Water Quality Trading in the Chesapeake Bay

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What is Water Quality Trading?

- Regulated source purchases credits in lieu of upgrades
- New or expanding source purchases an allocation
- Credits generated by other regulated sources or from unregulated sources like agriculture.
Benefits of WQT

• Reduces cost of compliance
• Accelerates pace of compliance
• Allows for growth under a pollution cap
• Provide incentive for nonregulated sources to meet TMDL allocation
Drivers for WQT in the Chesapeake Bay

• Chesapeake Bay 2000 Agreement
• Chesapeake Bay TMDL
• State-level policies
  – NPDES permits
  – Construction Stormwater
  – MS4 permits
State Trading Programs in the Chesapeake Bay

- Virginia
- Pennsylvania
- Maryland
Virginia

• Nutrient trading law signed in 2005
  – To provide flexibility for point sources to meet compliance schedules and cost-effectively meet upcoming loading caps
• Trading for P allowed to offset post-construction requirements in 2009
• Program expanded in 2012 to authorize MS4s, other sectors to trade
Virginia

- PS-PS trades for compliance; PS-NPS trades for new/expanded growth

- Virginia Nutrient Credit Exchange established for PS-PS trades

- Credits selling for $3.75/lb N and $5.65/lb P in 2017

- No trades to offset new or expanded growth
Virginia

- Post-construction stormwater offsets for P only
- Offsets must be permanent
- Credits generated through land conversion/stream restoration and/or urban BMPs
- Permanent P credits trading for up to $30,000/lb
Virginia

- Virginia only state to add numeric N and P goals to Phase I MS4 permits
- MS4 can trade with PS or NPS
- Arlington county currently exploring a trade with its WWTP
- VDOT has purchased NPS credits to help meet its MS4
Pennsylvania

- Nutrient trading policies and guidance issued in 2006
  - To meet regulatory obligations and offset new loads
- Trading regulations passed in 2010
- PS and NPS baselines updated 2015
- Offset options for MS4s recently added to permits
Pennsylvania

- Trades for permit compliance
- 82 trades in 2017
- Credits sold bilaterally (majority) and some through PennVest Auction
- Average price is $2.37/N and $3.75/P
- Credits generated from PS and NPS
Maryland

- PS-PS and PS-NPS programs established in 2008
- Ag credit generation policies & guidelines developed in 2008
- Legislation established in 2010/2012 for ag credit certification
- In 2015 trading policy expanded to include MS4s
- July 2018 regulations were approved guiding the exchange of credits for all sectors
Maryland

• WWTPs cannot trade to comply only to offset new and expanding growth
• No trades conducted under the new regulations
• MS4 trades would require a translation between impervious acres and nutrient loads
### Allowable Trading Scenarios

<table>
<thead>
<tr>
<th>When can trading occur?</th>
<th>Who can sell?</th>
<th>Wastewater</th>
<th>Municipal Stormwater</th>
<th>Post-construction Stormwater</th>
<th>CAFO</th>
<th>Septic</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Comply</td>
<td>Point sources</td>
<td>VA, PA</td>
<td>VA, MD</td>
<td>VA</td>
<td>VA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nonpoint sources</td>
<td>PA</td>
<td>VA, MD</td>
<td></td>
<td>VA</td>
<td>MD</td>
</tr>
<tr>
<td>To Offset</td>
<td>Point sources</td>
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</tbody>
</table>
## Trading Ratios

<table>
<thead>
<tr>
<th></th>
<th>Maryland</th>
<th>Pennsylvania</th>
<th>Virginia</th>
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</thead>
<tbody>
<tr>
<td>Delivery Ratio</td>
<td>Chesapeake Bay Watershed Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve Ratio</td>
<td>5%</td>
<td>10%</td>
<td>5% for NPS*</td>
</tr>
<tr>
<td>Retirement Ratio</td>
<td></td>
<td></td>
<td>5% for NPS*</td>
</tr>
<tr>
<td>Uncertainty Ratio</td>
<td>2:1 for NPS to PS</td>
<td>3:1 (for NPS-temporary)</td>
<td>2:1 for NPS to PS</td>
</tr>
</tbody>
</table>

* proposed
Agricultural Baseline

- A level of environmental performance that must be achieved before being eligible to trade.
- Because agriculture is not regulated, baseline is used to determine trading eligibility.
## Agricultural baseline

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</table>
| Meet a per-acre annual loading rate (e.g., lbs TN/acre) calculated from the Bay or local TMDL, whichever is more restrictive | (1) Implement a 100-foot manure setback, (2) implement a 35-foot vegetative buffer, or (3) reduce the farm’s total nutrient balance by additional 20% | Implement, as applicable:  
1) Soil conservation plan  
2) Nutrient management plan  
3) Cereal cover crops  
4) Fencing  
5) Riparian buffers |

### Performance-based
- EPA: TMDL

### Practice-based
- EPA: TMDL
- EPA: TMDL
Questions?

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