

Water Quality Credit Trading Ohio's Great Miami River Watershed

Ecosystem Markets: Making Them Work

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Presentation overview

- **The Miami Conservancy District**
- **Great Miami River Watershed**
- **Great Miami River Watershed Water Quality Credit Trading Program**
 - What and why?
 - Program description
 - Program status



The Miami Conservancy District

- Great flood of 1913
- Ohio Conservancy Act
- MCD established 1915

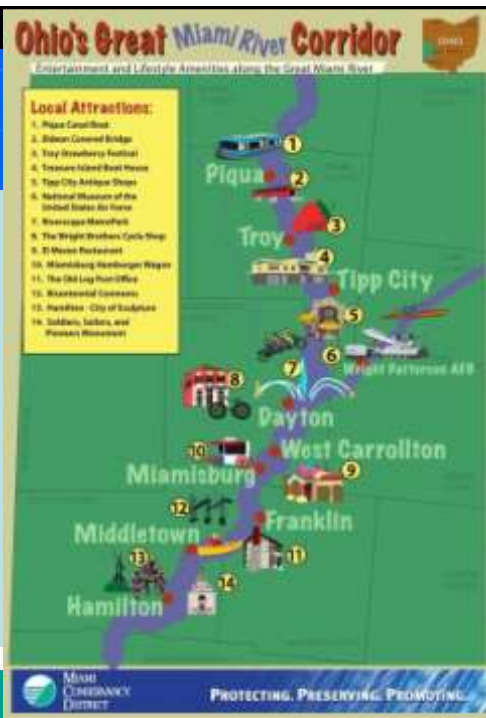


- ✓ *Protecting* people and property from flooding
- ✓ *Preserving* the quantity and quality of water
- ✓ *Promoting* the enjoyment of waterways



Ohio's GREAT Corridor

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

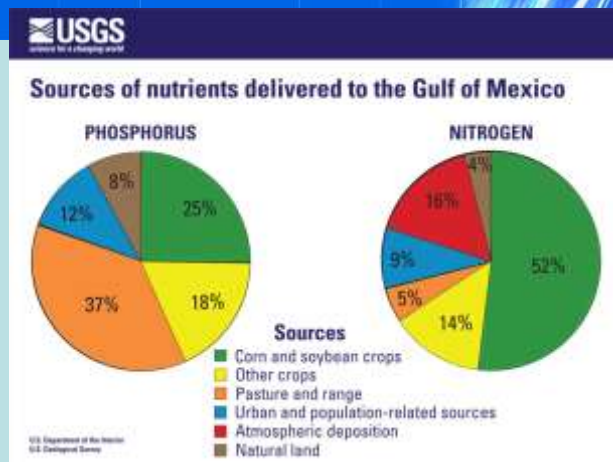


Are we meeting water quality goals?

- Of our monitored streams:
 - ✓ Yes = 58.8%
 - ✓ Almost = 19.8%
 - ✓ No = 21.4%
- Excess nutrients contribute to impairment



