

New Strategies to Enhance the Great Miami River Watershed

Water Quality Credit Trading

A Market-Based Approach to Improve Water Quality

Multi-State Working Group

January 23, 2006

*Douglas “Dusty” Hall
Manager of Program Development
The Miami Conservancy District*



Overview

- The Miami Conservancy District
- The Great Miami River Watershed
- Market drivers
- Program development process
- Water Quality Credit Trading Program
 - Overview
 - Partners
 - U.S. EPA policy
 - Economics
 - Status



Great Flood of 1913

- 9-11 inches of rain in 3 days
- >360 deaths
- 10,000 people rescued
- \$100 million in damage



Ohio's Conservancy Act

- Signed into law in 1914 by Governor James Cox
- Watershed-based political subdivision
- Broad authority primarily for water-related purposes
- MCD established 1915



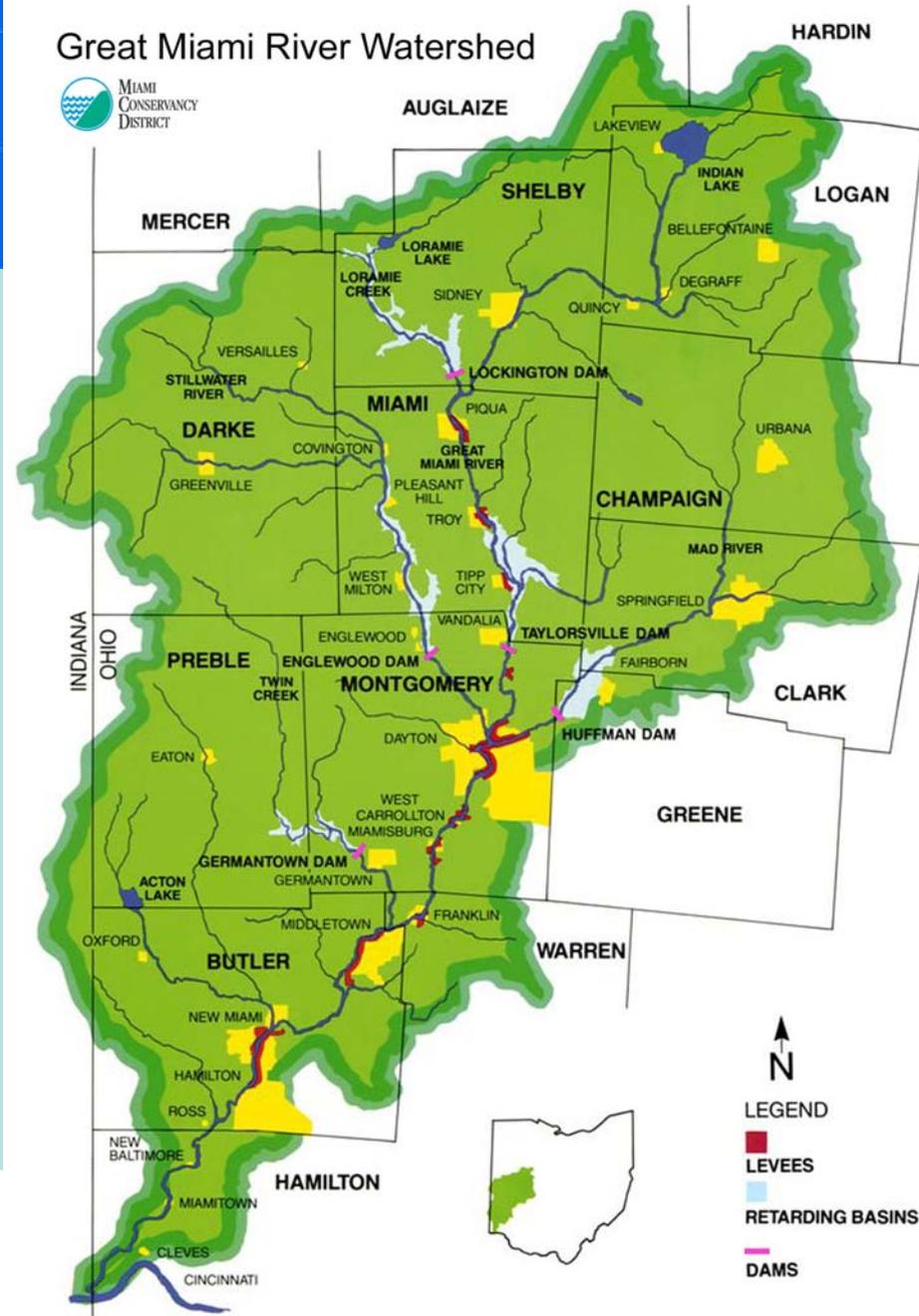
MCD's Watershed Management

- Structural flood protection
- Floodplain preservation
- Recreation
- Aquifer preservation
- Phase II Storm Water Collaboration
- Community-based program development



Ohio's Great Miami River Watershed

- 4,000 mi²
- Major tributaries:
 - Great Miami River
 - Stillwater River
 - Mad River
 - Wolf and Twin Creeks
- 1.5 million residents
- Agriculture is dominant land use
- Dayton is largest city



Are we meeting the goals of the Clean Water Act?

- Of our monitored streams:
 - Yes = 58.8%
 - Almost = 19.8%
 - No = 21.4%



Water Quality Challenges

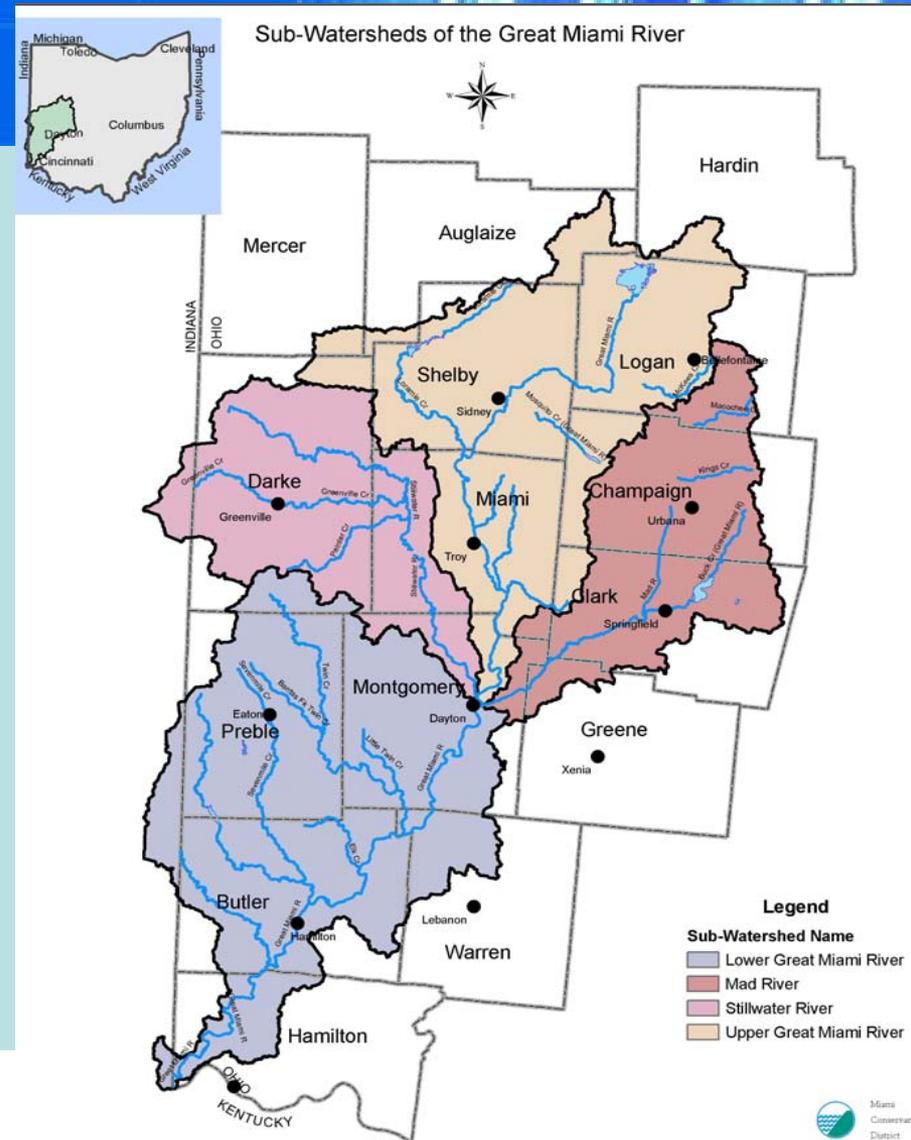
- *Nutrients*
- Flow and habitat modification
- Organic enrichment
- Priority organics



