstrably false statement. On a statewide basis, MDE data (per the 2022 FAP[10]) shows that there are 33 different types of out-of-stream practices (such as rain gardens and bio-swales) that are cheaper to build (on a cost per impervious acre treated basis) than stream "restorations." This is not even a comparison of the lifecycle cost, or total cost of ownership (TCO), which is the sum of construction, maintenance, repair, and replacement costs. Lifecycle cost comparisons would probably tip the scales even further in favor of upland practices due in part to the fact that stream restorations are being blown out and repair is extremely expensive as documented in WMCCA's written testimony (attached). Also not analyzed by MDE is a quantification of the value of lost or gained ecosystem services (for example, trees have been shown to reduce air conditioning expense).**

(i3) Maryland Department of Natural Resources (DNR) by Emily Wilson,

[9] "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

[10] Watershed Protection and Restoration Program - Financial Assurance Plans, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx

DNR: “DNR is currently working with MDE on the issues described within HB 942 through a study organized and led by MDE based on requirements from the last session. We are an active participant in this study, and believe it is a good avenue with diversified input to investigate and seek solutions to stream restoration needs and concerns expressed in HB 942.”

> **FACT: We are also an active participant in the referenced study, required by 2022 HB869, and disagree with the above comment that this study “is a good avenue with diversified input to investigate and seek solutions to stream restoration needs and concerns expressed in HB 942”**
>
> **Unfortunately, the HB 869 study is flawed from the start and will not result in an unbiased report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE’s current mindset in favor of stream restorations and will be tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final report will be authored solely by MDE (per Kenneth Bawer, a participant in the study representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations from the study group members. Thus, MDE is free to “listen and ignore.” Another problem is that since MDE is apparently satisfied with current stream restoration construction techniques and the MS4 permit crediting schedule, this study is being controlled by a group arguably with a predisposition towards maintaining the status quo. The study is therefore flawed from its inception due to this potential conflict of interest. The only way to ensure that the results of a study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany, etc. who conduct a study based on the science, not based on considerations of the for-profit, engineering-based stream restoration industry or entrenched MDE thinking.**

(i3) Maryland Department of Transportation (MDOT), by Mitch Balwin & Pilar Helm

MDOT: “Stream restoration projects are one of the most effective methods for SHA to mitigate highway runoff impacts and improve the surrounding environment.”

> **FACT: No evidence has been provided to support this assertion. This is a demonstrably false statement. The scientific evidence is that stream restorations do not result in biological**

uplift.[11] [12] [13] [14] The WMCCA written testimony (included in this document) provides photographic evidence that stream restorations are being blown out and require expensive repairs due to the lack of out-of-stream stormwater control.

MDOT: "It also happens to be one of the most cost-effective ways for SHA to obtain and use stormwater management credits."

FACT: No evidence has been provided to support this assertion. This is a demonstrably false statement. On a statewide basis, MDE data (per the 2022 FAP[15]) shows that there are 33 different types of out-of-stream practices (such as rain gardens and bio-swales) that are cheaper to build (on a cost per impervious acre treated basis) than stream "restorations." This is not even a comparison of the lifecycle cost, or total cost of ownership (TCO), which is the sum of construction, maintenance, repair, and replacement costs. Lifecycle cost comparisons would probably tip the scales even further in favor of upland practices due in part to the fact that stream restorations are being blown out and repair is extremely expensive as documented in WMCCA's written testimony (attached). Also not analyzed by MDE is a quantification of the value of lost or gained ecosystem services (for example, trees have been shown to reduce air conditioning expense).

MDOT: "SHA has a successful model of using land owned by a third party to restore streams to their more natural state."

FACT: No evidence has been provided to support this assertion. To say that the result is to "restore streams to their more natural state" is demonstrably a false statement. WMCCA's written testimony shows photographic evidence of clear-cut stream-side forests and rocks which are dumped into the streams by most of these projects. And, as stated above, stream "restorations" do not result in biological uplift, and they are being blown out and require expensive repairs due to the lack of out-of-stream stormwater control.

MDOT: "This practice allows SHA to acquire credits without the time consuming and expensive process of buying and maintaining more right-of-way."

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[11] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[12] 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)

[13] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[14] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

[15] Watershed Protection and Restoration Program - Financial Assurance Plans, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx

FACT: No evidence has been provided to support the assertion that their practice is less time consuming and less expansive than alternative costs including total life cycle costs (total cost of ownership). In fact, MCDOT would not be required to buy and maintain more right-of-way. For example, MCDOT could request that the US Army Corps of Engineers allow upland, out-of-stream stormwater control projects as currently allowed by the Federal Mitigation Rule.[16]

MDOT: "This method is also proven to improve water quality and mitigate stormwater in areas that have greater needs."

FACT: This is a false statement. As stated above, stream "restorations" do not result in biological uplift, and they are being blown out and require expensive repairs due to the lack of out-of-stream stormwater control.

(i3) Stormwater Partners Network of Montgomery County (SWPN), by Eliza Cava et. al.

SWPN: "…a fair number of stream restorations are undertaken precisely for infrastructure reasons, and then the MS4 credit generated is a by-product."

FACT: This is a false statement. Stream restorations are never undertaken for infrastructure reasons. They are done either for MS4 permit credits, TMDL credits, or for mitigation projects. Projects done to protect sewer lines, bridge abutments, or roads for example are called infrastructure protection projects or infrastructure repair projects – these projects do not qualify for MS4 permit credit per MDE's Accounting Guidance document: "…projects that are primarily designed to protect public infrastructure by bank armoring or rip rap do not qualify for a credit."[17]

SWPN: "While in an ideal world every single stream restoration project would be intended and designed to achieve biological uplift, the reality is that it is very hard to ensure and demonstrate uplift in all cases, even when a stream restoration may be the most appropriate tool for a given site."

FACT: This is a false and misleading statement. First, If MDE does not believe that biological uplift can be achieved by a specific project, MDE should not grant a permit for that project in the first place. In fact, stream restorations done for mitigation projects are required to demonstrate biological uplift as required by the Federal Mitigation Rule. Therefore, MDE should also require biological uplift for stream restorations done for the MS4 permit. A stream restoration is a stream restoration. To say that "it is very hard to ensure and demonstrate uplift in all cases" implies that uplift can be demonstrated in most or at least some cases.

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[16] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

[17] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, page 69 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

Nothing could be further than the truth. The scientific reports find that stream "restorations" rarely result in biological uplift.[18] [19] [20] [21]

Second, stream "restoration" is never the most appropriate tool for a given site. There is ample documentation (see the included testimony from WMCCA) of the destruction caused by so-called stream "restorations" and the post-installation failure of these projects which fail to address the cause of stream erosion – stormwater fire-hosing into streams from impervious surfaces such as roofs and roads.

SWPN "…stream restorations are currently exempt from many aspects of the Forest Conservation Act. Some of our Network members believe this exemption should be reversed, while others feel that would create an unworkable burden for even highly needed stream restoration projects."

FACT: This is a misleading statement. There is no such thing as "highly needed stream restorations projects." What are truly highly needed are non-destructive, out-of-stream stormwater control projects. The exemptions from the Forest Conservation Act are shameful and result in the clear-cutting of stream-side forests as documented by photographs in the WMCCA written testimony.

(i2) American Council of Engineering Companies/MD (ACEC/MD), by Christopher Costello

ACEC: "Our concern and reason for opposing HB 942 is the bill's duplication of existing Maryland Department of the Environment (MDE) efforts to protect and improve Maryland's wetlands and waterways. Here are several examples duplicates exiting efforts [sic]:

Section 5-203.2 (A) duplicates the requirements in HB 869 from 2022, which also requires a review of restoration projects. This report in due in 2024;"

FACT: This is not true. Unfortunately, the HB 869 study is flawed from the start and will not result in an unbiased report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE's current mindset in favor of stream restorations and will be tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final report will be authored solely by MDE (per Kenneth Bawer, a participant in the study

[18] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)
[19] 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)
[20] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)
[21] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/

representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations from the study group members. Thus, MDE is free to "listen and ignore." Another problem is that since MDE is apparently satisfied with current stream restoration construction techniques and the MS4 permit crediting structure, this study is being controlled by a group arguably with a predisposition towards maintaining the status quo. The study is therefore flawed from its inception due to this potential conflict of interest. The only way to ensure that the results of a study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany, etc. who conduct a study based on the science, not based on considerations of the for-profit, engineering-based stream restoration industry or entrenched MDE thinking.

ACEC: "Section 5-203.2 (B) (1) ignores the existing professional studies and reports from experts in every scientific field, as well as the extensive modeling and data collection that have provided the best possible scientific information for the needs of the Department."

FACT: This is not true. First, HB 942 does not change the credit generation practices for stream restoration. Second, MDE relies in part on the Chesapeake Bay Program's (CBP) Expert Panel Reports[22] for its scientific information. The panel members as a whole did not have expertise in all the disciplines required to evaluate the total impact of stream restorations including, but not limited to, fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, habitat ecology, total environmental impact analysis, and ecosystem services analysis. Therefore, MDE does not have, nor use, "the best possible scientific information."

The approval process for the CBP Expert Panel reports is clearly not objective. These reports were not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel included employees of for-profit engineering companies who are primarily engineers, not scientists, and who may have had a vested interest in ensuring that the crediting calculations maximized their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.

ACEC: "Maryland's current laws and regulations provide more than sufficient guidance and protection relative the stream restoration, such that enacting HB 492 will serve no additional benefit and may create problems for the Department."

FACT: This is a false statement. This is clearly not the case given the photographic evidence provided in WMCCA's written testimony of the destruction of our natural resources by stream restorations. To say that "enacting HB 492 will serve no additional benefit" is absurd, and to say that enacting HB 492 "may create problems for the Department" is sowing unsubstantiated FUD (fear, uncertainty, and doubt) in addition to sounding like a threat.

[22] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23;
Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

(i3) Baltimore County

Baltimore Co.: "Currently, project criteria and eligibility requirements for all water quality Best Management Practices (BMPs) that may be utilized for compliance with State-issued Municipal Separate Storm Sewer System (MS4) permits and local and State Total Maximum Daily Load (TMDL) implementation plans are developed and updated through the Chesapeake Bay Program (CBP)."

> **FACT: This is not a true statement. MDE has added BMPs to the list of MS4 permit-eligible practices independent of the CBP's Expert Panel reports. The CBP Expert Panel reports are recommendations, not mandates.[23] [24]**

Baltimore Co.: "The CBP determines crediting protocols by convening Expert Panels, comprised of scientists and representatives from local, state and federal governments, consulting firms and academic institutions, to digest best available science on each BMP."

> **FACT: This is a misleading statement. The approval process for the CBP Expert Panel reports is clearly not objective. These reports were not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel[25] included employees of for-profit engineering companies (which the above statement calls "consulting firms") who are primarily engineers, not scientists, and who may have had a vested interest in ensuring that the crediting calculations maximized their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.**

Baltimore Co.: "As local jurisdictions implement and permit stream restoration projects, biological uplift must be considered in concert with other important outcomes of such projects, including erosion and flood reduction and water quality improvement."

> **FACT: This is a false statement. It implies that there must be a balance between biological and physical outcomes. For stream restorations done for MS4 permits, there is absolutely no requirement that biological uplift must be considered. This is precisely why HB 942 adds the requirement that biological uplift must be a stated goal of any stream restoration. In fact, stream restorations done for mitigation projects are already required to demonstrate biological uplift as required by the Federal Mitigation Rule[26]. Therefore, MDE should also**

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[23] Per Lee Currey, Director, MDE Water and Science Administration, 3/22/2023 meeting with Sierra Club, Blue Water Baltimore, Chesapeake Legal Alliance, The Nature Conservancy, and others

[24] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23; Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[25] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23; Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[26] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

require biological uplift for stream restorations done for the MS4 permit. A stream restoration is a stream restoration.

Baltimore Co.: "Functional improvements in the hydrologic, hydraulic, geomorphologic and physiochemical components of a stream ecosystem are just as important as biological uplift."

FACT: This is a false statement. Biological uplift is arguably the most important component of any attempted improvements to a stream ecosystem. In fact, biology is at the top of the commonly used "stream function pyramid" model[27]. The absence of biology is the definition of a dead stream.

Baltimore Co.: "Unfortunately, in many streams in more highly developed watersheds, salt from road runoff, extreme temperatures, and a lack of source population may inhibit full restoration of biotic communities and habitat."

FACT: We agree. This is exactly why stream restorations should not be done in these situations. Rather than further destroy streams in "highly developed watersheds", salt from roads should be controlled by out-of-stream road-side stormwater control projects. Extreme temperatures should not be exacerbated by stream restorations which clear-cut stream-side forests. Once out-of-stream stressors such as road salt have been removed, the lack of a source population of in-steam organisms can be rectified by transplantation of those organisms from other locations.

Baltimore Co.: "Existing regulations include tree loss minimization, project monitoring, and public notice."

FACT: This is a misleading statement. First, existing tree regulations are clearly inadequate since they allow the clear cutting of large areas of stream-side forests as documented in the WMCCA testimony (attached).

Second, MDE's current monitoring plan requirements are wholly inadequate and are not even a firm requirement. Currently, no matter how many stream restorations a jurisdiction does for MS4 permit credits, only one stream restoration project is required to be monitored. Adding insult to injury, the monitoring results from that one project can be totally useless due to inadequate MDE regulations. For example, the one stream restoration project out of many that Montgomery County chose to monitor is called the Breewood project. Unfortunately, it is impossible to attribute the results of the Breewood stream restoration monitoring to the stream restoration project itself. This is because the instream monitoring station is downstream from not just the stream restoration but also other stormwater control practices including Green Streets projects such as bioretentions and pervious pavement. But even doing one stream restoration monitoring for an MS4 permit is not a firm requirement. MDE actually allows jurisdictions to completely opt out of that requirement by instead paying into a pool of money which is used to fund research.

Third, current public notice and public participation are wholly inadequate. The reason there has not been massive outcry about "restoration" projects is that the public notification

[27] https://stream-mechanics.com/stream-functions-pyramid-framework/

process is broken. See detailed comments in our response to the Chesapeake Watershed Restoration Professionals testimony below.

Baltimore Co.: "…changes to the criteria and crediting of BMPs should be undertaken in a scientifically rigorous manner. In the Chesapeake region, we are fortunate to have the CBP and the scientific community of many academic, research, and practicing organizations working on these very issues.

FACT: This is a misleading statement. First, HB 942 does not change the credit generation practices for stream restoration. Second, MDE relies in part on the Chesapeake Bay Program's (CBP) Expert Panel Reports[28] for its scientific information. However, the panel members as a whole did not have expertise in all the disciplines required to evaluate the total impact of stream restorations including, but not limited to, fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, habitat ecology, total environmental impact analysis, and ecosystem services analysis.

The approval process for the CBP Expert Panel reports is clearly not objective. These reports were not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel included employees of for-profit engineering companies who are primarily engineers, not scientists, and who may have had a vested interest in ensuring that the crediting calculations maximized their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.

(i3) Baltimore Mayor's Office (BMO)

BMO: "All of the Maryland approved BMPs, including stream restorations, and their corresponding credits, are based on science…."

FACT: This is a demonstrably false statement. Current crediting of BMPs in the CBP Expert Panel reports is based more on engineering than on science. These reports were not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel included employees of for-profit engineering companies who are primarily engineers, not scientists, and who may have had a vested interest in ensuring that the crediting calculations maximized their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.

In addition, the current impervious acre credits in the Expert Panel report are not scientifically defensible. As explained more fully in the comments on MDE's written testimony (below), the

[28] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23;
Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

Expert Panel is so unsure of the results of their estimation calculations that they take what falls out of the bottom and randomly cut it by 50% "…to account for the presumed efficiency of stream restoration practices."[29] So much for being based on science. As far as we know, there is no peer reviewed scientific literature to support using the Expert Panel recommendations.

BMO: "Only practices with natural design elements are creditable. These nature-cased elements aid in the restoration of the habitat in both the channel and floodplain, increasing the ecosystem services of the riparian area."

FACT: This is a false statement. First, there is no such thing as "natural design elements" in any of MDE's documents. There is, however, a stream restoration technique called Natural Channel Design even though it is a highly destructive practice. The other two types of stream restoration are called Regenerative Stormwater Conveyance and Floodplain Reconnect.

Second, there is no scientific evidence that stream restorations "aid in the restoration of the habitat in both the channel and floodplain, increasing the ecosystem services of the riparian area." To the contrary, the scientific literature shows that stream restorations rarely, if ever, result in a stream's biological uplift.[30] [31] [32] [33] Finally, we are not aware of any scientific research demonstrating that stream restorations result in "increasing the ecosystem services of the riparian area." To the contrary, the documented photographic evidence (see WMCCA's testimony attached) shows that many stream restorations clear-cut riparian forests and scrape the forest floor down to bare earth. The projects result not in an increase, but a total destruction of any previously existing ecosystem services.

BMO: "Most stream restoration projects include an evaluation of potential upland BMP installation."

FACT: This is a false statement without any supporting evidence. This is neither an MDE requirement nor a standard practice.

BMO: "The opportunities [for upland BMP installation] are limited due to land ownership, access, and ability to intercept stormwater runoff."

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[29] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 8; https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[30] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[31] 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)

[32] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[33] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

FACT: This is a false statement without any supporting evidence. We have never seen hard data to back up this claim.

BMO: "The types of upland BMPs that would be implemented for MS4 permit compliance (impervious surface restoration) would be designed for qualitative control (retaining the volume of the first inch of rainfall which is considered the most polluted); these BMPs would not be sufficient to provide quantitative control to reduce the continued degradation of the streams during 2 to 10-year storms."

FACT: This is a false and misleading statement. First, MDE's Accounting Guidance document gives bonus credit for controlling more than one inch of rainfall (up to three inches).[34] Second, the purpose of BMPs implemented for MS4 permit compliance has nothing to do with controlling stormwater volume (quantity). MS4 permit BMPs are only for qualitative (pollutant) control. However, there is scientific evidence to show that upland BMPs can reduce and eliminate stream degradation. Research by Fraley McNeal, et. al.[35] showed that after controlling stormwater upland, outside of streams, stream banks will self-recover. There is nothing to prevent a jurisdiction from "over-engineering" a BMP to control more stormwater volume.

BMO: "The inference of the destructive nature of stream restoration projects referred to in HB 942 is predominately related to the impacts of forests. …[and] will result in the removal of some tree canopy during construction."

FACT: The destructive nature of stream restoration projects is not an "inference" – it is a well-documented fact. See the photographs in the WMCCA testimony attached that show large areas of tree canopy that were clear-cut for numerous stream restoration projects throughout several Maryland jurisdictions.

BMO: "It is important to note, however, that addressing stream conditions such as scouring, stream bank erosion and undercutting, and connecting a more natural stream channel to its floodplain, helps to support a healthy forest environment."

FACT: This is a false statement with no supporting evidence. First, stream restorations do not address "scouring, stream bank erosion and undercutting" since the root cause of stream erosion in developed areas – stormwater fire hosing into streams from impervious surfaces such as roads and roofs – has not been controlled. The result is that stream restoration projects are being destroyed after construction as documented in WMCCA's attached testimony. Repairs to blown out stream restorations are very costly.

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[34] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, November 2021," p.28, 29 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

[35] "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

Second, it is demonstrably false that these projects result in "a more natural stream channel" – see the photographs in the WMCCA's testimony attached showing tons of rock debris dumped along stream edges and into streams which block the movement of fish and other aquatic organisms.

Third, the implication that all streams have, or had, floodplains is false. Not all streams have floodplains, so it may not be advisable to create a floodplain where none existed before. This could lead to the destruction of existing non-floodplain ecosystems and their ecosystem services. For example, per Rod Simmons, City of Alexandria Natural Resources Manager, regarding a globally and state rare Acidic Seepage Swamp along the south bank of Taylor Run at Chinquapin Park in the City of Alexandria, "Despite some protection from encroachment, [a stream restoration using the technique called] natural channel design will destroy this ground-water controlled, non-alluvial wetland by creating an artificial floodplain were none naturally exists and using the non-alluvial wetland as an alluvial habitat to be washed out by overland flooding regimes."[36]

Finally, the statement that a stream restoration "helps to support a healthy forest environment" is completely fabricated. One has only to see the destruction caused by stream restorations as documented with photographic evidence in the attached WMCCA testimony to dispel this notion.

BMO: "The forest assessments and mitigation efforts for stream restoration projects follow the state's forest conservation requirements and the MS4 Accounting Guidance document."

FACT: We agree with this statement. That is precisely why HB 942 was introduced – to correct the deficiencies in existing law.

BMO: "…HB 942 would put in place punitive measures for any waterways and wetlands permit issued by MDE solely for stream restoration projects that are being done as part of an MS4 permit."

FACT: This is a false statement. HB 942 does not include any punitive measures. This common-sense bill will protect our streams by reducing the causes of stream degradation and help improve stream restoration projects if they are done.

BMO: "Maryland's MS4 Accounting Guidance document already states that before credits are granted, the restoration project will need to meet post-construction monitoring requirements, exhibit successful vegetative establishments, and have undergone initial maintenance."

FACT: This statement is misleading. First, there is currently no requirement to demonstrate biological uplift during post-construction monitoring – HB 942 adds this. Second, MDE's current monitoring plan requirements are wholly inadequate and are not even a firm requirement. Currently, no matter how many stream restorations a jurisdiction does for MS4 permit credits, only one stream restoration project is required to be monitored. Adding insult to injury, the monitoring results from that one project can be totally useless due to

[36] "Native Biodiversity Conservation and Restoration Challenges in Urbanized Areas," Rod Simmons presentation to Pocahontas Chapter of the Virginia Native Plant Society, February 4, 2021.

inadequate MDE regulations. For example, the one stream restoration project out of many that Montgomery County chose to monitor is called the Breewood project. Unfortunately, it is impossible to attribute the results of the Breewood stream restoration monitoring to the stream restoration project itself. This is because the instream monitoring station is downstream from not just the stream restoration but also other stormwater control practices including Green Streets projects such as bioretentions and pervious pavement. But even doing one stream restoration monitoring for an MS4 permit is not a firm requirement. MDE actually allows jurisdictions to completely opt out of that requirement by instead paying into a pool of money which is used to fund research.

