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Emerging Markets and Market-like Approaches to Watershed Quality



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Preview

- Practical needs for pursuing PWS market or market-like programs (not necessarily pilot projects)
- Ecosystem market framework considerations
- Examples of regulatory and voluntary programs
- Taking PWS to scale
- Program principles and considerations

Fundamental needs for PWS

Program developers need to...

- Identify a clear goal and purpose
 - leads to participant buy-in
- Define the problem, sources, likely solutions and scale. This will...
 - identify the market participants
 - establish the technical issues/needs
 - identify the environmental credits and potential value
 - help establish metrics that define program success
- Otherwise...buyers and sellers will not engage resulting in thin markets, heavy on administrative costs and limited on environmental benefits

Ecosystem market frameworks

- Quality

Regulatory – Direct cost implications of compliance options

Voluntary – Recognizing a resource need and issue that affects short-term and long-term profits, sustainability or participant needs

Program goals must be clearly defined...

Regulated program examples

- North Carolina Ecosystem Enhancement Program (U.S.)
 - state buys wetlands and stream restoration credits for offsetting highway development impacts
- Eco-tax (Columbia, S.A.) – Industrial water users pay landowners implementing water conservation practices
- Southern Minnesota Beet Sugar Co-op (U.S.) – Beet growers paid for spring cover crops to reduce nutrient loads as offset for beet processing plant discharge compliance
- Great Miami River Water Quality Trading (Ohio, U.S.) – Wastewater treatment plants pay farmers for nutrient reduction conservation practices instead of expensive plant upgrades

Voluntary program examples

- PDAM (Indonesia) – Public water supply utility helps landowners with free services to implement conservation practices
- Programme for Sustainable Agriculture on the Hillsides of Central America – Governments pays land owners for soil & water conservation practices to decrease water scarcity
- Working for Water (South Africa) – poor are hired by government to eliminate water-hungry, riparian invasive trees (moving towards private buyer offsets)
- Rewarding Upland Poor for the Environmental Services (Asia) – PES program ‘broker’ for rural poor and private hydropower buyers paying for conservation practices to protect water supplies

