

Iowa League of Cities



Overview of Water Quality Trading Programs

Watershed Planning Advisory Committee



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Overview

- **What we will discuss today:**
 - Clean Water Act Basics
 - Nutrient Trading Programs in the US
 - Discussion of the Development of an Iowa System



Clean Water Act (CWA) – A Brief History

- Modern Clean Water Act (CWA) was initially passed in 1972.
- 1898 Rivers and Harbors Act
- The CWA was based on Federal Water Pollution Control Act of 1948.
- Poor behavior by Cities and Industries
- While minor tweaks and additions have occurred throughout the years, the CWA is the basis of pollution control of US waterways today.



CWA: National Pollution Discharge Elimination System (NPDES)

- Permit program that controls water pollution by placing effluent limitations on **point sources** that discharge pollutants into waters of the United States.
 - “Any discernible, confined and discrete conveyance... from which pollutants are or may be discharged.”
- Principle enforcement tool of the EPA for point sources (PS).



CWA: Role of Cities in Water Quality

- Unique Position as:
 - Regulated through Waste and Storm-Water Permits
 - Regulators through Pretreatment Permits
 - Users as Drinking Water Sources
- Success Has a Price Tag
- To offset costly restrictions by a TMDL on PS's, the EPA allowed for alternative methods to meet reduction requirements.
- One solution was water quality trading between PS to PS or PS to NPS.



Nutrient Trading

- Nutrient trading is the exchange of the same or increased nutrient reduction at one source to offset the costs of reduction at another source.
- Programs are used by PS's to offset costly NPDES permits load reduction requirements.
- Trading can be put into practice at various levels including watersheds, river basins, statewide, or multi-state.
- Need buy-in from the EPA to impact the NPDES permit.



Water Quality Trading in the US

- Water Quality trading is used in numerous states and watersheds across the country.
- **Not one state has the same trading system.**
 - Trading systems are designed for a specific need in that state.
 - Some trading systems are state controlled while others are managed by a non-profit or watershed authority.
- **Technology-Based Standards have not been widely utilized for trading.**
- Wide range of items traded:
 - Phosphorus (P)
 - Nitrogen (N)
 - Sediment
 - Heat
 - Bacteria

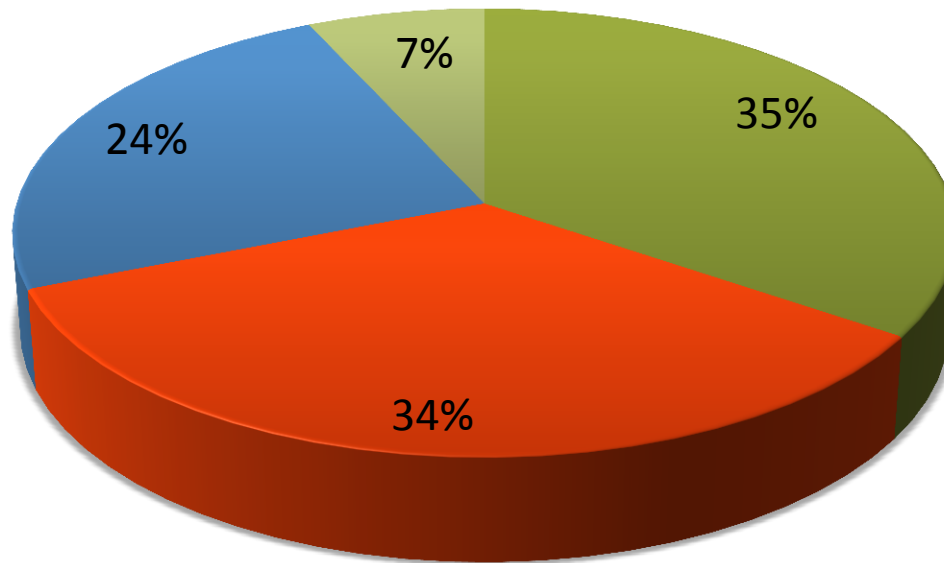


Water Quality Trading Findings

- 40 different trading programs were reviewed for the study
- The focus of the research centered on how other trading systems function and key takeaways for an Iowa trading program.
- Quick Findings:
 - **10 actively trading, 3 active trading PS to NPS**
 - **Scale of Trading** – 2 Multi State, 6 Statewide, 18 Watersheds
 - **Credit Costs** – \$1.48 to \$10 for active trading for pound per a year reduction
 - **NPS Baselines** - 11 Baselines, 2 Minimum Baselines