Ohio EPA 2004 Integrated Report

Stillwater River Impairment

- Ohio EPA's TMDL Report says *Phosphorus*
 - Proposed reduction = 977K lbs./year
 - Agriculture is source of > 90%
 - TMDL seeks **75% voluntary** reduction by agriculture



Recent Press

Little farms make big mess in Darke, data show

Most pollution incidents in two decades traced to smaller operations

By [Ben Sutherly](#)

Dayton Daily News, Front Page

January 9, 2006

EDITORIAL

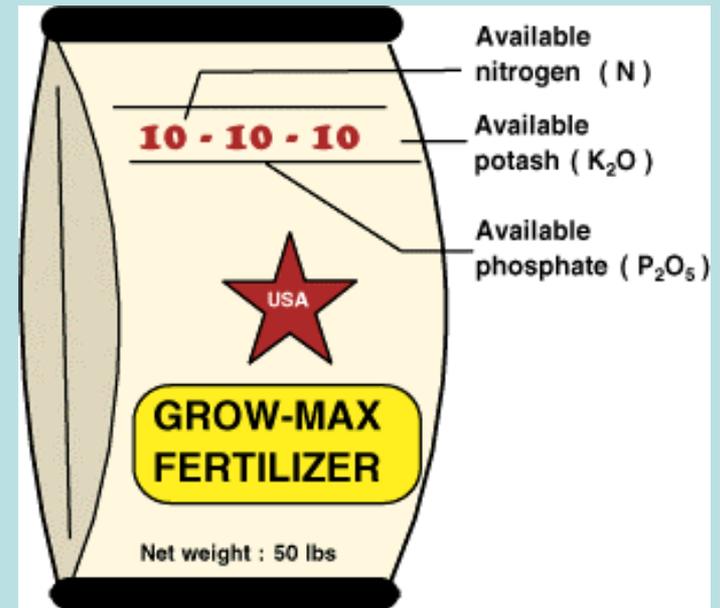
Manure spills shouldn't be Darke secret

Dayton Daily News

January 12, 2006

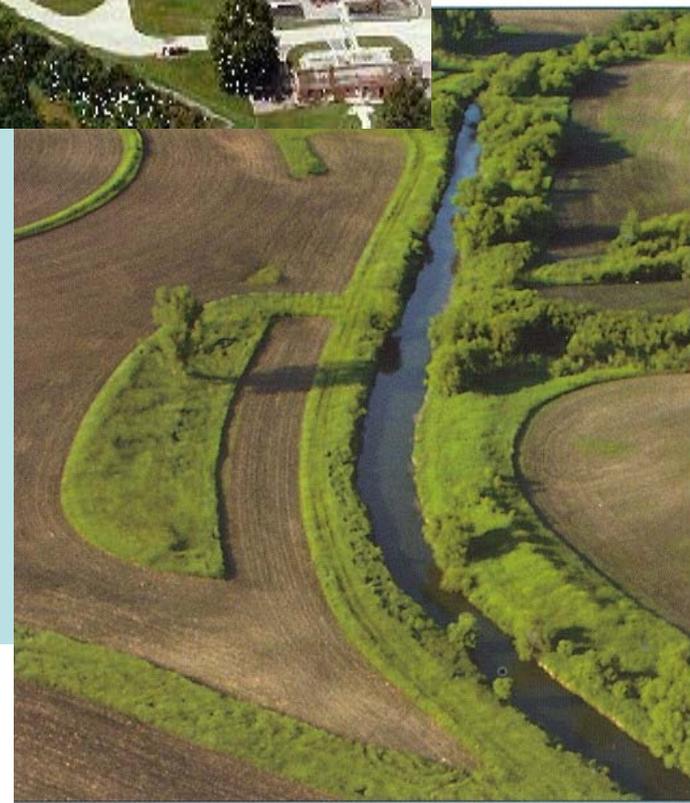
Market Driver - Regulation

- Ohio EPA says: “too many nutrients – particularly *Phosphorus*”
- Agriculture - largely unregulated