Ohio among "dirty" nine

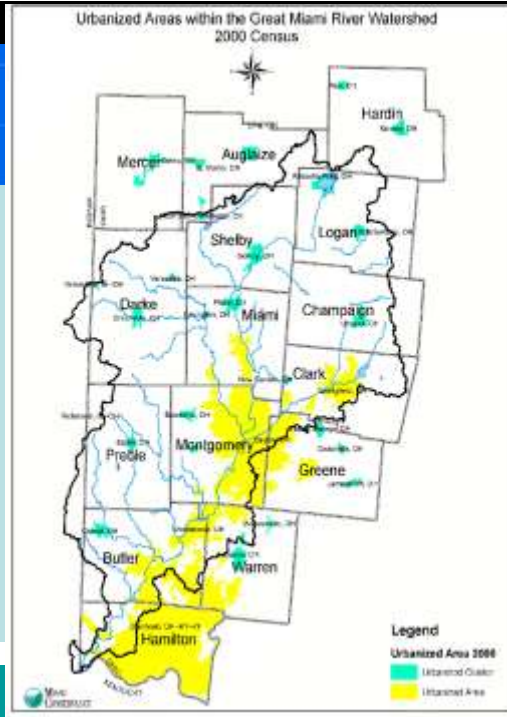


http://water.usgs.gov/nawqa/sparrow/gulf_findings/primary_sources.html



Great Miami River Watershed

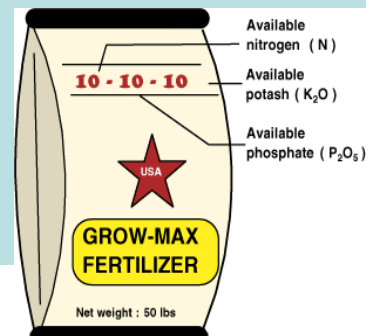
- Rural - upstream
- Urban – downstream
- More than 6,000 miles “blue line” streams
 - Nearly 19 miles tribs and headwaters per mainstem mile



Stewards of the Great Miami River Watershed

Trading Program driver - regulation

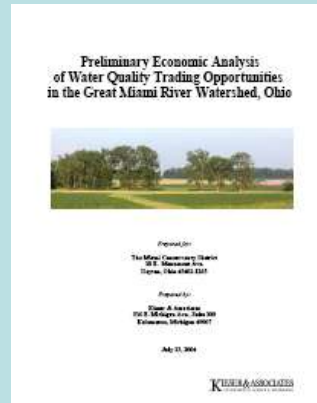
- Ohio EPA says: “Too much phosphorus”
- Ohio EPA promulgating TN and TP criteria
- USEPA and Gulf Task Force want nitrogen and phosphorus reduced



Trading Program driver - economics

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

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20-Year economic projection

- WWTP customers save millions
- Better environmental results!



Trading Program driver – better results

	WWTP Upgrade	Ag. Practices
Pollutant of concern	Yes	Yes
Other pollutants reduced	?	Yes
Habitat created	No	Yes
Canopy/shade/cooling provided	No	Yes
Stream bank stability enhanced	No	Yes
Flow velocity decreased	No	Yes
Wetlands created	No	Yes
Floodplains protected	No	Yes
Assimilative capacity increased	No	Yes
Energy/GHG benefited	No	Yes

GHG example

- 72 mgd WWTP
- Trading
 - CO₂ reductions from diesel saved 2,424 tons
 - CO₂ equivalent of C sequestered 92,130 tons
 - Subtotal 94,554 tons
 - BNR (power only) CO₂ emissions 11,240 tons
- Net *annual* CO₂ benefit **105,794 tons**



Partners in Trading Program development

- More than 100 meetings – 2003/2005
 - Cities/counties with WWTPs
 - County soil and water conservation districts (SWCDs)
 - Agricultural producers
 - Ohio EPA and USEPA
 - Ohio Department of Natural Resources
 - Ohio Farm Bureau Federation
 - Chambers of commerce
 - USDA's Natural Resource Conservation Service
 - Ohio Environmental Council



Gaining support

- Be careful what you wish for!