Water Quality Trading: Managing Entity



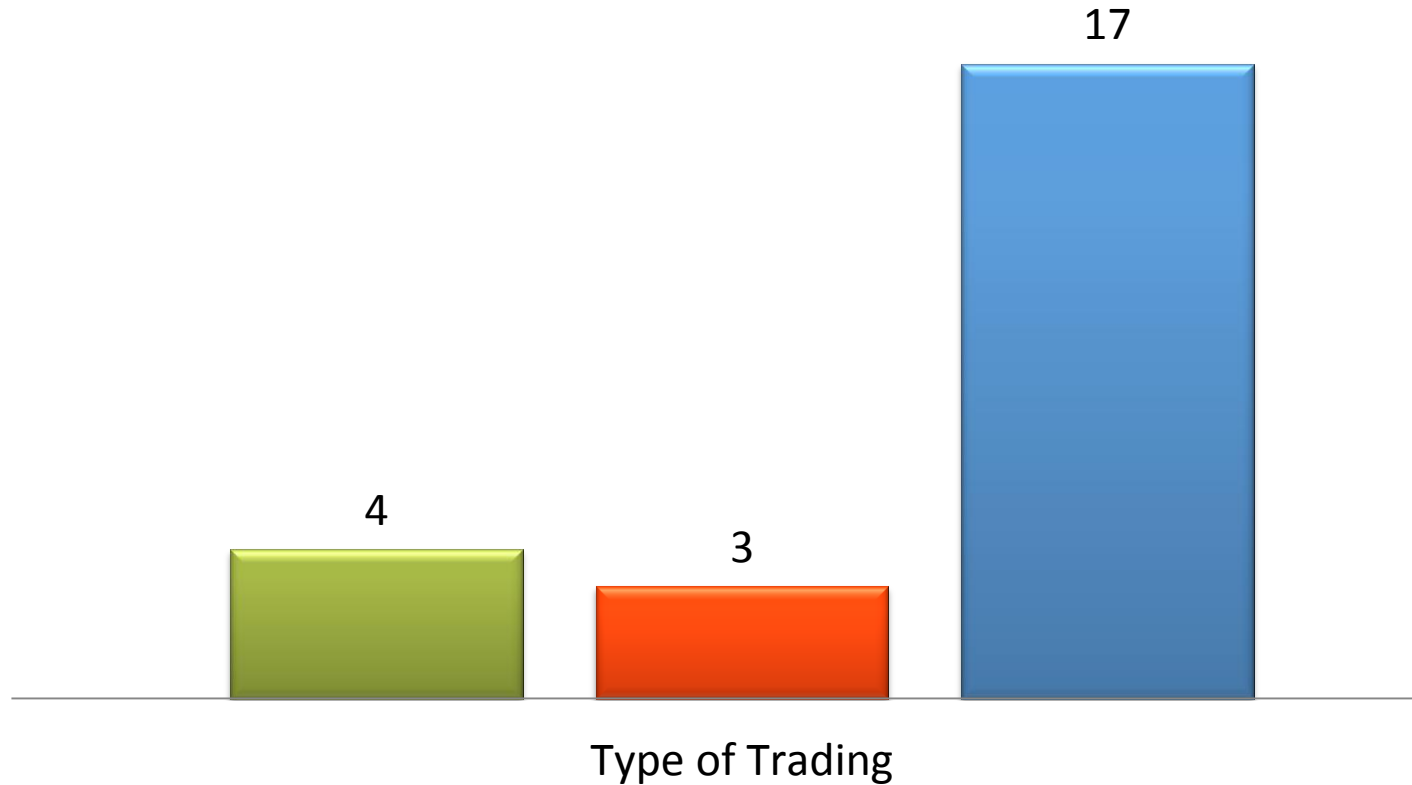
- Government - 10
- Nongovernment - 10
- Hybrid - 7
- Private - 2



