MARYLAND DEPARTMENT OF THE ENVIRONMENT

WATER QUALITY TRADING PROGRAM

Metropolitan Washington Council of Governments
Chesapeake Bay and Water Resources Policy Committee

November 16, 2018

Lynn Buhl, Assistant Secretary, MDE

Water Quality Trading Program

Development of Trading Policy in Maryland

- October 23, 2015 - MDA and MDE release Maryland Trading Policy Statement
  - Restoration Economy
  - Municipal Separate Storm Sewer System (MS4) permit holders allowed to trade for a portion of impervious surface restoration requirement
- August 29, 2016 - MDA regulations for generation, verification, and certification of agricultural credits
- July 16, 2018 - MDE regulations for the Maryland Water Quality Trading Program
  - Regulations were the culmination of 2 1/2 years of discussion and input from the Maryland Water Quality Advisory Committee

Water Quality Trading Program

What is the Water Quality Trading Program?

- Water Quality Trading Program
  - Establishes a water quality marketplace for meeting and maintaining pollutant load limits
  - Between the agricultural, stormwater, wastewater, and on-site sewage disposal sectors
  - Attracts public and private participation
  - Supplements the more traditional governmental approaches for improving water quality
- Goals
  - Enhance Maryland's effort to protect and restore
    - The Chesapeake Bay and its tributaries
    - Nontidal waters
  - Achieve results faster and at a lower cost
  - Accelerating efforts to restore and improve water quality

Water Quality Trading Program

State Agency Roles in the Trading Program

- Maryland Department of Agriculture (MDA)
  - Establish requirements for the generation and verification of credits
  - Responsible for the certification and registration of nonpoint source nitrogen, phosphorus, and sediment credits on agricultural lands
- Maryland Department of the Environment (MDE)
  - Establish requirements for the generation and verification of credits
  - Responsible for the certification and registration of:
    - Wastewater credits
    - Septic credits
    - Stormwater credits (and alternative practices)
    - Oyster aquaculture credits
  - Certification of trades to meet MS4 (Municipal Separate Storm Sewer System) requirements

Water Quality Trading Program

Terms

- **Credit:** A unit of load reduction equal to one pound of nitrogen, phosphorus, or sediment delivered to the tidal waters of the Chesapeake Bay
- **Credit Certification:** The process where credits are quantified by MDE or MDA
- **Baseline:** The practices, actions, or pollution reductions that must be achieved before a credit seller can generate credit
- **Registration:** The placement of credits on the registry after verification and certification
- **Registry:** The publicly accessible ledger of credits and trades
- **Verification:** The process through which credits are authenticated, either through annual reports or inspections by qualified parties

Water Quality Trading Program

Terms

- **Edge of Tide (EoT) Ratio:** A numeric adjustment to compensate for processes through which pollutants are reduced through natural processes before reaching the bay
- **Reserve Ratio:** A 5% reduction applied to registered credits to create a credit reserve
- **Uncertainty Ratio:** A numeric adjustment to account for inaccuracies in measuring pollutant reductions
  - 1:1 typically
  - 2:1 for trades from nonpoint sources to wastewater point sources

