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Ohio River Basin Water Quality Trading Project

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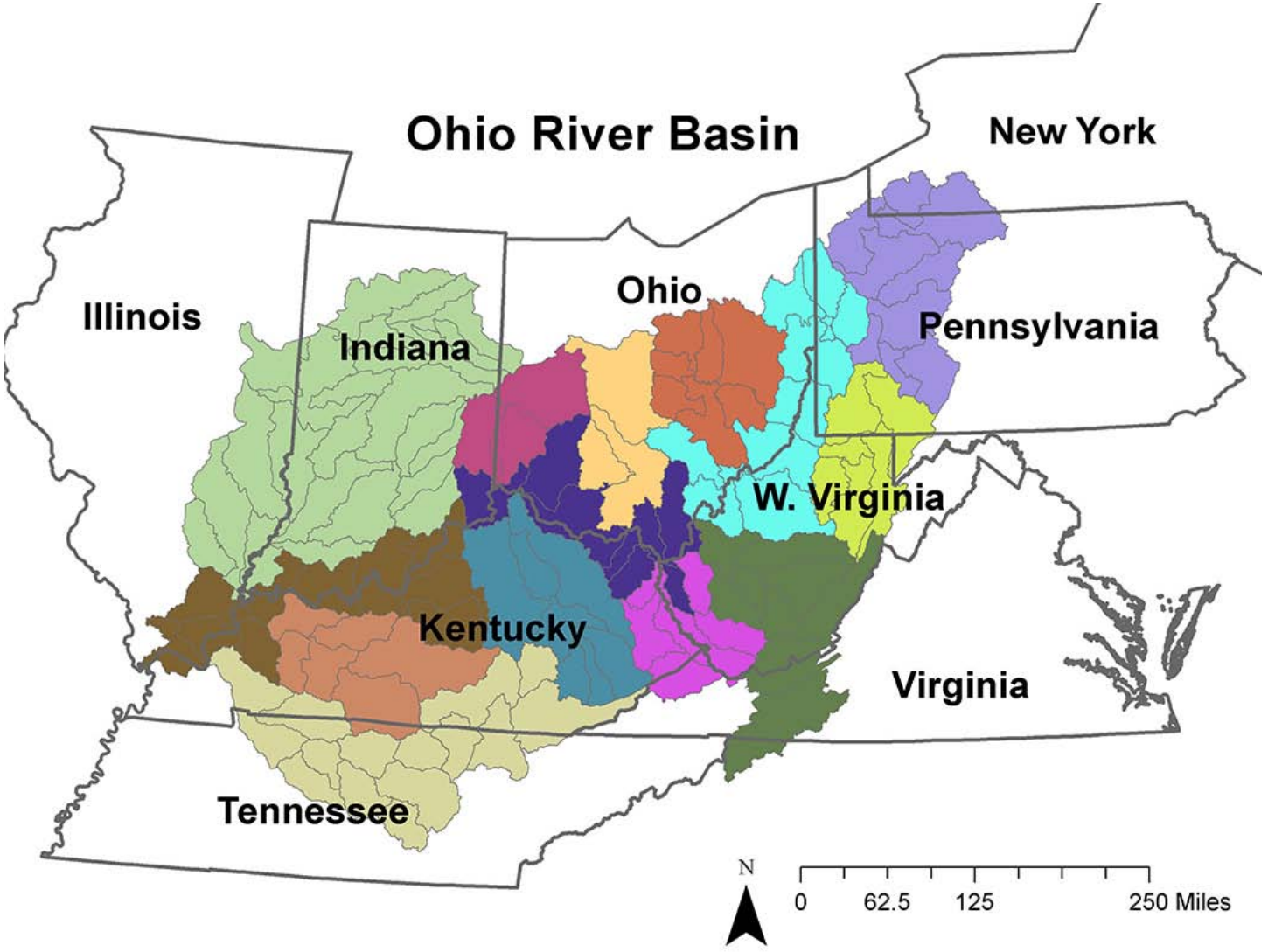
Ohio River Basin



What is WQT Trading?