(i1) Chesapeake Watershed Restoration Professionals (CWRP), by Liam O'Meara

NOTE: CWRP is essentially a lobbying arm of the stream restoration industry including construction companies and mitigation bankers. Their web site does not list its members.

CWRP: "This bill is unnecessary in that the issues raised are already adequately addressed in current requirements."

FACT: This is a demonstrably false statement given the documentation in the West Montgomery County Citizens Association's (WMCCA) written testimony[37] and the Chesapeake Bay Program's Expert Panel Report[38], Figure 1) that stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff and 2) the scientific reports that stream restorations do not result in biological uplift. (See the comments below on MDE's written testimony).

CWRP: "Furthermore, there is already a study underway as directed by HB896 [sic] of the 2022 legislative session to study how MDE reviews and permits ecological restoration projects."

FACT: Unfortunately, the HB 869 study is flawed from the start and will not result in an unbiased report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE's current mindset in favor of stream restorations[39] and will

[37] See attachment below. Not yet posted to the Maryland General Assembly site at https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0942

[38] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019 (https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf)

[39] For example, Director Lee Currey of MDE's WSA touted the benefits of the flood plain reconnection type of stream restoration (during a 2/21/2023 meeting with Delegate Boyce, Ken Bawer, Blue Water Baltimore, and Chesapeake Bay Foundation) while ignoring their obvious destructive nature. In addition, MDE ignored the common-sense recommendations of the Choose Clean Water Coalition that MS4 permits require a greater emphasis on out-of-stream stormwater control by "…requiring some minimum amount of green infrastructure to be undertaken by jurisdictions to comply with these newest permits," that "…MDE cap the amount of credits a single jurisdiction can generate toward compliance with their [stream] restoration[s]…," and that stream restorations "…demonstrate biological uplift as proposed by the Expert Panel Report," per CCWC's Jan. 20, 2021 letter to Mr. Raymond Bahr, MDE, WSA.

be tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final report will be authored solely by MDE (per Kenneth Bawer, a participant in the study representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations from the study group members. Thus, MDE is free to "listen and ignore." Another problem is that since MDE is apparently satisfied with current stream restoration construction techniques and the MS4 permit crediting schedule, this study is being controlled by a group arguably with a predisposition towards maintaining the status quo. The study is therefore flawed from its inception due to this potential conflict of interest. The only way to ensure that the results of a study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany, etc. who conduct a study based on the science, not based on considerations of the for-profit, engineering-based stream restoration industry or entrenched MDE thinking.

CWRP: "On changing restoration criteria: The Chesapeake Bay Program has utilized expert scientific panels composed of the leading scientists and practitioners that study, collect data, and model current stream restoration and techniques. Through the work of these dedicated professionals, the credit generation practices for stream restoration have been refined several times through exhaustive research and the utilization of the most modern data available. This process is rigorously scientific and objective in nature, and it should be kept that way."

FACT: This is a false and misleading statement. First, HB 942 does not change the credit generation practices for stream restoration. Second, the CBP's approval process is neither "rigorously scientific" nor objective: it was not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panel included employees of the for-profit, engineering-based stream restoration industry who are primarily engineers, not scientists, and who may have had a vested interest in ensuring that the crediting calculations maximized their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.

Furthermore, the panel members as a whole did not have expertise in all the disciplines required to evaluate the total impact of stream restorations including, but not limited to, fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, habitat ecology, total environmental impact analysis, and ecosystem services analysis.

CWRP: "On disincentivizing stream restoration as a BMP: Any impervious acre credit to any BMPs must be scientifically defensible and be determined through the currently accepted process for determining pollution reduction. Current crediting of BMP's has undergone extensive research and peer review."

FACT: This is a misunderstanding of HB 942 since it does not require disincentivizing steam restoration via changes to impervious acre credits. Plus, as noted above, current crediting of BMPs was based on input from industry employees having a potential conflict of interest. In

addition, the current impervious acre credits are not scientifically defensible. As explained more fully in the comments on MDE's written testimony (below), the Expert Panel is so unsure of the results of their estimation calculations that they take what falls out of the bottom and randomly cut it by 50% "…to account for the presumed efficiency of stream restoration practices."[40] So much for being scientifically defensible. As far as we know, there is no peer reviewed scientific literature to support using the Expert Panel recommendations.

CWRP: "No BMP practice can simply be incentivized over others if they do not result in greater pollutant load reductions."

FACT: This is a misunderstanding of HB 942 since it is not prescriptive about how MDE should incentivize out-of-stream (upland) alternative BMPs (project types). There are many ways to incentivize BMPs besides pollutant load reductions. The provision of additional incentives for upland stormwater control may require some out-of-the-box thinking. For example, DEP could award bonus credit for the rainfall depth treated for structural practices to greater than the current three inch maximum[41]. Or, MDE could put an MS4 permit cap on the percentage of credits that can be achieved via stream restorations and a minimum percentage for out-of-stream stormwater control credits. MDE could incentive upland stormwater control by combining certain MS4 Permits, such as Montgomery County and Montgomery Parks. Currently, Montgomery Parks has no ability to do upland stormwater control at its source when the stormwater comes from outside their parks in the county itself. Combining MS4 permits for the county and parks would eliminate that finger pointing. Another idea: MDE could recommend laws requiring existing buildings to meet new-build stormwater control requirements upon property transfer (i.e., at the time of sale) which would be eligible for MS4 permit credits.

This bill does not require, nor suggest, that credits for efficiencies be changed. However, MDE currently has a list of approved Green Infrastructure Practices that are eligible for a bonus "Green Stormwater Infrastructure Credit." [42] Additional bonus credits could be awarded to all non-stream "restoration" practices to incentivize out-of-stream projects. Alternatively, MDE could award LESS credits for non-GSI practices. Or, MDE could reduce the credits available for mitigation or MS4/TMDL purposes in proportion to the loss of forest and trees.

It should be noted that the current credits for stream restoration are numbers developed with the help of industry employees with a potential conflict of interest as described above.

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[40] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 8; https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[41] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, November 2021," p.28, 29 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

[42] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, November 2021," p.28 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

Another way to incentivize upland, out-of-stream, practices is to make the current key criteria that stream restoration projects must meet[43] more stringent.

For example, the "geomorphic evidence of active stream degradation" could be made an absolute requirement, and its proof could be mandated by actual long-term measurements of bank erosion instead of allowing use of the theoretical modeling methodology of BANCS/BEHI. The highly unreliable BANCs method to estimate stream bank erosion is not reproducible. The Expert Panel report says of the BANCS method that these theoretical calculation tools are "…susceptible to high variability when performed by different practitioners in the field."[44] If a measurement cannot be reproduced by different people using the same methodology, it is scientifically useless.

Also, the current key criteria could prohibit stream restorations in use Class IV: Recreational Trout Waters and Use Class IV-P: Recreational Trout Waters and Public Water Supply[45] streams.

To incentivize upland, out-of-steam practices, MDE could require that the maximum amount (maximum extent practicable (MEP)) of out-of-steam practices be built before a steam restoration could be considered for any given sub-watershed.

CWRP: "On defining geographic limits for restoration: The Maryland Department of the Environment (MDE) and the US Army Corp of Engineers (USACE) currently require resource impacts to be mitigated within an 8-digit Hydrologic Unit Code (HUC) Watershed. This is consistent with how resource impacts and associated mitigation are managed across the entire US."

FACT: Per the written testimony of the Stormwater Partners Network, "This clause [of HB 942] is clearly meant to apply to mitigation banks…. These types of mitigation banks are permitted by the U.S. Army Corps of Engineers, in partnership with MDE. Under the Mitigation Rule,3 the Army Corps is already directed to prioritize mitigation within the same watershed where impacts occur, but has great latitude to define the scale of watershed to be used as well as to use their best judgment if they find in-watershed mitigation to be impractical. … The bill's sponsors could consider requiring that the Department and the Army Corps require that the applicant mitigate their impacts in the same HUC-12 or, at largest, HUC-10 sub-watersheds where the impacts occur."

CWRP: "On requiring biological uplift: Currently, the MDE and USACE require that stream restoration projects result in ecological uplift through use of the Stream Functions Pyramid. Biological improvement is Step 5 of the Pyramid."

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[43] Ibid, Appendix H, p. 69.

[44] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23; Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[45] Maryland's Designated Uses for Surface Waters, https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Pages/wqs_designated_uses.aspx

FACT: This is purposely misleading statement that industry employees make repeatedly. While stream restorations done for mitigation projects are required to demonstrate biological improvement, those done for MS4 permits are NOT required to demonstrate biological uplift. MDE should also require biological uplift for stream restorations done for the MS4 permit since a stream restoration is a stream restoration.

CWRP: "Consequently, the existing process requires that practitioners create the conditions [emphasis added] for biological uplift to occur as regional environmental conditions allow.

FACT: This is a misleading statement. Only stream restorations done for mitigation projects are required to show biological uplift. However, the existing MS4 permit process does NOT require that practitioners even create the conditions for biological uplift to occur, nor does it require that biological uplift actually occurs for MS4 permit credit to be granted. Again, if mitigation stream restoration projects require biological uplift, then so should MS4 permit projects as well as other TMDL projects.

CWRP: "It is not practical to require biological uplift of in-stream biology as there are limiting factors that cannot be controlled on the stream restoration sites. These ubiquitous negative externalities include road salt pollution, offsite barriers to wildlife migration, extreme temperatures, and general poor water quality."

FACT: This is a false statement. The Federal Mitigation Rule[46] already requires that stream restorations done for mitigation projects require biological uplift of in-stream biology. Since there have already been numerous stream restoration mitigation projects, the assertion is demonstrably false.

In addition, the Expert Panel report states that "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."[47] Therefore, a steam restoration cannot proceed if biological uplift is not possible.

CWRP: "It is absolutely the goal of stream practitioners to improve biological function through in-stream habitat creation, but it may take decades, if ever, for recolonization to occur of imperiled populations of aquatic dependent wildlife."

FACT: This is a misleading statement. Currently, per MDE the only goal of stream restorations done for MS4 permits is to prevent stream-bank erosion. The purpose of HB 942 is to add the

[46] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

[47] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," page 17; https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

goal of biological uplift. If mitigation stream restoration projects currently require biological uplift, then so should MS4 permit projects as well as other TMDL projects. In addition, this bill has nothing to do with recolonization of imperiled populations.

CWRP: "On minimization of tree impacts: A requirement already exists for stream restoration projects to achieve no-net-loss of forest cover and to minimize tree impacts to the extent possible."

FACT: This is a misleading statement. In practice, any no-net-loss requirement currently results in the clear-cutting of mature stream-side forests, as well documented in the WMCCA written testimony, and replacing them with young saplings that will take decades to achieve the pre-construction forest cover. Thus, during the decades it takes for young tree growth to reach the no-net loss cover target, we have lost decades worth of mature forest habitat and carbon sequestration which exacerbates global warming, perhaps permanently. Plus, "no-net-loss of forest cover" only refers to trees and ignores the loss of the forest as an interdependent community of understory shrubs, wildflowers, and animals which will take even longer recover, if ever.

Photographic evidence in the WMCCA written testimony also shows the complete lack of critical root zone protection in many projects which will lead to eventual death of "spared" trees.

CWRP: "The implementation of mulch and mat roads through the woods to gain access to the stream corridor are specifically designed to protect the critical root zones of trees."

FACT: This is a misleading statement. There is ample photographic evidence in the WMCCA testimony that not all projects use mulch and mat roads. Many projects run heavy equipment directly on bare forest floor soil. Plus, photographs of the Solitaire Court project in Gaithersburg show trees with vertical wood scape protectors tied to tree trunks – a clear indication that heavy construction equipment is close enough for someone to be concerned about scraping the tree trunks. The tens of feet of critical root zone protection is non-existent.

CWRP: "Additionally, the forest impacts of restoration are almost always temporary, but the protection of the restored riparian corridor is permanent."

FACT: This is a false statement. It takes decades or hundreds of years for clear-cut forests to recover, if they ever do. Plus, the science shows that biological uplift is rarely, if ever, achieved. It is also demonstrably false that stream restorations are permanent. The WMCCA written testimony provides photographic evidence that stream restorations are being blown out and require expensive repairs due to the lack of out-of-stream stormwater control. The Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, "Storm damage occurred very soon after construction, initiating structural failures." The repair work cost an additional $3.6 million. Since stream restoration companies typically only guarantee their work for one year, when they are destroyed after that it is the taxpayers who pick up the bill.

CWRP: "On delaying credit certifications by 10 years: A full decade of monitoring before any credits are issued would render ecological restoration completely unworkable for the purposes of the

Chesapeake Bay Program and severely limit what restoration work is even possible in the State of Maryland."

FACT: We agree, as does the bill's sponsor, and suggest that credits be released according to a timed schedule determined by MDE.

CWRP: "On public notice: Currently, public hearings can be requested and are granted. We absolute do not oppose public hearings, but they are expensive and if they are required for every project, this will add significant expense and time for any applicant, the majority of whom are local governments, non-profits, and government agencies. Furthermore, the planning and implementation of public hearings are time consuming for state agencies and would require more staff to manage."

FACT: This is a false statement. Zoom meetings cost a trivial amount of money and a small amount of time. While it is true that public hearing can be requested, the problem is that most residents are rarely aware of these projects and therefore don't request public hearings. The reason there has not been massive outcry about "restoration" projects is that the public notification process is broken.

While bill HR 942 is not prescriptive, one would hope that MDE would be begin by requiring that more than immediate property owners or communities be notified about projects since restoration sites are often in natural areas used by entire jurisdictions. Plus, the impact of projects can be felt far outside the immediate community as evidenced by the fact that stream restorations are meant to impact the Bay. Communities should also be notified of projects proposed for private property since the impact of projects is never confined solely within private property boundaries.

One could envision that MDE and local jurisdictions could be required to notify all interested parties who have requested, via a web site for electronic sign-up, to be notified via email of requests for stream restoration project permits. Such web sites could allow interested parties to be notified of all projects statewide, or just for selected jurisdictions. Note that the USACE already has a web site to sign-up for permit requests at https://www.nab.usace.army.mil/Missions/Regulatory/Public-Notices . MDE has a site where notices are posted at https://mde.maryland.gov/programs/Water/WetlandsandWaterways/AboutWetlands/Pages/publicinformation.aspx, but it is almost impossible to find with a common sense web search and it doesn't link to any of the detailed project proposal information (it does provide an email address to request more information, but why not cut out the middle man?). Furthermore, all public comments should be responded to and all public comments as well as department and permittee responses could be posted on the web site without the need for a public information act request by the public. Currently, these comments all go into a black hole.

If there are any vendor (permittee) modifications to their proposals, either required by MDE, the USACE or for any other reason (except for trivial changes such as fixing typographic errors), the modified proposal could be posted and interested parties could be notified. Non-trivial changes could trigger another round of public hearings and comments. Additional rounds of public hearings and comments could be held as additional, non-trivial modifications

to proposals are made. Expediting any review process only serves to limit government oversight and citizen review, input, and comment. Quality proposals should not require modifications post submittal.

The public could be kept informed of the status of each permit via postings to the web site. This site could show all the steps in the process leading up to a final determination (i.e. permit approval or denial or withdrawal by the applicant) and where in this process each permit currently resides. The web site should allow the public to register for a tracking account which would push update notifications to the registrant. This could be patterned after the MD General Assembly website (https://mgaleg.maryland.gov/mgawebsite/) where one can register to be notified of progress on a bill of interest.

CWRP: "This would slow, not just stream restoration projects, but the review, approval, and enforcement of all projects that require MDE approvals. This does not just include housing and commercial development but importance public works projects such as schools, transportation improvements, and affordable housing."

FACT: This is both a false and a self-serving statement by a for-profit industry. This is a bill about stream restorations. HB 942 has absolutely nothing to do with housing and commercial development or schools, transportation improvements, and affordable housing. Expediting any review process only serves to limit government oversight and citizen review, input, and comment. If the concern is that the speed of permitting for stream restorations could be slowed by necessary oversight, the US Army Corps of Engineers has the authority to authorize out-of-stream projects for mitigation per the Federal Mitigation Rule.[48]

CWRP: "For transparency and efficiency CWRP recommends the adoption of a permit tracking system similar to the Virginia Department of Environmental Quality's Permitting and Evaluation Platform.

FACT: The Virginia site (https://portal.deq.virginia.gov/peep-search) is only for businesses, not for use by the general public. Per this site, "This system is intended solely for users conducting business with DEQ for the purposes of fulfilling obligations under a permit, regulation, statute or other DEQ program. Those who need to review DEQ records for other purposes may submit a request under the Freedom of Information Act." This is hardly a model of transparency.

(i2) Ecosystem Investment Partners (EIP), by Nicholas Dilks

EIP: "Impervious acre crediting methodologies used to meet the TMDL already make scientific benefit comparisons between upland BMPs versus stream restoration, and there is strong evidence that while both provide benefit, stream restoration is far more cost effective."

[48] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

FACT: This is a false statement that "Impervious acre crediting methodologies used to meet the TMDL already make scientific benefit comparisons between upland BMPs versus stream restoration." First, the CBP Expert Panel crediting methodologies use engineering methodologies filled with assumptions not scientific analyses. Missing from the crediting methodologies are comparisons of the total impact of stream restorations versus upland, out-of-stream projects including, but not limited to fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, identification and habitat expertise, total environmental impact analysis, and ecosystem services analysis. This type of analysis has never been done.[49]

Second, the statement that both upland BMPs and stream restorations "provide benefit" is demonstrably false given the photographs showing the destruction caused by stream restorations in WMCCA's written testimony (see attachment). In the case of stream restorations, the cure is far worse than the disease. In addition, the scientific evidence is that stream restorations do not result in biological uplift.[50] [51] [52] [53]

Third, there is no "strong evidence that while both provide benefit, stream restoration is far more cost effective." In the case of stream restorations, the benefit is entirely a short-term, temporary decrease in the amount of stream bank erosion. The WMCCA's written testimony (see attachment) and the Expert Panel Report[54] both show photographs of stream restorations destroyed by rainstorms due to the failure to control stormwater from imperious surfaces. For example, the Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, "Storm damage occurred very soon after construction, initiating structural failures." The repair work cost an additional $3.6 million.

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[49] Per Dr. Sujay Kaushal, University of Maryland, on 2/16/2022 during Montgomery County Department of Environmental Protection Webinar series, https://mygreenmontgomery.org/2021/public-invited-to-stream-restoration-webinar-series/

[50] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[51] 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)

[52] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[53] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

[54] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019, Figure 1, https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf

Fourth, the statement that "stream restoration is far more cost effective" is false. While cost is always a legitimate concern, we are struck by the lack of data used to bolster this assertion. One jurisdiction (Montgomery County DEP) admitted that they have never done fair cost comparisons, i.e., they have never asked for quotes on large numbers of upland projects in order to receive the cost benefits from "volume discounts" (i.e., economies of scale)[55]. In fact, on a statewide basis MDE data (per the 2022 FAP[56]) shows that there are 33 different types of out-of-stream projects (such as green roofs, rain gardens, and bio-swales) that are cheaper to build (cheaper cost per impervious acre treated) than stream "restorations." This is not even a comparison of the lifecycle cost or total cost of ownership (TCO) over time, which is the sum of construction cost, maintenance, repair, replacement costs and a quantification of the value of lost or gained ecosystem functioning (services) - for example, trees have been shown to reduce air conditioning expense. Lifecycle cost comparisons would probably tip the scales even further in favor of upland practices due in part to the fact that stream restorations are being blown out and repair is extremely expensive. Having said that, we certainly recognize a need to identify supplemental sources of funding for jurisdictions.

(i2) Environmental Policy Innovation Center (EPIC), by Timothy Male

Note: Although EPIC is a non-profit, apparently their staff is paid, at least in part, by advocating for and advancing "the permitting and financing of ecological restoration" projects per their web site.

EPIC: "For decades, nature-based projects and green infrastructure like stream restoration faced an uphill challenge across the country."

FACT: This is a false characterization of steam restorations. Stream restoration is not a "nature-based" project. Stream restorations typically clearcut mature stream-side forests. Young trees are replanted but these take decades or longer, if ever, to approximate what was destroyed. The complex web of interactions between fauna, flora, geology, and hydrology in natural areas cannot be recreated by engineering projects using bulldozers, trucked-in rock rubble, and some replanted saplings.

Stream restorations are not considered "green infrastructure" by government or industry. According to MDE's Accounting Guidance document[57], only upland out-of-stream practices are considered Green Stormwater Infrastructure (GSI). Stream restorations are not GSI.

[55] Department of Environmental Protection presentation to Montgomery County Water Quality Assurance Group on 4/12/2021.
[56] Watershed Protection and Restoration Program - Financial Assurance Plans, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx
[57] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, Table 19 on page 29 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

EPIC: "Despite extensive science showing these approaches are a cost-effective strategy to create extensive public health and environmental benefits…"

> **FACT: This is a false characterization of steam restorations. First, science has nothing to do with cost-effectiveness. Cost is determined by how much profit a stream restoration company wants to make when it sells a product or service. Second, there is absolutely no evidence that stream restorations create public health benefits.**
>
> **Third, on a statewide basis MDE data (per the 2022 FAP[58]) shows that there are 33 different types of out-of-stream practices (such as green roofs, rain gardens, and bio-swales) that are cheaper to build (cheaper cost per impervious acre treated) than stream "restorations." This does not even include a comparison of the lifecycle cost, or total cost of ownership (TCO), which is the sum of construction, maintenance, repair, and replacement costs. Also not analyzed by MDE is a quantification of the value of lost or gained ecosystem services (for example, trees have been shown to reduce air conditioning expense). Lifecycle cost comparisons would probably tip the scales even further in favor of upland practices due in part to the fact that stream restorations are being blown out and repair is extremely expensive as documented in WMCCA's written testimony (attached).**
>
> **Third, there is no evidence that stream restorations result in environmental benefits. The fact is that stream restorations destroy large areas of riparian forests, destroy wildlife habitat (see photographic evidence in WMCCA's written testimony), and rarely, if ever, result in biological uplift of in-stream biology[59] [60] [61] [62].**

EPIC: "I understand the motivation behind this legislation. I know that you have experience with a few stream restoration projects (Montgomery County) that a small number of residents don't like, primarily because necessary stream restoration work harms trees immediately adjacent to streams."

