Maryland Water Quality Trading Advisory Committee
Meeting Summary
Maryland Department of Natural Resources, Annapolis, MD
February 22, 2016

Committee Members in Attendance:

Tom Ballentine	*NAIOP Maryland Commercial Real Estate Development Association*
Bevin Buchheister	*Chesapeake Bay Commission*
Lynn Buhl	*Maryland Department of the Environment*
Jim Caldwell	*Howard County Office of Community Sustainability*
Valerie Connelly	*Maryland Farm Bureau*
Candace Donoho	*Maryland Municipal League*
Lisa Feldt	*Montgomery County Department of Environmental Protection*
Brent Fewell	*Earth & Water Group*
Patricia Gleason	*US Environmental Protection Agency, Region 3*
Terron Hillsman	*USDA/NRCS, Maryland Office*
Lynne Hoot	*Maryland Association of Soil Conservation Districts, Maryland Grain Producers*
Jeff Horstman	*Midshore Riverkeeper Conservancy*
George Kelly	*Resource Environmental Solutions*
Stephen Lafferty	*Maryland House of Delegates*
Kate Maloney	*Maryland State Builders Association*
Erik Michelsen	*Anne Arundel County Department of Public Works*
Shannon Moore	*Frederick County Sustainability & Environmental Resources Office*
Doug Myers	*Chesapeake Bay Foundation*
Dan Nees	*University of Maryland Finance Center* (Alternate – Sean Williamson)
Susan Payne	*Maryland Department of Agriculture*
Chris Pomeroy	*AquaLaw, Maryland Association of Municipal Wastewater Agencies, Maryland Municipal Stormwater Association*
Jenny Rhodes	*Maryland Agricultural Commission, University of Maryland Extension*
Mindy Selman	*USDA Office of Environmental Markets*
Helen Stewart	*Maryland Department of Natural Resources*
Rob Shreeve	*State Highway Administration*
Joe Tassone	*Maryland Department of Planning*
Lisa Wainger	*University of Maryland Center for Environmental Science*
Sara Walker	*World Resources Institute*

Facilitator:

Lauren Franke	*Maryland Environmental Service*

Other Attendees:

Vimal Amin	*Maryland Department of the Environment*
George Chmael	*Council Fire*
Jeff Corbin	*Restoration Systems*
Michelle Crawford	*Maryland Department of the Environment*
Lee Currey	*Maryland Department of the Environment*
Chandler Denison	*Johnson Mirmiran & Thompson, Inc.*
Brenda Dinne	*Carroll County Department of Land & Resource Management*
Michael Forlini	*Funk & Barton, P.A., Clean Chesapeake Coalition*
David Foster	*Trading and Offset Workgroup*
James Hearn	*Washington Suburban Sanitary Commission*
Christine Holmburg	*Maryland Environmental Service*
Steve Johnson	*Ballard Spahr LLP*
Virginia Kearney	*Maryland Department of the Environment*
Jason Keppler	*Maryland Department of Agriculture*
Marya Levelev	*Maryland Department of the Environment*
Bill Morgante	*Maryland Board of Public Works*
Ellen Mussman	*Baltimore County Department of Environmental Protection and Sustainability*
Julie Pippel	*Washington County Division of Environmental Management*
Russ Ruffing	*Johnson Mirmiran & Thompson, Inc.*
Phillip Stafford	*Maryland Department of Natural Resources*
Tim Wheeler	*Bay Journal*
Maggie Witherup	*Gordon Feinblatt LLC*

Action Items:

- Committee to review Sections III and IV of the Draft Water Quality Trading Manual
- Committee to submit written comments, suggestions, and questions on above Sections to facilitator by March 7

Meeting Minutes:

1. WELCOME & INTRODUCTIONS

Ms. Franke welcomed the meeting attendees and everyone introduced themselves.

2. REVIEW OF THE JANUARY 21 MEETING MINUTES

Ms. Franke asked the Committee members if anyone had comments regarding the January meeting minutes. Ms. Payne noted that the last names of Brent Fewell and Lisa Feldt had been switched, but the correction has already been made. The meeting minutes were approved as corrected.