Farm installs best management practice to generate credit

Permitted source buys credit to meet regulatory requirement

Nutrient Reduction at Lower Cost

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Selling Water Quality Credits

- **Funding source offset the cost of new conservation practices aimed at improving water quality**
- **Participation is voluntary**
- **Must maintain the land management activities that generated the credits**

WQT in Context…

Clean Water Act
- Water Quality Standards
- Monitoring
- Assessment
  - 301
  - 303(d)
  - TMDLs
- NPDES Permits
  - CAFOs
  - Wastewater
  - **WQT**
  - Stormwater
- COE wetland banking
- Section 319 & 208

USDA Farm Bill
- NRCS
- FSA
- Fish & Wildlife
- Forest Service
- EQIP
  - CIG
- WRP
- CRP
- CREP
- Swamp Buster
- Technical assistance

Non-governmental
- State and County rules:
  - Landuse
  - Districts
  - Cost share
  - Septic systems
  - Erosion ordinances
  - Drainage authorities
- NGOs
  - Implementation
  - Land retirement
  - Education
  - Challenges

Project Due Diligence

Phase I: Due Diligence (EPRI Funded)

2007 – Scoping of Pilot Project Concept (EPRI gave $1 million)

2008 – Feasibility Study and Business Case for Power Company Participation

Phase II: Implementation

2009 – Received $2M in Funding (EPA, USDA, private)

2010 – Outreach, planning, interstate collaborations. EPRI Raise $1M of private funds

2012 – Scoping pilot trades

2013 – Execute pilot trades (subject to funding)

50% of dollars are federal grants (EPA & USDA)

50% are Private Funds

WQT Project Objectives & Approach

Overall Objective:

Demonstrate how WQT can be used for cost-effective permit compliance, provide ecological co-benefits and support farmers.

Approach:

Test case: Reduce overall loading of nutrients within the Ohio River Basin using water quality trading.

Pilot Study Objectives

- Collaboration
- Strong Science
- Defensible Rules
- Ancillary Benefits (ex., Ecosystem Services, Social)

ORB WQT Collaborators Engagement

Organizations:

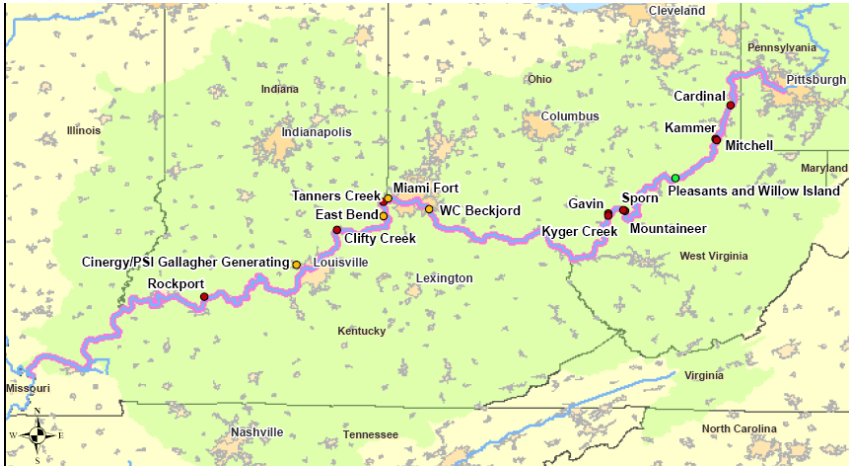
- Electric Power Research Institute
- American Farmland Trust
- Ohio Farm Bureau Federation
- ORSANCO
- Tennessee Valley Authority
- American Electric Power
- Hoosier Energy
- Duke Energy
- Hunton & Williams
- Kieser & Associates
- UC Santa Barbara

States:

- Ohio
- Indiana
- Kentucky

Agencies

- US EPA
- USDA



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Steering Committees

- **Agriculture**
  - Indiana
  - Ohio
  - West Virginia
  - Kentucky
  - Illinois
- **Wastewater Treatment Plants**
- **Power Plants**
- **Environmental Groups**
- **Federal and State Agencies**

Agriculture – Outreach & Engagement

- **American Farmland Trust**
  - direct involvement of farmers during the development of the Ohio River Basin Trading Project
- **Listening Sessions**
  - opinions, concerns, and suggestions
- **Agriculture Steering Committee**
- **Site Visits**

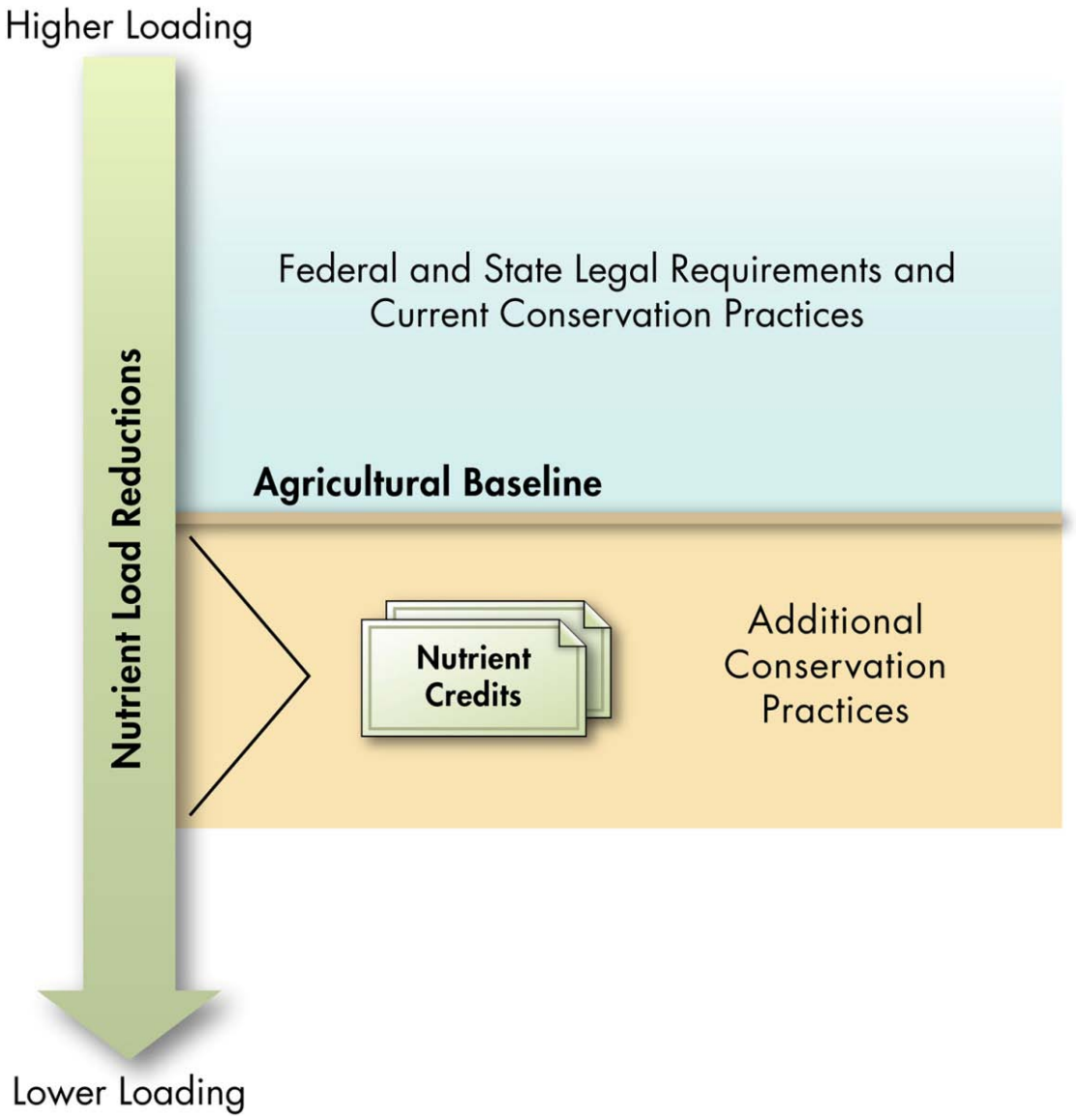
Indiana Farmer Field Trip – August 8th

- Toured 2 farms in south-eastern Indiana
- Heard farmer & buyer perspectives
- Walked through mock credit estimates
  - Nutrient Tracking Tool
  - Region 5 Spreadsheet
  - WARMF

Opportunities for BMPs

- BMP Examples:
  - Cattle Exclusion Fencing
  - Nutrient Management
  - Cover Crops
  - Buffer Strips
  - Grass Waterways
  - Heavy Use Pads
  - Manure Pits
- Ecosystem Services:
  - Carbon Sequestration,
  - Native Plants
  - Habitat

Baselines



Crediting Equation: Attenuation Factors

Credit = (F_{field} x F_{river} x $F_{instream}$ x $F_{equivalence}$ x F_{safety}) Load Reduction