> **FACT: This is a demonstrably false statement. Clearly, the writer does <u>not</u> understand the motivation behind this legislation, which is to a desire by individuals with no financial interests to enhance and protect the environment. On the other hand, we do clearly understand the motivation of the billion-dollar stream restoration industry which is to maximize their profits regardless of the environmental harm done by their projects and in**

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[58] Watershed Protection and Restoration Program - Financial Assurance Plans, https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/WPRPFinancialAssurancePlans.aspx

[59] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[60] 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)

[61] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[62] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

spite of the scientific evidence that stream restorations do not work, either physically or biologically.

To say that "stream restoration work harms trees immediately adjacent to streams" is an understatement and is typical of industry greenwashing. We only have to believe our eyes. Please see the photographs of projects showing wide clearcut areas on both sides of streams in WMCCA's written testimony (attached).

It is demonstrably false that there are only a few residents who are only in Montgomery County that oppose the destruction caused by stream restorations. The Montgomery Coalition to Stop Stream Destruction sent a letter to County Executive Marc Elrich on February 17, 2021 that was signed by 20 organizations and 141 individuals opposing the destruction caused by stream restorations. A group in Columbia collected 272 signatures (and counting) in opposition to a proposed stream restoration project, and the Sierra Club campaign resulted in 451 letters being sent in opposition to the proposed Columbia stream restoration - hardly just a "small number of residents" opposing these projects. Plus, the opposition went way beyond harm to trees. The opposition was to the total environmental destruction that the project would cause without even fixing the root cause of the stream erosion – uncontrolled out-of-stream stormwater.

Second, this not just a Montgomery County issue. The WMCCA written testimony (attached) provided photographic documentation of just a sampling of destructive stream restoration projects across the state including in Chevy Chase, Gaithersburg, Rockville, Potomac, Columbia, Takoma Park, Prince Georges County, Baltimore County, Charles County, Carroll County, and Anne Arundel County. This was far from an exhaustive list.

EPIC: "Some tree removal is needed because dirt needs to be shifted to fill the enormous erosion canyons that have accumulated across streams through our state and region and country."

FACT: This is a false statement and exhibits a fundamental misunderstanding of scientific and cause-and-effect principles. First, while there are eroded sections of some streams, it is over-the-top hyperbole to call them all "enormous canyons." Second, there is never a need to fill any gullies since there is evidence by Fraley McNeal, et. al.[63] that after controlling stormwater upland, outside of streams, stream banks will self-recover. But the industry does not like passive, self-recovery solutions because there is no money to be made.

Third, the dirt is usually not "shifted", it is typically fill dirt trucked in from outside the project site with no specification of the character or origin of the fill to be used. "The fill will completely bury and kill the existing rich aquatic ecosystem of macroinvertebrates, amphibians, and fish"[64] that exists. Plus, there is typically no guarantee that the imported fill's pollutant levels will not match or exceed those of the natural stream banks. This is important

[63] "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

[64] Field, John, "Analysis of the Stream "Restoration" Design for Taylor Run in Alexandria, VA," https://media.alexandriava.gov/docs-archives/tes/stormwater/1taylorrunfieldanalysisofstreamrestorationdesignfieldmarch2021.pdf

since the science of fluvial geomorphology says that the imported fill dirt will eventually be eroded out by future storms as described below.

Per Dr. John Field[65] of Field Geology Services, an expert recognized by the Maryland Stream Restoration Association, "…channel incision and widening have occurred in response to the extensive development in the watershed and to establish a new equilibrium condition. Adding fill to the channel runs directly against this natural response to urbanization: After decades of naturally reducing its gradient through incision, the filled-in, elevated streambed will produce a steeper channel that will increase (not decrease) the stream's capacity to carry sediment. The stream's erosive energy will be rejuvenated and, as a result, [the stream] will move sediment more efficiently towards Chesapeake Bay. Further, the fill will replace the material that has taken decades to erode away, making sediment available to wash downstream again. [If a] proposed design does not address the excess runoff responsible for the incision and widening, the fill's long-term fate will ultimately be the same: The stream will once again work toward a configuration in equilibrium with the urbanized watershed, eroding the added material until channel stability is reached. …Simply put, sediment should not be added to the stream if the goal is to reduce the amount of sediment being carried to the Bay."[66]

EPIC: Those short-term aesthetic effects on trees near walking trails or public areas are real, but so is the damage that eroded, degraded streams cause to the Chesapeake Bay.

FACT: This is a false statement. First, there is no "short-term aesthetic effect" on trees that are cut down – a dead tree is a permanent effect. Second, as already described, stream "restorations" inflict much more that "short-term aesthetic effects." The clear cutting of hundreds or thousands of trees, shrubs, and other plants in a forest is much more than a "short-term aesthetic effect." It will take decades or longer for the forest to recover, if ever.

EPIC: "Once streams start eroding like this, the damage just keeps getting worse. If you don't fix them, these damaged streams will keep dumping sediment, and phosphorus and nitrogen into the Bay."

FACT: This is a false statement and shows a lack of understanding of the physical principles of fluvial geomorphology. As noted above, per Dr. John Field, "…channel incision and widening have occurred in response to the extensive development in the watershed and to establish a new equilibrium condition."[67] Thus the damage does NOT just keeps getting worse once the new equilibrium is reached or until further deepening of the channel through incision is no longer possible due to reaching hardpan or other erosion-resisting rock.

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[65] "Dr. John Field has over 35 years of professional experience working on rivers in 15 states and 12 other countries worldwide. He has assessed over 1,000 miles of river and restored more than 35 miles of stream, often utilizing large wood to improve river function and aquatic habitat." From https://marylandstreamrestorationassociation.org/event-4932213

[66] Field, John, "Analysis of the Stream "Restoration" Design for Taylor Run in Alexandria, VA," https://media.alexandriava.gov/docs-archives/tes/stormwater/1taylorrunfieldanalysisofstreamrestorationdesignfieldmarch2021.pdf

[67] Field, John, "Analysis of the Stream "Restoration" Design for Taylor Run in Alexandria, VA," https://media.alexandriava.gov/docs-archives/tes/stormwater/1taylorrunfieldanalysisofstreamrestorationdesignfieldmarch2021.pdf

EPIC: "Stream restoration is effective in reversing that damage and restorations prevent it from returning, keeping thousands of tons of sediment and nutrients out of the Bay for decades to come."

FACT: This is a false statement as documented in the WMCCA written testimony showing examples of blown-out stream "restoration" projects around the region. These are very temporary, not permanent projects.

EPIC: "However, the legislation would direct you (in subsection (B)(2)(1)) to change the numbers on other projects' nutrition labels to give them more credit. It literally says, "the Department shall provide(ing) more credits." [sic]

FACT: This is a misunderstanding of HB 942 since it is not prescriptive about how MDE should incentivize out-of-stream (upland) alternative BMPs (project types). There are many ways to incentivize BMPs besides pollutant load reductions. The provision of additional incentives for upland stormwater control may require some out-of-the-box thinking. For example, MDE could award bonus credit for the rainfall depth treated for structural practices for greater than the current three inch maximum[68]. Or, MDE could put an MS4 permit cap on the percentage of credits that can be achieved via stream restorations and a minimum percentage for out-of-stream stormwater control credits. MDE could incentive upland stormwater control by combining certain MS4 Permits, such as Montgomery County and Montgomery Parks. Currently, Montgomery Parks correctly says that it has no ability to do upland stormwater control at its source when the stormwater comes from outside their parks in the county itself. Combining MS4 permits for the county and parks would eliminate that excuse. Another idea: MDE could recommend laws requiring existing buildings to meet new-build stormwater control requirements upon property transfer (i.e., at the time of sale) which would be eligible for MS4 permit credits.

This bill does not require, nor suggest, that credits for efficiencies be changed. However, MDE currently has a list of approved Green Infrastructure Practices that are eligible for a bonus "Green Stormwater Infrastructure Credit." [69] Additional bonus credits could be awarded to all out-of-stream "restoration" practices to incentivize out-of-stream projects.

It should be noted that the current credits for stream restoration are numbers developed with the help of industry employees (on CBP Expert Panels) with potential conflicts of interest as described above.

EPIC: "This legislation will take away a cost-effective, national nature-based solution as a solution to improving the Bay and making local streams and their ecosystems more resilient to climate change."

FACT: This is a false statement. There are 33 other solutions approved by MDE that are more "cost-effective" as explained above. Stream restorations are not a nature-based solution as explained above. Stream restorations do not make "local streams and their ecosystems more

[68] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, November 2021," p.28, 29 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

[69] Ibid, p.28

resilient to climate change." These projects destroy natural areas and do not fix the source of stream degradation – the lack of out-of-stream stormwater control.

EPIC: "The solution isn't to take away this [stream restoration] tool; the solution is to help more of the public understand the size and scale of the solution that you and others are wisely funding to keep them safe from climate change and to restore the Chesapeake Bay."

FACT: This is a false statement. The author implies that the problem with stream restorations is simply the lack of public understanding. In fact, it is public understanding of the destructive nature and ineffectiveness of these projects, despite industry greenwashing, that led to this bill's proposed revisions to stream restoration practices and the requirement to incentivize greater out-of-steam stormwater control.

EPIC: "Voluntary opportunities for public notice and other mechanisms to share information about the projects with the public and to seek feedback on them already exist and are regularly used."

FACT: This is a false statement. First, public notice should not be done on a voluntary basis. Second the sharing of information by MDE and industry construction companies is wholly inadequate and therefore little feedback is provided by residents who will be impacted by these projects. The reason there has not been massive outcry about "restoration" projects is that the public notification process is broken. See our comments on CWRP's written testimony on public notice.

EPIC: "5. The bill is based on an incorrect picture of what is 'natural' for most of Maryland's streams and creeks. The closed canopy, bare forest floor stream corridors that I believe proponents of this legislation hope to prevent from being restored aren't natural in Maryland or the region because America's pre-colonial population of 400 million beaver would have kept a huge percentage of Maryland's streams in a natural condition of constant change and opening of canopies. We don't have room to make space for the way beavers maintain natural stream corridors. Beavers couldn't fix the deeply incised, eroded stream canyons that 100 years of their absence–and lots of extra runoff from parking lots–has produced."

FACT: This is a misleading statement and represents a misunderstanding of this bill. First, this bill has nothing to with beavers. We would like to see peer-reviewed scientific papers that substantiate EPIC's claims about beavers. Second, the presence or absence of beavers has nothing to do with the cause of erosion in our streams. We do agree that the cause of stream erosion was "lots of extra runoff from parking lots" in addition to other impervious surfaces such as roads and roofs in developed areas as well as runoff from agricultural fields.

EPIC: "But the idea that the temporary loss of small areas of forest trees along restored streams is unusual or unnatural ignores our ecological history."

FACT: We would like to see peer-reviewed scientific papers that substantiate EPIC's claim. What is unusual and unnatural are the typical activities that take place during a stream restoration such as chain sawing large mature trees, clearcutting mature stream-side forests, and dumping rocks into streams to make dams that fish and other aquatic animals cannot cross.

EPIC: “My own city of Takoma Park has seen at least two fantastic stream restorations, both of which fixed severe and rapid erosion problems.

FACT: This is a false statement. Any perception that these stream restorations “fixed severe and rapid erosion problems” will be short-lived. The WMCCA’s written testimony (see attachment) and the Expert Panel Report both show photographs of stream restorations destroyed by rainstorms due to the failure to control stormwater from imperious surfaces. For example, the Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, “Storm damage occurred very soon after construction, initiating structural failures.” The repair work cost an additional $3.6 million.

EPIC: “A Capital Parks and Planning Project on Sligo Creek removed many trees along deeply eroding banks and built a cascading series of rock ledges for hundreds of feet along the stream to prevent future damage from reemerging, while enhancing the pedestrian trail and replacing a bridge.”

FACT: This is a false and misleading statement. As mentioned above, it has been proven that such work does not “prevent future damage from reemerging” since the root cause of the damage - upland stormwater fire-hosing into streams - has not been controlled.

The fact that part of the entire project resulted in “enhancing the pedestrian trail and replacing a bridge” had nothing to do with a stream restoration. Trail and bridge work is independent of any steam restoration work. Trail and bridge work does not qualify for MS4 permit credit.

EPIC: “A city-funded stream restoration that removed trees in an area named ‘Circle Woods’ similarly fixed an eroding stream in a residential area, earning the city valuable credit to meet its stormwater permit obligations.

FACT: this is a false and misleading statement. First, see the before and after photos below of the Takoma Branch restoration in Circle Woods in Takoma Park.

(From DPW, City of Takoma Park)

It can be seen that the natural character of the forest has been wiped out, including the course woody debris like the fallen tree on the left that woodpeckers and other animals

depend on. Plus, the disturbed soil opens up areas like this to non-native invasive plants. The "before" photo shows that the water is clear enough to see submerged substrate. The water in the "after" photo is brown and opaque, indicating soil erosion that the stream restoration was supposed to stop.

While any stream restoration project will earn the city "valuable credit to meet its stormwater permit obligations," there are dozens of other non-destructive projects that would have allowed the city to meet its MS4 stormwater permit without destroying natural areas.

EPIC: "Both projects have been huge successes and are now beautiful community amenities, even though the backhoes and bulldozers and equipment were an inconvenience and eyesore for a while.

FACT: The author apparently has a perverse definition of success and beauty which apparently includes a destroyed stream-side forested area, brown running water carrying sediment, and rocks dumped into the stream as seen in the "after" photo above.

EPIC: "As a serving City Councilmember during the time the city's project was planned and built, I received not a single public comment opposed to the project. Can you imagine that, in Takoma Park?

FACT: Yes, we can image that. Most residents are never aware of these projects. One reason there has not been massive outcry about these "restoration" projects is that the public notification process is broken. This is one area that HB 942 aims to correct.

(i1) Maryland Association of Counties (MACo), by Dominic Butchko

MACo: "This bill would impose stringent barriers on stream restoration projects, effectively hampering one of counties' most effective tools for stormwater management."

FACT: This is not a true statement – it is not supported by the documented photographic evidence in the West Montgomery County Citizens Association's written testimony that stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff. (See the WMCCA comments on MDE's written testimony).

"There's also an absurdity at the heart of the argument that rules are inherently destructive. …to claim that any reforms are 'a step toward unfreedom is like claiming that road signs, stop lights, and speed limits are steps toward the elimination of driving.'"[70]

MACo: "Stream restoration has been a widely approved practice to meet state and federal requirements under municipal separate storm sewer system (MS4) permits.

FACT: This is a misleading statement. While stream restorations are widely approved, that does not refute the fact that the approval process is flawed due to Expert Panel conflicts of interest and that stream restorations are a failed practice, both physically and biologically. To

[70] "Big Business's push to equate the free market with freedom," by Bethany McLean, Washington Post, Book World section, quoting Naomi Oreskes and Erik Conway from "THE BIG MYTH, How American Business Taught Us to Loathe Government and Love the Free Market", March 12, 2023.

use an analogy, the promoters of DDT would say that its use was a widely approved practice. (See our comments on MDE's written testimony).

MACo: "The Chesapeake Bay Program has accepted stream restoration projects as a best management practice (BMP) for years and already has a rigorous and scientifically based approval process for updating its BMP."

FACT: This is a false statement. CBP's approval process is not scientifically based and is not created by an independent panel of scientists with no financial conflicts of interest. The current CBP Expert Panels includes employees of the stream restoration industry who, by definition, have a potential conflict of interest. (See our comments on MDE's written testimony).

MACo echoes the concerns and opposition of the Maryland Municipal Stormwater Association (MAMSA) – whose members represent nearly all counties and are the subject matter experts in stormwater and stream restoration.

FACT: This is a false statement. MAMSA's membership is primarily people with engineering backgrounds. They clearly are not experts in all the disciplines involved in evaluating the total impact of stream restorations including, but not limited to fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, identification and habitat expertise, total environmental impact analysis, and ecosystem services analysis.

(i1) Maryland Municipal Stormwater Association (MAMSA), by Lisa Ochsenhirt

MAMSA: The Chesapeake Bay Program has a BMP approval process that involves having a panel of experts undertake a rigorous scientific examination of a proposed BMP. There is no basis for revising the requirements for stream restoration given the level of review that has already occurred.

FACT: This is a false statement. CBP's approval process is not scientifically based and is not created by an independent panel of scientists with no financial conflicts of interest. The CBP Expert Panels include employees of the stream restoration industry. The panel members as a whole do not have expertise in all the disciplines involved in evaluating the total impact of stream restorations including, but not limited to fluvial geomorphology, geology, hydrology, riparian ecology, wetland ecology, stream ecology, population ecology and dynamics, botany, ornithology, herpetology, ichthyology, identification and habitat expertise, total environmental impact analysis, and ecosystem services analysis.

There <u>is</u> a basis for revising the requirements for stream restoration given 1) the documented photographic evidence in the West Montgomery County Citizens Association's written testimony and the Chesapeake Bay Program's Expert Panel Report, including Figure 1[71], that

[71] "Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed," Approved by the Urban Stormwater Work Group of the Chesapeake Bay Program Date: June 18, 2019 (https://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/07/Approved-Verification-Memo-061819.pdf)

stream restorations are being blown-out by rainstorms due to uncontrolled or inadequately controlled out-of-stream runoff and 2) the scientific reports that stream restorations do not result in biological uplift[72] [73] [74] [75]. (See the WMCCA comments on MDE's written testimony).

(i1) Maryland Department of the Environment (MDE), by Gabrielle Leah

MDE: "Ongoing House Bill 869 Study and MDE Stream Restoration Analysis: Currently MDE's Wetlands and Waterways Protection Program is undertaking a study on ecological restoration permitting as mandated by HB 869 Permitting for Ecological Restoration Projects - Required Study enacted during the 2022 legislative session, which is due to be completed on or before June 1, 2024. The parameters of the study required by HB 869 overlap with many of the proposed requirements under HB 942. The current participants in the study represent a diverse group of community and environmental organizations, restoration practitioners, academia/research, and other government agencies. The Department is concerned that this legislation predetermines a review and permitting framework for stream restoration projects which will not allow for a thorough and meaningful completion of the HB 869 study and does not consider input from across the regulated community."

FACT: Unfortunately, the HB 869 study will not result in an independent report. Any results, conclusions, and recommendations from the HB 869 2022 study will be potentially biased by MDE and tightly controlled by MDE. Study participants were told during the 12/13/2022 meeting that participants will not be able to vote on any aspects of the final report and that the final report will be authored solely by MDE (per Ken Bawer, a participant in the study representing West Montgomery County Citizens Association). While MDE says that it may consider input from across the regulated community, MDE has stated that they are not bound to accept any recommendations of the study group members. Thus, MDE is free to "listen and ignore." Another problem is that MDE was apparently satisfied with current stream restoration construction techniques and MS4 permit crediting schemes prior to this study, so this study is being controlled by a group with a predisposition to maintain the status quo. The study is arguably flawed from its inception due to this potential conflict of interest. The only way to ensure that the results of the study are based solely on science would be to have a truly independent panel of scientist in fields such as fluvial geomorphology, ecology, botany,

[72] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[73] 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)

[74] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[75] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

etc. conduct a study based on the science, not based on considerations of the for-profit stream restoration industry or entrenched MDE thinking.

MDE: "In addition, MDE is charged with protecting Maryland's waterways from loss and degradation as well as meeting Chesapeake Bay restoration and TMDL goals. As part of these responsibilities, MDE has undertaken many initiatives related to stream restoration to analyze Maryland's progress towards these goals and ensure our resources (including riparian forests) are protected."

FACT: Empirical observation clearly shows that MDE is clearly not protecting riparian forests. See WMCCA's written testimony which includes a video link and numerous photos showing the damage done to riparian forests in natural areas by stream "restorations" around the state.

MDE: "Mitigation Banking: HB 942 would have serious negative consequences for mitigation banking in Maryland. As written, HB 942 significantly discourages mitigation banking and may incentivize permittee-responsible mitigation, including largely unsuccessful "postage stamp" sized mitigation projects."

FACT: There is no evidence provided to support the assertion that "HB 942 HB 942 significantly discourages mitigation banking and may incentivize permittee-responsible mitigation."

FACT: There is no evidence provided to support the assertion of "largely unsuccessful "postage stamp" sized mitigation projects." The Mitigation Rule[76] states, "The studies that we have reviewed have shown that mitigation banks have experienced many of the same problems as permittee-responsible mitigation." The fact is that stream restorations done for any purpose, including mitigation banking, are unsuccessful because they destroy large areas of riparian forests, destroy wildlife habitat, and rarely, if ever, result in biological uplift of in-stream biology[77] [78] [79] [80].

MDE: "The 2008 Federal Mitigation Rule sets a preference for mitigation banks and the current mitigation program…."

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[76] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

[77] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

[78] 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)

[79] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

[80] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

FACT: This is not true. The Federal Mitigation Rule[81] states, "There are three mechanisms for providing compensatory mitigation: permittee-responsible compensatory mitigation, mitigation banks and in-lieu fee mitigation. Permittee-responsible mitigation is the most traditional form of compensation and continues to represent the majority of compensation acreage provided each year." Furthermore, the Fed Mitigation Rules states that "economic factors should not supersede ecological considerations."

MDE: "TMDL/MS4 Crediting: TMDL credits 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. It would not be possible for MDE alone to alter them. Any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations will require an update to the 2021 Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits ("2021 Accounting Document")."

FACT: MDE misreads what is in HB 942. This bill does not request, nor require, any changes to TMDL credits nor any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations.

It is false to say that, "It would not be possible for MDE alone to alter [TMDL credits]. Per MDE, the CBP Expert Panel reports are only recommendations that MDE is not bound to follow. In fact, MDE has modified these recommendations in the past based on their scientific analyses.[82]

However, MDE does control which practices are allowed within its Accounting Guidance[83] document. For example, while HB 942 does not suggest this, MDE could completely disallow the practice of stream restorations to be used for MS4 permit crediting.