- Wastewater treatment plants (WWTPs) - regulated
- More nutrient regulations on horizon for WWTPs



Market Driver – Money

- WWTPs can reduce phosphorus and other nutrients with \$\$\$\$ treatment
- Agricultural producers can reduce phosphorus and other nutrients for a fraction of the cost



Market Driver - Environmental Benefits

	WWTP Upgrade	Ag. Practices
Pollutant of concern	Yes	Yes
Other pollutants	?	Yes
Habitat	No	Yes
Canopy	No	Yes
Stream bank	No	Yes
Velocity	No	Yes
Wetland	No	Yes
Floodplain	No	Yes
Assimilative capacity	No	Yes

The New Commodity

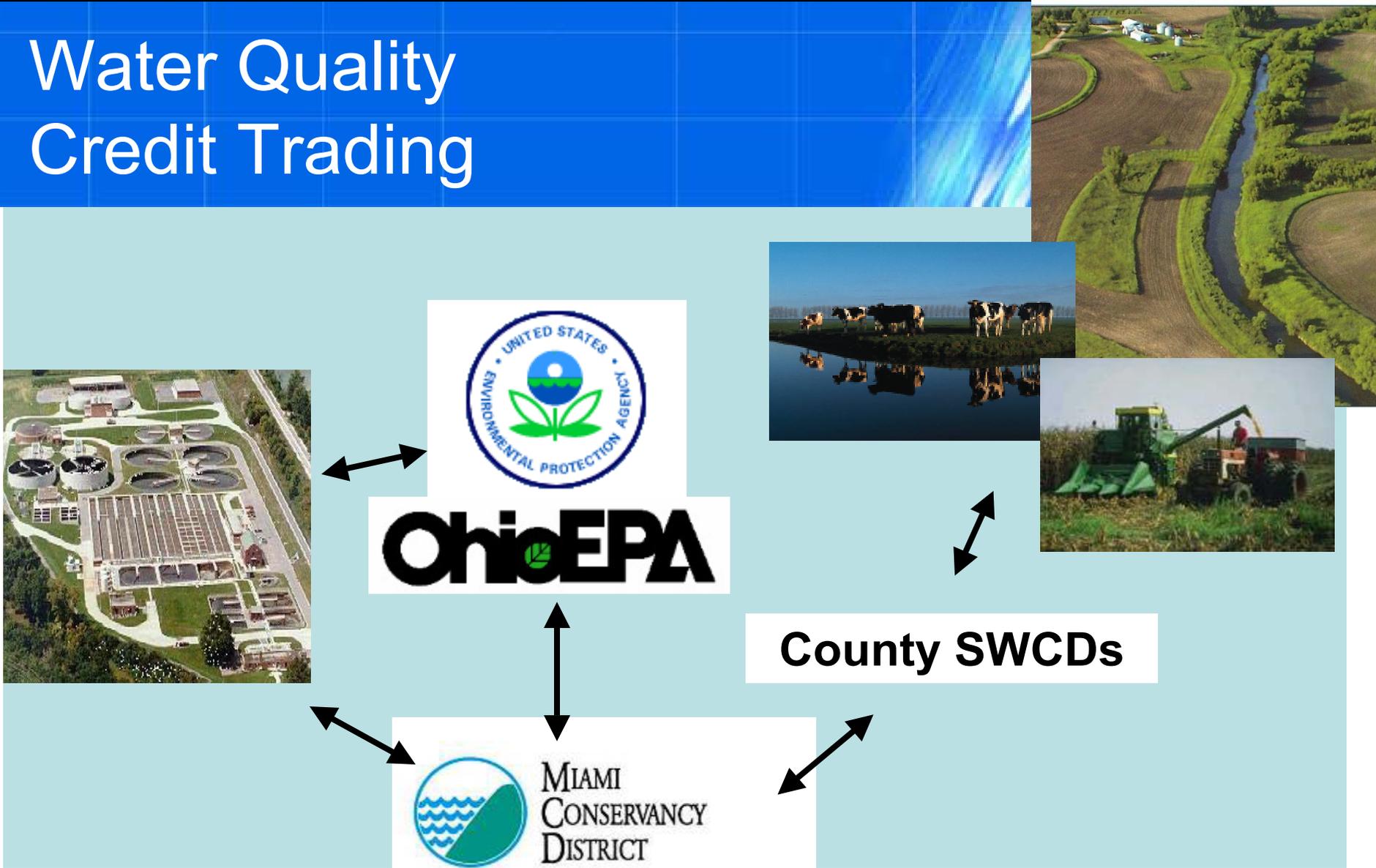
- Credit - A pound of phosphorus or pound of nitrogen prevented (by voluntary action) from being discharged to the GMR Watershed's rivers and streams.