Water Quality Trading: Type of Trading

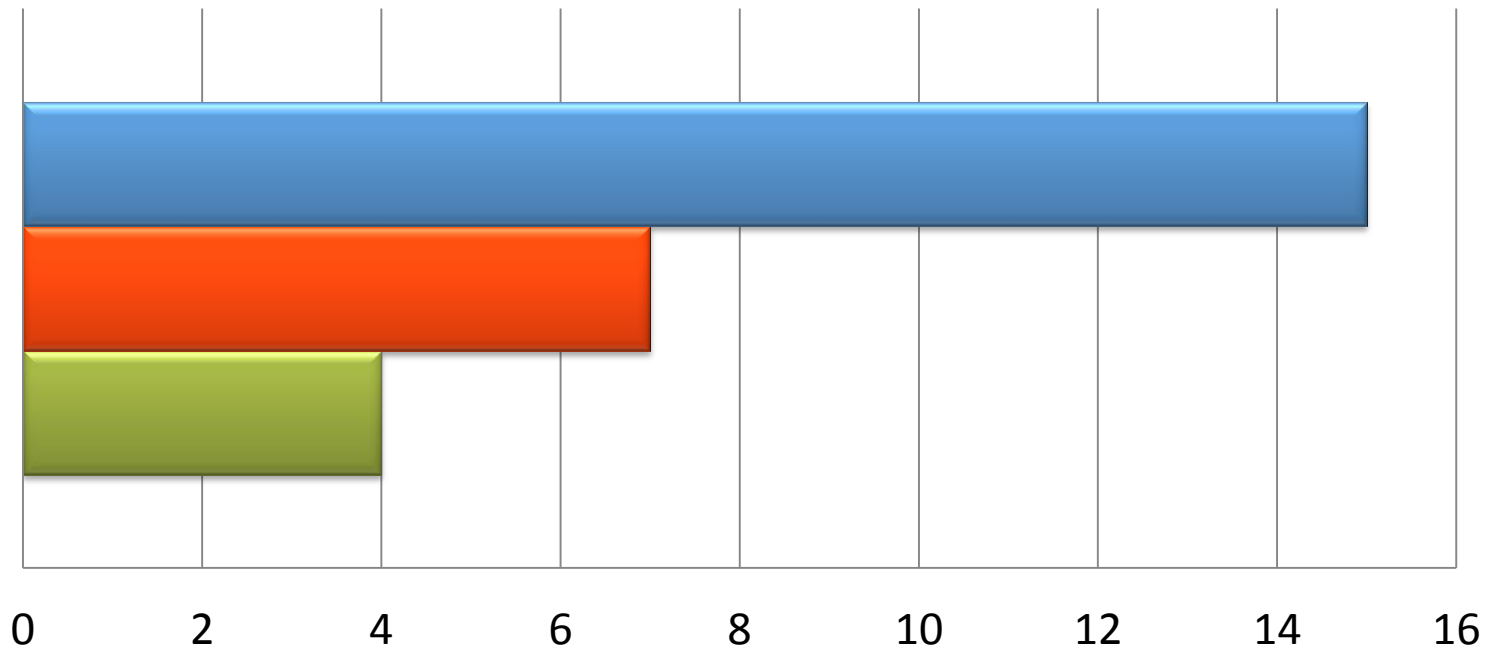
Chart Title




■ PS to PS ■ PS to NPS ■ PS to PS and PS to NPS



Water Quality Trading: What's Traded

Chart Title



 N and P	15
 P	7
 Other	4



Example: Great Miami River Program (Ohio)