MDE: "Alteration of the accounting and credit calculations would require a major permit modification for all 10 issued MS4 Phase I permits, which must be approved by the U.S. Environmental Protection Agency and go through the state required public notice process."

FACT: This bill does not request, nor require, any changes to TMDL credits nor any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations. However, if MDE deems it prudent to do so, there is no need for permit modifications for the 10 issued MS4 Phase I permits. The new accounting and credit calculations, once approved by EPA and going

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[81] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules") (https://www.epa.gov/sites/default/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)

[82] Per Lee Currey, Director, MDE Water and Science Administration, 3/22/2023 meeting with Sierra Club, Blue Water Baltimore, Chesapeake Legal Alliance, The Nature Conservancy, and others.

[83] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

through the public notice process, could apply to the new permits after the current permits expire.

MDE: "Biological Uplift Goal: While stream restoration projects are designed to address acute bank stability and instream habitat impacts, impacts to biology cannot be remediated through stream restoration alone as upland pollution also contributes to biological impacts."

FACT: This is misleading and inaccurate. First, MDE says that stream restorations done for MS4 permits do not require that biological uplift be achieved. But this conflicts with the Expert Panel report which states that "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."[84] Therefore, according to the Expert Panel report, a steam restoration cannot proceed if biological uplift is not possible.

However, stream restorations built as mitigation projects are <u>required</u> to remediate impacts to biology and demonstrate biological uplift. Another misleading implication of MDE's statement is that stream restorations are an important and essential component of remediating impacts to biology along with upland pollution (read: stormwater) control. This is the "we must use all the tools in our toolbox" argument that is not supported by scientific evidence. The science says that that stream restorations do not result in biological uplift (see the 4 references above from Hilderbrand et. al., Jepsen et. al., Palmer et. al., and Pedersen, et. al.).

Having said that, the missing scientific link is that no one has studied the results of the impact of relatively complete upland stormwater control, in the absence of a stream restoration, on in-stream biological uplift. However, one part of the equation has been examined: what happens to the eroded banks of a stream when relatively complete upland stormwater control is done in the absence of a stream restoration? Upland, out-of-stream stormwater control would remove the primary cause of active stream bank erosion and thus eliminate the need for stream restorations. There is scientific evidence by Fraley McNeal, et. al.[85] that after controlling stormwater upland, stream banks will self-recover. But the industry doesn't like passive, self-recovery solutions because there is no money to be made.

MDE: "Biological uplift is the goal of a holistic watershed management approach which utilizes a suite of best management practices (BMPs) (including stream restoration where necessary and approved) to address a multitude of pollutants that impact biology."

FACT: This is misleading. Although MDE states that biological uplift is someone's goal, biological uplift is apparently not one of MDE's goals. MDE curiously does not require

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[84] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," page 17; https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

[85] "The Self-Recovery of Stream Channel Stability in Urban Watersheds due to BMP Implementation," by Lisa Fraley McNeal, Bill Stack, et. al., March 2021, Prepared by the Center for Watershed Protection, Inc. https://cbtrust.org/wp-content/uploads/Self_Recovery_of_Stream_Channel_Stability_Final_Draft_03-23-21.pdf

biological uplift to be demonstrated for MS4 permit credit. That is why HB 942 makes this a requirement for all stream restoration projects. And as stated above, another misleading implication of MDE's statement is that stream restorations are an important and essential practice to achieve biological uplift along with upland pollution (read: stormwater) control. This is the "we must use all the tools in our toolbox" argument that is not supported by scientific evidence.

MDE: "Monitoring: Under the proposed legislation, stream restoration projects must be monitored for a period of 10 years (prior to release of any credits) to verify achievement of stated goals."

FACT: Delegate Terrasa stated that she would offer an amendment which would defer to MDE in setting a credit release schedule.

MDE: "It will require a considerable undertaking for MDE to develop monitoring plan requirements to assess biological uplift goals (which may not be attainable) for individual projects independent of the monitoring and verification procedures that already exist."

FACT: MDE misunderstands the bill's requirements. Bill HB 942 does not require monitoring which is independent of the monitoring and verification procedures that already exist. Rather, this bill simply requires that more projects be subjected to the currently existing type of monitoring and verification procedures. This bill does not require MDE to recreate the wheel. MDE's current monitoring plan requirements are wholly inadequate and are not even a firm requirement. Currently, no matter how many stream restorations a jurisdiction does for MS4 permit credits, only one stream restoration project is required to be monitored. Adding insult to injury, the monitoring results from that one project can be totally useless due to inadequate MDE regulations. For example, the one stream restoration project out of many that Montgomery County chose to monitor is called the Breewood project. Unfortunately, it is impossible to attribute the results of the Breewood stream restoration monitoring to the stream restoration project itself. This is because the instream monitoring station is downstream from not just the stream restoration but also other stormwater control practices including Green Streets projects such as bioretentions and pervious pavement.

But even doing one stream restoration monitoring for an MS4 permit is not a firm requirement. MDE actually allows jurisdictions to completely opt out of that requirement by instead paying into a pool of money which is used to fund research.

MDE: "As stated above MDE believes that biological uplift is not a realistic goal for every stream restoration project."

FACT: If MDE does not believe that biological uplift can be achieved by a specific project, MDE should not grant a permit for that project in the first place. In fact, stream restorations done for mitigation projects are required to demonstrate biological uplift as required by the Federal Mitigation Rule.[86] Therefore, MDE should also require biological uplift for stream restorations done for the MS4 permit. A stream restoration is a stream restoration.

[86] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation

The ultimate purpose of stream restoration projects done for MS4 permits is to promote biological uplift in the Bay (i.e., to increase aquatic vegetation and fish, crab, and oyster stocks). Incomprehensibly, MDE's MS4 permits do not also require local biological uplift to be demonstrated at the actual project site which can be very far from the Bay. Aside from checking the MS4 permit box, there is no point to the destruction caused by a "restoration" project which only enhances a stream's physical attributes (i.e., decreases erosion) if the end result does not also provide biological uplift at the project site. We should not have to sacrifice our local natural areas, even if they are not in pre-colonial condition, on the altar of saving the Bay. As Hilary Harp Falk, president and CEO of the Chesapeake Bay Foundation said, "A lot of times we evoke the Bay of 400 years ago, before colonialism. So much has changed during that time. The Bay watershed is now home to almost 19 million people. We're in the age of climate change. That means we are not going back to that Bay."[87] That also means we are not going back to streams of 400 years ago.

MDE: "Best Available Science: The 2021 Accounting Document directs jurisdictions to use protocols from the 2014 Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects ("Expert Panel") to calculate Stream Restoration credit, which incorporates the most recent science on crediting and verification methods and is written by a panel of local scientists, practitioners, and watershed managers."

FACT: This is a demonstrably false statement about the Expert Panel report[88]. First, these reports are not based on science, they are based on engineering principles. In fact, the crediting methods are based on irreproducible techniques. The crediting scheme is based on gross estimates of how effective stream restorations are in reducing erosion, and the report recommends using calculations which are estimates on top of estimates. This including using the highly unreliable BANCs method to estimate stream bank erosion which is not reproducible. The Expert Panel report says of the BANCS method that these theoretical calculation tools are "…susceptible to high variability when performed by different practitioners in the field." If a measurement cannot be reproduced by different people using the same methodology, it is scientifically useless.

On top of that, the Expert Panel is so unsure of the results of their estimation calculations that they take what falls out of the bottom and cut it by 50%. So much for having confidence in their work. There is no peer reviewed scientific literature to support using the Expert Panel recommendations.

To make matters worse, the Expert Panel included stream restoration industry employees who may have had a vested interest in ensuring that the crediting calculations maximized

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for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules")

[87] "Chesapeake Bay Foundation leader calls for shifts in Bay cleanup," by Timothy B. Wheeler, Chesapeake Bay Journal, March 6, 2023, https://www.bayjournal.com/news/people/chesapeake-bay-foundation-leader-calls-for-shifts-in-bay-cleanup/article_2be65c64-b5f1-11ed-b3db-87b767f0a295.html

[88] 2019 Protocol 1 Guidance: "Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit," p. 23;
Full Report: https://chesapeakestormwater.net/wp-content/uploads/2022/07/9928-1.pdf

their profits. This may have been a blatant conflict of interest and has, at a minimum, the appearance of impropriety. As such, the use of these Expert Panel reports by MDE is arguably a corrupt process.

MDE: "As MDE defers to the Expert Panel report, credit for MS4 EIA and TMDL progress as well as the reductions reported to the CBP for Bay TMDL progress already consider the best available science with regards to stream morphology, geology, biology, hydrology, ecology, watershed management, and wildlife corridors."

FACT: This is a misleading statement. Although MDE and the Expert Panel reports may consider the best science, they certainly do not follow the science. As stated above, the science shows that stream restorations don't result in biological uplift.

MDE: "Upland Alternatives: MDE is required under HB 942 to incentivize upland alternatives (deemed to be "less destructive to the environment") to stream restoration through the crediting mechanisms for TMDL, MS4 targets, mitigation goals, or other restoration goals. Credits for non-stream restoration practices are consistent with efficiencies from the CBP and match the credit provided in the Chesapeake Bay Phase 6 Model.

In order to provide additional incentives, MDE will have to develop additional unapproved BMPs, or be provided with (or conduct) studies demonstrating nutrient and sediment reductions that are greater than those already established by the current literature."

FACT: These are false statements. This bill does not prescribe how MDE incentivizes upland alternatives. MDE will not, in fact, have to develop any additional BMPs. There are already dozens of upland BMPs in MDE's Accounting Guidance[89] document that can be used for upland stormwater control such as green roofs and rain gardens. The more upland BMPs that are installed by a jurisdiction, the more credits will be garnered.

The provision of addition incentives for upland stormwater control may require some out of the box thinking. For example, DEP could increase credit for the rainfall depth treated for structural practices to greater than the current three inch maximum[90]. Or, MDE could put an MS4 permit cap on the percentage of credits that can be achieved via stream restoration and a minimum for upland stormwater control credits. MDE could recommend laws requiring existing buildings to meet new-build stormwater control requirements upon property transfer (buying/selling). MDE could incentive upland stormwater control by combining certain MS4 Permits, such as Montgomery County and Montgomery Parks. Currently, Montgomery Parks points out that they have no ability to do upland stormwater control at its source when the stormwater comes from outside their parks in the county itself.

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[89] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

[90] Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits, November 2021," p.28, 29 https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf

This bill does not require, nor suggest, that credits for efficiencies be changed, but it should be noted that the current credits for stream restoration are bogus numbers developed with the help of industry employees with a potential conflict of interest as described above.

MDE: "In addition, compensatory mitigation to offset impacts to stream impacts cannot be offset through upland projects under federal requirements."

FACT: This is a false statement. The Federal Mitigation Rule[91] does allow stream impacts to be offset through upland projects. It states that the district engineer may determine "that out-of-kind compensatory mitigation will better serve the aquatic resource needs of the watershed."

[91] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (referred to as the "Mitigation Rules or Federal Mitigation Rules") (https://www.epa.gov/sites/default/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)

(i2) Attachment: Written Testimony for West Montgomery County Citizens Association (WMCCA), by Kenneth Bawer

WEST MONTGOMERY COUNTY CITIZENS ASSOCIATION

P.O. Box 59335 ● Potomac, Maryland 20854

Founded 1947

Committee: House Environment and Transportation Committee

Testimony on: Bill Number HB 942 "Wetlands and Waterways Program - Authorizations for Stream Restoration Projects"

Position: Favorable

Hearing Date: March 3, 2023

The West Montgomery County Citizens Association (WMCCA) supports HB 942 "Wetlands and Waterways Program - Authorizations for Stream Restoration Projects."

WMCCA welcomes the opportunity to provide written testimony on this bill. It will strengthen Maryland's commitment to cleaning up the Chesapeake Bay while at the same time recognizing the need to safeguard local natural resources. The focus of this testimony is to make Delegates aware of the damage done by stream "restorations." Bill HB 942 promotes more effective and beneficial stream restoration projects and incentivizes alternatives to stream restorations using less destructive out-of-stream stormwater control methods such as rain gardens, bioswales, green roofs, permeable paving, and conservation landscaping to replace turf grass.

This testimony includes a video link and numerous photographs of the unconscionable damage done to our natural areas by numerous stream restoration projects. Please take a few minutes to watch this video of the Solitaire Court stream restoration in Gaithersburg that was completed in May of 2022. Without exception, everyone who sees this video is appalled by the destruction of what once was a lovey stretch of wooded stream. What you see are typical activities that take place during a stream restoration such as chain sawing large mature trees, clearcutting mature stream-side forests, and dumping rocks into streams to make dams that fish and other aquatic animals cannot cross. The narrator describes the results that we can see with our own eyes: a landscape that is "…clearcut, demolished, torn out, stripped to bare dirt, leaving no trace of life. A desert landscape. …The canopy gone, leaving the entire corridor open to hot, baking sun and drying winds." One viewer said, "I do not understand how this is legal." Another person asked, "Why do they call it restoration?"

Stream "Restorations" Don't Restore Streams

Stream restorations typically clear-cut mature stream-side forests. Young trees are replanted, but these will take decades or longer to approximate what was destroyed. The complex web of interactions

between fauna, flora, geology, and hydrology in natural areas can't be recreated by engineering projects using bulldozers, trucked-in rock rubble, and some replanted saplings.

The following photographs show examples of stream restorations that have been done in several jurisdictions around the state and illustrate the need for stream restoration reform. The photo below is a stream restoration at Nature Forward (formerly Audubon Naturalist Society) in Chevy Chase.

This was once a fully wooded area. It shows the heavy construction equipment being used. Visible are the plastic sheets used and large boulders dumped in the stream channel.

(Above: Nature Forward, Chevy Chase; https://conservationblog.anshome.org/tag/stream-restoration/)

The next photo at this same site shows a series of rock dams built with rock rubble that has been dumped into the stream channel. Now there is no way for aquatic creatures to move up and down this stream.

(Above: Nature Forward, Chevy Chase; https://conservationblog.anshome.org/tag/stream-restoration/)

The aerial photo of a stream restoration at the Asbury Methodist Village in Gaithersburg shows how rock rip rap has been dumped at intervals into the stream to create a series of dams. These dams prevent the migration of fish and other aquatic organisms. You can get an idea of scale compared to the large trees at the bottom.

(Above: Asbury Methodist Village, Gaithersburg, https://www.youtube.com/watch?v=hGZN-L0Qrj0)

The next photo is an example of the utter destruction caused by a stream restoration in the City of Rockville in the upper Watts Branch. This project was completed in 2018. The riparian, or stream-side, forest buffer has been completely destroyed and scraped down to bare soil. Before it was clearcut, the trees along this stream provided shade which lowered the water temperature required by some sensitive aquatic organisms.

(Above: Stream "restoration" in Upper Watts Branch, Rockville; photo by City of Rockville)

What happens to the stream during these construction projects? Below is the Falls Reach project in Potomac, MD. The entire stream was forced to run through this black pipe during construction. How hot do you think that water gets? No longer can frogs, turtles, and other animals access the water. And it gets worse. According to a U.S. Department of Agriculture National Engineering Handbook called "Stream Restoration Design", "Aquatic life would be either be prevented from passing the project or pulverized by the pumps."[92] So not just fish but frogs, crayfish, northern water snakes, baby snapping turtles, spotted turtles, etc. are at risk.

(Above: Falls Reach Stream Restoration Project; photo by K. Bawer, 3/19/2019)

The pre-construction photo of Whetstone Run in Blohm Park, Gaithersburg shows a riparian, or stream-side, forest that was quite dense and lush.

(Above: before construction, Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer, 5/03/2021)

[92] "Stream Restoration Design," National Engineering Handbook, Part 654,August 2007, United States Department of Agriculture, Natural Resources Conservation Service, Case Study 6, p. CS6–13

The post-construction photo below, taken at the exact same location, shows the total destruction of the stream-side forest. The original stream channel was filled and a whole new stream channel was dug. The original, natural stream never had this kind of artificial meander pattern, or sinuosity, that was created by the heavy machinery. Some of the paltry replanting is barely evident.

(Above: after construction: Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer on 5/03/2021)

This is another view of the Whetstone Run project just to show that there were, in fact, lots of mature trees cut down.

(Above: Whetstone Run , Gaithersburg from https://www.youtube.com/watch?v=1XLXRNmN9L8&t=61s)

To show how the original, pre-construction stream was moved, a trace of the original stream channel location in green is overlaid with a trace of the new stream channel in red. The image is quite shocking.

(Above: photo for "before" green trace from https://earthexplorer.usgs.gov/, photo for "after" red trace from Google Maps)

The next several photographs show different views of a destructive stream restoration in Columbia.

(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 1/8/2021)

(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 4/6/2021)

(Above: Columbia stream restoration; by S. Boies)

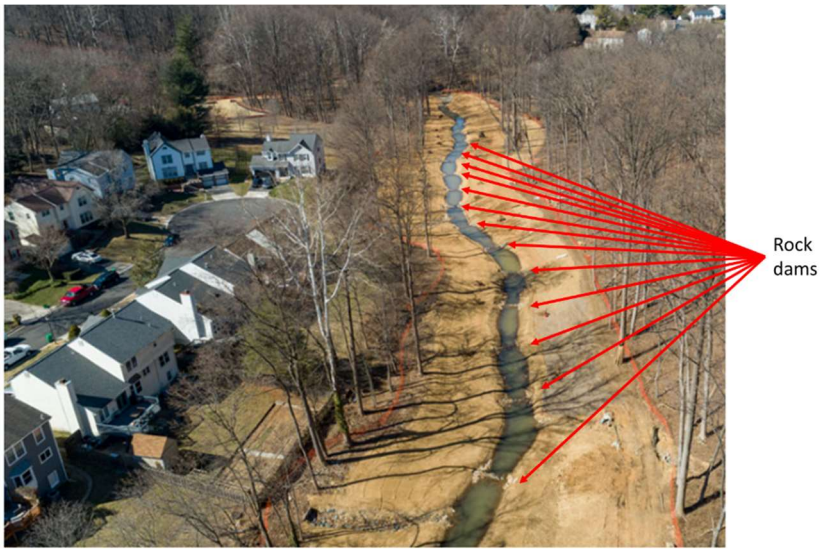
Next is the Solitaire Court stream restoration in Gaithersburg (the location of the video link on page 1). Before construction, none of the houses below were visible through the narrow strip of forest. At the pre-construction walk-through, the city program manager was asked what will happen to little animals like frogs, turtles and salamanders. That person responded with a straight face, “Oh, they’ll just move away and come back after the construction.”

(Above: Solitaire Court stream restoration in Gaithersburg; photo by K. Bawer, 10/23/2021)

In another photograph, the former forest can be seen reduced to a giant pile of logs.

(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portonova, 12/3/2021)

In another view of the Solitaire Court project, the arrows point to some of the rock dams created by dumping rocks into the stream. These will totally block fish and other aquatic organisms. Plus, the stream will drastically heat up now that a large number of the shade trees were cut. Note that the critical root zones of the trees (the area around the base of a tree containing most of a tree's roots that are critical for its survival) near the orange construction fences (on both sides of the clear-cut area) were not protected, so many of these edge trees will die due to soil compaction.



(Above: Solitaire Court project in Gaithersburg; https://www.gaithersburgmd.gov/government/projects-in-the-city/solitaire-court-stream-restoration-project)

Below is another view of the Solitaire Court project from further downstream. Again, this was a fully wooded forest. All of the trees on the left with the vertical wood scape protectors (the red arrow points to one) will probably die because their critical root zones have been severely compacted. And the line of big trees on the right at the edge of the clear cut will also likely die due to soil compaction.

(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portanova, 2/7/2022)

The following photos are “before” and “after” pictures of the Takoma Branch project in Takoma Park.

(Above: before construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

After construction, it can be seen that the natural character of the forest was wiped out including removal of woody debris such as the fallen trees that woodpeckers and other animals depend on.

(Above: after construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

Below is the Briers Mill Run in Prince Georges County after restoration. Before this project, the area was a natural strip park with lots of trees and understory plants – a great place for kids to explore and animals to live. Not so much anymore. This is now merely an engineered drainage ditch.

(Above: Briers Mill Run, Prince Georges County; https://www.facebook.com/PGCCWP/posts/1299726287063844)

Next is the Scotts Level Branch stream restoration in Baltimore County. The county web site says that they are concerned about providing essential habitat and vegetative buffers for streams. Why then are they destroying what they already have?

(Scotts Level Branch stream restoration, Baltimore County; from https://www.youtube.com/watch?v=ix42pr9t3ts)

The following photo shows the pre-restoration St. Charles Parkway stream in Charles County. This was a fine-looking stream valley until the riparian forest was clearcut.

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

What remained was a pile of logs, some of which are shown in the photo below.

(Above, St. Charles Parkway stream restoration, Charles County, from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

Two other views of the St. Charles Parkway stream restoration are shown below.

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

(Above, St. Charles Parkway stream restoration, Charles County; from https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0)

The Mayberry Stream Restoration in Carroll County was completed in spring of 2022. Heavy construction equipment destroyed a wide swath right through the forest. Note how the trees on the edges have no protection. This photo shows a bulldozer running over trees' critical root zones and compacting the soil. Many trees along both sides of the project will probably die due to soil compaction.

(Above: Mayberry Stream Restoration in Carroll County; from https://www.carrollcountymd.gov/media/16472/mayberry-stream-restoration.pdf)

The next photo is the post-construction Bacon Ridge stream restoration in Anne Arundel County. They cut down about 400 trees for this project!

(Above: Bacon Ridge stream restoration, Anne Arundel County; by K. Bawer, 7/14/2021)

The slide below illustrates more of the collateral damage done by stream restorations aside from the trees and larger shrubs that get most of the attention. These are just a tiny sampling of Maryland native wild flowers and small animals that can't outrun the bulldozers. Look at the baby box turtle pointed to in the left column in the red box. It is about the size of a quarter. Stream valleys are where the babies live for about the first five years of their life. Not even the full-grown adult box turtle in the photo can outrun a bulldozer.