Watershed Model

US EPA Watershed Analysis Risk Management Framework (W…

U.S. ENVIRONMENTAL PROTECTION AGENCY

Ecosystems Research Division

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You are here: EPA Home » athens » wwqtsc » html » Watershed Analysis Risk Management Framework (WARMF)

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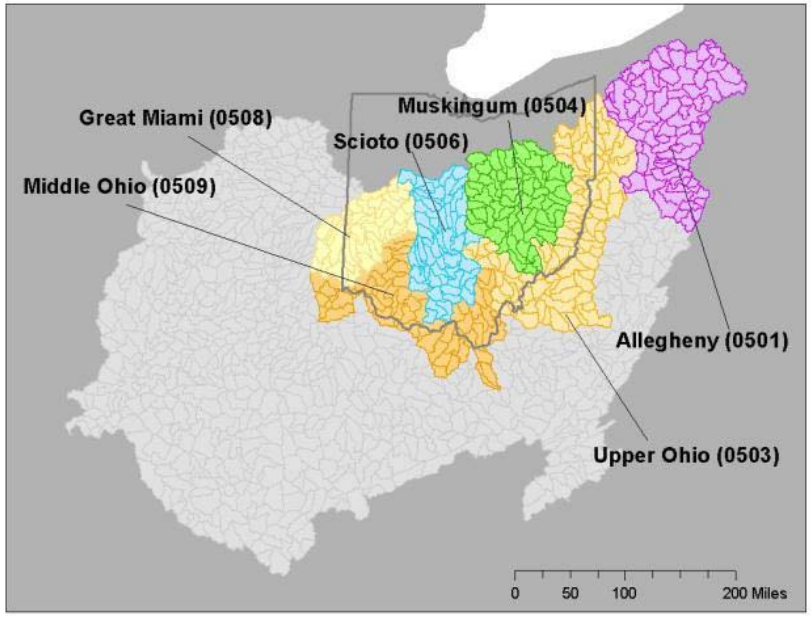
Watershed Analysis Risk Management Framework (WARMF)

To facilitate TMDL analysis and watershed planning, WARMF was developed under sponsorship from the Electric Power Research Institute (EPRI) as a decision support system
rovides a road map to calculate TMDLs for most
, nutrients). It also provides a road map to guide
olementation plan. The scientific basis of the model
ıe several peer reviews by independent experts
atible with the data extraction and watershed
organized into five (5) linked modules under one,
t is a very user friendly tool suitable for expert

tershed model that calculates daily runoff, shallow
uality of a river basin. A river basin is divided into a
opy and soil layers), stream segments, and lake
ulations. Land surface is characterized by land use /
n the land catchments to calcuate snow and soil

