

MDE Public Hearing
On the Tentative Determination to Issue
An NPDES Permit to Baltimore City
August 7, 2012

Speaker Sign-In

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Frederick

Oral testimony for Proposed Baltimore City MS4 Public Hearing, David Flores, 8/7/12

INTRO/ BACKGROUND

Good morning, my name is David Flores, and I am the Water Quality Manager for Blue Water Baltimore and a life-long citizen of my hometown, Baltimore City.

Our City's streams and rivers continuously suffer the depredations of dry-weather illicit discharges conveyed from its municipal separate stormwater sewerage system, rendering the Harbor and its tributaries unfit for bodily contact or fishing. The streams and rivers are choked with trash, over-nutrition results in annual fish kills and blooms of harmful, toxic algae, chronic violations of erosion and sediment control standards result in massive discharges of sediment pollution, and known dry-weather sewage-contaminations continue unabated for years and even decades.

The pitiful condition of our waterways is perhaps best illustrated by the City's own water-quality data:

Of 34 in-stream sampling locations monitored by Baltimore City in 2009 and 2010, 88% of these stations exceeded the State's *weakest* standard for fecal bacteria, the Infrequent Full-Body Contact Recreation rule, at least one-third of the time *during dry-weather only*. 59% of sampling stations exceeded this water quality standard in more than *half* of dry-weather samples collected. These fecal bacteria are not reaching our waterways from wildlife and pet sources: these are, as MDE's own bacterial source tracking studies of the Jones Falls and Gwynns Falls confirm, overwhelmingly fecal bacteria from human sources, from illicit sewage discharges via the MS4 infrastructure.

Therefore, the majority of Baltimore's streams, rivers, and Harbor routinely exceed standards for safe contact – standards established to protect the health and welfare of Marylanders – and citizens of Baltimore. Often those poorest and underrepresented among us, continue to unknowingly fish these human sewage-contaminated waters, risking exposure to infections from Hepatitis and *Streptococcus*, among other waterborne pathogens and toxics. The greater Bay community fares no better from Baltimore's status quo.

INSUFFICIENT MONITORING REQUIREMENTS IN PERMIT

But the City's own monitoring, which is *not* mandated by their current MS4 permit nor the proposed draft permit, does not go far enough to afford protection to Baltimore's citizens, and, importantly, afford its community the opportunity to track watershed restoration progress. MS4 permit requirements must be in place to monitor toxics, nutrients, bacteria and other water-quality pollutants comprehensively across Baltimore's waterways to track progress and compliance with the City's Total Maximum Daily Loads, as well as provide timely and accurate information to the public on levels of contamination. Requirements to monitor only *one* sub-watershed, or only *one* outfall for trash and debris loadings, are not only an *inappropriate* level of accountability or response to the systemic-scale of contamination that is continuously discharged to our City's waterways via the storm-sewerage system, but they are also *clearly* scientifically-flawed methodologies.

INSUFFICIENT IDDE AND ESC REQUIREMENTS IN PERMIT

The MS4-mandated Illicit Discharge Detection and Elimination and Erosion and Sediment Control Programs also do not go far enough to protect our waterways.

Of those major outfalls that currently require annual IDDE screenings and source investigations, many of the largest offenders – Streetcar, Gwynns Run, Coldspring/Greenspring, among others widely-publicized and reported by citizen stewards and studied by University of Maryland and Center for Watershed Protection researchers – continue unabated for years, and even decades, after they were first identified by MS4-mandated IDDE programming.

Remarkably, comprehensive IDDE studies performed by the Center over the past several years in Baltimore's watersheds have demonstrated that the majority of illicit discharge contamination comes not from major outfalls but from minor outfalls, which are not screened by the City's program under current or proposed MS4 requirements. Additionally, the Center estimates that the majority of bacteria TMDL reductions, and large portions of nutrients load reductions, can be met by enhancing IDDE screening and source investigation practices, routinely screening minor outfalls and eliminating their illicit discharges. The scale of the illicit discharge contamination befits revised MS4 requirements for expanded screenings and enhanced methodologies.

Numerous violations of Erosion and Sediment Control standards by City-contractors, some going as far as installing intentional diversions to perimeter controls, as well as the repeated failure by City employees to install stormdrain BMPs when responding to street-level infrastructure repairs leaves much to be desired for establishing a culture of ESC compliance. Unsurprisingly, many construction sites are not inspected for compliance on a weekly-basis or during storm events, and penalties and stop-work orders are woefully under-assessed against repeated violators.

CONCLUSION

Compliance with local and Bay TMDLs and water quality standards and maintenance of safe recreational waterways are contingent upon rigorous, comprehensive monitoring by requirement of the MS4 permit. Please hold us accountable to our pollution.

Thank you for your attention and consideration.

August 7, 2012 Baltimore City MS4 Permit Hearing
Maryland Department of the Environment
Testimony of Tina Meyers, Baltimore Harbor WATERKEEPER, Blue Water Baltimore

I. INTRO

- My name is Tina Meyers and I am the Baltimore Harbor Waterkeeper with the organization Blue Water Baltimore. My comments are on behalf of myself individually as well as on behalf of our organization as a whole.
- First I'd like to thank MDE for listening to and considering our comments, and also thank you to both MDE and the City for the hard work and resources that they've already put into developing this permit. I know that everyone involved has the best of intentions for cleaning up Baltimore's waterways and the Bay itself, and I have high hopes that we will get this permit to the place where it does that effectively.