Trading Program Development Process

- More than 100 meetings – 2003/2005
 - Cities/counties with WWTPs
 - County Soil and Water Conservation Districts (SWCDs)
 - Agricultural producers
 - Ohio EPA and U.S. EPA
 - Ohio Department of Natural Resources
 - Ohio Farm Bureau Federation
 - USDA's Natural Resource Conservation Service
 - Ohio Environmental Council

Water Quality Credit Trading



Conservative Strategies

- Trade upstream
- Project validation
- Trading ratios
- Insurance pool
- Data collection
- Adaptive implementation



Project Validation SWCD Staff

- Identify and submit projects
- Quantify nutrient reductions with standardized approach
 - Training from ODNR
- Validate project completion and ongoing implementation - identify “failed” practices

“Bonus” Pollutant Reduction

Estimated* Impact of Trading Ratios

Nutrient	Traditional Approach (lbs.)	Trading (lbs.)
TP	904,015	1,349,207 to 2,253,222
TN	4,475,978	6,380,721 to 10,865,700

*Kieser & Associates, 2004

Insurance Pool

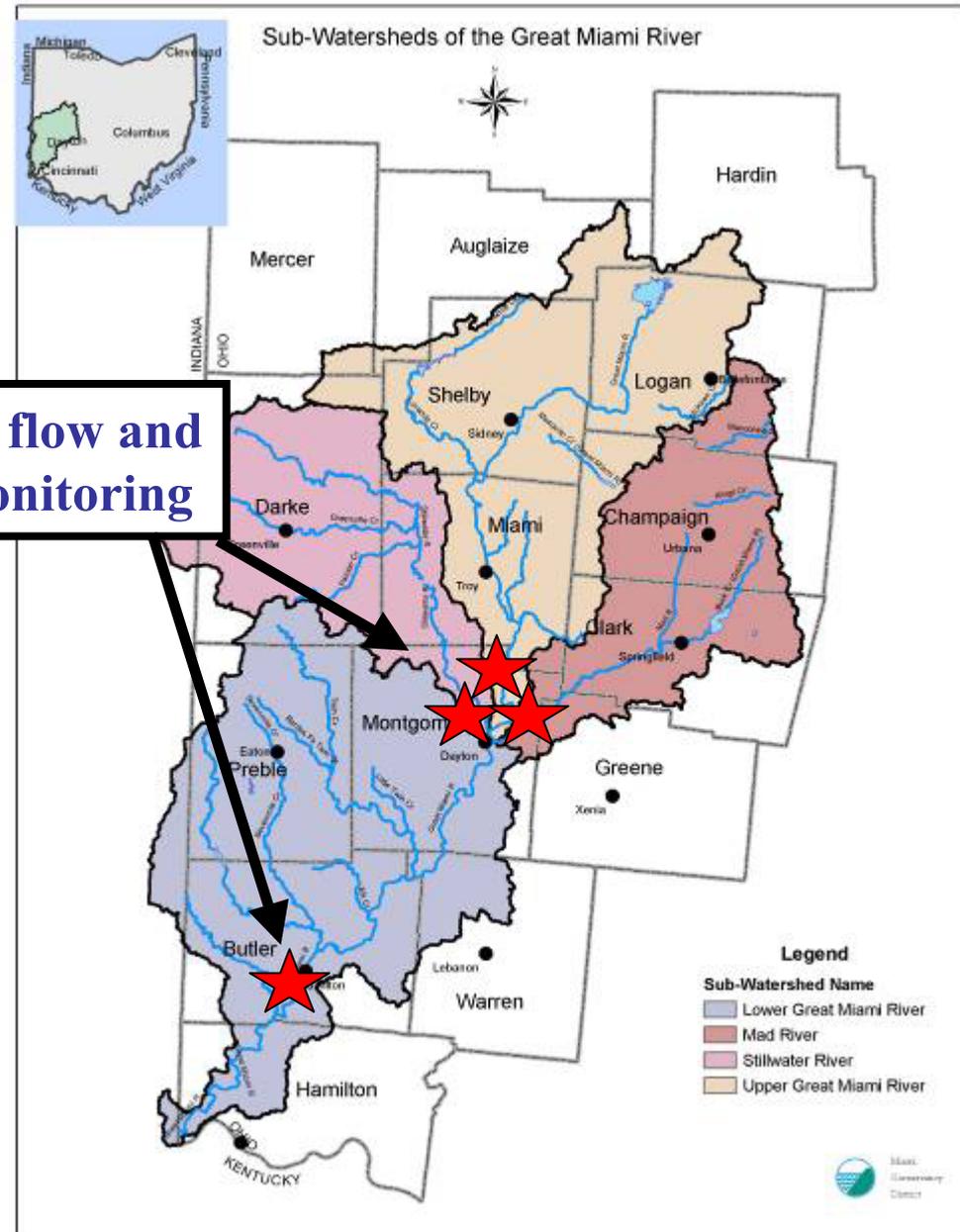
- Provides “back-up” credits for WWTPs if an ag. practice fails.