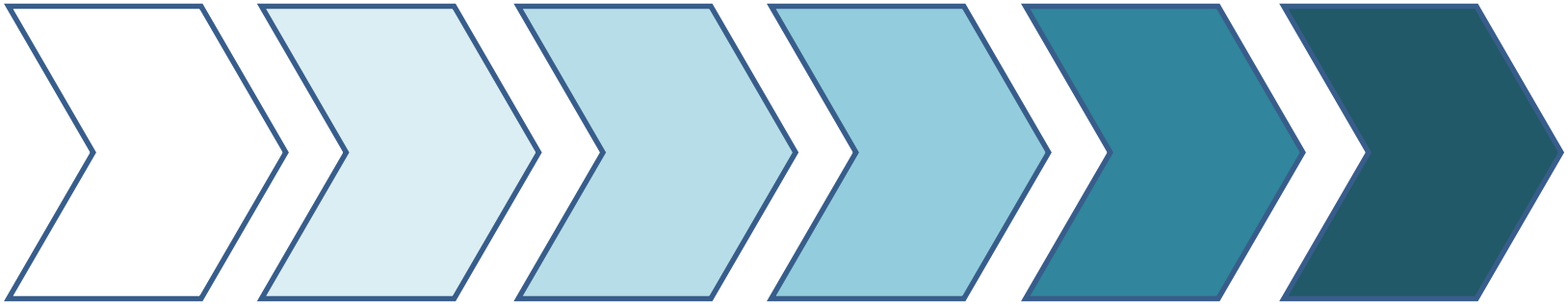
Water Quality Trading Program

Program Elements

- Voluntary
- Market-driven
  - State provides infrastructure but does not set prices nor conduct trades
- Establishes baseline conditions
- Uses only Bay Program-approved Best Management Practices (BMPs)
- Requires third party verification for stormwater, agriculture, and alternative practices
  - Proper BMP implementation and maintenance
  - Credit calculation
- Promotes transparency
  - Credit certification
  - Online, publicly accessible Registry and Marketplace

Water Quality Trading Program

How Credits are Created, Registered and Traded



A BMP is installed to reduce nitrogen, phosphorus or sediment

The BMP owner or other responsible party submits a certification form and verification documentation to MDE or MDA

The credit is certified and posted to the registry

The credit generator reaches an agreement with a credit purchaser, and a credit acquisition form is submitted to MDE

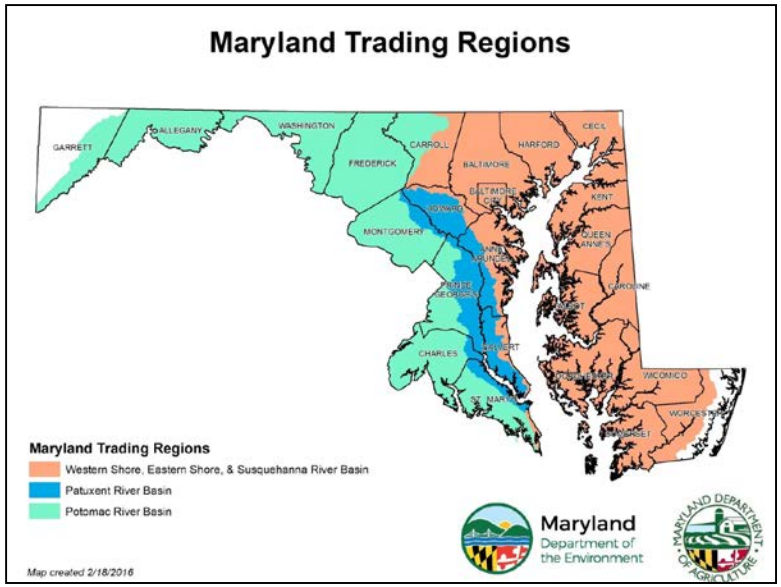
The trade is registered and the transfer of credit is posted in the registry

The credit purchaser applies the credit toward meeting a permit requirement

Water Quality Trading Program

Trading Regions

- Only credits generated in Maryland can be purchased or used in Maryland
- Trading regions are based on the geographical boundaries of the three large watersheds within Maryland:
  - Potomac River Basin
  - Patuxent River Basin
  - Eastern and Western Shore River Basins, including a portion of the Susquehanna watershed
- Trades must occur within the same trading regions



Water Quality Trading Program

Local Water Quality

- Credits may be used to comply with the applicable nitrogen, phosphorus, and sediment load or wasteload allocations of local TMDLS
- The use of a credit may not cause or contribute to local water quality impairments or prevent the attainment of local water quality standards
- Credits used within any impaired waters must be generated within such impaired waters or upstream of the credit user's discharge.

Water Quality Trading Program

Program Framework and Transparency

- Credits must be verified, certified, and registered before they can be traded
- A credit's lifespan is determined during the certification process and included in the credit registration
  - Credits are generated when a BMP is installed, placed into operation, and operation/maintenance guidelines are followed.
  - Credits may be certified for more than 1 year, but are applied annually

Water Quality Trading Program

Program Framework and Transparency

- Verification is required annually or at least every three years.
  - Wastewater credits are verified annually through Discharge Monitoring Reports (DMRs) required by the facility's NPDES permit
  - Stormwater, agriculture and alternate practices are verified through a State or County inspector, a professional engineer registered in Maryland, or a verifier that has been approved by either MDE or MDA
- MDE and MDA will maintain an online, publicly accessible Registry containing relevant information about credits, verification and trading activities, and credit usage