II. BACKGROUND

- I began my current position only six months ago. In that short period of time I have seen a lot of things in Baltimore's waterways that I never thought or hoped I'd see. I have been over to one of Baltimore's largest, most persistently contaminated outfalls at Gwynn's Run—literally just down the street from MDE in Carroll Park. When I saw and smelled this outfall, I was literally stunned into silence. There is trash strewed throughout the trees and stream banks everywhere you look. As you get closer to the outfall, the smell of sewage overwhelms you, and the water discharging from the outfall is a cloudy, cement grey. This outfall, similar to many throughout Baltimore, has elevated bacteria levels, and sewage discharges even during dry weather. I was shocked to find out that there are children and adults that still swim in this stream. They are not wealthy and they are not white, but this permit is *imperative* to their health and safety.
- Also since I've been at this job, I've seen things floating in the Harbor that I never wished to see. I've seen every type of trash, used tampons and condoms, and solidified balls of grease from the sewer system that ended up in the Harbor through the stormwater outfalls. These items were floating only feet away from where little kids get sailing lessons.
- I've also seen the Harbor change into every color of the rainbow and smell all sorts of unpleasant smells. I've seen algal blooms and fish kills and crabs scurrying onto the shoreline. This is all within the past 6 months. This permit is *imperative* to addressing root pollution causes of these disturbing events.

Now with that background, I'd like to address two specific points regarding the permit:

August 7, 2012 Baltimore City MS4 Permit Hearing
Maryland Department of the Environment
Testimony of Tina Meyers, Baltimore Harbor WATERKEEPER, Blue Water Baltimore

III. WQS

- First, MDE is *required* to issue a permit that ensures compliance with water quality standards—Currently this permit does not do so. We are well aware that these waterways are currently out of compliance with water quality standards, unsafe for human contact and recreation, and unresponsive of a healthy ecosystem.
- If there is any hope of reducing pollution to healthy levels, this permit must explicitly prohibit any discharges from the stormwater system that contribute to exceedances of water quality standards. This will provide the City the necessary discretion in deciding how to meet that requirement, and will be easy to monitor to determine compliance with the permit. This will also ensure that the permit not only *intends* to meet water quality standards, but it actually results in real attainment of those standards.
- This permit should also include enforceable and specific requirements and deadlines in order to get us to where we need to be. It also must include checkpoints for determining whether the City's actions are actually resulting in improvements to the water quality, and if they are not, it must contain requirements for what to do then.
- Otherwise we will be in the same place 5 years from now as we are today—not understanding why all the work and resources we expended does not result in actual improvements in the waterway.

IV. TMDLs/ WLAs

- Similarly, this permit must *require* compliance with waste load allocations for the Bay TMDL and local TMDLs. An enormous amount of resources (both time and money) have gone into developing the Chesapeake Bay TMDL, with the intention of making this different that all the past Chesapeake Bay Agreements and other plans which utilized millions of taxpayer dollars, and then resulted in no noticeable changes to water quality.
- The key to making the Bay TMDL different is making it enforceable, and as MDE has made clear, the key to making the Bay TMDL enforceable is through the MS4 permits. If this permit does not contain enforceable, specific requirements, then all that well-intentioned time and money going into the Bay TMDL and WIPs has been utterly wasted.
- We appreciate that MDE included a list of all the TMDLs applicable to Baltimore's waterways as an attachment to the permit. Now we need the next step of *requiring* compliance with the applicable waste load allocations. We also need specific and enforceable benchmarks and deadlines for attainment of those allocations.

August 7, 2012 Baltimore City MS4 Permit Hearing
Maryland Department of the Environment
Testimony of Tina Meyers, Baltimore Harbor WATERKEEPER, Blue Water Baltimore

V. CONCLUSION

- There is a lot riding on the stringency and effectiveness of this permit. It is VITAL that we bridge the gap between theory and reality by making this permit enforceable, and ensuring that it results in *real* attainment of water quality standards and waste load allocations.
- It is well worth the additional time and effort to get this permit right.
- Next I'd like to introduce my Water Quality Manager, David Flores, to discuss the monitoring, IDDE, and ESC requirements in the permit. Thank you for your attention.

FOR MDE:

The Baltimore Rowing Club is the most frequent user of the Middle Branch Basin. Our one hundred adult members go out six days a week at 5:00 am and again at 6:00 pm and many random times from April 1st to early November. Our forty high school rowers row four days a week from 4:00- 6:00 pm, spring and fall and 5:30-8:00 pm most weekdays in the summer. Our thirty-six middle school outreach program rower from low income Baltimore City neighbors row four days a week in the fall and spring and 9:00 am - 1:00 pm in a daily summer camp that runs five weeks. Many high school teams also row during the spring, populating the Basin with 15-20 shells each afternoon. There are about one hundred fifty rowers on all the high school teams. All told, there are over three hundred consistent individuals skimming over the mostly brown waters of the Middle Branch Basin on a daily basis nine months of the year.

The Middle Branch Basin is a constantly changing body of water. At rare times one can see the bottom three to four feet down off the docks of the Baltimore Rowing Club, but most of the time the water is a thick, dense, murky solution, turning the gamut of colors from blue/green to auburn to brown to purple. The visible particles, objects and oil in the water are evident to the naked eye not just by looking out of a shell, but when we clean off our boats at the end of each practice. Our coaches have to be careful at low tide so the engines of their safety launches do not get stuck on the floor of the Middle Branch Basin. When we tilt the engines up to dislodge them from the floor, it is usually not mud, but plastic bags wrapped tightly around the propellers that prevent them from moving. Removing by hand, an ugly job, is the only remedy.

The shoreline serves as a catchment for the copious trash that accumulates from the many outflows leading into the Middle Branch. Clean-ups along the shoreline conducted by various service groups satisfy the consciences of those cleaning, but for those of us who are there daily we see how vain the efforts are when, within a day, the garbage returns. The garbage does, however, serve at least one positive purpose: a teachable moment for our youth. Their disgust gives us an opportunity to address how the garbage gets there, what human behaviors lead to a polluted Middle Branch, how politics and economic interests and self-service get in the way and what we can do about these things. Our youth watch ducks paddling and leading a flock of chicks through the filthy water and bemoan the conditions. They find dangerous objects on the dock and need to be careful whenever going to the dock with their boats, despite our trying to sweep the docks clean. We insist that they wash off their hands and face with soap and water or hand sanitizer after each row.

