Pros and Cons of Four Successful Water Quality Trading Projects

1. *North Carolina, Tar-Pamlico River Basin program – Nutrient (N&P) Trading*

Pros

- PS dischargers formed an Association to meet a collective nutrient cap
- Informal trading between PS dischargers
- Reduced PS loading at much lower cost
- Association dischargers have installed nutrient removal as they expand
- State established required rules for NPS reduction
- Use of 2 agricultural NPS load accounting tools
- Able to regain endorsement of environmental NGOs for latest phase of program (Phase 3; 2005-2014)

Cons

- Determining actual NPS load reduction (nationwide problem)
- Issues with life and cost of credits; credit value does not account for inflation
- Low number of real PS/NPS trades; Because dischargers have not exceeded cap, NPS have received less funding than expected for BMPs.
- Farmers dissatisfied with Phase 2 (1995-2004) changes to trading program.

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2. *North Carolina, Neuse River Basin program – Nitrogen Trading*

Pros

- PS dischargers formed an Association to meet a collective nitrogen cap; Association secured group NPDES permit
- Informal trading between PS dischargers
- Formal point to point trading between Association members and non-members
- Reduced PS loading of TN at much lower cost
- Hot spot avoidance: Association penalizes members who do not meet individual TN allocations, regardless of collective cap compliance
- Indirect PS/NPS trading with Wetlands Restoration Fund addresses local watershed concern (intensifying land development)

- State maintains individual PS enforcement, despite "bubble" approach.
- Transport factors incentivize PSs with most harmful discharges to reduce load
- Higher rates for new or expanding dischargers control growth in watershed

Cons

- Low number of real PS/NPS trades; Because dischargers have not exceeded cap, NPS have not received offset payments.
- Farmers might be unhappy with being shut out of PS/NPS trades.
- Uncertainty of quantifying NPS load reduction through restoring wetlands
- Hot spots: TMDL and transport factors only consider water quality at the endpoint. However, hot spots could occur *between* the PS and endpoint

3. *Connecticut, Long Island Sound Nitrogen Trading Program*

Pros

- Simple to execute and required minimal manpower, while achieving significant TN discharge reduction at low cost
- The General Permit has been an effective and simple tool to frame the program
- Involves huge number of PSs – 79 WWTPs.
- Effective tracking of trades
- The program incentivizes PSs to improve beyond their requirement
- Equivalence ratios incentivize PSs with most harmful discharges to reduce load
- EPA considers this a model program
- Credit value is reset annually; credit value and life issues are clearly stated
- The use of a credit advisory board instead of a free market is meant to protect poor communities

Cons

- The state bears the risk of paying out money each year
- Hot spots: TMDL and equivalence ratios only consider water quality at the endpoint. However, hot spots could occur *between* the PS and endpoint
- No current NPS involvement in trading

4. *Michigan, Kalamazoo River Phosphorus Trading Demonstration Program (1997-2000)*

Pros

- Valuable lessons learned on how to engage farmers in trading
- Service Agreement established contractual, non-permit, obligation for NPS participants. This makes NPS accountable for their part of the transaction without using a command and control approach.
- Cautious approach to avoid hot spots

Cons

- No actual trades occurred
- Lengthy approval process for trades reduced the program credibility
- Need to modify individual PS NPDES permits slows the process