WWQTCS Info

- WWQTCS Home
- Technical Support
- Tools
  - Watershed Models
    - Basins
    - LSPC
    - WAMView
    - SWMM
    - WARMF
  - Water Quality Models
    - WASP
    - QUAL2K
    - Aquatox
    - EPD-RIV1
  - Hydrodynamic Models
    - EFDC
    - EPD-RIV1



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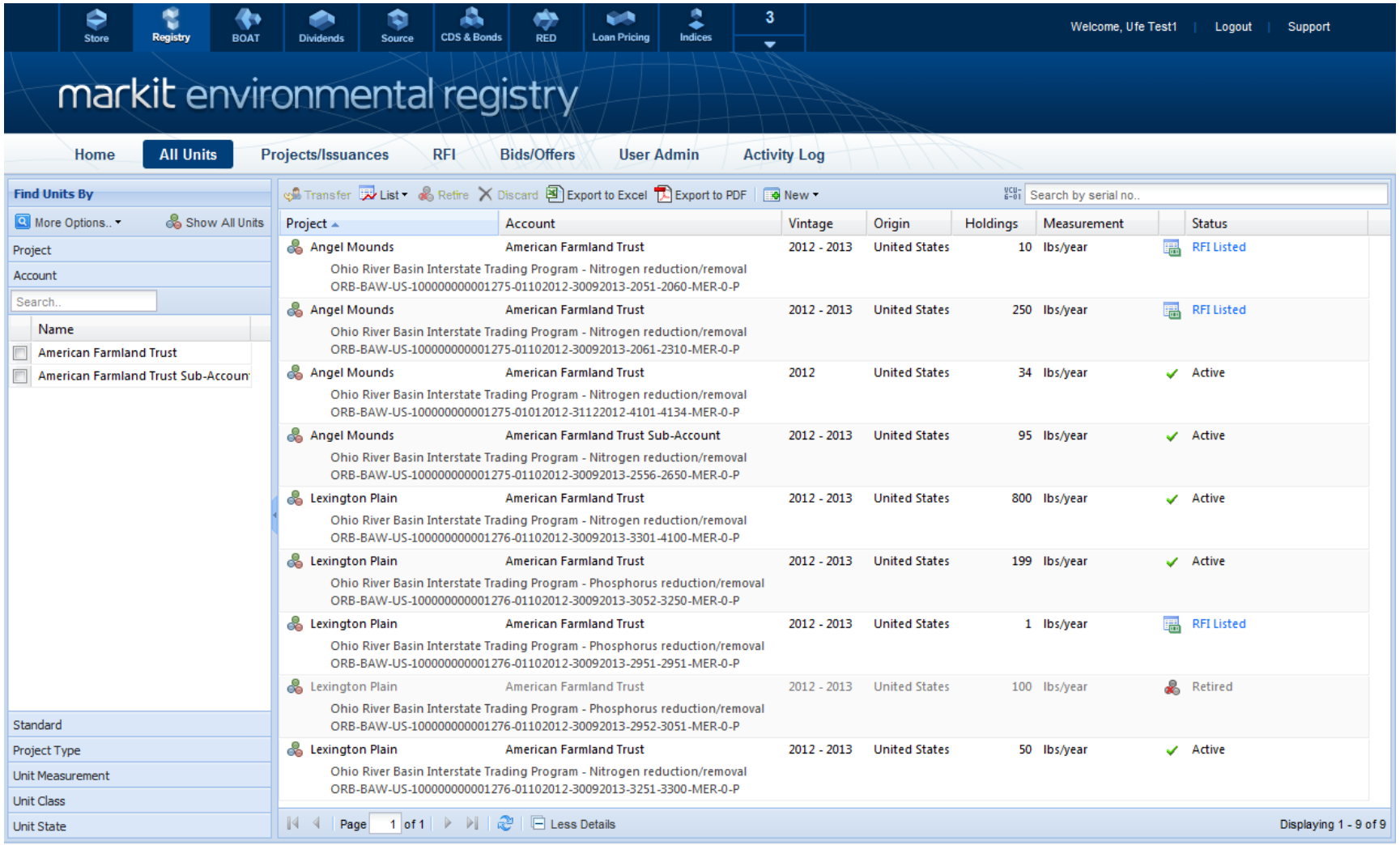
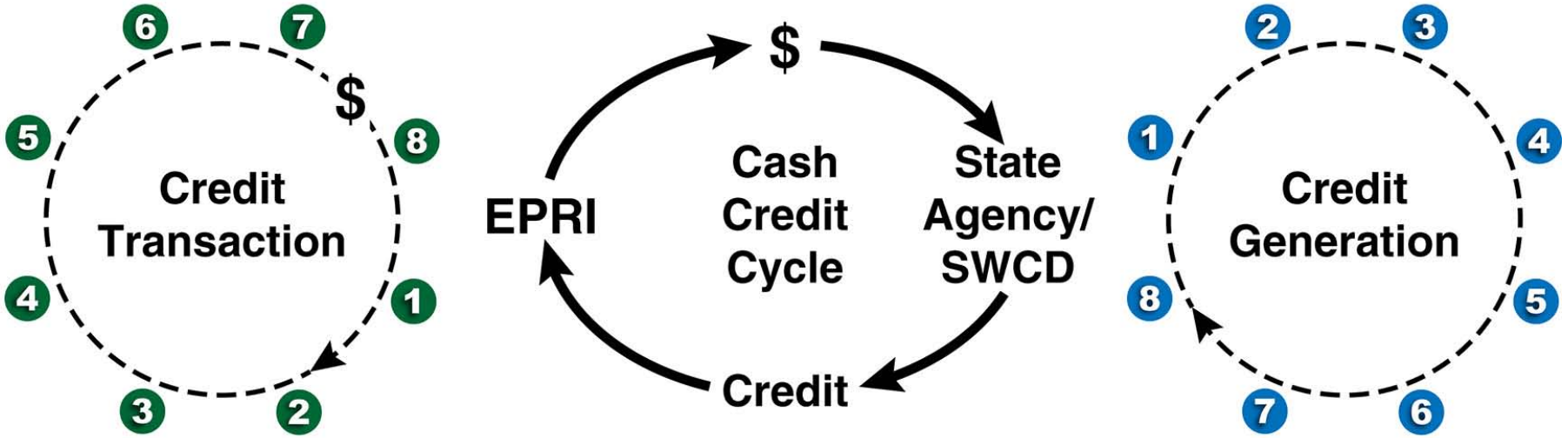
Credit Trading Registry