Other emerging U.S. market examples

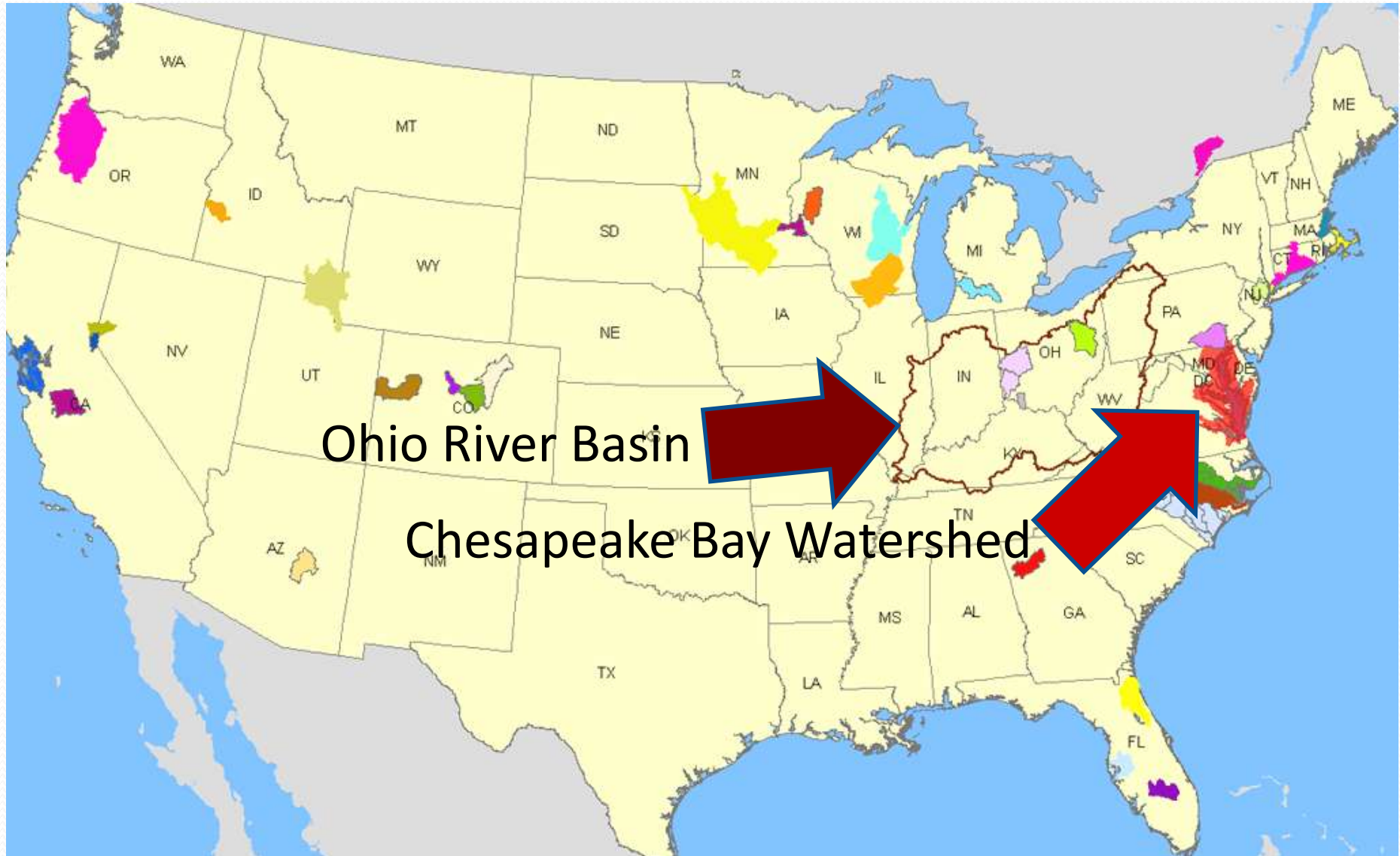
- Source Water Protection
 - Groundwater – agricultural nitrogen fertilizer reductions
 - Surface water – agricultural conservation practices for sediment and bacterial runoff
- Urban Storm Water Quality & Quantity
 - Legally complex -- yet the highest cost landuse retrofit required to reduce sediment, nutrient and bacterial loads. High costs leading to low cost agricultural offsets.
- Pollinator habitat
 - Agriculture dependent on pollinator contractors... payments for plant biodiversity in critical seasons
- Stacking ecosystem service payments



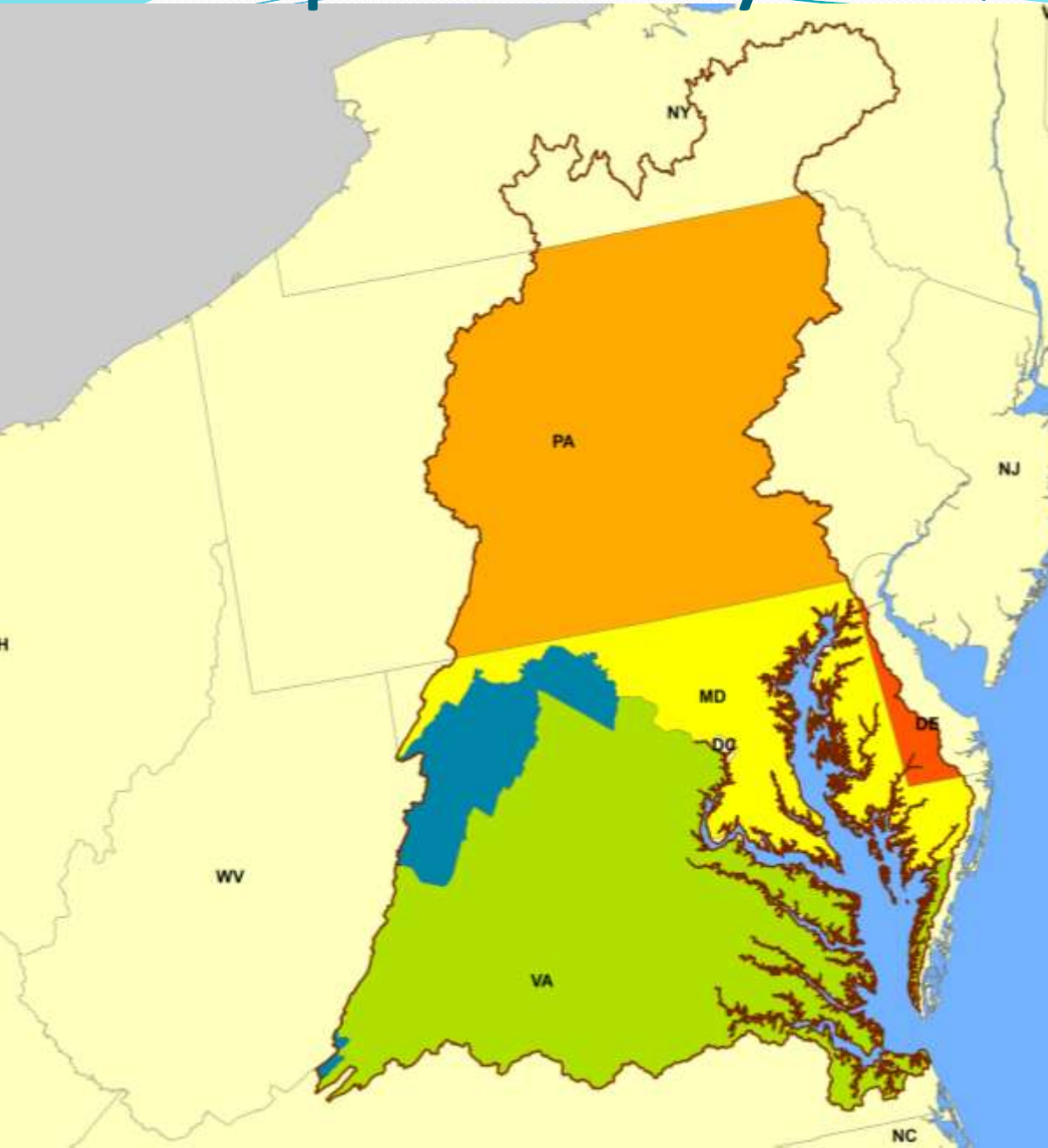
Challenges for effectively taking PWS to a sustainable scale