(Above: wildflowers and small animals that are native to Maryland; all photos by K. Bawer except middle photo by City of Rockville)

Stream restorations fail due to uncontrolled or inadequately controlled stormwater

Adding insult to injury, since stormwater is not being controlled at its source (e.g., runoff from impervious surfaces such as roads, roofs, etc.), stream restorations have failed or will fail, especially given the more intense storms that are expected due to global warming. All the rocks, boulders, fill dirt, and soil stabilization fabrics brought in by these projects will eventually get blown out by future storms. A blow-out means the disruption of the armor-plating and stream bank engineering caused by large rainstorms. This renders them useless and a waste of taxpayers' money. Photographic evidence of stream restoration failures is provided below.

The next picture is a failed Cabin Branch stream restoration in Montgomery County showing how uncontrolled stormwater has eroded out the stream bank behind the rock armor-plating rendering it useless. This is an example of why stream restorations are only a temporary fix to stream bank erosion.

(Above: Cabin Branch Stream in Cabin John Regional Park, Montgomery County; by K. Bawer, 3/19/2021)

The photo below shows blown-out armor plating along Long Branch in Takoma Park. Notice the huge size of these boulders compared to the people.

(Above: Long Branch, Takoma Park; photo by K. Bawer, 10/2/2021)

The next photo is Snakeden Branch in Potomac. The blown-out area can be seen on the right bank. The water has gone over and behind the rock wall and has continued to erode the stream bank behind it. Also visible is exposed plastic geotextile fabric which will break down and add to the micro plastics problem.

(Above: Snakeden Branch, Potomac; by K. Bawer, 11/23/2021)

Below is a photo of an unnamed tributary to Great Seneca Creek in Gaithersburg. Note the disrupted rock structure exposing plastic fabric. Stormwater has continued to erode the stream bank behind the rocks despite the stabilization attempt.

(Above: unnamed tributary to Great Seneca Creek, Gaithersburg; by K. Bawer, Fall, 2022)

The Lower Booze Creek stream restoration in Potomac originally cost $700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, “Storm damage occurred very soon after construction, initiating structural failures.” This photo shows some of the damage to the original stream restoration project at one location.

Lower Booze Creek - Erosion downstream of imbricated wall structure from original stream restoration.

(Above: Lower Booze Creek, Potomac; photo from https://www.montgomerycountymd.gov/water/Resources/Files/restoration/streams/Lower-Booze-Creek-Restoration-Repair-Fact-Sheet.pdf)

The repair work cost an additional $3.6 million. Since stream restoration companies typically only guarantee their work for one year, when they are destroyed after that it is the taxpayers who pick up the bill. The photo below was after the repair work at one location which was formerly fully wooded.

(Above: repair of the restoration in Lower Booze Creek, Potomac; photo by K. Bawer, 12/4/2021)

On top of all that, the scientific literature[93] [94] [95] [96] says that these projects rarely, if ever, result in improved in-stream biology.

In summary, the current problems with stream restorations are clearly visible if only we will acknowledge what can be seen with our own eyes. These photographs provide irrefutable evidence that stream restorations don't actually restore streams, that projects get blown-out because upland stormwater has not been adequately controlled, and that stream restorations are, in fact, devastating to both the stream itself and the local environment where they are constructed. Bill HB 942 would incentivize less destructive out-of-stream alternative stormwater control methods while promoting more effective and beneficial stream restoration projects. This bill will help us achieve another Rachael Carson moment for environmental protection in Maryland.

We urge the Committee's FAVORABLE report on HB 942.

Kenneth Bawer
Board Member, West Montgomery County Citizens Association
kbawer@msn.com

[93] Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)
[94] 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)
[95] Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)
[96] Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/)

Arundel Rivers Testimony FAV w Amend for HB942.pdf
Uploaded by: Elle Bassett
Position: FWA

Arundel Rivers FEDERATION

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

Testimony encouraging a FAVORABLE WITH AMENDMENTS report on House Bill 942 – Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

Environment and Transportation Committee
March 3, 2023

Dear Chairman Barve and Members of the Committee,

Thank you for the opportunity to submit testimony in **SUPPORT OF HB942 WITH AMENDMENTS**, on behalf of Arundel Rivers Federation. Arundel Rivers is a non-profit organization dedicated to the protection, preservation, and restoration of the South, West and Rhode Rivers with over 3,500 supporters. Our mission is to work with local communities to achieve clean, fishable, and swimmable waterways for present and future generations.

Today's streams are not what they once used be. Due to developmental pressures and increased runoff, many of our streams have become incised, clogged with sediment, and degraded. What was once a meandering, U-shaped bottom stream with banks connected to the floodplain has now become a carved ravine or gully with a V-shape bottom and 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.

Stream restoration is a tool that repairs stream habitat 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.[1]

We have seen instances of large-scale stream restoration often associated with mitigation work result in extensive tree clearing. While HB 942 had good intentions of trying to prevent those types of projects, it invertedly will make *all* stream restoration projects difficult to implement, including those projects that seek to provide improved habitat and downstream water quality improvements. Therefore, Arundel Rivers is requesting the following amendments:

- *Strike language throughout the bill that targets "stream restoration projects associated with achieving local* Municipal Separate Storm Sewer System targets, Chesapeake Bay Total Maximum Daily Load goals, or other restoration goals.

  Stream restoration is one of the most cost effective restoration tools we have to meet these targets and goals, why would we target the projects that seek to achieve them?

- *Add "(VIII) SHALL BE DESIGNED TO MINIMIZE TREE REMOVAL AND IMPROVE HABITAT to (B)(1).* Maintaining tree habitat is already a goal of stream restoration design. Minimizing tree impacts and tree removal during design and construction is important, however it is important to note that some tree species will likely naturally change due to the desired change in hydrology from the project. For example, a tree that has grown with dry roots may not adjust well to the reconnected floodplain and wetland-like conditions of the now frequently flooded habitat around a stream restoration project. That tree will likely die and be replaced with a tree that prefers wet roots.

[1] Maryland Department of the Environment. Stream Restoration. https://mde.maryland.gov/programs/Water/Pages/Stream_Restoration.aspx

- *Strike all of (B) (2)*
  Upland projects alone will not restore eroded streams and crediting should be based on scientifically proven outcomes. Often times, there is not adequate space for upland work to be accomplished and maintenance of upland projects has proven to be a challenge. Upland projects are often more costly for less nutrient and sediment reduction benefits. This will further delay Maryland in reaching our restoration goals.

  Requiring 10 years of monitoring before providing credits will significantly reduce the incentive for stream restoration projects. This will create a substantial fiscal burden for small non-profits doing this work and increase the amount of grant funding that will be required to achieve this from grant-making organizations. Ultimately, that will result in funding being taken away from other projects that might include upland work.

- *Add new language addressing required mitigation be located within the same watershed when feasible. Suggested language:*
  REQUIRE THE APPLICANT FOR A PROJECT BEING UNDERTAKEN EXPRESSLY FOR THE PURPOSE OF PROVIDING CREDITS FOR WETLAND LOSSES FROM FUTURE ACTIVITIES, THE DEPARTMENT SHALL REQUIRE THE PROJECT BE LOCATED IN THE SAME WATERSHED AS THE WETLAND FOR WHICH MITIGATION IS REQUIRED, OR

  (i) IF THE RESTORATION PROJECT CANNOT BE REASONABLY ACCOMPLISHED IN THE WATERSHED IN WHICH THE CONSTRUCTION ACTIVITY IS LOCATED, THEN THE RESTORATION SHALL OCCUR IN THE SAME COUNTY FOR WHICH MITIGATION IS REQUIRED.

Arundel Rivers Federation strongly supports the implementation of stream restoration practices that result in improved stream habitat and improved downstream water quality. HB942 will not support such stream restoration practices as currently written and therefore, we respectfully request a **FAVORABLE WITH AMENDMENTS REPORT on HB942 and we look forward to continued conversations with the bill sponsors on this important topic.**

Sincerely,

Elle Bassett

Elle Bassett
South, West and Rhode Riverkeeper
Arundel Rivers Federation

Photo taken before stream restoration project

Photo taken from same location after stream restoration

Annapolis Landing Pre-Restoration Photos

Annapolis Landing Post Stream Restoration

LOO - HB942 (1).pdf
Uploaded by: Allison Burnett
Position: UNF

SOUTHERN MARYLAND
RESOURCE CONSERVATION & DEVELOPMENT

February 28th, 2023

To the Environment & Transportation Committee,

I am writing today in strong opposition of HB 942: Authorizations for Stream Restoration Projects.

I am the Executive Director for Southern Maryland Resource Conservation & Development (RC&D). RC&D is a non-profit that serves the southern Maryland counties of Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's. Our mission is "working in partnership with community groups and organizations, Southern Maryland RC&D is dedicated to improving the quality of life in the region by enabling the people and promoting the wise use of our natural and economic resources". I am currently involved in an ongoing study already being conducted by Maryland Department of the Environment that was enacted on October 1st, 2022 through HB869: Authorizations for Ecological Restoration Projects. The study is examining the processes and challenges for permitting all ecological restoration projects and is specifically addressing many of the concerns posed by HB 942.

I feel it is premature to enact a bill that seeks to address issues that have not been fully examined or defined by Wetlands and Waterways through this study. I urge you to allow the study to proceed without adding any additional requirements for MDE during that time. The results of the comprehensive study may lead to legislation, but it will be far more informed than the legislation proposed in HB 942.

Thank you for your consideration.

Very Respectfully,

Allison Burnett, Executive Director of Southern Maryland RC&D

SOUTHERN MARYLAND RC&D BOARD, INC. - 26737 RADIO STATION WAY SUITE D - LEONARDTOWN, MD 20650
240-577-6413 - WWW.SOMDRCD.ORG

HB942_PGCEX_OPP.pdf
Uploaded by: Angela Alsobrooks
Position: UNF

THE PRINCE GEORGE'S COUNTY GOVERNMENT

OFFICE OF THE COUNTY EXECUTIVE

BILL:	**House Bill 942 – Wetlands and Waterways Program - Authorizations for Stream Restoration Projects**
SPONSOR:	**Delegates Terrasa, *et al.***
HEARING DATE:	**March 3, 2023**
COMMITTEE:	**Environment and Transportation**
CONTACT:	**Intergovernmental Affairs Office, 301-780-8411**
POSITION:	**OPPOSE**

The Office of the Prince George's County Executive **OPPOSES House Bill 942 – Wetlands and Waterways Program - Authorizations for Stream Restoration Projects**, requiring MDE to revise certain criteria, standards, and requirements for wetlands and waterways authorizations for stream restoration projects.

The Prince George's County's Department of the Environment agrees with the tenets by which stream restorations should be used in addition to the improvement of water quality- to provide biological uplift of the stream and to improve the health of the stream and the surrounding tree cover. The County further agrees that activities designed to mitigate water quality should occur in the watershed where the development impacting water quality occurs; and that these projects should be monitored for 10 years (we actually monitor them for 30). However, we oppose **HB 942** because it would make it virtually impossible for MS4 permittees, including Prince George's County, to implement stream restoration projects.

We oppose **HB 942** because stream restoration projects are very beneficial to Prince George's County residents, because in addition to providing a water quality benefit as credited through Impervious Surface Restoration, they also make these streams better habitat, provide flood mitigation co-benefits, and result in a clean, litter-free usable stream for recreation and community enjoyment. In Prince George's County- these projects are designed with a 30 year+ maintenance plan, meaning a community will have access to these natural areas in perpetuity, and we can be assured that the project will work as intended now and in the future. Stream Restorations are a cost-effective way to improve water quality for the Chesapeake Bay clean-up and provide high levels of flood mitigation, quality-of life, ecological uplift, and recreational benefits. For those reasons, detailed below, we oppose **HB 942**.

These projects are part of a regulatory scheme developed and evaluated by experts and supported by the Chesapeake Bay Program and MDE. Stream restoration has gone through two separate rigorous expert panels, once in 2014 and again from 2018 through 2020. Regarding concerns about the long-term health of these projects, it is important to note that MS4 permittees to continue to take credit for a project that is no longer functioning. There are extensive and detailed verification requirements that are mandatory and that focus on determining whether a project is still effectively reducing sediment and nutrients.

These projects are not done on healthy streams, and the surrounding forests are not healthy forests. Stream restorations are done on highly degraded streams that no longer have a natural pattern and pools and riffles that are home to macroinvertebrate (midges, caddisflies, beetles, etc.) and vertebrate (fish, frogs, etc.) species. In a degraded stream these areas are eroded and there isn't a sufficient stream structure to support a healthy ecosystem. We understand as stormwater practitioners that citizens have concerns about removing trees and other impacts during projects- which is why we actively engage the communities around these streams and provide them with an understanding of the value of these projects and what they can expect before, during and after a restoration. In these projects, we are not removing healthy forests. Regularly, the plant species in these areas are non-natives and invasives, the trees are burdened by vines, and the understory is either a choked tangle of bramble, or non-existent. The streams are inaccessible and dangerous. Prince George's County Department of Environment and our Clean Water Partnership carefully choose projects that will provide multiple benefits—not only improving water quality in the stream, which in turn improves Bay water quality, but finding projects that allow for connected BMPs and provides flood mitigation co benefits, projects where the rehabilitation of the stream will have quality of life benefits for our residents as the area can now be utilized for recreation, and kept clean of litter and illegal dumping.

The United States Environmental Protection Agency (EPA) and the US Army Corps of Engineers (USACE) support these projects as environmentally beneficial. In December 2022, the USACE and Prince George's County began an approximately 40-million-dollar project in the Anacostia Watershed to restore 7 miles of instream habitat; open 4 miles for fish passage; and connect 14 miles of stream to previously restored stream reaches. This project is a habitat restoration project, and environmental justice project and a water quality project- supported by USACE and USEPA.

For the reasons stated above, the Office of the Prince George's County Executive **OPPOSES House Bill 942** and asks for an **UNFAVORABLE** report.

HB 942 - UNF - MML.pdf
Uploaded by: Angelica Bailey Thupari
Position: UNF

Maryland Municipal League

The Association of Maryland's Cities and Towns

TESTIMONY

March 3, 2023

Committee: Environment & Transportation

Bill: HB 942 – Wetland and Waterways Program – Authorization for Stream Restoration Projects

Position: Oppose

Reason for Position:
The Maryland Municipal League opposes HB 942, which creates challenging new criteria for the Maryland Department of the Environment (MDE) to use to evaluate applications for stream restoration projects associated with achieving local MS4 permit targets, TMDL goals, mitigation goals, and other restoration projects.

MML echoes the Maryland Association of Municipal Stormwater Association (MAMSA)'s concerns, particularly the impact this would have on MS4 permits. This measure requires 10 years of monitoring for completed stream restoration projects before mitigation or pollution reduction credits can be granted to the party responsible. This is an extraordinarily long period of time to force restoring parties to wait.

Not only is withholding credits unfair, but it can harm restoring parties who need those credits to comply with their discharge permit requirements, which includes many municipalities. Many municipal storm sewer systems are regulated by discharge permits from MDE, which require that MS4 permittees restore untreated impervious acres within a certain time. Failure to comply could result in significant enforcement through administrative legal action filed by MDE, the US EPA, or even local residents.

Many municipalities rely on stream restoration projects to enable them to comply with discharge permit requirements. This measure would stand in the way of efficient and effective

For these reasons, we respectfully request an unfavorable report on HB 942.

FOR MORE INFORMATION CONTACT:

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410-268-5514 | 800-492-7121 | FAX: 410-268-7004 | www.mdmunicipal.org

Theresa Kuhns	Chief Executive Officer
Angelica Bailey Thupari, Esq.	Director, Advocacy & Public Affairs
Bill Jorch	Director, Public Policy
Justin Fiore	Manager, Government Relations

Beth Forbes UNF

Uploaded by: Beth Forbes

Position: UNF

Land as Nature Intended It

Stream Restoration Efforts Restore Watersheds, Improve Water Quality

by Beth Forbes, Stormwater Program Manager

Why Our Streams Changed

Five hundred years ago, Gaithersburg looked much different. Geomorphologists (the people who study the nature and history of landforms and the processes that create them) tell us that before settlers began clearing land for farming, our streams were more broad, flowing through braided channels surrounded by wetland bogs and marshes. Once farmers cleared the land, significant changes to the environment began to take place. Rainfall took topsoil from the plowed fields towards the streams. Mills, along with their mill ponds and channelized mill races, were constructed to grind the grains grown on the farms. Early farming activities changed the basic shape and functions of the streams throughout the region.

Jumping forward a century or so, the 1972 Clean Water Act gave federal and state governments the power to regulate pollution. Through the Act, the Environmental Protection Agency controls pollution within municipalities by requiring Municipal Separate Storm Sewer System (MS4) pollution discharge permits. The City of Gaithersburg's 5-year permit requires that we provide watershed restoration to a significant area of the City. One of the restoration options we have is to reconstruct streams to decrease erosion while at the same time improving climate resiliency.

Can humans recreate the streams that existed 500 years ago? Not exactly. But we can remove the sediments that have accumulated in the stream valleys since that time. We

can also make the streams more resilient to the high-intensity storm flows that are expected as the impacts of climate change increase.

Restoring Streams in the 21st Century

Whetstone Run in Blohm Park presented an opportunity to return a stream closer to its pre-colonial state and simultaneously earn credits towards the City's MS4 goals. In 2013-2014, an environmental consultant prepared watershed plans for the City's three major watersheds. In addition to looking for locations for potential sites for "upland" water pollution control facilities, the consultant walked miles of streams to identify sections where the local habitat and general stream health were compromised.

Sections of Whetstone Run and Watkins Mill Run in Blohm Park were recommended for restoration as part of the Middle Great Seneca Creek Watershed Study. The banks of Whetstone Run were high, up to five feet in some places. A standard restoration, or a spot treatment by placing stones in critical areas, would not have worked at this location. The banks were composed of fine sediment, not native soil, which isn't sufficiently stable for those types of treatment.

The bottom of Whetstone Run's channel, or thalweg, had been eroding through this deep sediment layer. It is estimated that about 550 tons of sediment a year was washing away from the stream banks down to Great Seneca Creek, the Potomac River and, eventually, the Chesapeake Bay. The nutrients attached to those sediments, in particular nitrogen and phosphorus, were also flowing to the Bay.

In other areas of the Piedmont Physiographic Province – the foothills of the Appalachian Mountains – these deep stream valley sediments appear to be the result of mill ponds constructed more than a hundred years ago. As the mills were removed, their upstream ponds that stored water for moving the mill wheel filled in with sediments. Whether or not there was a mill site on Whetstone Run isn't clear from researching the Montgomery County maps of the late 19th Century. While there was a Watkins Mill, it was located on Cabin Branch, another tributary of Great Seneca Creek. The sediments in the Whetstone Run's stream valley seem to be solely the detritus of farming activities.

Whether or not a stream restoration project can be stable without additional controls in place upstream is a matter of contention in the scientific community. In the case of the projects in Blohm Park, these upstream controls were already in place. Lake Whetstone, a pond owned by the Montgomery Village Foundation and operated by Montgomery County,

(Continued from page 17)

Land as Nature Intended It

(Continued from page 7)

provides water quantity control upstream of Whetstone Run. A wet pond within the park provides quantity control for the lower segment of the Watkins Mill Run restoration. A handful of small ponds are located upstream of the upper segment of Watkins Mill Run.

Wetlands + Cooler Streams = Healthier Ecosystem

Ecologists know that aquatic life prefers cooler waters. Shade from trees is one way to keep a stream's flow cool. To preserve as many trees as possible, the project's design on Watkins Mill Run upstream of the wet pond incorporated a very narrow access road. In some sections, the actual stream channel was used as the access. Each day, a pump-around was set up, the channel was repaired, and at the end of the day, stream flow was reestablished to access the newest part of the restored channel. This narrow access kept the tree impacts to a minimum during construction, allowing the stream to be shaded from the sun's direct rays for most of the day.

While there was a lot of tree impact to Whetstone Run to remove the legacy sediments, the project's design incorporates two features that help keep the stream's flow from becoming too warm for aquatic life. One feature is the toe wood that is installed at the stream's meanders (pictured here). Many trees felled on-site for the project were reused in structures that

provide shade for aquatic life. Until trees reestablish in the floodplain area, fish and other aquatic life will find respite from the sun under these structures.

Another feature to promote cooler waters in Whetstone Run is the size of the new channel. In its earlier state, the channel banks were so steep and high that the stream flow rarely rose out of its banks. Now a smaller channel holds an average day's flows up to the top of the banks. Even during small storms, flow will spill over these banks and saturate the surrounding area. With wetlands surrounding the channel, it is hoped that the groundwater and stream flow will become more connected. The exchange of stream flow with the groundwater will help keep the water temperature lower in the stream.

In addition to toe wood, the impacted trees were reused as structures called floodplain grade control. Tree trunks and limbs, now hidden from view beneath the biodegradable matting and plantings, were placed in parallel lines across the stream valley perpendicular to the stream flow. The flow that escapes the banks during storm events is guided by these structures to spread across the valley floor.

The spreading of the stream flow during and after storm events will create new wetland areas, about 1.5 acres more in the case of this project. Wetlands are great for water quality, acting as natural water purifiers as the wetland plants uptake the nutrients formerly destined for the Bay. Wetlands also allow the flow of water to spread out and slow down, thereby minimizing erosion of the streams downstream from the project. By holding on to storm flows long after the storm has passed, adjacent wetland areas will help the stream retain its base flow during periods of drought.

Wetlands are a tremendous benefit to the ecology of Gaithersburg. According to the National Park Service, about one-third of the plant and animal species listed as threatened or endangered in the U.S. depend on wetlands for their survival. Migratory birds are especially drawn to wetlands. Many species of amphibians and reptiles depend on wet environments to survive. Perhaps the most important reason for creating wetlands is to create a carbon sink in their hydric soils. These soils can store carbon and limit the atmospheric carbon in greenhouse gases responsible for much of climate change.

The project area was replanted in April, 2021, and already wetland species that weren't part of the planting plan – cattails, willows, and pickerelweed – have been observed and will be allowed to remain. During the post-construction monitoring, the status of the plantings and the extent of invasive species will be noted, observed, and treated if necessary.

