

# Water Quality Trading Program Structures: What Works and What Doesn't Work

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# Outline

- Foundation
  - Principles
  - Conditions that favor trading
- *Structure*
  - Key components of a trading program
  - Examples from other programs
  - Options for Passaic Trading Project

# How Trading Works

- A 'cap' or limit is placed on the total amount of pollutant that can be released from all sources
- Sources receive an allocation, i.e., authorization to release a given amount of pollutant
- Sources can meet their allocation by:
  - Making all necessary reductions on-site OR
  - Buying additional allocations - credits - from other sources that have reduced pollutants below their own allocation

# How Trading Works, cont'd

- The exchange of credits to meet the water quality cap is 'trading'
  - BUYERS have high pollutant control costs
  - SUPPLIERS have lower costs
- Water quality trading (WQT) takes different forms
  - Point/point source trades
  - Point/nonpoint source trades

# Foundation: Principles

- Water quality trading is a tool to help meet water quality goals
  - At lower cost
  - Sooner than might otherwise occur
  - Multiple benefits
- Water quality trading is **not**
  - A way to evade responsibility for water quality goals
  - A way to dismantle the CWA
- Key functions for all trading programs
  - CWA compliance, public information, connecting buyers/sellers

# Foundation:

## Conditions that favor trading

- Water quality problem and pollutant sources are characterized
- Desired water quality target is in place, e.g., consensus cap or TMDL → Driver
- Multiple point sources face more stringent permit limits, i.e., water quality-based limits
- Significant pollutant control cost differences exist among PS

# Foundation:

## Conditions that favor trading (2)

- Sufficient modeling, data available to assess relative water quality impact of trades
- States, stakeholders willing to take nontraditional approach
- \* Rutgers/Cornell developing project
  - Research based
  - Neutral party

# Trading Structures

- What is it ?
- Why does it matter ?
- Permit systems
- Potential trading structures for the Passaic

# Trading Structures

- What is a trading structure?
  - The overall process for executing trades
    - How does a discharger buy or sell credits?
    - What is the role of the regulator in permitting or rejecting trades? How does the regulator evaluate compliance?
- Poorly planned structure is common pitfall in other trading programs
- Structure should have flexibility, accountability, enforceability

# Components of a Trading Structure

## Permit system

- Define compliance for PS
- Maintain ability for Regulator to enforce against noncompliance
- Define trading area boundaries
- Define credits
- Enable communication among credit buyers and sellers
- Clear approval process for trades
- Monitoring and reporting
- Ensure accountability and define liability for pollutant reductions
- Ensure avoidance of hotspots
- Track trades and progress towards WQ goals
- Manage risk among parties to trades
- Provide information to the public and other stakeholders
- **NGO support**

# Importance of Permit system

- Permit system → structure → likelihood of success
- Different permit systems → Different structures
  - Individual point source *or*
  - Watershed-based permitting system

# Trading Structures That Work

- Long Island Sound (Connecticut)
  - Watershed-based permit, i.e. general permit
  - Trading process: WWTPs have individual load limits for total nitrogen (TN). Trades are made indirectly through state agency
  - Trading ratios are defined in general permit
  - Formula for price of a credit is defined in the general permit; price is updated annually
  - Trades are easily tracked
  - Program is simple to administer
  - WWTPs continue to monitor and report TN

# Trading Structures That Work

- Lower Minnesota River
  - Watershed-based permit, i.e. general permit
  - Trading process: WWTFs have individual limits for total phosphorus (TP). WWTFs can CHOOSE to trade directly on individual basis or form trading associations.
  - Trading ratios are defined in general permit
  - Price of a credit is negotiated by the buyer and seller
  - Option of trading association reduces risk of noncompliance
  - Trades are easily tracked
  - Program is simple to administer
  - WWTFs continue to monitor and report TP
- Programs that use watershed-based permits have simple and clear processes to make trades