3. REVIEW OF DRAFT TRADING MANUAL

Ms. Franke stated that the Committee had been asked to review Sections I and II of the Draft Trading Manual. Since there were some comments shared by many Committee members who submitted comments, they were used as the focus for beginning the discussion. The topics included: the use of the US Environmental Protection Agency (EPA)'s technical memos, interstate trading, geographic trading regions, contract disclosure, and public review and comment during the credit verification process.

Mr. Horstman expressed concern regarding compliance with the EPA's Technical Memoranda. Ms. Gleason stated that the Technical Memoranda are guides that are meant to lay out EPA's expectations, but they are not requirements. There is flexibility built in to the memos to allow the states to develop their programs. Ms. Buhl asked if the group had any thoughts on how closely the Draft Trading Manual should follow the Technical Memoranda and if some should be chosen over others or not used at all. Ms. Moore stated that some of the Technical Memoranda contradict others, which is the challenge when trying to be consistent with all of them.

Mr. Horstman asked about the Technical Memorandum regarding the 2:1 trading ratio from Nonpoint Source (NPS) to Point Source (PS). Ms. Buhl replied that 2:1 and 1:1 trading could both be appropriate, but that has not been fully investigated yet. Mr. Horstman stated, for NPS to PS, the 2:1 trading ratio is preferable, but the Technical Memorandum could provide the framework for deciding the ratios. Mr. Kelly stated that there are not a lot of analytics to support the 2:1 ratio, but the analytics have been shown to support a 1:1 ratio since uncertainty ratios, retirement ratios, and delivery ratios are already incorporated into the methodology. Mr. Kelly added that with the uncertainty mechanisms built in to the system, having a 2:1 ratio may be unnecessary.

Ms. Feldt asked for an explanation of the analytics. Mr. Kelly replied that the analytics come from the best management practices (BMPs) used in the Chesapeake Bay model, uncertainty ratios, and delivery ratios that are built into the credit calculation methodology. The Maryland Nutrient Trading tool is an example of how the analytics are used to decide the trading ratio. Ms. Payne stated that Maryland uses a performance-based system while Virginia uses a practice-based system. In Virginia, if the same five practices are used, no matter where they are installed within a watershed, the same number of credits is produced. Maryland's performance-based tool is a site-specific, farm-scale assessment tool that uses actual agronomic practices, location, soils, slope, weather, temperature, etc., and the credit generation capacity for no farms, even those side-by-side, would be identical. Issues with applying the 2:1 trading ratio are accounted for by the way the baseline is used to compute credits, as well as the delivery ratio. In addition, the 10% retirement ratio allows for a margin of safety and ensures a net decrease of nutrient and

sediment loads and a net benefit to the Bay. Ms. Payne added that the Draft Trading Manual states that the uncertainty ratios can be adjusted as necessary.

Mr. Horstman asked if the only BMPs allowed for use in generating credits were those approved by the Chesapeake Bay Program. Ms. Payne replied yes, those are the only ones that the trading tool uses to calculate credits. Mr. Horstman asked how the users of the tool will know what the delivery ratio is. Ms. Payne replied that the delivery ratio depends on location and appears on the Farm Summary. Mr. Myers stated that, when trading with a PS, there is an actual monitoring data point for what is coming from the end of the pipe. Ms. Selman stated that, in Maryland, there is no trading for PS compliance. The only NPS to PS trading would be for allocation of a new or expanding PS location and an average load to offset. Ms. Selman stated that when there is an allocation to a PS, there is uncertainty with the amount of the allocation that will be used as well as with the supply. Ms. Gleason stated that right now, the expectation is that for every one pound of offset needed, the PS is required to buy two pounds. Mr. Kelly asked if there was any policy for NPS to NPS. Ms. Gleason replied yes, a 1:1 ratio is acceptable for NPS-NPS trading.

Ms. Moore asked, regarding trading priority order for the regulated municipal separate storm sewer system (MS4) jurisdictions, how this would be accomplished considering the trading is for restoration as opposed to offsets and further raised concerns about the possible creation of "hot spots." Another issue brought up was determining how to apply the most restrictive geography to the generation of credits, and if there is a mechanism to adequately address the issue without increasing regulatory oversight. Ms. Moore suggested following the trading rules in the Draft Trading Manual, which should solve the geography issues since the trading is occurring within the boundaries of the watersheds. Mr. Pomeroy added that there is a very large potential for market-distorting effects, especially on price. If there is a required hierarchy and only one supplier in the watershed, then that supplier could dictate the price or even shut down the trade.