The Middle Branch Basin, like the Inner Harbor, is a high potential body of water within the city limits, aching to be cleaned and become the recreational destination outlined in the Baltimore City Master Plan. Rowing, kayaking, canoeing, swimming, sailing and many events related to the water and the vision of the Office of Sustainability could be an economic boon to the City but presently sits like an open sewer. The Charles, the Cuyahoga, the Chicago, the Hudson and many other great rivers in great cities have made remarkable progress on their water. Some even hold triathlons in their waters. Why can't Baltimore?

Judd Anderson, Director of Youth Rowing, Baltimore Rowing Club, 8/6/2012

Comments of Dana Minerva, Executive Director Anacostia Watershed Restoration Partnership

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I am Dana Minerva and I am the Executive Director of the Anacostia Watershed Restoration Partnership, a public private partnership based at the Metropolitan Washington Council of Governments. Today I'm stepping out of usual role of coordinator of restoration and into the role of advocate because of the extreme importance of MDE's permits for my watershed and for the Bay. These views are my own and I am not speaking on behalf of the Partnership's members.

As someone who has been an environmental regulator with state and federal agencies, I know that it is difficult it is to incorporate changing science into regulatory decisions. I know that it is especially difficult to convince those you regulate that supposedly "tried and true" ways of doing things are now obsolete. However, because of the importance of insuring that the Bay and Maryland's rivers and streams, and because hundreds of millions of dollars are being invested, it is imperative that the best scientific approach be taken.

After reading and considering the National Research Council's 2008 report on stormwater and some of the scientific literature cited in that report, I feel compelled to ask you to continue to work to incorporate the Council's conclusions into the proposed City of Baltimore's and other Phase I MS4 permits in regards to the types of "restoration" or retrofit to be implemented. Presently, the draft Guidance which is incorporated by reference into the proposed permit, and which provides the standard that the "restoration" required in the permit must meet, states that 1 inch of "treatment" of is required for "restoration" to be counted toward the requirement that 20% of unmanaged impervious surface be "restored." As I understand it, the term "treatment" includes detention or filtration of 1 inch of stormwater.

It is hard to read the National Research Council's 2008 report on stormwater, the scientific articles relied on in that report, and EPA's interpretations of it and not draw the conclusion that detention is now perceived by scientists to be an obsolete practice, to be used only in those rare circumstances when no other practice can be implemented. There is growing consensus that detention and filtration practices do not protect water quality and certainly do not protect the biological integrity of our rivers and streams. The reasons are many:

- Detention does not reduce the overall volume of polluted runoff.¹

¹ Committee on Reducing Stormwater Discharge Contributions to Water Pollution, National Research Council, *Urban Stormwater Management in the United States* (2008), p. 33: "Mitigation of urban-induced flow increases have followed this narrow approach, typically by endeavoring to reduce peak discharge by use of detention ponds but leaving the underlying increase in runoff volumes—and the associated augmentation of both frequency and duration of high discharges—untouched. This partly

- Detention may delay the peak flow from a particular site but in combination with the polluted runoff from detention systems across the watershed, the impacts of the volume are merely delayed and not mitigated.²
- Detention practices are often designed and constructed on an “ad hoc” or “site by site”, basis without analysis of the appropriateness of the practice in light of the conditions in the watershed.³
- Concentrations of pollutants leaving detention ponds may be reduced but the volume of the stormwater flows leaving them keeps pollutant discharges high, and
- Detention does not protect downstream channels from the erosive effects of stormwater volume which mobilizes sediments and destroys biota.⁴

explains why evaluation of downstream conditions commonly document little improvement resulting from traditional flow- mitigation measures (e.g., Maxted and Shaver, 1997; Roesner et al., 2001; May and Horner, 2002).”

² USEPA, Guidance for Federal Land Management in the Chesapeake Bay Watershed, Chapter 3 Urban and Suburban (EPA841-R-10-002), May 12, 2010 p. 3-17: “Simply reducing the peak flow rate, and extending the duration of the predevelopment peak flow, is not effective because as the different discharge sources enter a stream, the hydrographs are additive, and the extended predevelopment peak flows combine to produce an overall higher than natural peak. The result is the pervasive condition of channel incising, erosion, and loss of natural stream biological and chemical function as observed in Figure 3-8.”

NRC, p. 341: “Detention basins can control peak flows directly below the point of discharge and at the property boundary. However, when designed on a site-by-site basis without taking other basins into account, they can lead to downstream flooding problems because volume is not reduced (McCuen, 1979; Ferguson, 1991; Traver and Chadderton, 1992; EPA, 2005d). In addition, out of concerns for clogging, openings in the outlet structure of most basins are generally too large to hold back flows from smaller, more frequent storms. . . . Because of the limitations of on-site detention, infiltration of urban runoff to control its volume has become a recent goal of stormwater management.”

³ NRC, p. 457. “Past practices of designing detention basins on a site-by-site basis have been ineffective at protecting water quality in receiving waters and only partially effective in meeting flood control requirements.”

⁴EPA, p. 3-17: “Detention systems generate greater flow volumes for extended periods. Those prolonged, higher discharge rates can undermine the stability of the stream channel and induce erosion, channel incision and bank cutting.”

NRC, p. 372: “It should be noted that there are important, although indirect, water quality benefits of all runoff-volume-reduction SCMs—(1) the reduction in runoff will reduce streambank erosion downstream and the concomitant increases in sediment load, and (2) volume reductions lead to pollutant load reductions, even if pollutant concentrations in stormwater are not decreased.” See also Dietz, M. E., and Clausen, J. C. 2008. Stormwater Runoff and Export Changes with Development in a Traditional and Low Impact

Despite these credible scientific statements about the ineffectiveness of detention, up to 80% of the "restoration" or retrofit projects planned in my watershed's two counties are detention and other gray infrastructure approaches.

Given the prevailing scientific view that detention does not work well and that ESD approaches that control volume are much more likely to be effective, MDE's MS4 permits should contain standards that create a strong preference for restoration and retrofit practices that substantially reduce volume through infiltration, evapotranspiration, and reuse. This approach has a much greater chance of restoring Maryland's rivers and streams.

Subdivision, *Journal of Environmental Management* 87(4):560-566. This study concluded that a subdivision with LID controls controlled nitrogen and phosphorus as well as forested land in large part because of the volume of runoff that was controlled.