Water Quality Trading Program

Role of Permits

- Wastewater and stormwater permits are issued on a five-year permit cycle
- Issuance of individual permits allow MDE to manage trading activities through facility-specific conditions
  - Whether and how a permittee can generate credits
  - Degree to which permittee can use credits
- Coordination with other MDE regulatory programs will assist in the certification and verification of credit-generating BMPs
  - COMAR 26.04.03 – Water Supply and Sewerage Systems
  - COMAR 26.17.01 – Erosion and Sediment Control
  - COMAR 26.17.04 – Waterway Construction
  - COMAR 26.23 – Nontidal Wetlands
  - COMAR 26.24 – Tidal Wetlands

Water Quality Trading Program

Program Participation

- A person may only use credits generated and sold within the State to:
  - Comply with the applicable nitrogen, phosphorus, and sediment load or wasteload allocations of the Maryland portion of the Chesapeake Bay TMDL, local TMDLs, or NPDES permit requirements
  - Improve water quality
- To participate in the Trading Program a person must:
  - Meet appropriate baseline requirements
  - Implement a BMP approved by the Chesapeake Bay Program that is acceptable to the Department
  - Demonstrate a load reduction below the baseline requirements
  - Submit a Certification and Registration form to MDE or MDA

Water Quality Trading Program

Baselines

Baselines are the practices, actions, or levels of nitrogen, phosphorus, or sediment reductions that must be achieved before a credit seller becomes eligible to generate and sell credits.

- Baseline for an agricultural nonpoint source is determined by MDA in accordance with COMAR 15.20.12
- Baseline for a wastewater point source is based on an annual loading limit wasteload allocation established in the source's NPDES permit
- Baseline for a stormwater point source is the restoration requirement of the source's NPDES permit

Water Quality Trading Program

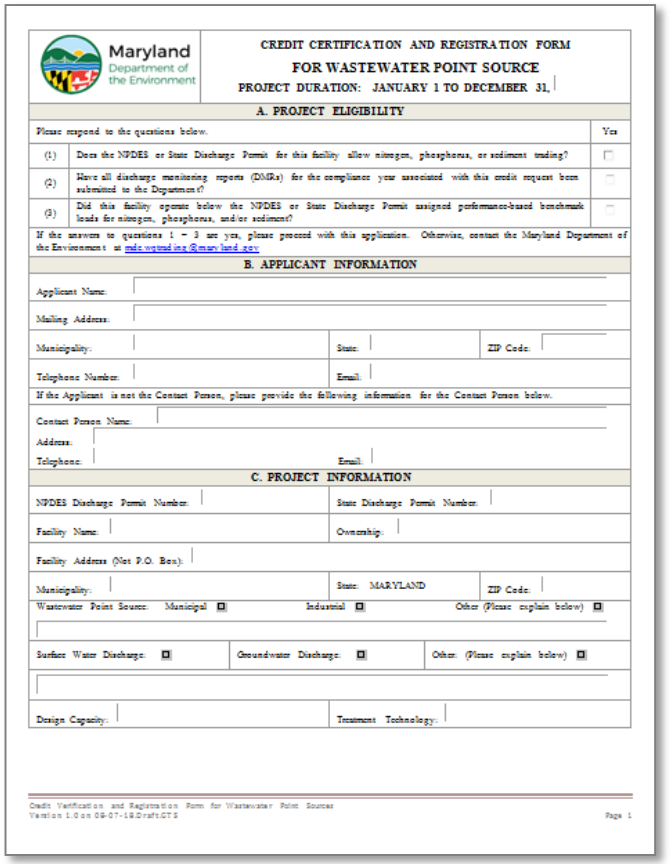
Baselines

- Baseline for a nonregulated source is the pollutant load generated under the conditions that existed prior to installation of the BMP
- Baseline load per equivalent dwelling unit for an on-site sewage disposal system is:
  - 18.56 pounds of nitrogen per year for a system located in the Critical Area for the Chesapeake and Atlantic Coastal Bays
  - 11.60 pounds of nitrogen per year for a system located within 1,000 feet of surface water
  - 6.96 pounds of nitrogen per year for all other systems