Ms. Selman stated that, regarding local water quality, the provisions have not been explained in detail and suggested that the measures being taken to protect water quality should be specifically discussed in the Draft Trading Manual. Ms. Buchheister asked, regarding trading the offsets and the amount of load from the local TMDL versus the amount of the load going to the mainstem of the Bay, which is considered more protective of local water quality. Ms. Payne replied that there have been discussions regarding two possible ways of trading; edge of segment and delivered to the mainstem of the Bay. The trading tool calculates credits both ways, as the number of credits for each segment and delivered. The tool also calculates credits based on the five trading basins.

Ms. Buchheister asked what types of adjustments will be made if the credits generated on the Eastern Shore are being bought by sources on the Western Shore but there is no improvement of the water quality on the Western Shore. Ms. Moore stated that, essentially, trading is being used to buy time. The long-term commitments are local to the watersheds of which the MS4s are a

part. MS4s are working towards long-term restoration goals that are specific. Trading allows for near-term restoration and pollution reduction. Mr. Kelly stated that there is a provision in the Draft Trading Manual regarding the willingness of the State of Maryland to make modifications and enhancements to the trading program as deemed appropriate in the future. The ultimate goal is achieving the Bay TMDL, and unless there is a local TMDL taking precedence, the program should focus Bay-wide first, and then narrow the focus down. Ms. Buchheister stated that the Draft Trading Manual is currently vague as to who would track trades and make sure that the trades are not lopsided. Ms. Payne stated that there would likely be political pressure within the jurisdictions to use credits that are generated in that jurisdiction. The credit registry tracks credits that are generated and sold and the use would be recorded. A demonstration of the credit registry, as well as the urban tool, will take place on March 14 at the Maryland Department of the Environment (MDE) (Committee members were sent information about these sessions directly by Ms. Payne).

Ms. Connelly requested that language regarding protecting agricultural lands for food production be added to the Guiding Principles on page 10 of the Draft Trading Manual. Mr. Fewell recommended that the EPA Allocation Basin and Maryland Trading Region maps be added to the document as a guide to clarify the trading regions. In line with the policy of prioritizing local TMDLs, Mr. Myers suggested identifying local TMDLs within the trading maps. This will help visualize where trading will most likely occur and where trading will have restrictions due to the local TMDLs. Mr. Horstman stated that because of the complexities associated with interstate trading, it should not be made a priority at this time. Mr. Shreeve added that the Draft Trading Manual should still state that interstate trades are appropriate if, under the right circumstances, the analytics indicate such trades will be successful and enforceable.

Mr. Pomeroy stated that the trading program implementation schedule needs to be discussed in consideration of MS4 permit compliance. Mr. Pomeroy asked if any constraints would be appropriate in the early years of the trading program. Mr. Pomeroy suggested that the group be cautious about imposing restrictions on trading in the interim years to keep the momentum of progress. Mr. Kelly noted, regarding the interstate trading issue, that it should be a placeholder. There is an issue of the "race to the bottom" if other states approaches are incorporated, which could bring in inconsistencies.

Ms. Wainger asked if there was any flexibility in allowing consortiums to share permits and work together towards meeting TMDL permit compliance. Mr. Horstman stated that there were references to watershed-based permitting in a later section of the Draft Trading Manual. Mr. Horstman suggested that land application of wastewater be removed from the Draft Trading Manual as an option for generating and acquiring credits. Several members responded that land application is already in practice in Maryland with restrictions and that this should not be a concern. Mr. Horstman asked if the Committee envisioned non-governmental organizations

(NGO's) being able to buy credits. Ms. Payne responded that they are considered a third-party in the Draft Trading Manual and would most likely buy credits for permanent retirement.

Mr. Kelly asked, regarding upgrading a minor facility to enhanced nutrient removal using State grants, if credits were not allowed to be generated if any State or Federal money was used for upgrades. Ms. Levelev stated that credits would be able to be generated once the baseline is established. Mr. Kelly stated that entities, specifically private sector enterprises under the Farm Bill, should not be allowed to generate credits if they have been given money from the State or Federal government. Ms. Moore stated that the proposed policy is inconsistent with current agricultural policy where a cost share can be used to meet the baseline, but any credits being sold have to be generated by non cost-shared practices. Mr. Myers stated that there is another issue of future capacity being given up by a PS if the credits are traded. There are areas where, beyond the guidance document, that regulations should state how much of the capacity can be traded away to prevent issues regarding future capacity.