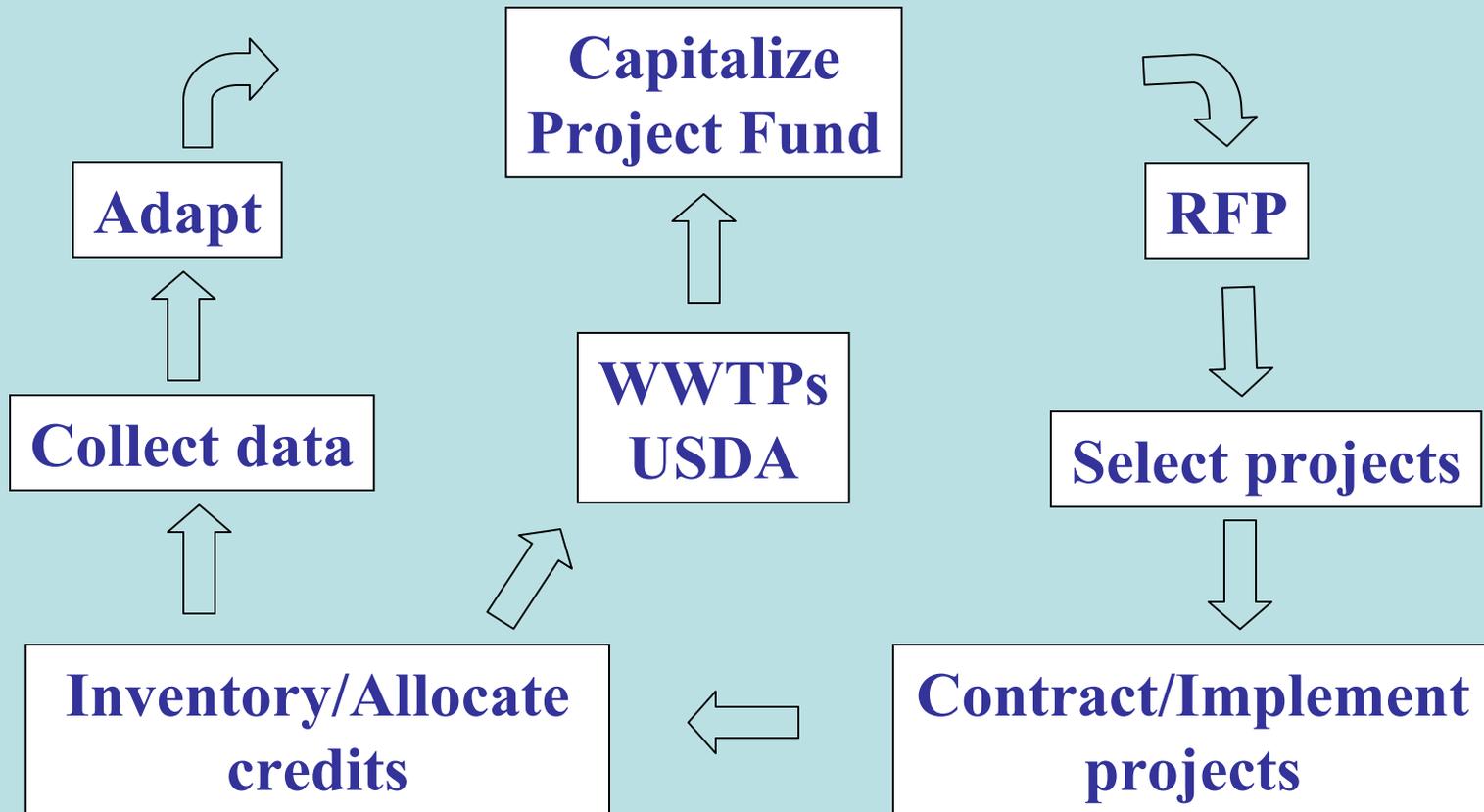
Water Quality Data Collection

5 to 10% monitoring

Continuous flow and nutrient monitoring



Trading Program Cycle



Key Partners

- Wastewater Treatment Plants - Dayton, Englewood, Union, Tri-Cities (Huber Heights, Tipp City, & Vandalia), Butler County
- Soil and Water Conservation Districts
- USDA-NRCS
- Ohio Department of Natural Resources
- Ohio Farm Bureau Federation
- Ohio EPA and U.S. EPA



Addresses U.S. EPA's Trading Policy



- √ Consistent with Clean Water Act
- √ Trade only within a watershed
- √ No net increase in pollutant discharge or impairment (i.e. no “hot spots”)
- √ Consideration of uncertainty of agricultural practices
- √ Clear standards in permits
- √ Public participation
- √ Ancillary environmental benefit

Trading Market Study

Preliminary Economic Analysis of Water Quality Trading Opportunities in the Great Miami River Watershed, Ohio

Prepared by:

Kieser & Associates

**536 E. Michigan Ave., Suite 300
Kalamazoo, Michigan 49007**

Preliminary Economic Analysis of Water Quality Trading Opportunities in the Great Miami River Watershed, Ohio



Prepared for:

**The Miami Conservancy District
26 E. Main Street
Dayton, Ohio 45402-1101**

Prepared by:

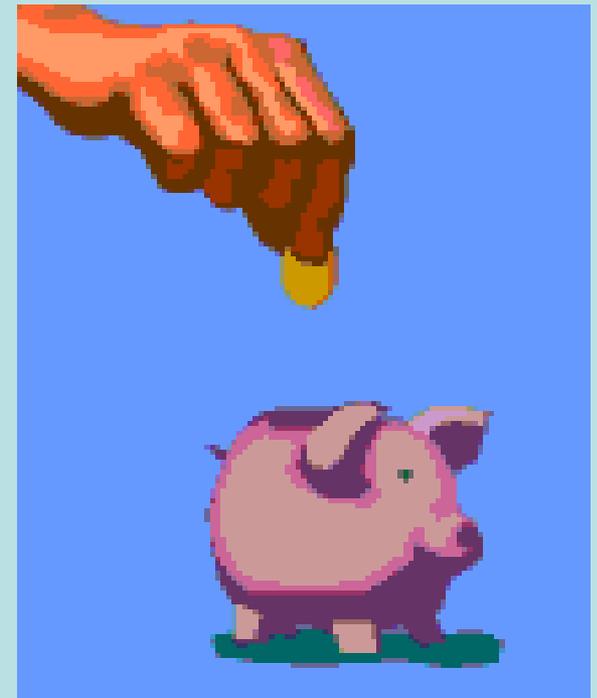
**Kieser & Associates
536 E. Michigan Ave., Suite 300
Kalamazoo, Michigan 49007**

July 23, 2004

KIESER ASSOCIATES

20-Year Trading Economics

- WWTP upgrades = \$422.5 million
- Trading = \$46.5 million
 - Ag. practices = \$37.8 million
 - Data, admin., etc. = \$8.7 million
 - Better environmental results
- Citizens save \$376 million!



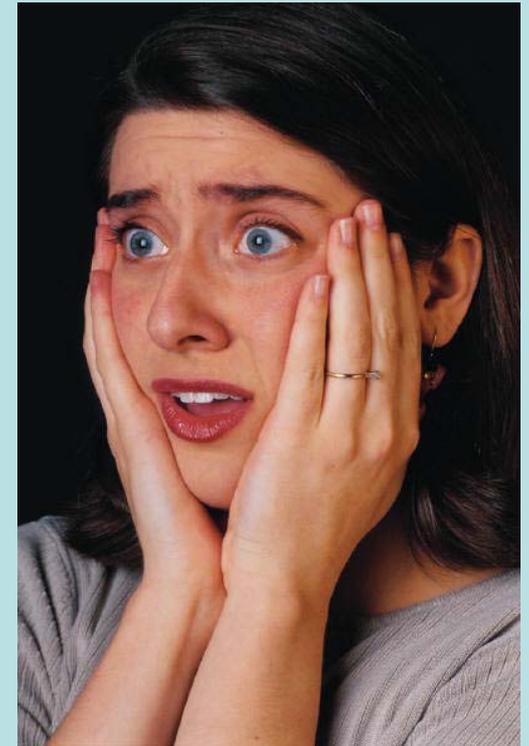
Program Status

- Pilot project funded
 - \$1.2 million from WWTPs
 - \$900,000 from USDA-NRCS
- First RFP open for ag. project proposals
- Marketing



Program Status

- Ohio EPA – Rulemaking
- Market instability???
- Pilot projects needed first
- Support for “grandfathering”
 - WWTPs
 - OFBF
 - WEF
 - Dayton Area Chamber
 - Others



MCD's VISION

“Thriving communities, a healthy watershed, and a higher quality of life, sustained by well-managed water resources throughout the watershed.”