# Successful trading programs have successful structures

- ✓ Define compliance for PS
- ✓ Maintain ability for Regulator to enforce against noncompliance
- ✓ Define trading area boundaries
- ✓ Define credits
- ✓ Enable communication among credit buyers and sellers
- ✓ Clear approval process for trades
- ✓ Monitoring and reporting
- ✓ Ensure accountability and define liability for pollutant reductions
- ✓ Ensure avoidance of hotspots
- ✓ Track trades and progress towards WQ goals
- ✓ Manage risk among parties to trades
- ✓ Provide information to the public and other stakeholders
- ✓ NGO support
- **Permit type**– selection of individual point source or *watershed based permitting system*

# Common trading obstacles

- TMDL not in place
  - Rock River (WI)
- Uncertain trading guidelines and transaction costs
  - Fox Wolf (WI)
- Complicated approval process
  - Chatfield Reservoir (CO), Cherry Creek (CO), Lake Dillon (CO), Kalamazoo (MI)
- Flawed trading ratio could have created a hot spot
- Difficulty identifying participants
  - Kalamazoo (MI)
- Not economically favorable to trade
  - Blue Plains (VA), Red Cedar River (WI), Boulder Creek (CO)

*Trading Structures  
That Don't Work*

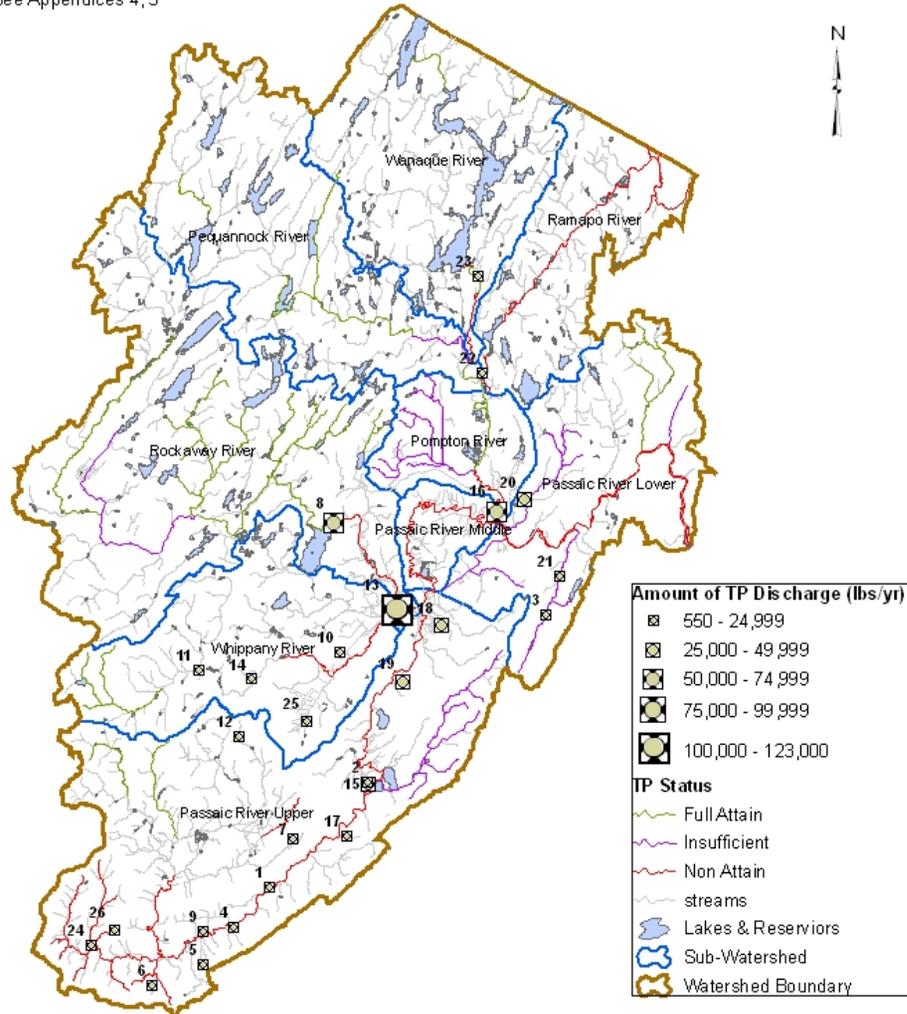


# Options for Passaic project

- 3 possible structures
  - Market-like trading
  - Direct trading for water treatment
  - Trading association
- *MS4s and WWTPs can have different trading structures*