See also:

Emerson, C. H., C. Welty, and R. Traver. 2005. Watershed-scale evaluation of a system of storm water detention basins. *Journal of Hydrologic Engineering* 10(3):237-242. ("This paper has quantitatively demonstrated that the stormwater management method of peak flow rate control now widely implemented is flawed when viewed in terms of the impacts on the main receiving water body of a watershed. This result points to the need for fundamental reevaluation of the basis for stormwater management if the goal is protecting natural resources on the watershed scale. Modeling results indicated that the volume-control approach shows promise for attaining this goal . . ." p. 241.)

Ferguson, B. K. 1991. The Failure of Detention and the Future of Stormwater Design. *Landscape Architecture* 81(12):76-79.

Maxted, J. R., and E. Shaver. 1997. The use of retention basins to mitigate stormwater impacts on aquatic life. Pp. 494-512 In: *Effects of Watershed Development and Management on Aquatic Ecosystems*. L. A. Roesner (Ed.). New York: American Society of Civil Engineers. (Study of the areas downstream of eight stormwater ponds showed that the ponds were no better than sites with no controls in terms of protecting downstream aquatic life.)

McCuen, R. H. 1979. Downstream effects of stormwater management basins. *Journal of the Hydraulics Division* 105(11):1343-1356. ("If stormwater management is to be effective, stormwater management basins are going to have to be complemented with other stormwater management measures that more closely duplicate the storage characteristics of the predevelopment land use conditions. For example, grass-lined swales, rooftop detention, and porous pavement are stormwater management measures that provide storage that is more spatially representative of natural storage and more closely approximates the temporal distribution of storage depletion that existed prior to development." P. 1356.)

If MDE concludes that, due to the developing nature of the science relating to ESD retrofits, that an approach that is slightly slower than retrofitting 20 percent of the unmanaged impervious surface in each MS4 is warranted, I would understand that. What I cannot understand is continuing to implement "restoration" or retrofit with techniques that are no longer supported by science. Please include appropriate standards for the types of "restoration" that are being required into the permit.

Thanks very much for your consideration and thanks for your ongoing work to restore the Bay and our urban rivers and streams that are so polluted, like the Anacostia.

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August 7, 2012

Dr. Robert Summers
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

RE: Baltimore City Draft MS4 Permit

Dear Secretary Summers:

The Municipal Separate Storm Sewer System (MS4) permit has the potential to substantially accelerate the recovery of Baltimore City's streams, wetlands and tidal waters. It is more likely that this potential will be achieved if the improvements suggested below are incorporated into the permit.

Before getting to the improvements, I'd like to offer a bit of background. Since the 1970s I've advocated for restoring the City's waterways. Restoration would greatly enhance recreation opportunities and quality of life for all City residents. I pursued this advocacy as the president of the Baltimore Environmental Center, the director of Maryland Save Our Streams, and the chair of the Greater Baltimore Sierra Club. Since starting CEDS in 1987, I have also helped a large number of City residents resolve concerns about the aquatic resource impact of proposed development and other projects.

My comments focus on four opportunities to improve the MS4 and accelerate the recovery of City waterways.

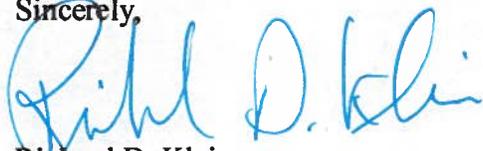
1. The stormwater Best Management Practice (BMP) database for the City appears to have a large number of errors. This is based upon the results of a study I recently completed. The results are presented in the report accompanying these comments - *Making StormPrint Better*. The study indicated that StormPrint only showed the accurate location and type for 11% of the BMPs located within the City. If this 89% error rate applies to the entire City database, then it could seriously jeopardize the success of the MS4 permit. If this is correct then an urgent need exists to improve the accuracy of the database. This is a task that could be accomplished far more quickly with volunteer assistance. I can provide examples of how volunteers have successfully participated in similar efforts.

2. The database is used in the Department's StormPrint website, which is the primary means by which City residents can learn of BMPs in their area. Accurate locations and typing of BMPs is critical to the efforts of watershed advocates and others to support City programs to maintain peak BMP performance. This form of public participation will likely become essential to keeping a rapidly expanding number of BMPs functioning in the future.

3. The database provides key input to the models used to determine if various measures will achieve water quality goals. These models are essential to not only the MS4 permit but to Total Maximum Daily Loads, Watershed Implementation Plans, and other planning efforts. If the database has a large number of errors then this would lower the accuracy of the model. This in turn reduces the likelihood that planning efforts would achieve significant water quality improvements.

4. Through the Department's Environmental Site Design (ESD) requirements, a portion of existing impervious area must be retrofitted with highly-effective stormwater BMPs when redevelopment occurs. Of course most of the growth in Baltimore City is redevelopment. Therefore, as growth proceeds there should be steady improvements in the health of the City's waters as more BMPs are installed. In fact, I believe that the ESD-Redevelopment process may be the most likely path towards cleaner water throughout the City. Full public access to the process of reviewing project plans is essential to maintaining the public support needed to ensure that full use is made of ESD. Because of this I urge the Department to include a provision in the MS4 permit requiring that ESD Concept Plans and narratives (along with any waivers, variances or other relevant actions) be posted online so the public can easily monitor the process.

Sincerely,



Richard D. Klein



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Statement in Support, with Amendments, of Maryland Department of the Environment's Tentative Determination to Issue a National Pollutant Discharge Elimination System Municipal Stormwater Permit to Baltimore City

August 7th, 2012

Please accept this statement on behalf of the Chesapeake Bay Foundation (CBF) and our more than 100,000 Maryland members on the Tentative Determination to issue a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit to Baltimore City. CBF will also be submitting detailed written comments before the end of the formal comment period (9/21).

CBF would like to take a moment to thank the Department for listening to our concerns over the past months and working with us and other interested parties to draft a permit that already makes significant improvements to previous permit requirements. We are pleased with the department's intent to ensure compliance with the MD Stormwater Act and incorporate TMDLs by reference in the permit.