Joe Koncelik
Former Director
Ohio EPA

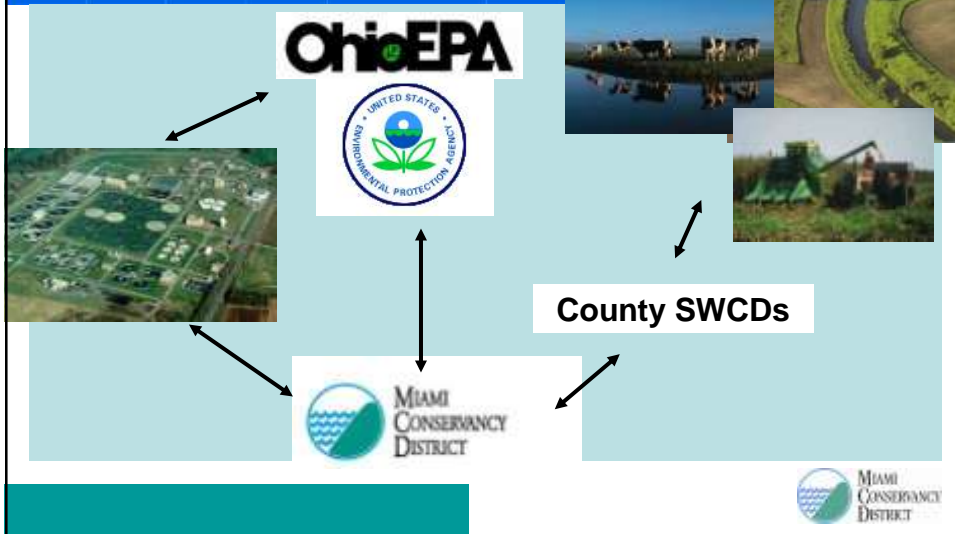


Credit buyers

- City of Dayton
- Butler County
- Tri-Cities (Huber Heights, Vandalia, and Tipp City)
- Englewood
- Union



Trading Program overview



Building on strengths

- Minimum new bureaucracy
- SWCD/NRCS staff
 - Identify and submit projects through SWCD
 - Quantify nutrient reductions
 - Inspect project
 - Identify “failed” practices



Credit generators

- *New* agricultural practices funded by the Trading Program - **YES**
- Agricultural practices under contract with state & federal conservation incentive programs - **NO**
- Any other required agricultural practice - **NO**

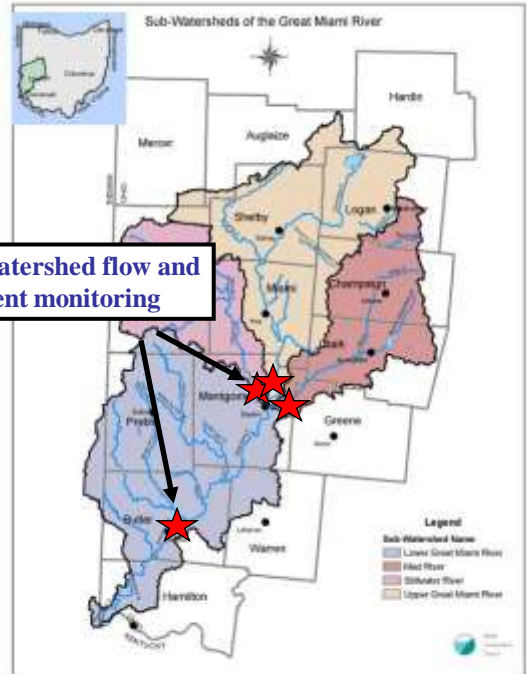


Water quality monitoring

5 to 10% field-scale monitoring



Subwatershed flow and nutrient monitoring



Stewards of the Great Miami River Watershed

Credit assurance

- Insurance pool
 - Provides “back-up” credits for WWTPs if an agricultural project fails



Funding status

- Years 1-3 initial pilot
 - \$1,200,000 WWTPs
 - \$ 937,000 USDA/NRCS
 - \$2,137,000
- Years 4 & 5
 - \$251,300 Non-Federal
 - \$ 753,900 USEPA
 - \$1,005,200



Project status

- Five reverse auctions
 - Projects = 49
 - Nutrient reductions = 326 tons
 - Payment total = \$937,549.46
- Sixth round underway



BMPs on-the-ground

-  Tillage
-  Rotation
-  Cover
-  Milk house/cow lot
-  Pasture seeding/prescribed grazing
-  Sod (3)
-  Hayland
-  Manure storage
-  Filter strips
-  Grid sampling/VRT



MCD's vision

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



Andy Snow