## Phosphorus Impaired Streams & WWTP Loads

See Appendices 4, 5



Data Source: NJDEP: 2004 Integrated List, DMRs, Phase I TMDL (Proposed); TRC Omni

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0 1.5 3 6 9 12 Miles

# Structure 1: Market-like trading

- Original vision for WQT - market environment for trading
  - Buyers and sellers find each other and negotiate trades
  - Permit type
    - TP limits for each PS are set in *watershed-based* permit (Lower Minnesota River approach)
- OR
- Each PS gets individual NJPDES permit for TP

# Structure 2:

## Direct trading for water treatment

- Permit type
  - Each PS gets individual NJPDES permit for TP
    - TP limit based on TMDL WLA
- PS that exceed TP limits compensate water purveyor for cost of added water treatment
- Compensation – negotiated or predetermined by unit price for TP load exceedance
- Which state authority can approve these trades?

## Structure 3: Trading associations

- Permit type
  - PS form an association, receive *watershed-based* permit for TP
  - Permit gives collective cap for association
  - Cap = sum of WLAs from PS
- PS in group permit can trade among themselves to meet collective cap
  - If association violates cap, receive penalty proportional to cap exceedance

## Structure 3: Trading associations (contd.)

- Most flexible structure
- Reduces risk of noncompliance for a WWTP
- Internal trading within the association is not subject to NJDEP approval
- NJDEP would retain right to inspect individual WWTPs and enforce as needed
- Monitoring and reporting requirements for TP specified in group permit
- PS continue to have NJPDES permits for other parameters

# EPA supports watershed-based permitting (WBP)

- Advantages:
  - Better quality NPDES permits
  - Less contentious permit issuance
  - Mechanism to implement TMDLs
  - Foundation for water quality trading
  - Emphasis on environmental results due to watershed planning
  - Attainment of watershed goals

# Watershed-based permit for the Passaic

- Feasibility of WBP for Passaic watershed
  - WWTP association already in place: Passaic River Basin Alliance
  - EPA guidance: 6 steps to WBP
    - Steps 1-3 already complete
- Passaic WBP requires strong support and advance effort from NJDEP

# EPA guidance on WBP

## Basic Steps to WBP

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**Step 1: Select a Watershed**

**Step 2: Identify and Engage Stakeholders**

**Step 3: Analyze Watershed Data**

**Step 4: Develop Permit Conditions**

**Step 5: Issue Watershed-Based NPDES Permit(s)**

**Step 6: Measure and Report Progress**



Office Wastewater Management

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## Structure 3: Added Benefits

- Protection for low income municipalities
  - As part of an association, not left alone to meet WWTP and MS4 allocations for TP
- MS4 group permit is potential catalyst for stormwater utilities in NJ

## Further steps for Passaic Trading Structure

- Consider phasing in the target cap
- Develop water quality equivalence ratios (i.e. trading ratios)
- Develop strategies to avoid hot spots
- Account for growth

# Recommendations from other programs

- Know your constituents
- Make environmental data available and understandable
- Make policy based on scientific data
- A fiscal impact statement is a valuable tool to demonstrate value of WQT
- Trading process has to be simple, flexible, accountable, enforceable
- What is purpose of trading – interim fix or long term solution?

**For more information:**

[www.water.rutgers.edu/Projects/trading/WQTrading.htm](http://www.water.rutgers.edu/Projects/trading/WQTrading.htm)