Stormwater runoff from developed urban areas is an obvious and significant source of pollution that contaminates the local water bodies in and around the Baltimore area. Not only does stormwater runoff contain nitrogen, phosphorous and sediment, it also washes oil products, heavy metals and trash into Bay tributaries.

There are a few areas of the permit that must be improved, however, so that the new requirements adequately prevent polluted stormwater from spoiling our streams, rivers and, of course, the Chesapeake Bay. The three areas of change we propose today are necessary to transform the new permit into a fully effective and enforceable one, under federal and state law.

THREE MAJOR AREAS FOR AMENDMENT

(1) In order to comply with Maryland law, the Permit must be revised to explicitly ensure that existing state water quality standards will not be violated.

- CBF has stressed the importance of this issue for at least six years. We understand that an MS4 permit is different than other NPDES permits and, furthermore, we recognize the iterative nature of implementing BMPs. To this end, we have recognized that meeting water quality standards could take several permit cycles.

But this permit does not yet specify that such standards must be met, and under unambiguous Maryland law it must do so.

- Maryland law states that, “The Department shall issue or reissue a discharge permit upon a determination that... The discharge or proposed discharge specified in the application is or will be in compliance with all applicable surface and ground water quality standards.” (COMAR 26.08.04.02). This language places a duty upon MDE to issue a permit *only* when the permit ensures that existing water quality standards will not be violated.
 - Indeed, in order to retain its usefulness as a *permit*, the Baltimore City MS4 must create some legal obligation on the part of the permittee to ensure that WQS are not being violated. Fashioning a permit in a manner which deliberately reduces the legal culpability of the permittee strips the permit of its essence, that is, its power as an authorization that carries legal consequences for non-compliance.
 - We and our colleagues here today suggest language which states that if the permittee is in compliance with its schedule for attainment of a WLA, as set forth in its restoration plan, the permittee will be considered to be making adequate progress toward compliance with the applicable WLA. We believe that if our suggested language is incorporated and the various pollution reduction conditions of the permit are adhered to, the concerns of permittees echoed by MDE will be sufficiently alleviated.
- (2) The permit must provide for a more robust and statistically significant monitoring program that will allow the Department to effectively monitor stormwater runoff and ensure that permit requirements are, in fact, working to reduce pollution.**
- Currently, the permit proposes to monitor one very small watershed to determine the effectiveness of stormwater management, and a single outfall and single in-stream station in another equally small watershed for purposes of gathering water quality data for the state.
 - This weak monitoring program, in addition to appearing insufficient on its face, is regarded by CBF’s senior scientist as completely inadequate to make the necessary assessments of the permit’s efficacy, especially for the City to meet water quality standards as is required by state law.
- (3) Given the intent of the Department, the permit should more clearly incorporate TMDLs and their wasteload allocations (rather than incorporate a “list of impaired waters”) by reference. The permit also does not currently require that applicable WLAs actually be *met*, nor does it require the designation of specific milestones and benchmarks which are necessary for the assessment and enforcement of restoration plans for getting there.**

- The restoration plans mandated in the permit require that the permittee document “*progress toward* meeting established benchmarks, deadlines, and stormwater WLAs”, rather than *actually meeting* those benchmarks or making adjustments to management practices within a specific time frame to ensure that benchmarks and milestones are, in fact, being achieved. Quantitative goals and dates certain for their attainment are necessary for enforcement. Requiring permittees to merely make “*progress toward*” benchmarks which they themselves have set would validate even the smallest pollutant reduction accomplishments.
- Given the language in the permit already, and the apparent intent of the Department for permittees to be held accountable for their pollution reduction goals, we are asking that the Department simply alter the language of the permit’s restoration plan section in a straightforward way to require quantitative benchmarks, enforceable milestones and deadlines for meeting WLAs.

CONCLUSION

The three changes noted above are not exhaustive, and we would reserve for coverage in our formal, written comments any additional concerns. Additionally, as the Department is aware, over the past few months we have worked extensively with members of the Maryland Stormwater Consortium in presenting our shared interests. Therefore, to the extent that our colleagues’ testimony is not in conflict with our own, we would like to adopt their statements as our own, for the record.

We applaud the Department for including some of the changes which we have long sought in the draft permit, but it still falls short in the areas mentioned above, and in several others. Since the Baltimore City MS4 permit will likely serve as a template for other Phase I MS4 permits, these changes must be adopted to create a permit that best serves our shared goal of adequately and measurably advancing water quality objectives for the State and for the Bay.

Testimony of Diane Cameron
for the Natural Resources Defense Council and Audubon Naturalist Society

Regarding the draft Baltimore MS-4 Permit
August 7, 2012 Hearing held by Maryland Department of the Environment

I. What's at Stake: the restoration of degraded urban waters throughout Maryland, and the restoration of the Chesapeake Bay.

This permit will establish the revised stormwater-NPDES template. It will be the basis for the other remaining Phase I MS-4s in Maryland now overdue for renewal, including for Prince George's County. NRDC and ANS, in concert with our coalition partners, have worked for years to accelerate the restoration of the Anacostia and Patuxent rivers and to improve water quality throughout Maryland and the Chesapeake Bay. These MS-4 permits present a rare opportunity to the State of Maryland and EPA to accelerate the restoration of these severely impaired waters. To accomplish this acceleration, these permits must include numeric, required actions for use of the best technologies, and outcomes with deadlines, including for retrofits under the Watershed Restoration section of the MS-4 permit.

The Maryland General Assembly and Governor O'Malley, in enacting and signing the Stormwater Management Act of 2007, established Environmental Site Design (ESD, also termed *green infrastructure*) as the new norm for stormwater management. Both NRDC and ANS have been requesting MDE to require ESD as the norm for retrofits and restoration for the past six years -- since at least 2006. Thus far, MDE's stormwater permits have not required ESD *retrofits* in any measurable, accountable way¹. Rather, MDE's draft MS-4 permit for the City of Baltimore requires that twenty percent of the city's impervious surface area be addressed with restoration practices according to MDE's draft Restoration Guidance document. This policy must be changed, and this gap must be filled in this Baltimore permit², in order to achieve the restoration outcomes required for Baltimore's waters, and to set the template for the other MS-4 permittees including Prince George's.

