

COMPARATIVE ANALYSIS OF WATER QUALITY CREDIT TRADING PROGRAMS AND PROJECTS IN MID-ATLANTIC STATES

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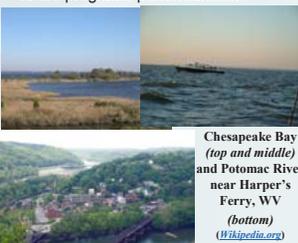


In all Mid-Atlantic States, Chesapeake Bay Agreement objectives drive the interest in trading programs. However, the states differ in the stage they are at in trading program development and their approaches.

Pennsylvania has already adopted state-wide policy for nutrient and sediment reduction credit trading. In turn, Virginia's Chesapeake Bay Nutrient Credit Exchange program does not necessarily stipulate credit trading, but allows credit exchanges and offsets. Pennsylvania's and Virginia's programs are different in many respects (Table 1), and as time passes, these differences can lead to differences in implementation results.

In the other Mid-Atlantic states, there are no state- or watershed-wide trading programs yet, however, there is significant interest in developing such programs (Table 2).

Comparison of trading programs across Mid-Atlantic States will help Bay stakeholders understand how policies for trading are evolving and to what extent they may contribute toward water quality improvements in the Bay. Different approaches to the design of the trading programs employed by Mid-Atlantic States can potentially influence future programs performances.



Chesapeake Bay (top and middle) and Potomac River near Harper's Ferry, WV (bottom) (Wikipedia.org)

Table 1. Comparison of Chesapeake Bay Nutrient Credit Exchange Program in Virginia and Trading of Nutrients and Sediment Reduction Credits in Pennsylvania Portion of Chesapeake Bay Watershed

	Similarities	Specific for Virginia Chesapeake Bay Nutrient Credit Exchange	Specific for Pennsylvania's Trading of Nutrients and Sediment Reduction Credits
Public water quality goals	Pollution reduction objectives specified in 2000 Chesapeake Bay Agreement	Nutrients	Nutrients and sediment
Cap for a watershed	Major basins and their caps are defined in the states' Chesapeake Bay Tributary Strategies.	Caps for nitrogen and phosphorus	Caps for nitrogen, phosphorus, and sediment
Program participants	<ul style="list-style-type: none"> Point Sources (PS) Regulator 	<ul style="list-style-type: none"> Nutrient Credit Exchange Association of PS; sets the rules of credit exchange State- and PS- funded Water Quality Improvement Fund (WQIF) – provides funding for wastewater treatment plants' upgrades and nonpoint source (NPS) best management practice (BMP) implementation 	<ul style="list-style-type: none"> Non-point sources (NPS) Aggregators / brokers Third parties
Regulated baseline for point sources (PS)	<ul style="list-style-type: none"> Expressed in lb/year Existing sources: load limits specified in NPDES (or VPDES in VA) permits Linked to design flow and effluent concentration limits New sources – baseline is zero 	<ul style="list-style-type: none"> General permit for existing significant PS in a watershed, which establishes waste load limits on the individual PS Allows re-allocation of loads within the group as long as the total waste load limits for the group as a whole are not exceeded 	VA and PA programs use different effluent concentration limits to determine PS regulated baseline
Regulated / unregulated baseline for NPS	NA	Non-point sources are currently excluded from credit exchange	<ul style="list-style-type: none"> For all NPS in a stream segment: Maximum tradable load – maximum volume of tradable credits (lb/year) Agricultural Sources: must meet Baseline: applicable plans required by existing regulations; and Threshold: one of the following <ul style="list-style-type: none"> 100 foot mechanical setback or equivalent; 35 foot buffer or equivalent; 20% pollution load reduction option. Non-agricultural NPS without NPDES requirements and concentrated animal feeding operations with NPDES permits: applicable state regulations.
Credits	<ul style="list-style-type: none"> Measured in lb/year Must be the pollution load reductions beyond regulated baseline for PS. Valid for one year Can be traded in the same watershed 	<ul style="list-style-type: none"> Nitrogen or Phosphorus Credits can be: <ul style="list-style-type: none"> generated by existing significant PS; adjusted by delivery factor to account for pollution transport in the water Offsets can be: <ul style="list-style-type: none"> used by expanding / new facilities to avoid increase in pollution load for the watershed as a result of their activities. 	<ul style="list-style-type: none"> Nitrogen, phosphorus, or sediment For NPS, must be the pollution load reductions beyond baseline and trading threshold Credits generated with agricultural BMPs funded through cost-share programs are generally allowed unless stated otherwise in provided funding; BMPs or other potential credit-generating activities occurring before or after January 1, 2005 may be submitted for review to determine credit eligibility. The trading program distinguishes between structural and non-structural BMPs
Credit price	Payment for credit purchase, exchange, or offset	<ul style="list-style-type: none"> Determined by rules set by Virginia Nutrient Credit Exchange Association Payments to WQIF can be made at the regional costs for unit pollution reduction 	Determined by demand and supply in the market. On-line marketplace is operated by PA DEP (http://pa.nutrientnet.org).
Trading Ratios	Number of load-reduction credits from one source can be used to compensate excessive loads from another source.	Instead of delivery ratio, credits are defined as load reductions adjusted by delivery factor	<ul style="list-style-type: none"> Delivery Ratio – accounts for pollution transport in water Reserve Ratio (10% of generated credits) - ensures that part of the credits is reserved to cover for possible failure of credit generating activities. Edge of Segment Ratio - estimates the amount of land-applied nutrients expected to reach the surface waters.



Susquehanna River and State Capitol, Harrisburg, PA (Wikipedia.org)



Potomac River, Mount Vernon plantation, VA (Wikipedia.org)

Table 2. Current State of Water Quality Credit Programs in Delaware, Maryland, and West Virginia.

	Delaware	Maryland	West Virginia
State- or Watershed-Wide Water Quality Credit Trading Program	Provisions for exchange of pollution load allocations between PS and NPS are written into Delaware Administrative Code, Title 7 (8.0 Water Quality Based Requirements).	Guidelines for administering nutrient offsets and trading are currently drafted. Preliminary guidelines were circulated for interagency and intergovernmental review in 2005.	In 2002-2004, Water Quality Trading Stakeholder Committee was unable to reach a consensus on developing a trading program.
Current Interest to Water Quality Credit Trading Program	Trading as a tool to implement Delaware's nutrient Total Maximum Daily Load (TMDL) plans.	Trading as a tool to maintain nutrient caps for wastewater treatment plants to accommodate population growth.	Trading as a tool to achieve nutrient and sediment reduction goals of WV Potomac Tributary Strategy (Chesapeake Bay drainage) and reduce acid mine drainage contamination.
Recent Initiatives	Trading considered as one of policy alternatives in proposed Pollution Control Strategies for Inland Bays, Christina, and Murderkill watersheds.	The draft of the Implementation Plan (IP) for the MD Chesapeake Bay Tributary Strategy proposes developing a trading/offset policy within 2 years from the IP approval.	<ul style="list-style-type: none"> WV Potomac Bank-and-Trade (2006 – 2009), Discussions related to WV Potomac Tributary Strategy (2005) Water quality trading framework to help implement the Cheat Watershed Acid Mine Drainage Total Maximum Daily Load (2002 - 2004)

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