



*Basinwide Water Quality Trading: Incorporating
Urban Stormwater into an Incentive-Based
Watershed Permitting Framework*

**Chartering Meeting No. 2
May 31, 2006**

Today's Agenda

- Introductions
- Project Charter
 - Review Vision, Goals, Critical Success Factors
 - Project Roles and Responsibilities
 - Project Communication
- Project Overview
 - Developing Trading Program
 - Developing Implementation Plan
 - Pilot Studies
- Meeting Schedule
- Path Forward

Project Vision

To develop, demonstrate, and evaluate an innovative water quality trading program for the Jordan Lake watershed that will enable more cost-effective water quality protection and implementation of the TMDL. This program will provide a model that can be evaluated for application in other watersheds within the Cape Fear River Basin, in North Carolina, and other areas of the country.

Project Vision

- “Implement”
 - Feasibility to implement in project time frame
 - Could result in product that may not be viable in Jordan Lake watershed but applicable elsewhere
 - Trading is voluntary
- NPS
 - Will there be pool of NPS credits?
 - Incentives to generate NPS credits

Project Goals

- Develop a trading and watershed permitting framework for the Jordan Lake watershed that builds on past successes in North Carolina and around the nation;
- Improve and protect water quality in the Jordan Lake watershed;
- Develop a trading and watershed permitting framework that provides point source and nonpoint source dischargers with options for implementing the TMDL in a more cost-effective manner;

Project Goals

- Include all point and nonpoint sources in the trading and watershed permitting framework, including urban stormwater and highway runoff;
- Demonstrate the utility of the trading and watershed permitting framework in selected watersheds; and
- Evaluate this trading framework and document lessons learned for application in the remainder of the Cape Fear River Basin and other watersheds around the country.