II. ESD Must be required as the baseline approach for stormwater retrofits and Watershed Restoration.

ESD must be the required, baseline approach for stormwater retrofits and Watershed Restoration for at least 5 reasons:

- o reduction of stormwater volumes and replication of pre-development hydrology;
- o the District of Columbia MS-4 precedent;
- o Maryland stormwater law and code ESD requirements;
- o likely permittee response; and
- o economic considerations.

These reasons are further explained below.

- 1) **Only ESD retrofits provide significant reductions in stormwater discharge volumes from impervious surfaces.** Connected to this outcome is another function of ESD practices: the reduction in sediment discharges resulting from stream channel scour due to stormwater volumes and velocities. Further points related to this are as follows:
 - a. The problem of excess stormwater volumes and velocities is directly related to the single most prevalent and common form of waterbody degradation in Maryland: aquatic life impairment. Only ESD/ green infrastructure provides significant reductions in total stormwater volume delivered to local waterbodies.
 - b. Stream channel scour due to excessive stormwater volumes and velocities is the cause of 75% of sediment loadings to the lower Anacostia. It is reasonable to surmise that stream channel scour due to stormwater volumes is the cause of much of the urban area sediment loadings to the Chesapeake Bay from other tributaries as well, including in Baltimore. Aggressive retrofitting with ESD practices that reduce (not merely detain) the stormwater volumes delivered to local streams is the approach most likely to reduce channel scour and associated sediment loadings.
 - c. Only ESD successfully and consistently mimics pre-development hydrology, enabling whole catchments, through retrofitting programs, to begin to return to pre-development hydrologic regimes.
 - d. Baltimore organizations, including Blue Water Baltimore, have begun to adopt the approach of promoting and installing widespread ESD retrofits.
 - e. Through requiring clear and strong, measurable ESD retrofit actions and outcomes in the Baltimore MS-4 permit, MDE will be establishing a template for ESD adoption that both supports and accelerates these local efforts.

When comparing the performance of standard vs. ESD retrofits, it's crucial that an apples-to-apples comparison be made; this entails comparing the same stormwater and non-stormwater functions. For instance, comparing ponds to bioretention according to volume of stormwater stored is inappropriate, since a) temporary stormwater storage is at best an auxiliary function, not a prime objective, of stormwater management, according to the Stormwater Management Act of 2007, and b) bioretention units serve to reduce runoff via their infiltration and evapotranspiration functions, while ponds are designed to store and release, not reduce, runoff. An apples-to-apples comparison of ponds with bioretention or other ESD practices, requires comparison of gallons of stormwater reduced (on a normalized per-unit-area basis) by each practice. One such unit that has been proposed for measuring and comparing the cost efficiency of stormwater practices is dollars per acre-inch reduced (\$/AIR)³.

- 2) The **District of Columbia MS-4 permit** contains specific requirements for green infrastructure retrofits, including a required minimum number of tree plantings and a minimum number of square feet of imperviousness to be retrofitted with green infrastructure practices such as green roofs and bioretention. This precedent set by EPA's issuance of the DC MS-4 permit, in its clear, numeric, enforceable requirement of green infrastructure retrofits, should be followed by MDE in all of its MS-4 permits. EPA has stated that it intends for the DC permit to serve as a model for other permits in the Chesapeake Bay watershed.

3) **Maryland stormwater law and code require ESD.** Members of the Maryland Stormwater Consortium submitted to MDE an April 30, 2012 letter and critique of MDE's draft Restoration Guidance document; we incorporate this document by reference into this testimony. This Guidance is referenced in the Watershed Restoration section of the draft City of Baltimore MS-4 permit; it establishes the approach by the MS-4 permittees for selecting and assigning pollutant removal credits to various stormwater and restoration practices. As the Consortium's April 30 critique noted, the draft Guidance and therefore the draft Baltimore MS-4 permit, in relying on the Guidance, fail to comply with EPA policy and Maryland law and code, in omitting to require ESD retrofits as the basis for restoration and for this permit section:

- The draft Guidance ignores the Maryland statute establishing ESD as the preferred Maryland approach. The first three sections of the Maryland Code Environment Article's stormwater management subtitle (sections 4-201 through 4-203) clearly state a preference for the use of ESD in all stormwater management. For example, section 4-203(b) states that, "for stormwater management in Maryland," MDE is to require "the implementation of environmental site design to the maximum extent practicable." This requirement is not limited to the context of new development or redevelopment. Rather, the Code requires ESD to be used in *all* stormwater management, including restoration and retrofitting efforts.

These quotes from the Maryland Code indicate that MDE must require ESD to the MEP as the basis for all stormwater management, including for retrofits.

4) **Likely permittee response:** Since the issuance in February 2010 of Montgomery County's renewed MS-4 permit, Montgomery has planned to address the majority of its required imperviousness acres through pond retrofits. The percentage of required impervious acres that will be retrofitted with ESD measures like rain gardens, green roofs and permeable pavement, to help satisfy the Watershed Restoration section of Montgomery's permit has varied; the ESD retrofit portion is now estimated by DEP Watershed Division Chief Steve Shofar to be between 12% and 15% of the total required impervious acres (of the total of roughly 4300 impervious acres that constitute the County's additional twenty percent targeted for restoration under the 2010-2015 MS-4 permit.)⁴.

Similarly, Prince George's County Department of Environmental Resources (DER) chief Sam Wynkoop recently stated that Prince George's plans to target 22% of its future required impervious acre retrofits with ESD practices⁵; the remaining 78% of required impervious acres would presumably be addressed with pond retrofits and other conventional practices.