Mr. Pomeroy stated that the definition of what a credit is should be clarified in the introduction of the Draft Trading Manual. Mr. Pomeroy also stated that in Section IV, the permit modification approach for implementing trades is discussed but it will most likely slow down trades. Mr. Pomeroy suggested that a certified, transparent, and enforceable program can be made available without modifying permits. Mr. Myers stated that permits for MS4s are different than permits for a waste water treatment plant (WWTP). Mr. Myers asked how a trade would be conducted with a permit for MS4s without modifying the permit. Ms. Buchheister stated that there is good authorizing language throughout the document (i.e., encouragement of alternative practices, stormwater outline documents, cross-sector trading, etc.) that leans towards confirming the stance of not having to modify MS4 documents to be able to conduct trades.

Ms. Franke requested that the Committee continue to submit written comments. Ms. Levelev stated that all comments received will be organized by section, and any policy issues will have to be addressed in coordination with the appropriate regulatory department.

4. AGGREGATORS, CONTRACTS

Mr. Kelly gave a presentation on the role of the aggregator. Please refer to Attachment 2 for a copy of the presentation.

Mr. Kelly outlined the role of third parties in nutrient trading. Aggregators take ownership and responsibility for the credits from a number of farms and ultimately sell to the buyer. The aggregator works with buyers and sellers, and the cost of a credit should reflect the true pricing of all elements of the transaction. Regarding certification of credits, an aggregator is usually responsible for the cost of the labor required for the analytics performed. Ms. Payne stated that the Maryland Department of Agriculture (MDA) is in the process of developing a cadre of

certified people to perform assessments and verifications. Mr. Fewell asked what a normal timeframe would be for the credit certification process. Mr. Kelly replied that a three-month time period is reasonable, but in the early stages, the process can take longer. Ms. Payne stated that the initial timeframe was longer due to the complexity of using a sophisticated calculation tool and user error.

Mr. Horstman asked who employs those individuals who would be certified to assess and verify credits. Ms. Payne replied that by legislation MDA is the only entity that can certify credits, but anyone can be certified to become a verifier. A certified verifier must perform the assessment and verification in the Agricultural Certainty Program but just the verifications in the trading program. Regulations state that a certified verifier must be a certified nutrient management planner, hold the US Department of Agriculture/Natural Resources Conservation Service Level II planner status (or equivalent), and demonstrate competency in the use of the trading calculation tool. The certified verifiers would be paid by either the farmer or the aggregator. Mr. Kelly added that current regulations state that buyer is responsible for paying for annual verification of the credits, which could be problematic. Ms. Payne stated that a credit can be sold pending implementation, but final certification does not take place until the practice is fully operational and inspected. Mr. Kelly stated that each practice has its own verification process.

Ms. Moore asked if the supplier is paying the aggregator for a 10-year hedge with a net present value and with the aggregator being liable for the annual supply of credits. Mr. Kelly replied that the aggregator would be responsible for the success of the credits sold. If the credits were sold upfront, then the aggregator would have to produce the credits annually and would be responsible each year to deliver. The aggregator would provide a contractual indemnity to the buyer and additional assurances through self-insurance on each project and through a portfolio approach. In the early stages, the insurance credits would have to be built up to enable the benefit of a portfolio approach. This commitment would be incorporated in the overall credit price. Regarding trading contracts, Mr. Kelly maintained that the State should only be able to certify credits, verify the eligibility of the permit, and determine if the registration is appropriate.

Mr. Lafferty asked who would regulate the aggregators. Mr. Kelly replied that no one regulates the aggregators. The system is built on a project-by-project basis, and there could be some guidance provided by the regulatory agency, but there has been no precedent for an aggregator certification process. Ms. Moore asked if the aggregators are bonded and insured in the event of defaults. Mr. Kelly replied that a performance bond requirement is built into the portfolio, which is not required by policy. An aggregator could have many projects to generate enough credits for a buyer. A meeting attendee asked, regarding the risk of responsibility, if it was envisioned that the aggregator could be a co-permittee on a discharge permit. Mr. Kelly replied that the subject has been investigated, but aggregators typically do not want to step into the underlying liability dynamics associated with a permit.