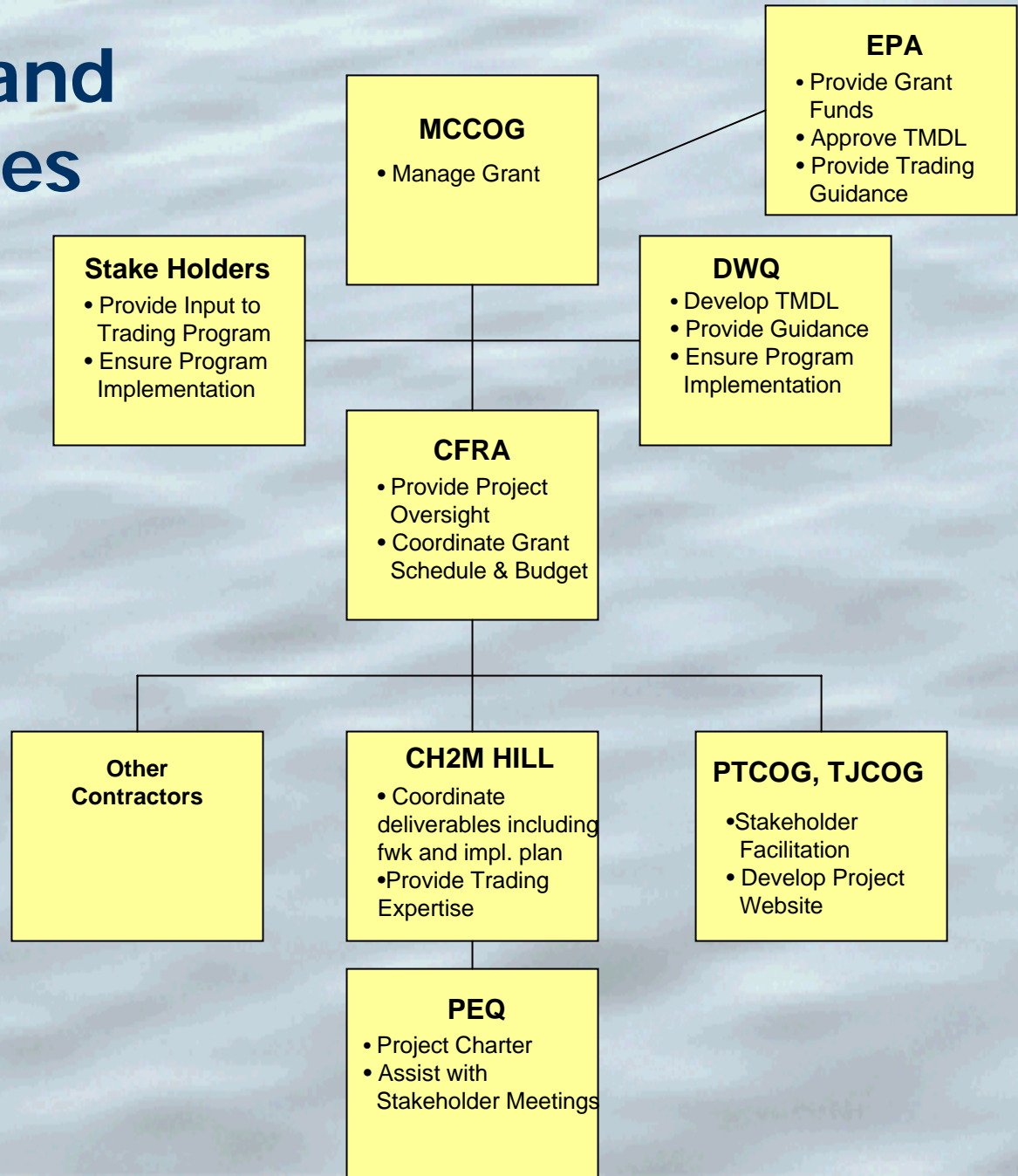
Successful Project Outcomes

- Development of a tool which enables the regulated community to evaluate options for meeting the TMDL requirements
- Trading framework provides more flexibility for the regulated community within the Jordan Lake watershed than conventional TMDL implementation
- Acceptance by NCDWQ, USEPA, and the public
- Protection, maintenance and enhancement of water quality