Water Quality Trading Program

Wastewater Performance-Based Credit Generation

- Modify discharge permit to allow trading (if necessary)
  - Establishes a Benchmark Load under which a permittee can generate credits
  - Establishes a formula for calculating and reporting performance-based credit
- Complete credit estimation spreadsheet
  - Credit based on performance over one calendar year
  - Form can be completed in January of subsequent year
- Submit credit certification form
  - To MDE Trading Administrator
  - MDE certifies credit and places credit on registry



Maryland Department of the Environment

CREDIT CERTIFICATION AND REGISTRATION FORM
FOR WASTEWATER POINT SOURCE
PROJECT DURATION: JANUARY 1 TO DECEMBER 31,

A. PROJECT ELIGIBILITY

Please respond to the questions below. | Yes

(1) Does the NPDES or State Discharge Permit for this facility allow nitrogen, phosphorus, or sediment trading?

(2) Have all discharge monitoring reports (DMRs) for the compliance year associated with this credit request been submitted to the Department?

(3) Did this facility operate below the NPDES or State Discharge Permit assigned performance-based benchmark loads for nitrogen, phosphorus, and/or sediment?

If the answers to questions 1 – 3 are yes, please proceed with this application. Otherwise, contact the Maryland Department of the Environment at mde.watertrading@maryland.gov

B. APPLICANT INFORMATION

Applicant Name:
Mailing Address:
Municipality: | State: | ZIP Code:
Telephone Number: | Email:

If the Applicant is not the Contact Person, please provide the following information for the Contact Person below.

Contact Person Name:
Address:
Telephone: | Email:

C. PROJECT INFORMATION

NPDES Discharge Permit Number: | State Discharge Permit Number:
Facility Name: | Ownership:
Facility Address (Not P.O. Box):
Municipality: | State: MARYLAND | ZIP Code:
Wastewater Point Source: Municipal ☐ Industrial ☐ Other (Please explain below) ☐

Surface Water Discharge: ☐ | Groundwater Discharge: ☐ | Other (Please explain below) ☐

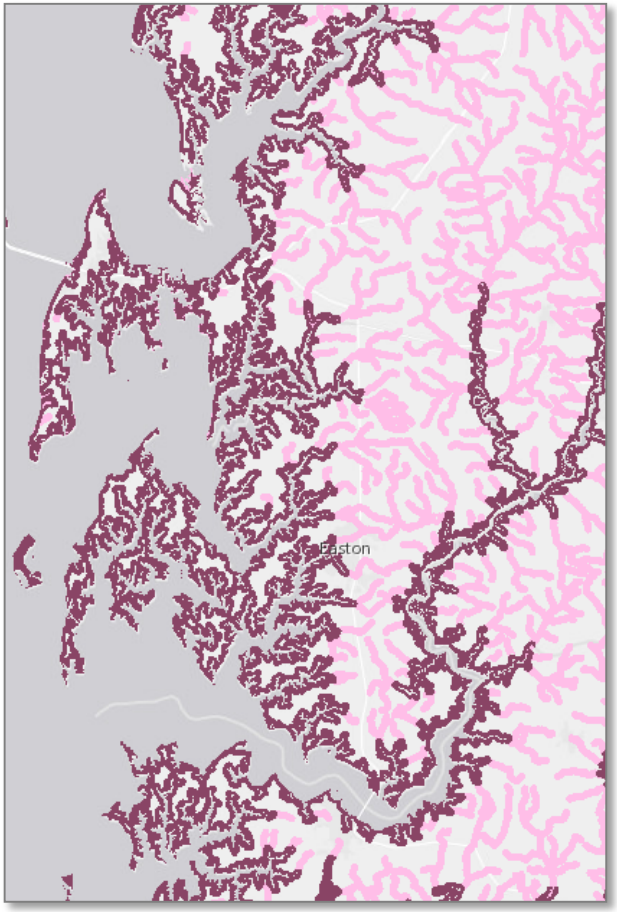
Design Capacity: | Treatment Technology:

Credit Verification and Registration Form for Wastewater Point Sources
Version 1.0 on 09-07-18/Draft/CTS
Page 1

Water Quality Trading Program

Septic Credit Generation

- Credit for BAT (Best Available Technology) Upgrade
  - Critical Area
    - 8.8 pounds/year at Edge of Stream
  - 1,000 feet from nontidal water
    - 5.5 pounds/year at Edge of Stream
  - All others
    - 3.3 pounds/year at Edge of Stream
- Credit for connections to WWTP
- This sector prompts question whether trading should recognize co-benefits such as public health