There are many post-construction monitoring elements required by the U.S. Army Corps of Engineers and the Maryland Department of the Environment as part of their permits. The third post-construction year will require an especially thorough monitoring. That's when a study of the extent of the new wetlands must be completed. The stability of the structures will be monitored annually as long as the project is considered a part of the required watershed restoration.

More Watershed Restoration to Come

The City has recently begun work at Diamond Farms Park, its fourth stream restoration project. When finished, the Solitaire Court stream restoration should complete the major watershed restoration improvements required by the City's 5-year permit.

These projects will take a few years before they completely revegetate. It took decades – or sometimes more than a century – for the streams to change their shapes as a result of human development. It will take a few years before the vegetation and the functionality of the new wetland area is fully established.

Other improvements to Blohm Park to allow visitors to enjoy the wetlands are being planned. Learn more about all of the City's watershed restoration projects conducted by the Public Works Department at gaithersburgmd.gov.

HB0942 Wetlands and Waterways Program - Authorizat

Uploaded by: Christopher Costello

Position: UNF

ACEC
American Council of Engineering Companies
Maryland

March 3, 2023

Hon. Kumar Barve
Chair, House Environment & Transportation Committee
251 Taylor House Office Building
Annapolis, MD 21401

Re: **HB 942** Wetlands and Waterways Program - Authorizations for Stream Restoration Projects
Position: **OPPOSE**

Dear Chair Barve:

Members of the American Council of Engineering Companies/MD (ACEC/MD) are actively engaged in various aspects of planning and engineering related to stormwater management and wetlands protection. Our concern and reason for opposing HB 942 is the bill's duplication of existing Maryland Department of the Environment (MDE) efforts to protect and improve Maryland's wetlands and waterways.

Here are several examples duplicates exiting efforts:

- Section 5-203.2 (A) duplicates the requirements in HB 869 from 2022, which also requires a review of restoration projects. This report in due in 2024; and
- Section 5-203.2 (B) (1) ignores the existing professional studies and reports from experts in every scientific field, as well as the extensive modeling and data collection that have provided the best possible scientific information for the needs of the Department.

Maryland's current laws and regulations provide more than sufficient guidance and protection relative the stream restoration, such that enacting HB 492 will serve no additional benefit and may create problems for the Department.

Accordingly, ACEC/MD members respectfully requests that the House Environment and Transportation Committee recommended an unfavorable vote for HB 942.

Chad Faison

Copy: Members of the House Environment & Transportation Committee

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HB0942-ET_MACo_OPP.pdf
Uploaded by: Dominic Butchko
Position: UNF

MARYLAND Association of COUNTIES

House Bill 942

Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

MACo Position: **OPPOSE**

To: Environment and Transportation Committee

Date: March 3, 2023

From: Dominic J. Butchko

The Maryland Association of Counties (MACo) **OPPOSES** HB 942. This bill would impose stringent barriers on stream restoration projects, effectively hampering one of counties' most effective tools for stormwater management.

Counties have invested significantly – with support and direction from State laws – into stormwater management as a part of their environmental sustainability efforts. Stream restoration has been a widely approved practice to meet state and federal requirements under municipal separate storm sewer system (MS4) permits. The Chesapeake Bay Program has accepted stream restoration projects as a best management practice (BMP) for years and already has a rigorous and scientifically based approval process for updating its BMP.

MACo echoes the concerns and opposition of the Maryland Municipal Stormwater Association (MAMSA) – whose members represent nearly all counties and are the subject matter experts in stormwater and stream restoration. Among other issues, they note:

> *"…the bill requires 10 years of monitoring for a stream restoration project 'before any relevant mitigation or pollution reduction credits are issued for the project.' Not only is withholding credits unfair to permittees who need these credits for permit compliance, but it would put the State itself behind schedule for addressing its Chesapeake Bay clean-up goals."*

The policy prescriptions outlined within HB 942 exceed the widely used "to the extent practicable" standard embraced in this area of law. Counties remain committed to advancing environmental stewardship, but the standards proposed by HB 942 would shelve a wide range of worthy projects. For these reasons, MACo **OPPOSES** HB 942 and urges an **UNFAVORABLE** report.

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BaltimoreCounty_UNF_HB0942.pdf
Uploaded by: Joshua Greenberg
Position: UNF

JOHN A. OLSZEWSKI, JR.
County Executive

JENNIFER AIOSA
Director of Government Affairs

AMANDA KONTZ CARR
Legislative Officer

JOSHUA M. GREENBERG
Associate Director of Government Affairs

BILL NO.: **HB 942**

TITLE: Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

SPONSOR: Delegate Terrasa

COMMITTEE: Environment and Transportation

POSITION: **OPPOSE**

DATE: March 1, 2023

Baltimore County **OPPOSES** House Bill 942 – Wetlands and Waterways Program - Authorizations for Stream Restoration Projects. This legislation would require the Maryland Department of the Environment to revise project eligibility criteria for stream restoration projects implemented for MS4 and TMDL compliance.

Currently, project criteria and eligibility requirements for all water quality Best Management Practices (BMPs) that may be utilized for compliance with State-issued Municipal Separate Storm Sewer System (MS4) permits and local and State Total Maximum Daily Load (TMDL) implementation plans are developed and updated through the Chesapeake Bay Program (CBP). The CBP determines crediting protocols by convening Expert Panels, comprised of scientists and representatives from local, state and federal governments, consulting firms and academic institutions, to digest best available science on each BMP. These panels also look to science to incorporate regional differences in physical and ecological conditions, including hydrology, geology, and watershed context.

As local jurisdictions implement and permit stream restoration projects, biological uplift must be considered in concert with other important outcomes of such projects, including erosion and flood reduction and water quality improvement. Functional improvements in the hydrologic, hydraulic, geomorphologic and physiochemical components of a stream ecosystem are just as important as biological uplift. Unfortunately, in many streams in more highly developed watersheds, salt from road runoff, extreme temperatures, and a lack of source population may inhibit full restoration of biotic communities and habitat. Existing regulations include tree loss minimization, project monitoring, and public notice.

No BMP is appropriate in every possible circumstance; stream restoration is no different. But changes to the criteria and crediting of BMPs should be undertaken in a scientifically rigorous manner. In the Chesapeake region, we are fortunate to have the CBP and the scientific community of many academic,

research, and practicing organizations working on these very issues. Accordingly, Baltimore County requests an **UNFAVORABLE** report on HB 942. For more information, please contact Jenn Aiosa, Director of Government Affairs at jaiosa@baltimorecountymd.gov.

2022-03-01 MAMSA Ltr Opposing HB 942.pdf
Uploaded by: Lisa Ochsenhirt
Position: UNF

MARYLAND MUNICIPAL STORMWATER ASSOCIATION

March 1, 2023

The Honorable Kumar P. Barve, Chair
House Environment and Transportation Committee
Room 251, House Office Building
Annapolis, MD 21401

Re: OPPOSE -- HB 942 (Wetlands and Waterways Program -- Authorizations for Stream Restoration Projects)

Dear Chairman Barve:

On behalf of the Maryland Municipal Stormwater Association (MAMSA), a statewide association of 24 proactive counties and municipalities and leading stormwater consulting firms working for clean water and safe infrastructure based on sound science and good public policy, I am writing to convey MAMSA's opposition to HB 942. Many of MAMSA's Members own or operate municipal separate storm sewer systems (MS4s) that are regulated under discharge permits issued by the Maryland Department of the Environment (MDE). These permits universally require that MS4 permittees complete restoration of untreated impervious acres within set timeframes. A permittee that does not comply with its permit may face potentially serious enforcement risk (i.e., civil or administrative cases brought by MDE, the U.S. Environmental Protection Agency, or local citizens). Many of the State's regulated MS4s are relying on stream restoration projects to comply with these enforceable permit obligations.

Among other issues of concern, the bill requires 10 years of monitoring for a stream restoration project "before any relevant mitigation or pollution reduction credits are issued for the project." Not only is withholding credits unfair to permittees who need these credits for permit compliance, but it would put the State itself behind schedule for addressing its Chesapeake Bay clean-up goals. MAMSA notes that the Chesapeake Bay Program has accepted stream restoration projects as an acceptable best management practice (BMP) and stream restoration occurs broadly across the entire Watershed. The Chesapeake Bay Program has a BMP approval process that involves having a panel of experts undertake a rigorous scientific examination of a proposed BMP. There is no basis for revising the requirements for stream restoration given the level of review that has already occurred.

Thank you for your consideration. If you desire any further information, please contact me at lisa@aqualaw.com or 804-716-9021.

Sincerely,

Lisa Ochsenhirt
Deputy General Counsel

cc: House Environment and Transportation Members
HB 942 Sponsors

EIP HB 942.pdf
Uploaded by: nicholas dilks
Position: UNF

Ecosystem Investment Partners
5550 Newbury Street
Baltimore, Maryland 21209

March 1, 2023

The Honorable Kumar P. Barve, Chair, and
The Honorable Dana Stein, Vice Chair
Maryland House Environment and Transportation Committee
Room 251, House Office Building
Annapolis, Maryland 21401

Dear Chair, Vice Chair, and Members of the Committee,

Ecosystem Investment Partners (EIP), a private investment firm based in Baltimore, Maryland respectfully asks you to oppose the initiatives proposed in HB 942.

This legislation will unnecessarily increase the financial and regulatory burden on the State of Maryland and drastically limit its ability to continue reasonable and responsible management of its water and natural resources to improve water quality, mitigate for and protect infrastructure investments, and combat climate change. Moreover, HB 942 imposes restrictions on the processes of large-scale ecological restoration that will limit, if not eliminate, the ability for the private sector to provide the full delivery of mitigation and pollution reductions needed in Maryland.

Over the past decade, our firm has invested over $25 million in stream restoration projects in the Bay watershed in Maryland that have eliminated over 6,500 tons of nutrients and sediment pollution, while employing dozens in the design, permitting, construction, monitoring and maintenance of steam and wetland projects across the state. HB 942 would have a direct impact on the ability of companies like ours to continue this level of investment in Chesapeake Bay restoration and conservation.

While our firm agrees that upland stormwater management practices have a place in meeting the goals of the Chesapeake Bay Total Maximum Daily Load (TMDL), these practices cannot meet the scale of nutrient and sediment reductions that the Bay needs. Moreover, because of their small scale and high cost per unit of reduction, upland stormwater practices have little or no potential to engage the private sector in delivering the reductions we need; severely hindering the very opportunity for private sector engagement recently encourage by the Conservation Finance Act of 2022.

Stream and wetland restoration is critical to not only reducing non-point source pollution, improving water quality and ensuring no net loss of water resources that result from unavoidable and permitted development, but also to addressing the realities of climate change-driven storm

events and stream channel degradation resulting therefrom. Our state's stream corridors are impaired due to centuries of deforestation, poor agricultural practices, mining, ditching, piping and urbanization. As a result, ongoing stream bank erosion is responsible for high amounts of sediment and nutrients being contributed directly to Chesapeake Bay tributaries. If pro-active efforts to halt this human-induced, artificial erosion by restoring the natural stream channel forms and functions, these deleterious effects will take geologic time to cease; time the Bay does not have and that small upland stormwater projects cannot make up for.

We offer the following point-by-point comments related to specific language in the proposed bill are as follows:

1. *Page 2, Lines 12 through 17:*

   INCENTIVIZE THE USE OF ALTERNATIVES TO STREAM 12 RESTORATIONS THAT ARE LESS DESTRUCTIVE TO THE ENVIRONMENT, SUCH AS THE USE OF UPLAND PROJECTS, INCLUDING BY PROVIDING MORE CREDITS ON AN EQUIVALENT IMPERVIOUS ACRES TREATED BASIS FOR ALTERNATIVES TO STREAM RESTORATIONS FOR ACHIEVING LOCAL MS4 PERMIT TARGETS, TMDL GOALS, MITIGATION GOALS, OR OTHER RESTORATION GOALS;

   Response:

   There is no scientific, peer reviewed evidence that stream restoration is any more or less "destructive to the environment" than upland projects. Current crediting of these practices have undergone extensive research and peer review that resulted in the methodologies utilized today, whether for nutrient and sediment reductions or for 404 Clean Water Act mitigation.

   Impervious acre crediting methodologies used to meet the TMDL already make scientific benefit comparisons between upland BMPs versus stream restoration, and there is strong evidence that while both provide benefit, stream restoration is far more cost effective.

2. *Page 2, Lines 19 through 22:*

   FOR A PROJECT BEING UNDERTAKEN EXPRESSLY FOR THE PURPOSE OF PROVIDING CREDITS FOR WETLAND OR STREAM IMPACTS OR LOSSES RESULTING FROM FUTURE ACTIVITIES, BE LOCATED IN THE SAME WATERSHED AS THE WETLAND OR STREAM FOR WHICH MITIGATION IS REQUIRED;

   Response:

   The US Army Corp of Engineers (USACE) and Maryland Department of the Environment (MDE) currently require resource impacts to be mitigated within an 8-digit Hydrologic Unit Code (HUC) Watershed. This is consistent with how resource impacts and associated mitigation are managed across the entire US.

3. *Page 2, Lines 23 through 24:*

   REQUIRE NET BIOLOGICAL UPLIFT OF INSTREAM 23 BIOLOGY AS A STATED GOAL;

   Response:

   Currently the MDE and the USACE (along with the USACE's interagency review teams) require that stream restoration projects result in ecological uplift through use of the Stream Functions Pyramid which includes consideration of biological improvement (Step 5 of the Pyramid). It is not practical to *require* biological uplift of in-stream biology as this is mostly outside the control of the practitioner considering offsite watershed factors such as proximity to existing thriving habitat areas and poor water quality. It is absolutely the goal of stream practitioners to improve biological function through in-stream habitat creation as well as improvement of habitat value of the adjacent floodplain corridor.

4. *Page 2, Lines 27 through 28 and Page 3, Lines 1 and 2*

   MONITOR AND EVALUATE APPROVED PROJECTS FOR 10 YEARS AFTER PROJECT COMPLETION TO ENSURE STATED GOALS ARE ACHIEVED BEFORE ANY RELEVANT MITIGATION OR POLLUTION REDUCTION CREDITS ARE ISSUED FOR THE PROJECT.

   Response:

   Regulatory agencies currently require pre and post construction monitoring as the basis for demonstrating stream restoration purpose and need and for complying with permit performance monitoring standards to achieve stated project goals. Should monitoring result in noncompliance, credits are withheld or revoked until the performance issue is addressed through adaptive management.

   Adding another, arbitrary and excessive credit release period would only result in making private-sector delivered restoration projects non-economical and non-feasible.

5. *Page 3, Line 15:*

   HOLD A PUBLIC INFORMATION MEETING ON THE APPLICATION.

   Response:

   Regulatory agencies currently require public notices and public meetings based on specific activities and impact thresholds. Unlike upland stormwater projects (that typically do not require such opportunity for public review and engagement), permitted

stream and wetland restoration projects have ample opportunity for open review by concerned citizens and stakeholders.

We welcome any questions you may have about the work our firms do towards Chesapeake Bay restoration and stream restoration as a critical water quality and mitigation tool.

Sincerely,

Nicholas Dilks
Managing Partner

HB 942-ENT-OPP.pdf
Uploaded by: Nina Themelis
Position: UNF

BRANDON M. SCOTT
MAYOR

Office of Government Relations
88 State Circle
Annapolis, Maryland 21401

HB 942

March 3, 2023

TO: Members of the Environment & Transportation Committee

FROM: Nina Themelis, Interim Director of Mayor's Office of Government Relations

RE: House Bill 942 – Wetlands & Waterways Program – Authorizations for Stream Restoration Projects

POSITION: OPPOSE

Chair Barve, Vice Chair Stein, and Members of the Committee, please be advised that the Baltimore City Administration (BCA) **opposes** House Bill (HB) 942.

HB 942 would require the Department of the Environment (MDE) to revise certain criteria, standards, and requirements for wetlands and waterways authorizations for certain stream restoration projects on or before a certain date; require MDE to provide certain notice and hold a certain public information meeting under certain circumstances; and generally relating to wetlands and waterways authorizations for stream restoration projects.

Baltimore City and nine other large jurisdictions in Maryland currently hold Phase 1 Municipal Separate Storm Sewer System Permits (MS4 permits). These permits are issued on a 5-year cycle and dictate the amount of impervious surface restoration or mitigation each permit holder must achieve during the permit period. A variety of practices may be used to achieve permit compliance, with corresponding credits applied based on the type of practice and amount of drainage area the practice treats. Selection of practices is influenced by topography, local soil conditions, availability of land, the amount of impervious surface, and natural and man-made drainage systems. Stream restoration projects are just one of the Best Management Practices (BMPs) that may be used to mitigate the impacts of stormwater runoff. All of the Maryland approved BMPs, including stream restorations, and their corresponding credits, are based on science and are consistent with the Chesapeake Bay Program modeling tools[1].

[1] [1] All practices identified in the MDE-approved Urban Stormwater and Alternative BMP code list, identified in Appendix B of MDE's 2014 stormwater guidance, that are completed and in compliance with Maryland State regulations, must be regularly inspected and maintained according to state law. Stormwater point source and non-regulated source credits are calculated using assessment tools, such as the Stormwater Credit Calculator, https://mde.maryland.gov/programs/Water/WQT/Documents/Guidance%20PDFs/Stormwater_Alternative_FAQ.pdf .

Stream restoration projects are proposed on degraded streams, as supported by geomorphic evidence, biologic integrity of fair or worse, hydrologic evidence of floodplain disconnection, and evidence of significant depth of legacy sediment. It is not disturbance for the sake of disturbance. MDE does not allow for high functioning portions of urban streams to be used for stream restoration projects. The Bay Program does not credit simple stabilization projects (structural armoring of the back channel for the sole purpose of infrastructure protection). Only practices with natural design elements are creditable. These nature-cased elements aid in the restoration of the habitat in both the channel and floodplain, increasing the ecosystem services of the riparian area.

Most stream restoration projects include an evaluation of potential upland BMP installation. The opportunities are limited due to land ownership, access, and ability to intercept stormwater runoff. The types of upland BMPs that would be implemented for MS4 permit compliance (impervious surface restoration) would be designed for qualitative control (retaining the volume of the first inch of rainfall which is considered the most polluted); these BMPs would not be sufficient to provide quantitative control to reduce the continued degradation of the streams during 2 to 10-year storms.

The inference of the destructive nature of stream restoration projects referred to in HB 942 is predominately related to the impacts of forests. Stream restoration projects, especially those that are not simply stabilizing the stream channel but consider the geomorphology of the stream channel and the habitat of the riparian buffer, will result in the removal of some tree canopy during construction. It is important to note, however, that addressing stream conditions such as scouring, stream bank erosion and undercutting, and connecting a more natural stream channel to its floodplain, helps to support a healthy forest environment. The forest assessments and mitigation efforts for stream restoration projects follow the state's forest conservation requirements and the MS4 Accounting Guidance document.

In spite of these facts, HB 942 would put in place punitive measures for any waterways and wetlands permit issued by MDE **solely** for stream restoration projects that are being done as part of an MS4 permit. In addition to these measures, an MS4 permit stream restoration project would have to be monitored for ten years after its completion before receiving any MS4 credits, the equivalent of two MS4 permit cycles. Maryland's MS4 Accounting Guidance document already states that before credits are granted, the restoration project will need to meet post-construction monitoring requirements, exhibit successful vegetative establishments, and have undergone initial maintenance. Currently, post-construction monitoring is 5 years. Increasing the monitoring to 10 years will have a financial impact.

It is for all of these reasons that the Baltimore City Administration respectfully requests an **unfavorable** report on HB 942.

Dunn to Chair Barve Vice Chair Stein re HB 942 Unf

Uploaded by: Reed Perry

Position: UNF

Saving the Chesapeake's Great Rivers and Special Places

716 Giddings Avenue, Suite 42 | Annapolis, MD 21401
www.chesapeakeconservancy.org | 443.321.3610

March 1, 2023

The Honorable Kumar P. Barve
Chair, Environment and Transportation Committee
Maryland House of Delegates
251 House Office Building
Annapolis, MD 21401

The Honorable Dana Stein
Vice Chair, Environment and Transportation Committee
Maryland House of Delegates
251 House Office Building
Annapolis, MD 21401

RE: HB 942 Wetlands and Waterways Program - Authorizations for Stream Restoration Projects - UNFAVORABLE

Dear Chair Barve, Vice Chair Stein and members of the Environment and Transportation Committee,

On behalf of Chesapeake Conservancy, I would like to express our organization's opposition to HB 942. We believe this bill would undermine efforts to restore the health of the Chesapeake Bay, safeguard our communities from the impacts of climate change, and advance environmental progress.

Stream restoration is an effective best management practice to keep nitrogen, phosphorus, and sediment out of the waters of the Chesapeake. It achieves scale that upland practices on current properties cannot achieve.

This bill would increase the costs of meeting the pollution reduction targets agreed to by Chesapeake Bay states. As Maryland approaches the 2025 Bay deadline and seeks to efficiently use new federal funds, now more than ever the state should be prioritizing **cost-effectiveness.** This bill would do the opposite and would burden local governments that fund stream restorations to meet their permit and regulatory obligations with more costs and delays. The subsection of the bill that postpones regulatory credits from being claimed if at after 10 years of post- construction monitoring will make this practice totally unworkable.

Additionally, HB 942 puts legislators in the position of overruling science. The Chesapeake Bay Program and US Army Corps of Engineers have established panels of scientists and practitioners who regularly study the effectiveness of existing and emerging water quality restoration practices. It is through this work that the crediting for stream restoration has been approved. Importantly, the Assembly just required (HB 869) an evaluation of restoration permitting last year; that study is still underway. Why consider this bill until the results of HB 869 have been completed and reviewed by your committee, all stakeholders, and the Assembly.

This bill would not make stream restorations more robust, it would make them rarer. That would be an unfortunate outcome for our Bay, our communities, and our environment.

For these reasons and more, we urge you to oppose HB 942.