Both Montgomery and Prince George's County have substantial background in green infrastructure implementation and testing and are ready to move into full-scale ESD retrofit implementation. The MS-4 permit itself, by failing to require ESD to be used for retrofits, now serves as a barrier to such technologies' widespread implementation. The prime reasons for permittees' relegating ESD measures to less than one-fourth of total required impervious acres is twofold: 1) The Counties' stormwater managers say that pond retrofits are cheaper than ESD retrofits; and 2) In the absence of any numeric requirement for ESD retrofits in the MS-4 permit, and when combined with the currently-accepted cost differential between conventional

and ESD retrofits, the permittees are falling back on their historical reliance on ponds, tanks, and filters for the lion's share of the impervious acres.

A recent analysis indicates that Montgomery could affordably apply ESD retrofits, including lower-cost tree-based practices, to over half of its required impervious acres in the County's portion of the Anacostia watershed.⁶

5) Economic considerations. When low and moderate-cost ESD practices are compared with costs of standard BMPs, ESD practices are affordable. In addition, ESD retrofits offer a much broader range of water quality, other environmental, and socio-economic benefits when compared with standard stormwater BMPs, making ESD retrofits more cost-effective. The literature includes many papers and reports on green infrastructure compared to gray (non-ESD) practices for both new and redevelopment⁷, and for retrofits.

The costs of ESD retrofits have been exaggerated, particularly the so-called "soft costs" of design and permitting; while the benefits and financing mechanisms have been overlooked. The costs of ESD practices are bound to go down over time as experience is gained and permit reviews are streamlined for things like bioretention. The benefits of ESD are manifold: retrofits provide ancillary benefits including energy savings, water savings, increased property values, longer-lived savings for: building, grounds, and transportation infrastructure maintenance and replacement; community beautification, and many other benefits. These have been well-documented in recent reports, including NRDC's 2011 issuance of Rooftops to Rivers, and the Center for Neighborhood Technology's Green Infrastructure benefits report.

Yet if a technology doesn't work to prevent or significantly reduce pollution and stream degradation, it doesn't matter how cheap it is. Pond retrofits may be cheaper than ESD retrofits on a simple impervious acre-by-acre comparison basis, but pond retrofits don't significantly reduce stormwater volumes discharged to our waters. Sediment loadings to urban waters and the Bay attributable to stream channel scour are best addressed by technologies that reduce total stormwater volumes discharged from each site and that best replicate pre-development hydrographs. Only ESD retrofits, when implemented on an aggressive schedule on a catchment-wide basis, can attain these objectives.

ESD techniques, including permeable pavement, bioretention, sheet flow to conservation landscapes, and tree plantings, achieve these hydrologic functions while pond retrofits either cannot achieve these functions, or at best can only attain a fraction of the volume reductions and pre-development hydrologic restoration.

NRDC, ANS, and the Maryland Stormwater Consortium have a record, going back to at least 2005, of requesting that MDE issue stormwater permits that require effective, measurable implementation of Environmental Site Design (ESD) practices, in order to reduce and eliminate stormwater discharges, and to restore degraded urban waters, in a way that is accountable, measurable, and enforceable.⁸ Today we reiterate that same request for the City of Baltimore MS-4 permit. And we assert that MDE has a duty to write permits that specify a numeric requirement for impervious acre restoration to consist of ESD retrofits. To support this ESD retrofit requirement in the MS-4 permits, we repeat our request that MDE work with the Maryland

Stormwater Consortium to revise its Restoration Guidance document, and that MDE actively partner with public and private entities to gather and analyze stormwater practice cost and benefit information that will improve and update information on stormwater economics.

III. Suggested form of the requested permit revision.

We incorporate by reference, the comments of the Maryland Stormwater Consortium on MDE's "second MS-4 permit template," submitted by Bruce Gilmore and Becky Hammer to Dr. Bob Summers and Jay Sakai in August, 2011⁹. We repeat here our comments on the permit template's retrofit requirements:

Impervious Surface Area Restoration

(excerpt from Aug. 2011 comments to MDE):

We reiterate our recommendation that all such restoration include both the 20 percent requirement and any previously obligated but incomplete restoration, that the restoration shall be undertaken using ESD to MEP, that the restoration efforts shall be designed to reduce stormwater volume to a minimum standard of 1 inch of on-site retention, and that the restoration requirement apply to the full MS4 and not only to impaired watersheds (because ESD to MEP is a technology-based standard). This recommendation is in line with EPA's MS4 permit guidance. We further recommend that this requirement not be confined to the TMDL section of the permit.

IV. Conclusion: MDE needs to require ESD/ green infrastructure retrofits via changes to its Watershed Restoration section.

ESD retrofits reduce and eliminate target pollutants, including nutrients, sediment, heavy metals, and trash. ESD measures when well-planned and maintained, perform these functions more efficiently and effectively than standard stormwater management techniques such as ponds, tanks, and filters.

Yet, if the MS-4 permit doesn't expressly require ESD to be used, then ESD retrofit implementation will be cramped and delayed. MDE must revise its Baltimore MS-4 permit to require use of ESD as the sole retrofit method (our preference) -- or at least to require ESD retrofits to address the majority of impervious acres required in the Watershed Restoration section of the permit.

¹ We request to receive the document or set of documents, that provides the legal and technical basis for MDE's claim that retrofits, the MS-4 permit's Watershed Restoration provision, and the associated draft Restoration Guidance document, are exempt from the Stormwater Management Act's mandate for ESD to the MEP.

² Maryland Department of the Environment, draft NPDES stormwater permit for the City of Baltimore, page 8; Part III. E. 2 a. and b.

³ See Cameron, Zeidler and Sheveiko (2012) Green Stormwater Retrofits: Objectives and Costing; see Table 7, page 17.

⁴ Montgomery County DEP Watershed Division Chief Steve Shofar, in remarks to the Montgomery County Stormwater Partners Network, meeting of February 16, 2012.

⁵ Prince George's County Department of Environmental Resources Director Sam Wynkoop, remarks to the Anacostia Watershed Restoration Partnership Steering Committee meeting June 28, 2012.

⁶ Cameron, Zeidler and Sheveiko (2012) Green Stormwater Retrofits: Costs and Benefits. Paper submitted to the 2011 LID Conference Proceedings of MARC (Mid-Atlantic Research Consortium).