Water Quality Trading Program

Stormwater Credit Generation

- Credit Generation to follow current MS4 Accounting Guidance
  - Runoff Reduction practices
  - Stormwater Treatment practices
  - Stream Restoration
  - Shoreline Management
  - Forest Planting
  - Impervious surface removal
- Baseline
  - MS4s: Meet permit requirement
  - Non-MS4: Current conditions
- Verification
  - State or county inspector
  - Professional Engineer
  - Department approved verifier

- Maintenance
  - A maintenance plan must be in place during lifespan of credit
  - Must be done by seller, but can be transferred to buyer
- Clean Water Commerce Act
  - Limited amount of Bay Restoration Funds available to purchase nutrient reductions
  - Alternative to trading

Water Quality Trading Program

Oyster Aquaculture Credit Generation

- Based on the Chesapeake Bay Program Expert Panel Report on Oyster tissue Reduction

Default Estimates						
Oyster Size Class Range (inches)	Size Class Midpoint (inches)	Size Class Midpoint (mm)	Content in Oyster Tissue (g/oyster)			
			Diploid*		Triploid**	
			Nitrogen†	Phosphorus‡	Nitrogen†	Phosphorus‡
2.0 - 2.49	2.25	57	0.05	0.01	0.06	0.01
2.5 - 3.49	3	76	0.09	0.01	0.13	0.01
3.5 - 4.49	4	102	0.15	0.02	0.26	0.03
4.5 - 5.49	5	127	0.22	0.02	0.44	0.05
≥ 5.5	6	152	0.31	0.03	0.67	0.07

Water Quality Trading Program

Registry

- Two Step Process
  - Initially, credits generated from wastewater, stormwater, septic and oyster aquaculture practices will be posted on MDE's Water Quality Trading website in a basic ledger
  - Later, registry will be migrated to the Chesapeake Bay Nutrient Trading Tool
- Each credit will receive a unique ID indicating the year in which it was created

Water Quality Trading Program

Who Benefits? MS4 Phase I Permittees

- Phase I of EPA's NPDES stormwater regulations require certain urban jurisdictions to control pollution in stormwater to the maximum extent practicable. Maryland's Phase I permittees include:
  - Large Jurisdictions (Populations of greater than 250,00)
    - Anne Arundel County
    - Baltimore County
    - Baltimore City
    - Montgomery County
    - Prince George's County
  - Medium Jurisdictions (Populations of between 100,000 and 250,000)
    - Carroll County
    - Charles County
    - Frederick County
    - Harford County
    - Howard County
  - State Storm Drain Systems
    - State Highway Administration

Water Quality Trading Program

Who Benefits? MS4 Phase II Permittees

- Phase II of EPA's NPDES stormwater regulations applies to operators of regulated small municipal separate storm sewer systems (MS4s). Maryland's Phase II permittees in Washington metropolitan area include:
  - Bowie, Gaithersburg, Rockville, Takoma Park
  - Washington Suburban Sanitary Commission
  - Washington Metropolitan Area Transit
  - Maryland National Capital Parks & Planning
  - Also federal facilities, including:
    - Federal agencies and departments
    - Military Bases

Water Quality Trading Program

Parting Thoughts…

- Trading creates an opportunity and incentive for private sector participation in nutrient reduction efforts by establishing a market for more rapid, lower-cost solutions
- If local water quality is impaired, the regulations limit trading to a much smaller geographical area than the three trading regions, so we ensure that reductions will be made toward the counties' local water quality goals
- At present, MDE is allowing the purchase of credits to satisfy MS4 permit requirements, with the requirement that they be replaced by by structural practices by 2025
  - In the long term, there is no relaxation of the permits' quantitative requirement.

Water Quality Trading Program

Parting Thoughts…

- Trading incentivizes local stakeholder collaboration and innovation
- In other states, demand for credits is coming from the wastewater sector; thanks to Bay Restoration Fund, that is not the case in MD. Rather demand is created by stormwater permits. Future permitting cycles and lack of progress toward 2025 may change that.
- As the program becomes established and the Department gains experience, MDE will revise regulations and make operational changes to the Water Quality Trading Program as necessary
  - MDE welcomes feedback on program elements from both credit sellers and credit buyers
  - MDE will continue to look for opportunities to expand the use of nutrient credits to its other regulatory programs