Mr. Kelly stated that, as long as the specifications are laid out, a process akin to real estate appraisal could be acceptable for valuing credits. Ms. Payne stated that there is a policy requirement of independent third party verification. Mr. Fewell asked if there were credits that would be available in case there was a failure in credit generation from the suppliers. Ms. Payne replied that this is the purpose of diversity in the aggregator's portfolio. Also, the spot market will be available to buy annual credits as a temporary fill until a replacement is found. A meeting attendee inquired about solar projects for use in the environmental market to obtain credits since the land would be retired from production between 20-30 years. Mr. Kelly replied that such an option can be explored, but the keystone issue is the infrastructure, the practice that would produce the benefit, and its integration with other practices.

5. MS4 JURISDICTION TRADING

Montgomery County MS4 Program – Lisa Feldt

Ms. Feldt gave a presentation on MS4 permit challenges and opportunities in Montgomery County. Please see Attachment 3 for a copy of the presentation.

Regarding the progress of restoration goals, all of the identified projects in Montgomery County are expected to be completed by 2020; there are over 4,000 projects that represent the full suite of projects. Montgomery County's portfolio tool is used for the forecasting of different performance elements (i.e., environmental quality components) to determine which type of projects will be the most successful to achieve restoration goals. Stream restoration is the most successful in terms of cost per impervious acre. The five-year permit cycle is very challenging, but having the trading tool will be beneficial in the restoration process.

Benefits of MS4s as Market Participants – Rob Shreeve

Mr. Shreeve gave a presentation on credit needs and procurement challenges for the State Highway Administration (SHA). Please see attachment 4 for a copy of the presentation.

Mr. Shreeve stated that SHA is not bound by one geographic area or by a single political boundary. The SHA MS4 covers eleven counties. Local TMDL commitments have to be met and require a 20% restoration of untreated impervious surfaces.

Benefits of MS4s as Market Participants – Erik Michelsen

Mr. Michelsen gave a presentation on MS4s and watershed restoration in Anne Arundel County. Please see attachment 5 for a copy of the presentation.

Mr. Michelsen stated that the restoration strategy for Anne Arundel County focuses on three different components: stormwater pond retrofitting, repairing damaged outfall areas, and stream and wetland restoration. The systems being repaired are heavily impaired and are large sources

of sediment and phosphorous contributions. They provide opportunity to provide high quality habitat and to achieve water quality goals. Annual maintenance practices have also been implemented, such as street sweeping and stormwater inlet cleaning. Anne Arundel County is looking at nutrient trading as a way to extend the compliance horizon. Trading on an annual basis until the restoration projects are implemented is a viable option to be able to achieve the restoration goals in a timely fashion.

Mechanisms for Yearly Trading and Crediting with WWTPs – Chris Pomeroy
Mr. Pomeroy gave a presentation on mechanisms for annual trading and criteria with WWTPs. Please see attachment 6 for a copy of the presentation and attachment 7 for the associated presentation notes.

Mr. Pomeroy outlined an example of PS to PS trading, which is currently occurring in Virginia for WWTPs. Virginia is in the process of adding MS4s to the trading system.

Questions and Answers
Mr. Caldwell stated that 75% of the 20% restoration goal in Howard County was located on private property and asked if SHA was going to investigate private-public partnerships or if most of the restoration is expected to be completed on SHA-owned property. Mr. Shreeve responded that, for SHA, it is mostly a mixture, and probably around 20-25% of restoration projects are located on private property.

Mr. Myers also asked if the cost per acre for restoration in Montgomery County included land acquisition. Ms. Feldt stated that she was unsure but would follow up. Ms. Maloney stated that the costs are for retrofitting, not new work.

Mr. Kelly asked, regarding the addition of MS4s to the WWTP trading program in Virginia, if legislation or regulation played a part. Mr. Pomeroy replied that the MS4 owners are currently implementing projects and trading has not been determined yet. The demand is not there yet and the program will be updating over the next 12 months, but the underlying regulatory guide is in place. Mr. Myers asked about the trading region and how it was established. Mr. Pomeroy stated that it is determined in the guidance. There are 72 owners of 105 significant wastewater plants, which are organized by five different trading regions by major tributary.