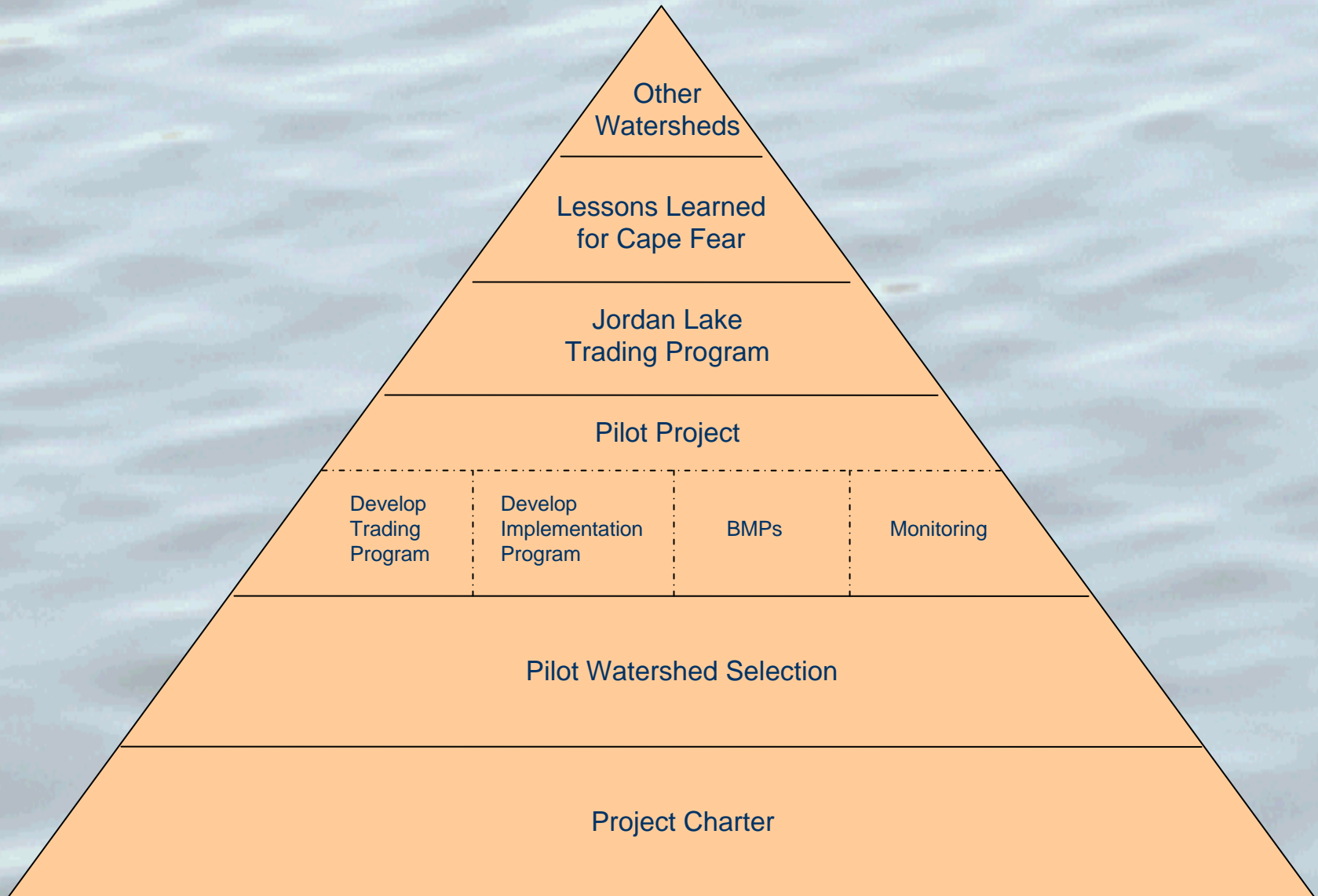
Successful Project Outcomes

- Inclusion of process for documenting trades and tracking each participant's pollutant credits
- Stakeholder participation in pilot program development and watershed trades
- Project completion within the schedule and budget established by USEPA

Project Roles and Responsibilities



Project Structure



Project Communication

- Meetings
 - Pilot Watershed Meetings
 - Full Group Meetings
- Email
- Website
- Phone

Trading Roles

- Buyer
 - Seller
 - Non-Participant
-
- This program will help stakeholders determine which role they will play

Pilot Study

- Select a pilot sub-watershed based on the project vision and goals
- Set up a small scale trading program for the specific sub-watershed
- Collaboration between likely trading partners and identification of trading opportunities
- Will develop conceptual designs for up to 6 site specific BMPs
- Develop a monitoring program to assess baseline conditions and trading effectiveness

Designing Trading Program

Stakeholder Feedback

- Establish framework so individual source can determine whether to sell, buy, or not participate in trade
- Build flexibility in framework
- Ensure no local water quality problems
- Account for nonpoint source and urban stormwater uncertainty

Trading Program Design

- ID potential trading partners based on land use
- ID acceptable BMPs
- Define unit of credit
 - Identify eligible/ineligible locations
 - Establish trading ratios
 - Specify how credits will debited and credited
- Develop a credit evaluation tool that can be used to assess the cost of different options

Credit Evaluation Tool

- Build on information and data from TMDL
- Include BMP costs
- Variable assumptions
 - Trading ratios
 - BMP life
 - Uncertainty
 - Inflation