Joel Dunn

Sincerely,
President and CEO
Chesapeake Conservancy

EPIC HB 942 Opposed Testimony.pdf
Uploaded by: Timothy Male
Position: UNF

March 1, 2023

The Honorable Kumar P. Barve, Chair, and
The Honorable Dana Stein, Vice Chair
Maryland House Environment and Transportation Committee
Room 251, House Office Building
Annapolis, Maryland 21401

Dear Chair, Vice Chair, and Members of the Committee,

The Environmental Policy Innovation Center (EPIC) is writing to express our opposition to HB 942.

The Environmental Policy Innovation Center is a 30-person environmental nonprofit with staff in Maryland and more than a dozen other states across the country. Our team works extensively on the permitting and financing of ecological restoration and has extensive experience with local, state, and federal efforts to improve water quality under the Clean Water Act, stormwater regulations, and various state laws. In addition, I am a scientist with background in forest restoration research, hydrology, and conservation biology but mostly with experience in the practical application of science in pursuit of public environmental objectives.

For decades, nature-based projects and green infrastructure like stream restoration faced an uphill challenge across the country. Despite extensive science showing these approaches are a cost-effective strategy to create extensive public health and environmental benefits, engineers and government agencies preferred concrete to nature.

We now know better. And policy has finally started to shift in ways that make green infrastructure improvements easier.

Please don't reverse this and make one of our most ecologically- and cost-effective strategies harder.

I understand the motivation behind this legislation. I know that you have experience with a few stream restoration projects (Montgomery County) that a small number of residents don't like, primarily because necessary stream restoration work harms trees immediately adjacent to streams. Some tree removal is needed because dirt needs to be shifted to fill the enormous erosion canyons that have accumulated across streams through our state and region and country.[1]

Those short-term aesthetic effects on trees near walking trails or public areas are real, but so is the damage that eroded, degraded streams cause to the Chesapeake Bay. Once streams start eroding like this, the damage just keeps getting worse. If you don't fix them, these damaged streams will keep dumping sediment, and phosphorus and nitrogen into the Bay. Stream restoration is effective in reversing that damage and restorations prevent it from returning, keeping thousands of tons of sediment and nutrients out of the Bay for decades to come. Many restored streams in more developed areas also become a better recreational and neighborhood resource in the long term.

[1] Some legislators may have experience with one proposed project (in Columbia) for which existing state and federal regulatory processes are proving they work – my understanding is that 3-4 state and federal agencies have already criticized that project and would likely block without significant changes.

Manipulating the Bay's Nutrition Labels
I admire legislators for the incredibly complex set of issues you need to tackle on a daily basis during session. However, I would hope that making decisions on the number of Nitrogen, Phosphorus, and Sediment credits various projects should get is not one of them. I'm sharing an analogy that might help explain why.

Think of Nitrogen, Phosphorus, and Sediment as calories. There are too many of these pollution calories coming into the Bay and we are trying to put it on a diet. Under that diet, each county and municipality – as well as state agencies – have an assigned, regulated responsibility for reducing a certain number of calories. Local government and others are allowed to come up with their own plans on how to do so but scientists and agencies have given them a tool to make that planning easier.

Those scientists and agencies have basically developed a nutrition label for every kind of land use, and green and gray infrastructure project that could help with that diet. Each project type, like stream restoration, wetland restoration, and stormwater storage, street sweeping, or rain garden has an estimated Nitrogen, Phosphorus, and Sediment reduction that scientists and managers believe that activity will provide in keeping the Bay on that diet.

And because of all the amazing funding that taxpayers and ratepayers have provided for Bay restoration, there is a lot of data available on the price of each of those options.

However, the legislation would direct you (in subsection (B)(2)(1)) to change the numbers on other projects' nutrition labels to give them more credit. It literally says, "*the Department shall provide(ing) more credits*." We wouldn't support Congress changing the calories or sugar content reporting on our food. The same principle applies here.

Other reasons to oppose HB 942

This legislation will take away a cost-effective, national nature-based solution as a solution to improving the Bay and making local streams and their ecosystems more resilient to climate change. It will do that by:

1. Preventing counties and local government who fund stream restoration from getting regulatory credit for their projects for 10 years. Not only is this duplicative of already extensive U.S. Army Corps requirements, by doing so the bill literally makes it impossible for local government to count those projects toward their regulatory permit goals.

2. The bill purports to create a new requirement (subsection (B)(2)(II)(1)) for projects to be in the same watershed as impacts, but this is already established federal and state policy. For example, federal requirements passed by the Army Corps and EPA almost 15 years ago already require projects providing credits to occur in the same watershed as damages.

3. Climate change and Bay restoration are huge problems requiring large scale solutions. I know that advocates supporting the legislation have a hard time reconciling the use of heavy equipment and well-paid work force in fixing nature. It's easy to remember a day when green projects were all about volunteers with shovels doing little projects once a year on Earth Day. I am thankful that we don't live in that world anymore where poorly funded and small-scale environmental work was all that we did. Today, nature-based restoration gets billions in support, including from the Inflation Reduction Act, to pay for nature-repair projects that would have seemed impossible a generation ago. We need large scale projects and actions to avoid impacts from climate change, adapt to climate risks, clean up the Bay, and restore biodiversity. And yes, those large-scale projects often involve construction equipment. The solution isn't to take away this tool; the solution is to help more of the public understand the size and scale of

the solution that you and others are wisely funding to keep them safe from climate change and to restore the Chesapeake Bay.

4. Requiring public meetings on every project even though the state and local governments have funded 100-200 of these projects in the past is unnecessary. Voluntary opportunities for public notice and other mechanisms to share information about the projects with the public and to seek feedback on them already exist and are regularly used.

5. The bill is based on an incorrect picture of what is 'natural' for most of Maryland's streams and creeks. The closed canopy, bare forest floor stream corridors that I believe proponents of this legislation hope to prevent from being restored aren't natural in Maryland or the region because America's pre-colonial population of 400 million beaver would have kept a huge percentage of Maryland's streams in a natural condition of constant change and opening of canopies. We don't have room to make space for the way beavers maintain natural stream corridors. Beavers couldn't fix the deeply incised, eroded stream canyons that 100 years of their absence—and lots of extra runoff from parking lots—has produced. But the idea that the temporary loss of small areas of forest trees along restored streams is unusual or unnatural ignores our ecological history.

Takoma Park Experience

My own city of Takoma Park has seen at least two fantastic stream restorations, both of which fixed severe and rapid erosion problems. A Capital Parks and Planning Project on Sligo Creek removed many trees along deeply eroding banks and built a cascading series of rock ledges for hundreds of feet along the stream to prevent future damage from reemerging, while enhancing the pedestrian trail and replacing a bridge. A city-funded stream restoration that removed trees in an area named 'Circle Woods' similarly fixed an eroding stream in a residential area, earning the city valuable credit to meet its stormwater permit obligations. Both projects have been huge successes and are now beautiful community amenities, even though the backhoes and bulldozers and equipment were an inconvenience and eyesore for a while. As a serving City Councilmember during the time the city's project was planned and built, I received not a single public comment opposed to the project. Can you imagine that, in Takoma Park?

We hope that legislators can work with local governments and restoration project developers to get more experience with what is involved in large-scale nature-based work like stream restoration and learn about the short- and long-term benefits of this cost-effective and environmentally effective solution for the Bay.

Sincerely,

Timothy Male, PhD
Executive Director

HB942 Oppose_Sign-on Testimony.pdf
Uploaded by: Timothy Rosen
Position: UNF

Testimony in OPPOSITION of House Bill 942 – Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

March 1, 2023

Dear Chairman Barve and members of the Environment and Transportation Committee,

On behalf of the undersigned organizations we respectfully request an unfavorable report on House Bill 942 from the Environment and Transportation Committee. We represent non-profit organizations that fundraise, design, and manage millions of dollars' worth of restoration projects to help local governments achieve the pollution reduction goals established under the Chesapeake Bay Total Maximum Daily Load (TMDL). We do not do mitigation work, but rather focus on projects that address resource concerns and water quality issues. Our restoration experience spans across agricultural, urban, and suburban landscapes and includes 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. **We are concerned for the following reasons that HB942 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 the 2025 Bay TMDL deadline:**

1. 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 moderate 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.

2. Opportunities for upland stormwater projects are limited, challenging to secure landowner permission, and are highly demanding in terms of maintenance needs. 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. In an urban setting, stormwater retrofits can require major revisions to existing critical infrastructure, making projects expensive, while only providing minimal abatement of stormwater or pollution reductions. The maintenance of upland projects is also proving to be a challenge, as is evident by the many community stormwater ponds that are chocked full of sediment and growing invasive phragmites. When not maintained, stormwater BMPS fail to work as designed, allowing large volumes of stormwater and pollutants to pass through to downstream waterways.

3. Deprioritizing stream restoration will accelerate the loss of wetlands on the Eastern Shore. Many Eastern Shore streams were low gradient headwater streams that, under more natural conditions, were floodplain stream complexes with direct connection to large forested floodplains. Wetland loss will occur because streams will continue to down-cut in response to larger volumes of stormwater passing through during rain events. This will draw down the local water table and dry out adjacent forested wetlands.

4. Pollution credits need to be based on outcomes. Requiring the Maryland Department of the Environment (MDE) to give upland stormwater projects more pollution credits than 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 need to be determined (and are currently) based on measurable outcomes that consider a specific set of criteria and metrics established by experts and restoration professionals.

5. Requiring 10 years of monitoring before pollution credits can be issued will reduce incentives, create funding inequities, and marginalize small businesses. Our role as non-profit practitioners in helping local governments carry the burden of managing restoration projects has proven to be an essential part of the watershed implementation plan strategy. Waiting 10 years to be compensated for stream restoration work will make it nearly impossible for nonprofits and small businesses without sufficient equity to be a partner on these projects. This will relegate stream restoration to large firms backed by large financial banks, creating funding inequity and marginalizing small businesses that usually have local connections with landowners. This will result in major delays in progress toward meeting the Bay TMDL goals.

6. Required public notice and the opportunity to request a public meeting is already part of the permitting process for large restoration projects. Projects that disturb 5,000 square feet or more require a Notice of Intent from MDE and the Army Corps of Engineers, through which public notice is given with an opportunity to request a public meeting. Most stream restoration projects are much larger than 5,000 square feet and therefore are required to go through this process. On the Eastern Shore, it's not uncommon for a stream restoration project to be entirely on one property and impacting no more than one landowner. If a public meeting were to become mandatory, it should be specified that a public meeting be held only if more than five different landowners are affected by the project. Transparency is a good thing, but it's important that any comments that can affect a stream restoration project be rooted in science and relevant to the project details, as opposed to other factors including political pressure and the "not in my backyard" mindset.

7. The conditions established in HB942 are premature and should be determined by expert engineers, restoration professionals, and permitting agencies. The concerns over permitting and pollution credits for ecological restoration projects is the focus of an ongoing study initiated in 2022 through the passage of HB869 – Permitting for Ecological Restoration Projects Required Study. The study includes a panel of restoration experts and permitting agencies tasked with reviewing project eligibility criteria, standards for review, and applicant requirements. A favorable vote on HB942 before the workgroup concludes their study would undermine their efforts, and instead, any concerns that exist today should be brought to the workgroup for their consideration.

Up to this point, guidance on stream restoration techniques and permitting has been developed by experts through processes that were agreed upon by state and federal permitting agencies and accredited through the Chesapeake Bay Program Partnership, none of which have been included in determining the terms of this legislation. If passed, HB942 will remove stream restoration as a viable and effective restoration tool while adding significant challenges and delays in meeting restoration and pollution reduction goals under the Bay TMDL. For these reasons we ask the committee for an **unfavorable report on HB942**.

Sincerely,

Tim Rosen
Director of Agriculture and Restoration
ShoreRivers

Kevin Smith
Executive Director
Maryland Coastal Bays Program

Sara Caldes
Severn Riverkeeper
Severn Riverkeeper Program

HB0942 Oppose PS.docx (1).pdf
Uploaded by: Tyler Abbott
Position: UNF

The Maryland Department of the Environment
Secretary Serena McIlwain

HB0942
Wetlands and Waterways Program – Authorizations for Stream Restoration Projects

Position: OPPOSE
Committee: Environment and Transportation Committee
Date: March 3, 2023
From: Gabrielle Leach

The Maryland Department of the Environment (MDE or the Department) **OPPOSES** House Bill 942. The bill would require MDE to take certain actions with respect to authorizations for stream restoration projects associated with National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) impervious surface restoration (ISR) credits, Chesapeake Bay Total Maximum Daily Load (TMDL) nutrient reduction credits, mitigation projects, and other restoration goals by October 1, 2024.

MDE has met with the sponsors of this bill, and has heard their concerns that it is perceived that some stream restoration projects may not be achieving ecological and water quality benefits envisioned, and can result in unintended consequences including the loss of riparian forest. The Department takes such concerns extremely seriously but for the numerous reasons detailed below does not believe HB 942 is an appropriate solution to those concerns at this time.

Ongoing House Bill 869 Study and MDE Stream Restoration Analysis: Currently MDE's Wetlands and Waterways Protection Program is undertaking a study on ecological restoration permitting as mandated by HB 869 *Permitting for Ecological Restoration Projects - Required Study* enacted during the 2022 legislative session, which is due to be completed on or before June 1, 2024. The parameters of the study required by HB 869 overlap with many of the proposed requirements under HB 942. The current participants in the study represent a diverse group of community and environmental organizations, restoration practitioners, academia/research, and other government agencies. The Department is concerned that this legislation predetermines a review and permitting framework for stream restoration projects which will not allow for a thorough and meaningful completion of the HB 869 study and does not consider input from across the regulated community. In addition, MDE is charged with protecting Maryland's waterways from loss and degradation as well as meeting Chesapeake Bay restoration and TMDL goals. As part of these responsibilities, MDE has undertaken many initiatives related to stream restoration to analyze Maryland's progress towards these goals and ensure our resources (including riparian forests) are protected.

Wetlands and Waterways Review Procedures: Under HB 942, there would be a substantial commitment of time to process public notices and hold public meetings for every restoration project. Although the legislation requires meetings to be held for every project, it is unclear if that meeting is intended to be a hearing under § 5-204 of the Environment Article, a public information meeting under §§ 1-601 and 1-603, or a separate process to be developed. MDE would need to prepare additional regulations to provide more detail to considerations mandated in HB 942, including the review criteria, public notice and/or hearing/meeting, monitoring, and other required information.

Mitigation Banking: HB 942 would have serious negative consequences for mitigation banking in Maryland. As written, HB 942 significantly discourages mitigation banking and may incentivize permittee-responsible mitigation, including largely unsuccessful "postage stamp" sized mitigation projects. The 2008 Federal Mitigation Rule sets a preference for mitigation banks and the current mitigation program encourages

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Contact: Gabrielle Leach, Deputy Director of the Legislation and Intergovernmental Affairs
410-260-6302 (Annapolis Office), 410-453-3235 (cell), Gabrielle.Leach@maryland.gov

mitigation addressing larger scale watershed needs. HB 942 requires that stream restoration undertaken for mitigation be located in the same watershed as the impacts and that mitigation credits are only released after ten years, which limits banking feasibility.

TMDL/MS4 Crediting: TMDL credits 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. It would not be possible for MDE alone to alter them. Any changes to the ISR accounting and MS4 Equivalent Impervious Acre (EIA) calculations will require an update to the *2021 Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits* ("2021 Accounting Document"). Alteration of the accounting and credit calculations would require a major permit modification for all 10 issued MS4 Phase I permits, which must be approved by the U.S. Environmental Protection Agency and go through the state required public notice process.

Biological Uplift Goal: While stream restoration projects are designed to address acute bank stability and instream habitat impacts, impacts to biology cannot be remediated through stream restoration *alone* as upland pollution also contributes to biological impacts. Biological uplift is the goal of a holistic watershed management approach which utilizes a suite of best management practices (BMPs) (including stream restoration where necessary and approved) to address a multitude of pollutants that impact biology.

Monitoring: Under the proposed legislation, stream restoration projects must be monitored for a period of 10 years (prior to release of any credits) to verify achievement of stated goals. It will require a considerable undertaking for MDE to develop monitoring plan requirements to assess biological uplift goals (which may not be attainable) for individual projects independent of the monitoring and verification procedures that already exist. As stated above MDE believes that biological uplift is not a realistic goal for every stream restoration project.

Best Available Science: The 2021 Accounting Document directs jurisdictions to use protocols from the *2014 Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects* ("Expert Panel") to calculate Stream Restoration credit, which incorporates the most recent science on crediting and verification methods and is written by a panel of local scientists, practitioners, and watershed managers. As MDE defers to the Expert Panel report, credit for MS4 EIA and TMDL progress as well as the reductions reported to the CBP for Bay TMDL progress already consider the best available science with regards to stream morphology, geology, biology, hydrology, ecology, watershed management, and wildlife corridors.

Upland Alternatives: MDE is required under HB 942 to incentivize upland alternatives (deemed to be "less destructive to the environment") to stream restoration through the crediting mechanisms for TMDL, MS4 targets, mitigation goals, or other restoration goals. Credits for non-stream restoration practices are consistent with efficiencies from the CBP and match the credit provided in the Chesapeake Bay Phase 6 Model. In order to provide additional incentives, MDE will have to develop additional unapproved BMPs, or be provided with (or conduct) studies demonstrating nutrient and sediment reductions that are greater than those already established by the current literature. In addition, compensatory mitigation to offset impacts to stream impacts cannot be offset through upland projects under federal requirements.

In conclusion, it is hoped that the ongoing efforts of the HB 869 study, rather than this bill, can continue to inform the process. For the reasons detailed above, MDE urges a **UNFAVORABLE** report for HB 942.

CWRP HB942 Stream Restoration Photos.pdf
Uploaded by: Tyler Bennett
Position: UNF

STREAM RESTORATION – Before & After

Collington Branch – The Need for Stream Restoration

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

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

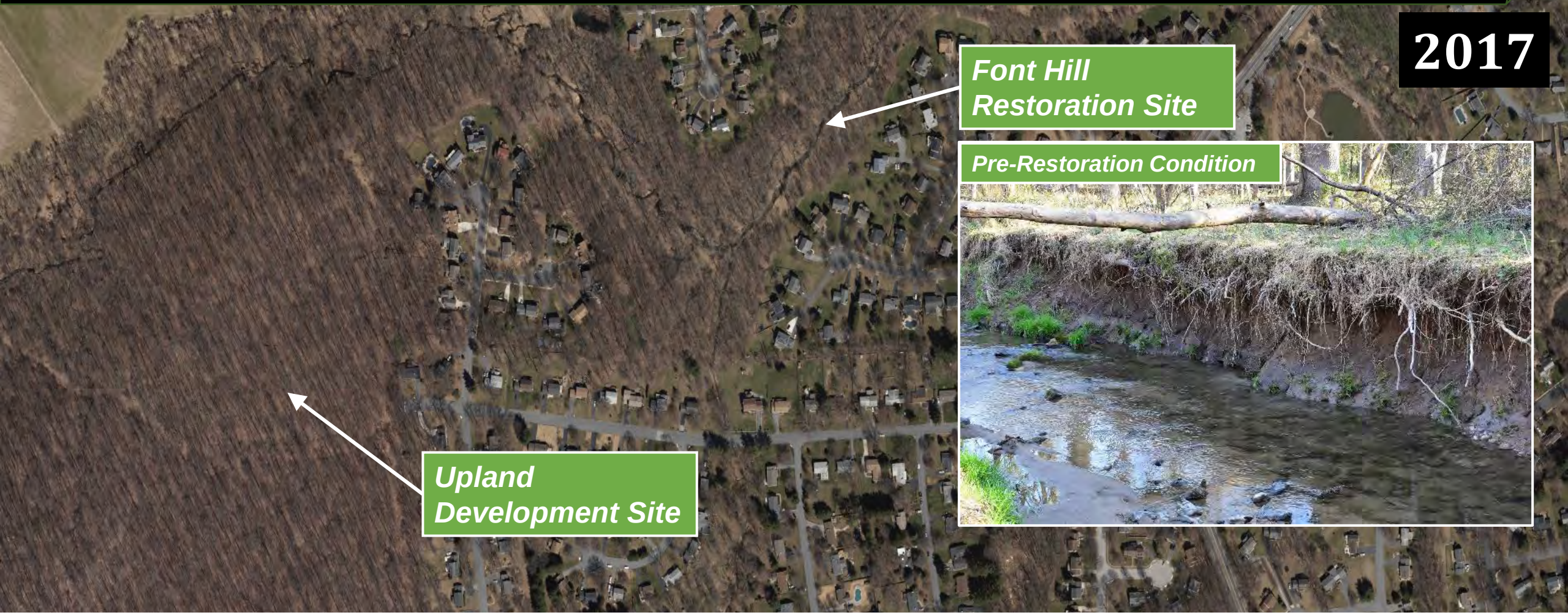
Photos depict the stream system before (left) and after (right) restoration. The restoration provided flood attenuation and habitat improvements for a population of a Federally listed (endangered) species of reptile and breeding populations of brook and brown trout. Longhorn cattle activity degraded 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

Chesapeake Watershed Restoration Professionals
CWRP

2017



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

2022

Font Hill Restoration Site

Upland Development Site

Post-Restoration Condition

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.

HB942 CWRP Testimony.pdf
Uploaded by: Tyler Bennett
Position: UNF

Chesapeake Watershed Restoration Professionals

CWRP

Hon. Kumar Barve

Chairman, Environment and Transportation

Room 251

House Office Building

Annapolis, Maryland 21401

HB942 Wetlands and Waterways Program - Authorizations for Stream Restoration Projects

Chairman Barve, Vice-Chair Stein and members of the Committee,

On behalf of the Chesapeake Watershed Restoration Professionals (CWRP), we respectfully oppose HB 942. This bill is unnecessary in that the issues raised are already adequately addressed in current requirements. Furthermore, there is already a study underway as directed by HB896 of the 2022 legislative session to study how MDE reviews and permits ecological restoration projects. Most importantly, the requirements proposed in this bill would add such a burden that the implementation of restoration projects, and the benefits of their associated pollution reduction would become unworkable—to the detriment of the Chesapeake Bay and the communities that depend on it. We kindly ask that you oppose this bill.