Credit Stacking

Not Stacked (Spatially Distinct)		Stacked (Spatially Overlapped)
1 acre forest earning carbon credits	1 acre forest earning endangered species habitat credits	1 acre forest earning both carbon credits and endangered species habitat credits
 One property		 One property
Total Credits = 2 Total Acres = 2		**Total Credits = 2 Total Acres = 1**

Pilot Credit Process



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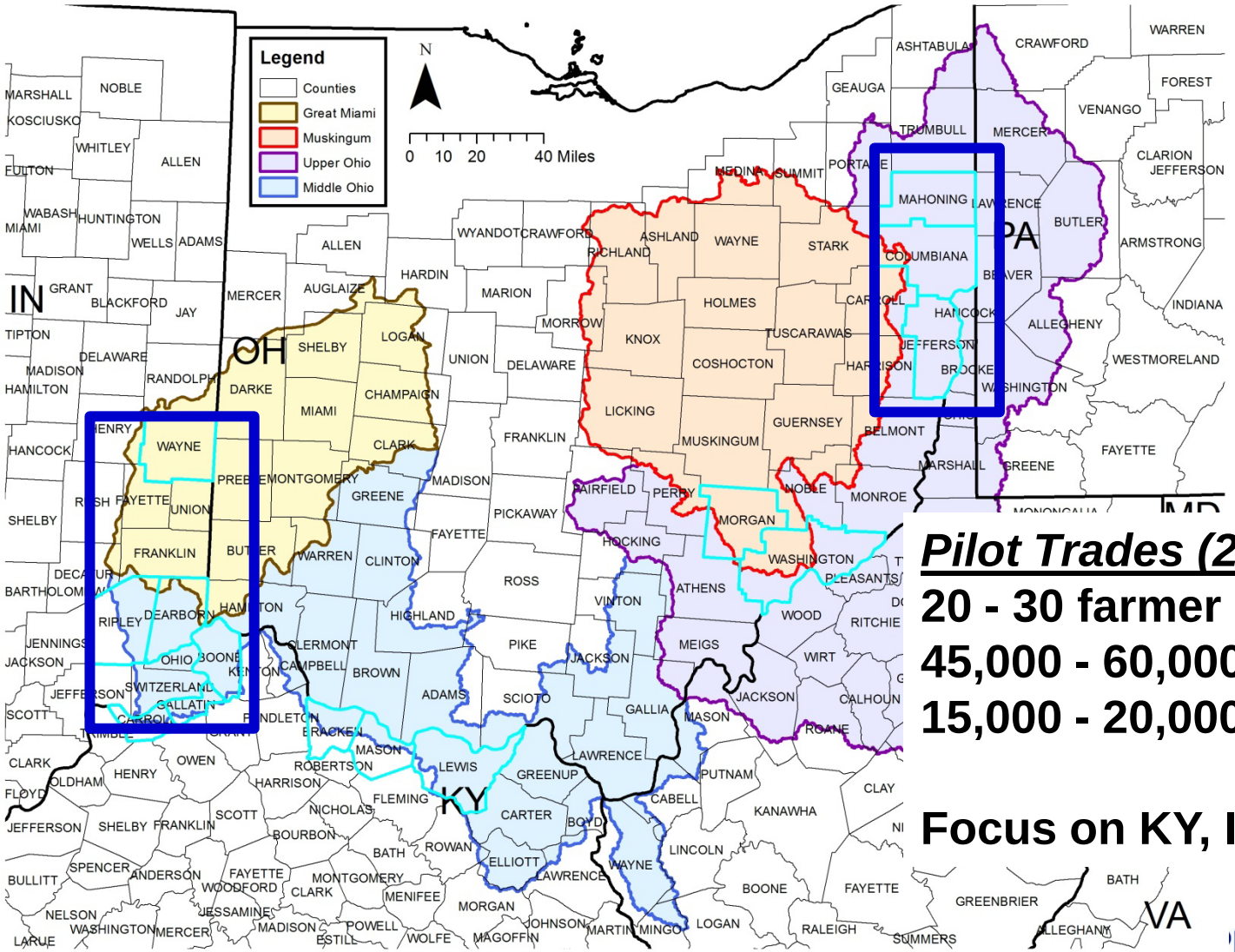
The Trading Plan is Signed!

August 9, 2012 in Cincinnati Ohio

The Economist June 22: A nutrient pollution article in The Economist mentions EPRI's Water Quality Trading Program.