Total Sediment Load By Land Use (Tons)	Agricultural land	Pasture	Range-Grasses	Forest Evergreen	Forest Deciduous	Urban Commercial	Urban Industrial	Urban Residential-High density	Urban Residential-Low density	Wetlands forests	Wetlands Non forested
Dredging Costs						Dredging Annual Cost Inflation Current Year 10 years Years in Future Dredging Project Year Current Baseline Dredging Unit Cost					
0.00% %											
2003											
2012											
\$53.00 \$/cv											
BMP Costs (Based on Useful Life)		\$/Unit	Agricultural land	Pasture	Range-Grasses	Forest Evergreen	Forest Deciduous				
GRASS PLANTING - Unit Cost Normalized to Dredge Project Horizon & Trading Ratio			\$72.65	\$170.24	\$390.09	\$890.41	\$2,021.44				
Grading/Grassed Waterways/Filter Strips - Unit Cost Normalized to Dredge Project Horizon & Trading Ratio			\$24.58	\$62.22	\$134.52	\$196.79	\$852.77				
Grade Stabilization/Wet Pond - Unit Cost Normalized to Dredge Project Horizon & Trading Ratio			\$26.63	\$67.41	\$145.73	\$213.19	\$923.84				
Agricultural BMPs		TSS %	P %	Cost	O&M/Year						
Grass Planting		65.0%	45%	\$100	acre	\$0	\$/acre/year	1 to 1			
Grading and Planting Grassed Waterways or Filter Strip		65.0%	45%	\$1,000	acre	\$100	\$/acre/year	20 to 1			
Grade Stabilization/Wet Pond		60.0%	50%	\$5,000	acre	\$500	\$/acre/year	100 to 1			
average TSS%		63.3%									
Rank	Land Use	\$/Credit Ton	Trading Ratio	% of Total Area Controlled by BMPs							
Agricultural land											
5		\$72.65	Grass Planting	1.1							0.00%
1		\$24.58	Grading/Grassed Waterways/Filter Strips	1.1							30.00%
2		\$26.63	Grade Stabilization/Wet Pond	1.1							30.00%
				TOTAL:							60.00%
Pasture											
8		\$170.24	Grass Planting	1.1							0.00%
3		\$62.22	Grading/Grassed Waterways/Filter Strips	1.1							27.40%
4		\$67.41	Grade Stabilization/Wet Pond	1.1							0.00%
				TOTAL:							27.40%
Range- Grasses											
19		\$390.09	Grass Planting	1.1							0.00%
6		\$134.52	Grading/Grassed Waterways/Filter Strips	1.1							0.00%
7		\$145.73	Grade Stabilization/Wet Pond	1.1							0.00%

Developing Implementation Framework

Stakeholder Feedback

- Accountability, credibility and bookkeeping are essential to project success
- Regulatory issues vary across jurisdictions; process should account for this
- Compliance – what if one member is out of compliance?

Implementation Framework

- Evaluate Existing Frameworks
 - NPDES and Stormwater permits
 - Local ordinances
 - Zoning regulations
 - Land use policies
- Framework will be used to implement, track, and coordinate the trading program.
- Develop Watershed-Based Permitting Alternatives

Monitoring Program

Purpose - Evaluate and enhance available instream data, BMP data, and land use data to assess water quality trading benefits

- Describe baseline conditions, continue to collect data
- Review instream monitoring and enhance if needed
- Review NPDES and NPS monitoring mechanisms and enhance if needed
- Identify best candidate locations for BMPs in pilot sub-watershed
- Perform monitoring for pilot demonstration

Pilot Study-Participation Advantages

- Pilot will explore the development of watershed based permits for the participating dischargers.
- Provide specific input on the structure of the trading program and the selection of acceptable BMPs.
- Provide specific information on the cost and benefits of specific trading scenarios in the pilot watershed.

Pilot Study-Participation Advantages

- Assistance with evaluating TMDL implementation options
- Conceptual design for stormwater BMPs for specific watershed area needs.

Pilot Study-Participation Disadvantages

- Additional meetings; anticipate 3-4 additional meetings for pilot participants
 - Initial planning
 - Cost/BMP/Uncertainty estimation
 - Implementation
 - Final plan and watershed permitting
- Data requests
 - Copies of permits
 - GIS data and zoning/ordinances
 - stormwater and other wq monitoring data

Cy's WQ Trading Experience

- As Director of a Public Utility
 - Benefits of trading
 - Disadvantages
- Nationwide Experience

Possible Pilot Locations

- Buffalo Creek
- Upper New Hope Creek Arm (or one of the three main tributaries)
- Burlington/Graham/Mebane

Schedule

- Workgroup Meetings – To Develop specific Pilot Project Components
- Stakeholder Meetings – To Review Major Project Milestones

Project Schedule

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