⁷ See for instance: Christian et al (2012) Costs and Benefits of Green Infrastructure Compared with Conventional Design. Paper presented at the 2012 WERF Stormwater Symposium in Baltimore.

⁸ Stormwater Partners Coalition: Eleven-point proposal for a stronger Montgomery County Stormwater Permit. Point Number 3: Watershed Restoration (2006). This paper, (which was shared in 2006 with Montgomery County Dept. of Environmental Protection then-Director Jim Caldwell, and MDE officials Dr. Bob Summers, Jay Sakai, Brian Clevenger, and Ken Pensyl), contained this request:

We propose that, in each five-year permit term and for each watershed listed in the table above, which are the County's more-degraded watersheds, no less than 25% of the degraded (Poor or Fair status) subwatersheds be selected for extensive restoration work that is based on widespread introduction of cost-effective, on-site ESD techniques.

⁹ MD Stormwater Consortium, Letter to Bob Summers and Jay Sakai on MDE's "Template 2" for the MS-4s, from Bruce Gilmore and Becky Hammer, August 30, 2011.

**Statement of the Anacostia Watershed Society on the Proposed Phase I, MS4 Permit
For the City of Baltimore
August 7, 2012**

It is the request of the Anacostia Watershed Society (AWS) that this statement being submitted on its behalf by Bruce A. Gilmore be accepted for the record at the August 7, 2012 public hearing on the above named proposed permit.

The Anacostia River flows from Prince George's and Montgomery Counties in Maryland to the District of Columbia and the Potomac River. Its waters, historically impaired by nutrient, chemical and sediment pollution, then end up in Chesapeake Bay. The havoc that these polluted waters wreck on local residents and the environment has been the subject of a collaborative federal, State of Maryland and local government effort to abate it.

A major part of the damage and pollution to the Anacostia River is caused by urban stormwater runoff. Fortunately, the three government entities mentioned above are all covered by a Phase I, Municipal Separate Storm Sewer System (MS4 permit). Montgomery County and the District of Columbia have been issued such permits. Prince George's County awaits a new MS4 permit. In this respect it joins eight other large Maryland jurisdictions including the City of Baltimore now awaiting the issuance of a new MS4 permit. Therefore, it is of great importance what the substance of the Baltimore City MS4 permit will be since it will serve as a template for Prince George's County and the other eight jurisdictions.

For several years, AWS has joined with other participating organizations of the Maryland Stormwater Consortium in urging approval of a strong Maryland Phase I, MS4 permit. It worked with these groups to help secure the approval of the Montgomery County permit. On a comparative basis, AWS ranks the Montgomery County and Washington DC permits as superior in content than the current permit templates which the Maryland Department of the Environment has released. To be sure, these permit iterations have improved over time and the improvements include monitoring of the Maryland stormwater management local waiver submissions and approvals, the outlines of the TMDL/WLA provisions, and the outlines for the restoration/retrofit requirements for unmanaged impervious surfaces.

It is to the filling out of and improvement to the content outlines and other subject improvements which AWS joins in the hearing today. These points of permit improvement will be more fully elaborated upon during the full comment period.

The following is a partial catalogue of the issues which AWS urges MDE to focus upon as it continues its good work on the permit.

Water Quality Standards. The permit must insist upon reaching, preserving and not degrading the Water Quality Standards for the Maryland waterways affected by the Phase I, MS4 permits.

Sustaining Water Quality Standards for all pertinent waterways means that our larger Rivers and Chesapeake Bay will reach the restoration we aspire for them. They are cumulative in effect.

TMDL/WLA. The Consortium has prepared proposed language changes to the permit which would enable the clear statement of stormwater WLAs for waterways, the clear statement of when it is expected that the WLAs would be met, and the clear statement of how the TMDL/watershed plans would require exact WLAs and by when and how this effort would

be sustained. Agreeing upon the WLA language is a major goal for AWS and Consortium members and we are very hopeful that through continued collaboration this goal can be met.

Impervious Area Restoration/Retrofit. The Anacostia watershed is most severely affected by the high acreage of imperviousness. Wet weather affects this acreage by causing flooding and long periods of sediment, nutrient, and toxic loadings in the stormwater runoff. It is critical, therefore, that the management of imperviousness be undertaken in ways which apply the best science of

green infrastructure and environmental site design. The use of green infrastructure should be increased substantially throughout Prince George's County. We commend MDE for the preparation of the restoration guideline for this purpose. However, we understand that MDE is now seeking to revise the guidance and we renew our request to be part of the revision effort.

Trash. The proposed permit's language on reducing trash from entering the Anacostia is commendable. We urge three additional provisions: explicitly require the establishment of baseline conditions of trash discharge into the Anacostia, require a 30 day public comment period for the trash, and require the permittee to comply fully with all terms of any applicable trash TMDL.

Monitoring. The current proposed permit for Baltimore City provides for the monitoring of one waterbody within the MS4. This is insufficient if there is to be a determination that in all City waterways the WQS and WLA are being achieved. Not every outfall needs to be monitored. A determination should be made as to how many outfalls would need monitoring to determine if the water quality parameters for the waterways are being met.

Public Access to Documents. AWS joins the Consortium in requesting that MDE make available on its web documents, such as permit annual reports and MDE analysis of them, etc. which would enable citizens to assess the efforts to implement the permit.

Implement the 2007 Maryland Stormwater Management Act. The 2007 Act required that local governments remove any impediments to the implementation of the 2007 Act. The time period to achieve this requirement has come and gone. The permit should be no more generous than one additional year for the removal of these impediments.

We appreciate the opportunity to submit this testimony.

Good morning. My name is Bruce Gilmore and I am a consultant to the Anacostia Watershed Society and the Coordinator of the Maryland Stormwater Consortium. I am here today in these two capacities.

We are pleased that the Department is holding this hearing today.

In representing the Anacostia Watershed Society, I would like to submit a statement for the record.

In addition, I would like to submit three documents for the record all of which were prepared by the Maryland Stormwater Consortium MS4 Work Group over the past year and a half and submitted to the Department.