Here are the areas in which we feel that this bill is misguided:

- ***On changing restoration criteria:*** The Chesapeake Bay Program has utilized expert scientific panels composed of the leading scientists and practitioners that study, collect data, and model current stream restoration and techniques. Through the work of these dedicated professionals, the credit generation practices for stream restoration have been refined several times through exhaustive research and the utilization of the most modern data available. This process is rigorously scientific and objective in nature, and it should be kept that way.
- ***On disincentivizing stream restoration as a BMP:*** Any impervious acre credit to any BMPs must be scientifically defensible and be determined through the currently accepted process for determining pollution reduction. Current crediting of BMP's has undergone extensive research and peer review. No BMP practice can simply be incentivized over others if they do not result in greater pollutant load reductions.
- ***On defining geographic limits for restoration:*** The Maryland Department of the Environment (MDE) and the US Army Corp of Engineers (USACE) currently require resource impacts to be mitigated within an 8-digit Hydrologic Unit Code (HUC) Watershed. This is consistent with how resource impacts and associated mitigation are managed across the entire US.
- ***On requiring biological uplift:*** Currently, the MDE and USACE require that stream restoration projects result in ecological uplift through use of the Stream Functions Pyramid. Biological improvement is Step 5 of the Pyramid. Consequently, the existing process requires that

practitioners create the conditions for biological uplift to occur as regional environmental conditions allow. It is not practical to *require* biological uplift of in-stream biology as there are limiting factors that cannot be controlled on the stream restoration sites. These ubiquitous negative externalities include road salt pollution, offsite barriers to wildlife migration, extreme temperatures, and general poor water quality. It is absolutely the goal of stream practitioners to improve biological function through in-stream habitat creation, but it may take decades, if ever, for recolonization to occur of imperiled populations of aquatic dependent wildlife.

- ***On minimization of tree impacts:*** A requirement already exists for stream restoration projects to achieve no-net-loss of forest cover and to minimize tree impacts to the extent possible. The implementation of mulch and mat roads through the woods to gain access to the stream corridor are specifically designed to protect the critical root zones of trees. Additionally, the forest impacts of restoration are almost always temporary, but the protection of the restored riparian corridor is permanent.
- ***On delaying credit certifications by 10 years:*** A full decade of monitoring before any credits are issued would render ecological restoration completely unworkable for the purposes of the Chesapeake Bay Program and severely limit what restoration work is even possible in the State of Maryland. Municipalities in the state are required to deliver pollution reductions now, not 10 years from now. Additionally, the financial risk of carrying out projects with such delays would be needlessly burdensome to the taxpayers who fund this work.
- ***On public notice:*** Currently, public hearings can be requested and are granted. We absolute do not oppose public hearings, but they are expensive and if they are required for every project, this will add significant expense and time for any applicant, the majority of whom are local governments, non-profits, and government agencies. Furthermore, the planning and implementation of public hearings are time consuming for state agencies and would require more staff to manage. This would slow, not just stream restoration projects, but the review, approval, and enforcement of all projects that require MDE approvals. This does not just include housing and commercial development but importance public works projects such as schools, transportation improvements, and affordable housing. For transparency and efficiency CWRP recommends the adoption of a permit tracking system similar to the Virginia Department of Environmental Quality's Permitting and Evaluation Platform.

As a coalition of the leading implementors of ecological restoration in the State of Maryland, CWRP kindly recommends that HB 942 not move forward.

Sincerely,

Liam O'Meara,

President

HB942 - Informational Only - Stormwater Partners N

Uploaded by: Denisse Guitarra

Position: INFO

STORMWATER PARTNERS NETWORK OF MONTGOMERY COUNTY

March 1, 2023

Written testimony for HB942 - Wetlands and Waterways Program – Authorizations for Stream Restoration Projects [1]

Position: Informational Only

Submitted by: Eliza Cava and Jeanne Braha, Co-Chairs, Stormwater Partners Network of Montgomery County

Dear House Environment and Transportation Committee,

We offer our comments on behalf of the Steering Committee of the Stormwater Partners Network of Montgomery County (SWPN). SWPN is composed of 33 organizations and many individuals who support our mission and vision.[2] SWPN's mission includes advocating for (i) clean water, (ii) protecting, improving, and restoring our watersheds in ways that are equitable and ecologically sensitive, (iii) improving community resilience to stormwater impacts such as storm-driven flooding, and (iv) connecting communities to their backyard waterways. Our vision is that Montgomery County's waterways are clean, pollution-free, and resilient to the climate crisis, providing healthy, equitable, safe, and thriving green spaces for communities, families, and wildlife.

We appreciate the work of Delegates Tarrasa, Lehman, and Ruth to respond to concerns of Maryland citizens regarding stream restorations that appear to be inappropriate and destructive, as well as general debates more broadly regarding how to balance the protection and restoration of the Chesapeake Bay with Maryland's wealth of smaller streams that wind through our communities. Stormwater Partners Network has considered HB942 carefully and provides this informational testimony with regards to the current bill.

In 2020-2021, SWPN convened a working group of our membership to evaluate what at the time were calls to completely end or place a long-term pause on the practice of stream restoration, specifically to meet the requirements of an MS4 permit. Our members did not and do not have consensus on several important issues around stream restoration (including the fundamental issue of whether they should be done at all), as we detailed in comments to MDE on the Montgomery County MS4/Stormwater permit. These comments were signed by many of our members and are included as an attachment to this testimony. However, we all agreed to encourage County agencies that perform stormwater management to ensure that if stream restorations are undertaken, they be done with extraordinary care, caution, and forethought to ensure that they result in benefits to the ecology of the local stream valley and riparian system, as well as downstream beneficiaries of reduced sediment pollution such as the Potomac River and Chesapeake Bay. We have been

[1] HB942 - Wetlands and Waterways Program – Authorizations for Stream Restoration Projects. Available at: https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0942?ys=2023RS

[2] A full list of our current organizational membership can be found on our website, www.stormwaterpartnersmoco.net.

pleased to see the County using prioritization that reflects these priorities. Our membership also agreed that they should be tightly coupled with extensive upland retrofits, ideally before restoring the stream valley.

We appreciate that HB942 shares our concerns and attempts to address many of them.

Elements of HB942 that align with our recommendations on stream restoration:

- §5–203.2.(B)(1) requires the use of best available science in any decision-making on stream restoration by the Maryland Department of the Environment (MDE). We support these goals.

- §5–203.2.(B)(2)(I) directs the Department to incentivize the use of alternatives to stream restoration, such as the use of upland projects, by providing more credits for these types of projects. We support this approach to maximizing out-of-stream-valley projects and disincentivizing the use of stream restorations, ideally such that they will be used only when most appropriate and when other upland approaches have been exhausted.

- §5–203.2.(B)(2)(II)1. Requires that any stream restoration being undertaken "for the purpose of providing credits for wetland or stream impacts or losses resulting from future activities, be located in the same watershed as the wetland or stream for which mitigation is required." This clause is clearly meant to apply to mitigation banks, currently being developed and used across the state for such purposes as offsetting impacts to wetlands and streams from the proposed I-270 and I-495 expansions, as well as other large-scale construction projects. These types of mitigation banks are permitted by the U.S. Army Corps of Engineers, in partnership with MDE. Under the Mitigation Rule,[3] the Army Corps is already directed to prioritize mitigation within the same watershed where impacts occur, but has great latitude to define the scale of watershed to be used as well as to use their best judgment if they find in-watershed mitigation to be impractical. As written, this clause of HB942 will therefore be unlikely to change policies of MDE and the Army Corps in mitigation permitting. **The bill's sponsors could consider requiring that the Department and the Army Corps require that the applicant mitigate their impacts in the same HUC-12 or, at largest, HUC-10 sub-watersheds where the impacts occur.**

Elements of HB942 that do not align with our recommendations on stream restoration:

- §5–203.2.(B)(2)(III) requires a ten-year monitoring period to ensure stated goals are achieved before issuing any mitigation or pollution reduction credits. This is likely to completely disincentivize all stream restorations, which goes beyond our recommendations. **We would instead support intermediate milestones, assessed by monitoring, to release credits on a predictable**

[3] Federal Register, Thursday, April 10, 2008, Part II, Department of Defense, Department of the Army, Corps of Engineers: 33 CFR Parts 325 and 332; Environmental Protection Agency: 40 CFR Part 230; Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (aka Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations) (hereafter referred to as the "Mitigation Rule") (https://www.epa.gov/sites/default/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf)

scale, as well as the "claw-back" of credits given at intermediary milestones if those projects are later found to have failed to achieve stated goals. We do agree that ten years is a reasonable time period for assessing the performance of biological goals and objectives, assuming those are among the stated goals of the project.

Elements of HB942 that are intriguing but could use more specificity:

- §5–203.2.(A) states that this bill will apply specifically to "authorizations for stream restoration projects associated with achieving local Municipal Separate Storm Sewer System (MS4) permit targets, Chesapeake Bay Total Maximum Daily Load (TMDL) goals, mitigation goals, or other restoration goals." We understand that the reason for this specification is to exempt projects whose primary purpose is to protect or maintain human infrastructure, such as where a stream is eroding a road or bridge abutment, a sewer or water line is exposed, etc. In our experience, a fair number of stream restorations are undertaken precisely for infrastructure reasons, and then the MS4 credit generated is a by-product. Conversely, compensatory mitigation rules already require that a project not be undertaken for any other reason. While infrastructure protection or safety concerns may need to take precedence over the bill's resource protection goals on some projects, the principles we outline in our previous comments (attached) are useful guidance for all projects that have a stream restoration element to them.

- §5–203.2.(B)(2)(II)2. Requires net biological uplift of instream biology as a stated goal. While in an ideal world every single stream restoration project would be intended and designed to achieve biological uplift, the reality is that it is very hard to ensure and demonstrate uplift in all cases, even when a stream restoration may be the most appropriate tool for a given site. Overall, we support this goal in theory but are not sure that it is workable in practice, particularly in highly urbanized streams that do not currently support diverse macrobiota.

- §5–203.2.(B)(2)(II)3. Requires that stream restoration projects "minimize tree removal and protect remaining trees, including the critical root zones of trees." We support this clause to the maximum extent practicable, although note that, like requiring mitigation "in the same watershed," it is not very specific and may not achieve more than is already available in state laws and regulation. For example, stream restorations are currently exempt from many aspects of the Forest Conservation Act. Some of our Network members believe this exemption should be reversed, while others feel that would create an unworkable burden for even highly needed stream restoration projects. Another possibility might be to reduce the credits available for mitigation or MS4/TMDL purposes in proportion to the loss of forest and trees. Where trees are removed or damaged, the area should be actively reforested with native trees and shrubs and monitored for reestablishment.

Sincerely,

Steering Committee of the Stormwater Partners Network

Eliza Cava (co-chair)
Director of Conservation, Nature Forward

Jeanne Braha (co-chair)
Executive Director, Rock Creek Conservancy

Tracy Rouleau
President, TBD Economics, LLC

Kit Gage
Friends of Sligo Creek

Karen Metchis
ACQ Climate

Excerpt from Stormwater Partners Network Comments on 2020 MS4 Draft Phase I Permit for Montgomery County, January 21, 2021[4]

Stream Restoration

While stream restorations may well reduce a major source of sediment and bonded nutrients due to bank erosion, they can be hugely disruptive to the ecology of a stream valley and also divert resources from upland retrofits and impervious surface removal, both of which address the root cause of stream bank erosion and could eliminate the need for stream restoration projects. SWPN convened a stream restoration working group in fall of 2020 to discuss the issue and provide recommendations to our agency partners. Below are our working group's initial recommendations. We note that we do not have unanimity on every detail of the recommendations below, nor on the overriding question of whether stream restorations are ever or at all appropriate. But we do all believe that if they are done, they should be done with extraordinary care, caution, and forethought to ensure that they result in benefits to the ecology of the local stream valley and riparian system, as well as downstream beneficiaries of reduced sediment pollution such as the Potomac River and Chesapeake Bay. And, they should be tightly coupled with extensive upland retrofits, ideally before restoring the stream valley. We are pleased with the potential benefits of DEP's new targeting/prioritization maps for stream restoration and upland retrofits and look forward to assessing their practical results during this next permit term.

Upland Controls First

We all agree that upland control of stormwater should be required prior to installing a stream restoration to help ensure that ever-increasing storm flows won't just blow out the new channel. However, some of us believe that stream restorations should not be done at all since they don't address the root cause of stream bank erosion.

Incentivize Upland Retrofits over Stream Restoration

If stream restorations continue to be allowed, MDE's Accounting Guidance and permits must create an incentive structure where upland stormwater control is promoted over stream restorations, such that stream restorations are not used as a preferred engineering option to achieve compliance.

Biological improvements Rare or Very Slow with Stream Restoration

The scientific basis for the ecological benefits of stream restoration projects in our region is disputed in the scientific literature. For example, Hilderbrand et. al. (2020) says, "We sampled 40 urban stream restorations across the Piedmont and Coastal Plain physiographic regions in the greater Baltimore/Washington DC Metropolitan area of Maryland." "Despite the promise and allure of repairing

[4] SWPN Letter on Montgomery County MS4 Permit. January 2021. Full letter available at: https://stormwaterpartnersnetwork.squarespace.com/current-recent-campaigns/2021/1/26/stormwater-partners-network-comments-on-montgomery-county-draft-stormwater-permit.

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."[5]

Bill Stack, PE, one of the co-authors of the Expert Panel report (whose recommendations are used by MDE) states that, "…municipalities are spending enormous amounts of money on [stream restoration] projects that generate the necessary water quality credit but have no real impact on stream function."[6]

Prioritize Green Infrastructure Upland

There generally are alternative, upland (out of stream valley) stormwater retrofit (or control) projects that could be done in previously disturbed areas to meet the MS4 permit. These projects primarily consist of green infrastructure projects. Such projects would address the root cause of the problem – keeping stormwater from impervious surfaces out of streams. By controlling stormwater upland, stream bank erosion might decrease enough to possibly eliminate the need for stream bank stabilization entirely within the context of stream restorations, particularly in less urbanized watersheds. While we applaud the Accounting Guidance's new 35% bonus for upland, green infrastructure projects and would support an even higher increase, we remain concerned that the doubling of the stream restoration planning credit will still lead to them taking precedence over these critical upland solutions which could eliminate the need for stream restorations.

Riparian Improvements Before or With Stream Restoration

There are non-destructive riparian (along stream) alternatives to "stream restorations" allowed by the Accounting Guidance such as the less invasive practices of Riparian Forest Planting and Riparian Conservation Landscaping. Using less heavily-engineered bank stabilization practices could go a long way towards reducing bank erosion from a degraded stream channel without the heavy footprint of a full Natural Channel Design, Legacy Sediment Removal, or Regenerative Stormwater Conveyance restoration approach. Using the non-destructive riparian practices in addition to controlling stormwater upland as noted above, stream bank erosion might decrease enough to possibly eliminate the need for stream bank stabilization entirely within the context of stream restorations, particularly in less urbanized watersheds.

The complex web of interactions between fauna, flora, geology, and hydrology that interact in natural areas is irreplaceable and cannot be recreated on even a decadal time scale by engineering projects using bulldozers, backhoes, and trucked-in material to create artificial structures in our natural areas. We should be guided by the principal of "Do No Harm" in our stream valleys.

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[5] Hilderbrand, R., and Acord, J., (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://drive.google.com/file/d/1ajZqeDvTNM0BtufkO58IHZQGusp2UKAZ/view?usp=sharing

[6] 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/

Just as the Chesapeake Bay has environmental value, so do the rich fauna and flora of our stream valleys. As proposed above, there are better ways to protect the Bay than by using stream restorations to destroy existing streams and streamside forests and wetlands and instead replace them with engineered stormwater conveyances.

Recommendations

Some of our members suggest that stream restorations should be removed completely from the Accounting Guidance given the concerns stated above. Others do not go so far but strongly recommend that MDE revise the credits and guidance available for stream restorations. **All upland practices (which do reduce stormwater runoff) should be exhausted before stream restorations are allowed to be conducted.** Therefore, **all signers of this letter recommend the following changes to the credits and guidance for stream restorations as follows:**

a) Less planning credit per linear foot should be given. Revert back to 0.01 EIAf per linear foot.

b) All stream restoration projects should require that biological uplift be demonstrated in a set timeline, reasonable to the condition of the stream prior to restoration and the location of the project (i.e., a longer timeline for more urban streams) in order to receive credit. These figures would be relative to pre-construction measurements. If such increases are not demonstrated, then no credit will be awarded to the project. This would include the retroactive "claw-back" of any partial credit awarded at any intermediate milestones.

c) Require justification of a stream restoration project versus a set of upland projects by comparing local ecological factors such as

    1. an accounting of the full range of flora and fauna that will be lost by conducting pre-construction field surveys by experts in the various fields of botany, herpetology, mycology, ichthyology, etc.

    2. a calculation of projected lost ecosystem services by experts (e.g., lost CO2 uptake, lost O2 production, food web disruption, etc.) during and after construction,

    3. the extent of hydrologic disruption due to soil compaction (e.g., destruction of seeps and springs; tree death due to critical root zone damage) by experts, and

    4. a comparison of the projected carbon footprint of construction activities by experts.

All proposed stream restoration projects should score higher than the alternative proposed set of upland projects (which can be in the same or different watershed or sub-watershed) on all four factors above and be required to demonstrate biological uplift compared to pre-construction measurements in order to receive MS4 Permit credit.

Some of our organizations suggest the following additional changes:

d) that stream restoration projects used for MS4 Permit credit should not be exempted from any state or local forest conservation or forest protection laws (and this non-exemption wording should become part of the MS4 Permit language).

e) Furthermore, replanting requirements should be, for example, at a 2 to 1 ratio based upon the diameter at breast height (dbh) lost. For example, the loss of one 24"dbh tree would be replaced with sixteen 3-inch dbh trees, twelve 4-inch dbh trees, or twenty-four 2-inch dbh trees.

Overall, Montgomery County DEP has shown a thoughtful approach to the need to attend to upland stormwater management when considering possible locations for stream restoration. Further, Montgomery County should be applauded for their weighting the value of potential biological uplift despite not being required to do so.

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Uploaded by: Emily Wilson
Position: INFO

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wes Moore, Governor
Aruna Miller, Lt. Governor
Josh Kurtz, Acting Secretary
Allan Fisher, Deputy Secretary

March 3, 2023

BILL NUMBER: **House Bill 942 – First Reader**

SHORT TITLE: **Wetlands and Waterways Program - Authorizations for Stream Restoration Projects**

DEPARTMENT'S POSITION: **LETTER OF INFORMATION**

EXPLANATION OF DEPARTMENT'S POSITION:

HB 942 would revise certain criteria, standards, and requirements for the Maryland Department of the Environment pertaining to authorizing stream restoration projects.

DNR is currently working with MDE on the issues described within HB 942 through a study organized and led by MDE based on requirements from the last session. We are an active participant in this study, and believe it is a good avenue with diversified input to investigate and seek solutions to stream restoration needs and concerns expressed in HB 942.

BACKGROUND INFORMATION:

HB 869 of 2022 requires MDE to perform a comprehensive study, analysis, and evaluation of: state statutes and regulations; the permit review process; opportunities for public comments and community review; time taken to review projects; efficiency and efficacy of the joint application permit review process and counter intuitiveness to watershed-based restoration. The study is to be conducted with DNR, industry, advocacy organizations, community groups, county governments, university (if available). The study should provide recommendations pertaining to: definition of ecological restoration; nutrient reduction; improved benthic habitat; potential separate review process for restoration; incorporation of science; evaluating the need for education for reviewers; and if reviews occur in a way that considers benefits and detriments. A report is to be completed by June 1, 2024.

BILL EXPLANATION:

HB 942 would require MDE to revise certain criteria, standards, and requirements for stream restoration authorizations based on the best available science; incentivize upland projects outside the stream channel; require mitigation credits within the same watershed where impacts occur; require biological uplift as a stated goal; minimize tree removal; monitor and evaluate projects for 10 years after completion before credits are issued; and provide public notice and public meetings before authorization of projects.

Contact: Emily Wilson, Director, Legislative and Constituent Services (Acting)
emilyh.wilson@maryland.gov ♦ 410-260-8426 (office) ♦ 443-223-1176 (cell)

HB0942 - SHA - Authorization for Stream Restorati

Uploaded by: Patricia Westervelt

Position: INFO

March 3, 2023

The Honorable Kumar P. Barve
Chair, Environment and Transportation Committee
Room 251, House Office Building
Annapolis MD 21401

RE: Letter of Information – House Bill 942 – Wetlands and Waterways Program – Authorization for Stream Restoration Projects

Dear Chair Barve and Committee Members:

The Maryland Department of Transportation (MDOT) takes no position on House Bill 942 but offers the following information for the Committee's consideration.

House Bill 942 requires the Maryland Department of the Environment (MDE) to revise its eligibility requirements for project mitigation goals and restoration credits. House Bill 942 specifically prioritizes mitigation practices that are allegedly less invasive with less environmental impacts from construction. House Bill 942 also requires mitigation sights to be maintained and monitored for 10 years following the construction, as opposed to the current requirement of 5 years. Finally, House Bill 942 requires public notification during the application process and a public meeting on each respective project.

The MDOT State Highway Administration (SHA) is required by the Federal Highway Administration (FHWA) and MDE to mitigate stormwater from the roadway system. Any increase in impervious service, due to a SHA project, requires mitigation either on-site or in the form of credits earned from stormwater upgrades at a different facility. Typically, on-site storm water management includes things such as grass swales, rain gardens, or tree plantings. In many instances, SHA does not have the necessary right-of-way or conditions to construct on-site mitigation and must use the credit system.

Stream restoration projects are one of the most effective methods for SHA to mitigate highway runoff impacts and improve the surrounding environment. It also happens to be one of the most cost-effective ways for SHA to obtain and use stormwater management credits. SHA has a successful model of using land owned by a third party to restore streams to their more natural state. This practice allows SHA to acquire credits without the time consuming and expensive process of buying and maintaining more right-of way. This method is also proven to improve water quality and mitigate stormwater in areas that have greater needs.

The Maryland Department of Transportation respectfully requests the Committee consider this information when deliberating House Bill 942.

Respectfully submitted,

Mitch Baldwin
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