- Disconnected, small-scale pilot projects
- Lacking information/capacity to design and manage PWS deals
- Water supply and hydropower conflicts
- Dealing with water quality impacts at scale
- Technical uncertainty with cause & effect
- Poverty alleviation...lack of sufficient buyers
- Same challenges exist for voluntary AND regulatory market schemes around PWS

PWS (WQ trading) programs at scale



Chesapeake Bay WQT



Bay Features:

- 16.6M hectares
- 6 states

Bay Problems:

- Hypoxia
- SAV losses
- Fisheries impacts
- Shellfish impacts

Approach:

- Bay-wide reductions in Sediment, TP, TN loads

Trading:

- Individual state programs moving to interstate trading

Ohio River Basin WQT



Basin Features:

- 52M hectares
- 8 states

Basin Problems:

- Local eutrophication
- Gulf of Mexico Hypoxia (far-field)

Approach:

- Nutrient standards
- Require new WWTP upgrades to reduce TP & TN discharges

Trading:

- One program for >7,000 WWTPs in 8 states
- >\$1B savings for cities
- >\$140M/yr investments in agriculture

PWS principles to consider

- Accountable – Demonstrable reductions from trades
- Additional – Surplus reductions beyond baselines
- Beneficial – Net environmental benefits (credit retirement with each change)
- Defensible – Based on reliable science & methods
- Economical – Should lower costs of WQ protection
- Enforceable – Procedures in place to fulfill obligations
- Equitable – Avoid bias in participation and credit value
- Flexible – Adaptable to new technology & information
- Transparent – Publicly accessible information

Program delivery

- Use coalitions of existing agencies and local champions. This will...
 - Promote principles of shared responsibility and cooperation
 - Facilitate use of existing administrative structures
 - Encourage local innovation & management
 - Utilize proven monitoring and compliance checks
 - Promote fairness & minimize conflicts of interest
 - Promote cost-sharing arrangements
 - Link to other programs and objectives integrating delivery and adaptive management opportunities

Stakeholder participation

- Strong local leadership (“champions”)
- Robust and open communication
- Defined stakeholder interests and motives
- Establishing common goals
- Balancing consensus agreement with progress
- Documenting decisions

PWS program success will require...

- Clearly defined goals to best manage expectations
- Balance of PWS capabilities with other programs and other requirements
- Best available science with adaptation to new information
- Accepting some technical uncertainty but addressing issues programmatically
- Sustainability that recognizes both buyer demand & seller value (economic and operational)