Ms. Levelev asked if MS4s trading with WWTPs was envisioned as trading using compliance credits (i.e., credits allowed in Virginia to annually comply with point source load caps) or MS4s 5-year term credits identified in individual WWTP permits. Mr. Pomeroy replied that both types of credits could be ordered in advance, either based on the forecasted credit supply or based on the annual performance and documentation. All credits will be based on the certified discharge monitoring reports of the credit generators. Ms. Moore stated that MDA's use of pre-

certification of credits is parallel to the described process. Ms. Levelev asked how forecasting accounts for wet weather. Mr. Pomeroy stated that even during a wet year, the numbers come out ahead due to extremely conservative forecasting. Mr. Horstman asked if there is a pollution savings from the 10% retirement of the credits, what would be the net savings for the Bay. Ms. Moore stated that PS's are required to have a 5% reduction. The buyer buys 105% and retires 5% immediately, which cannot be used again.

6. PUBLIC COMMENT

House Bill 325

Mr. Currey outlined the current use of the Bay Restoration Fund (BRF) and requested feedback from the Committee on House Bill 325. Currently, the BRF primarily provides grants to upgrade the State's 67 major wastewater treatment plants (WWTP) with enhanced nutrient removal (ENR) technologies, which will all be completed by 2018. At that time, in addition to paying the debt service on bonds, the funds will be used to provide grants for other means of reducing nutrients, such as ENR upgrades of minor treatment plants, stormwater BMPs, and sewer connection of failing septic systems. The State was able to cost-effectively upgrade these facilities as upgrades of larger WWTPs provide economies of scale. However, ENR upgrades at smaller WWTPs, stormwater management BMPs, and other practices will result in higher costs per pound for nutrient reduction, indicating decreasing cost effectiveness and efficiency.

A recent report by the University of Maryland Environmental Finance Center pointed out that the state has a unique opportunity to implement a financing system that incentivizes cost efficiency and could do so in the most cost-effective way possible. HB 325 is intended to use a portion of the BRF and does not negate the use of funds for previously agreed projects. This bill would authorize MDE to establish a market-based approach, which will allow the State to maximize returns on investment of public dollars through acceleration of implementation of the most cost-effective nutrient load reduction practices. It would lower the costs per pound reduction by means of a competitive process; promote public-private partnerships through public dollars invested in a private environmental market; and energize the nutrient credit trading market by providing a consistent stream of funding. As a result, the pace of achieving the Chesapeake Bay nutrient reduction targets under the State's Watershed Implementation Plan by 2025 will accelerate.

Committee members expressed concerns regarding equity, lack of details, limits on spending, and immaturity of the trading program. They have indicated that spending options may result in less funding for the upgrade of minor facilities and implementation of stormwater BMPs. Mr. Currey asked if the Committee would prefer to work through the details, establish a subcommittee, or put the bill on hold.

Ms. Selman asked if the legislation was to buy credits or reductions. Mr. Currey replied that it could be viewed as purchasing reductions, but the advantage of purchasing credits is that an

entity first has to meet its baseline. Ms. Moore stated that one issue is that there are already entities in line to receive the funding from the BRF, which is designed to help them meet the regulatory requirements. Mr. Currey stated that HB 325 would only use a piece of the BRF. Mr. Myers stated that until the Committee agrees on the Draft Trading Manual and trading begins, it will be unknown which side, supply or demand, will need the investment.

The general consensus from the Committee is that the proposed bill may be a good idea, but the timing is poor. The Committee would prefer to wait to finish working on the Draft Trading Manual before taking on discussions regarding the HB 325.

7. NEXT STEPS

The Committee was asked to read and review Sections III and IV of the manual for discussion at the next meeting. Any comments on Section I and II are still welcome.

8. UPCOMING MEETINGS

The next meeting will be held on March 21 at the Maryland Department of Natural Resources, 580 Taylor Avenue, Annapolis, MD 21401, Room C-1 on the main floor; from 1:00 to 4:00 p.m. Parking is available across the street at the Stadium. Attendees should use Gate 6, which is the State employees' entrance. The April 21 meeting will be held at MDE in Baltimore from 2:00 to 5:00 pm.