Process

- Local Soil and Water Conservation Districts (Miami)
 - Evaluates Project Applications
 - Brokers and Verification
 - Allows third party credit aggregators
- Ohio DNR – third party review of credit applications
- Ohio EPA - issues water quality trading permits and reviews program results

History

- Five enrolled buyers (12 Wastewater Treatment Plants [WWTPs])
- 12 rounds of BMP applications with >400 BMPs (Jan. 2013)
- Evaluated NPD trading in lieu of installing BNR at WWTPs
- Building bank of credits for future use by WWTPs
- EPA region V model – only sediment bound nutrients considered
- Incentive for trades prior to numeric nutrient water quality standards:
 - Currently 1:1 trading ratio (2:1 in impaired waters)
 - Post nutrient standards implementation 2:1 trading ratio (3:1 in impaired waters)



Example: Ohio River Basin Nutrient Trading (OH, IN and KY)

- **Electric Power Research Institute (EPRI) coordinated and led development to provide nutrient offsets for potential future limitations on power plants**
 - Multi State trading program (first interstate trading program in U.S.)
 - No numeric N and P water quality standards, but the stakeholders think there will be numeric standards in the future
- **Pilot trading mechanism**
 - EPRI agreements with States
 - States agreements with Soil and Water Conservation Districts
 - SWCD recommends NPS BMP projects to EPRI / EPRI approves
 - 10% of credits set aside for "safety" in event the projected load reductions are inaccurate
 - 10% of credits set aside for "environmental benefit"
 - Therefore, only 80% of credits can be sold
- **Pilot trades KY, IN, OH**
 - 66,000 lbs N + 30,000 lbs P with 30 farmers
 - Only simple BMP projects such as improvements to open feed lots for reducing runoff
 - Each state received \$100,000 for pilot program
 - No one can use the NPS pilot credits for PS trading
 - Credits are being sold at auction as "stewardship" credits to three power companies
 - Power companies may get "special consideration" in future regulatory actions, but apparently no guarantees
- **Development Chronology**
 - 1948 ORSANCO formed
 - Establishes water quality standards for the Ohio River
 - 230,000 farmers in basin and 46 power plants in basin
 - 2007 Started development of trading program concepts (EPRI interest)
 - 2011 Ohio River Valley Water Sanitation Commission Resolution on Trading
 - 2012 Trading plan signed by each state (state environmental agencies signed pilot program)
 - 2014 Pilot trades (Only NPS to PS trades)
 - Only downstream PS can receive credit from upstream NPS BMP
 - 2015 Planned transition to full scale program
 - EPA Watershed Risk Management Framework (WARMF) used to establish discount factors on credits (transfer ratios)
 - Different transfer ratio for each trade



Water Quality Trading Findings

- After reviewing 40 different trading programs, studies, and pilot projects the following are perceived barriers for active PS to NPS trading:
 - **Complexity of the trading program.**
 - **Stringent baselines for NPS to enter into active trading.**
 - **Lack of communication between stakeholder groups.**



Different Goals of PS and NPS

- Point Sources want Certainty
 - Regulatory
 - Needs to impact current or future regulatory requirements
 - Cost
 - Save cities millions in costly construction with diminishing return on the investment
- Non-Point Source
 - Increased Resources for Water Quality / Conservation
 - Simplicity and Familiarity of Usage
- Additional Benefits Besides Nutrient Reduction
 - Saving Dollars in Technology Costs
 - Flood Mitigation
 - Habitat Development



Concerns to Address

- Defensible Metrics for Credit Calculation and Verification
- Supply and Demand
- Current or Future Regulatory Impact
- Long-Term Technology Changes for PS
- Temporal Restrictions
- Enforcement
- Baselines
- Same Impact within the Same Watershed
- Focus on Sensitive Land
- Accountability and Transparency
- Interest from Agricultural Producers



Potential Trading Options

- Framework for all NPS to PS
 - Direct Investment Through Aggregator
 - Credit Banking Approach
- Utilization of Sponsored Projects to Support Long-Term Investments
- PS owned land or BMPs
- PS to PS



Questions?



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