Pilot Trade Locations



Pilot Trades (2012-2014)

20 - 30 farmer contracts

45,000 - 60,000 lbs N/yr

15,000 - 20,000 lb P/yr

Focus on KY, IN, OH

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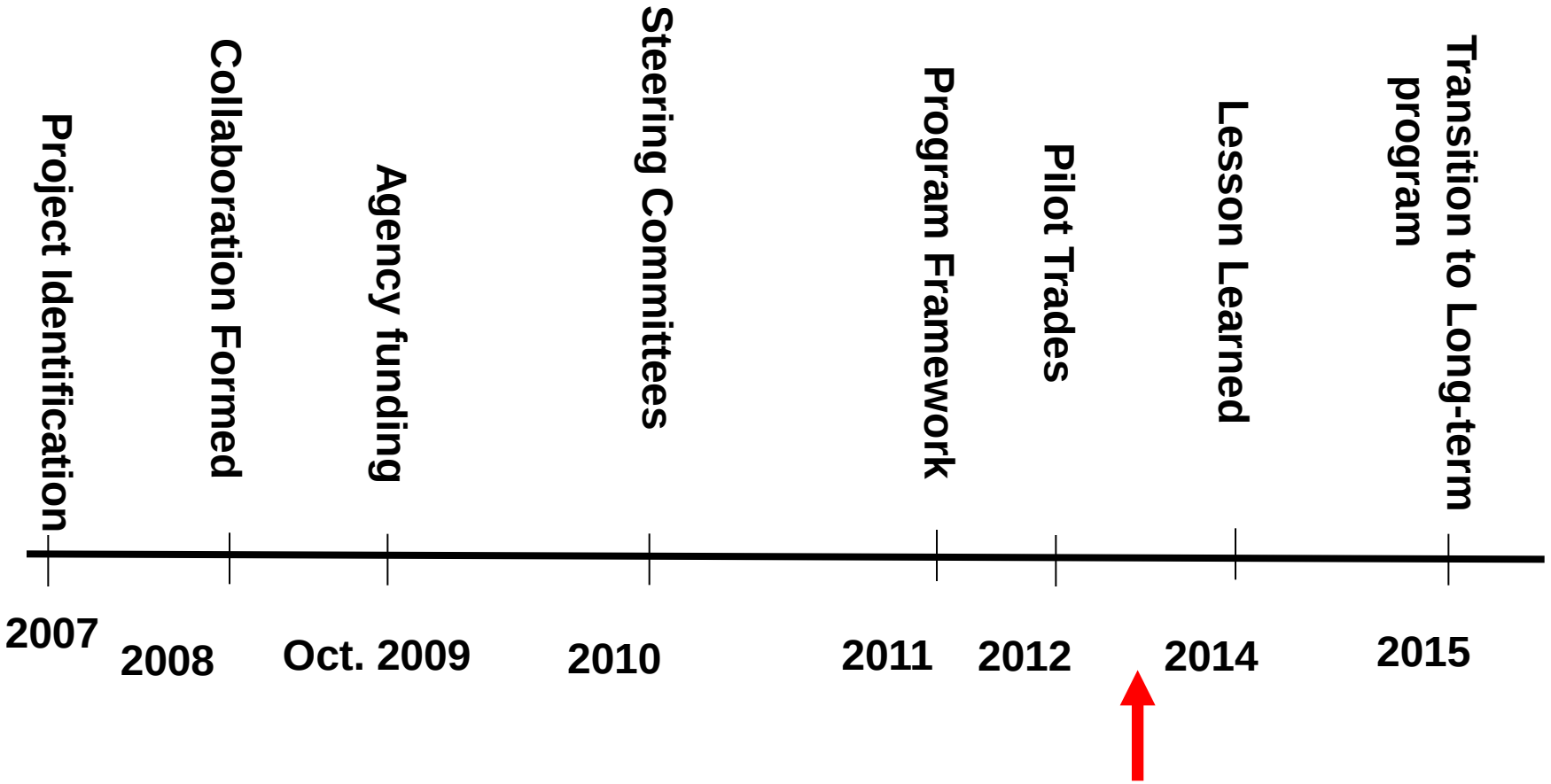
Project Schedule

- **Signed Trading Plan – August 2012**
- **BMPs: Begin in Spring 2013**



Contacts & Questions

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