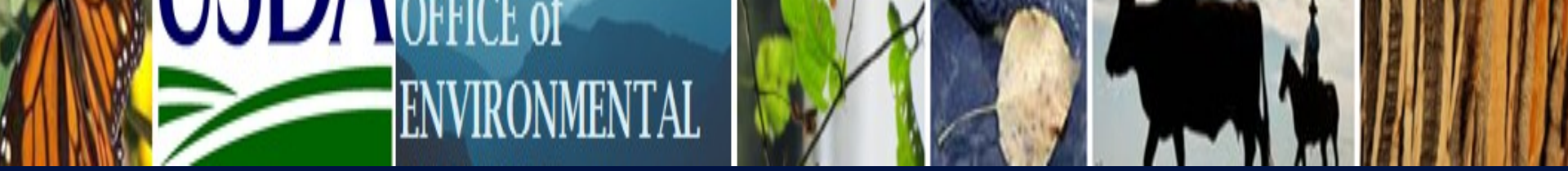


Nutrient Trading Programs

NAICC Annual Meeting - New Orleans, Louisiana

January 31, 2014

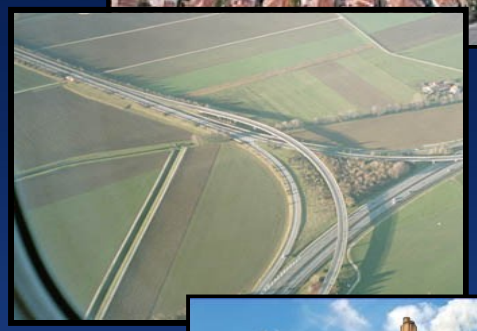
Christopher Hartley CCA, PCA, QAL
United States Department of Agriculture - Office of Environmental Markets

What is Nutrient Credit Trading?

Trading is a tool that allows facilities facing higher pollution control costs to meet regulatory obligations by purchasing equivalent -or superior- reductions from another source at a lower cost

Nutrient Credit Trading

Buyers



Sellers

Nutrient Credits

Payments

What Nutrients are Traded?

How Much is a Credit Worth?

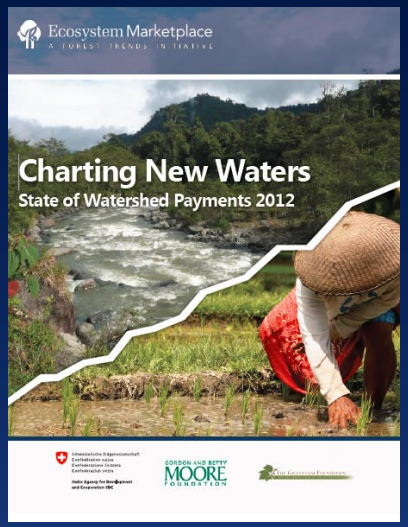
Why should you care?

Nutrient

Good
Management
Is Good Business

United States Department of Agriculture

Watershed Payment Programs



Summary of Active Watershed Protection Programs (2008)	
Active Water Quality Trading Programs:	14
Active Payments for Watershed Services Programs:	113
Total Active Programs	127
Value of Transactions	US$9.256 billion
Hectares Protected	50.1 billion ha

51 in 2000 → 205 in 2012 = >$8,000,000,000 / year

Nutrient Trading Programs Will Not Work Everywhere

Trading works where:

- There is a strong "driver" (regulatory or financial)
- Sources have different treatment costs
- There are credits available
- Stakeholders and regulators work together to design and implement trading programs

Who Regulates Nutrient Trading?

The Clean Water Act (CWA)

- Primary federal statute addressing surface water quality
  - Industrial, municipal, and agricultural point sources
    - Total Maximum Daily Load (TMDL)
    - National Pollutant Discharge Elimination System (NPDES) permits or other pollutic
- Limited ability to address nonpoint
- Nonpoint sources can be included - enforcement is left to the states

Trading can help meet

Will Nutrient Trading Programs Harm Water Quality?

Benefits of Allowing Non-point Sources to Generate Credits

- Abatement of nonpoint source pollution is often less expensive than abating point source pollution
- Greater communication and cooperation between point and non-point sources may help achieve a common goal; and
- Unregulated nonpoint sources play a larger role in water pollution control

How much Nutrient Trading is there between Point Sources and Non-Point Sources?

Are Nutrient Trading Programs a means of applying the additional regulation to Agriculture?

Nutrient Trading Programs are Voluntary

Liability for compliance with permit obligations remains with the point source and cannot be transferred

Are there Different Types of Nutrient Trading Programs?

Nutrient Trading Programs can…

- Expand revenue opportunities for working lands
- Provide environmental benefits
- Accelerate conservation activities
- Reduce costs of restoration or compliance
- Increase opportunities for private investment
- Improve accountability/effectiveness of existing conservation programs

Why is USDA involved?

Prior to 2008,

- Consistent with mission and existing authorities
- Access, Relationships, and Trust
- Experience with environmental markets

In the 2008 Farm Bill, Congress instructed USDA to establish uniform guidelines for science-based methods to measure ecosystem services benefits … and facilitate the participation of farmers, ranchers, and forest landowners in emerging ecosystem services markets

2008 Farm Bill: Section 2709

Science-based methods to measure environmental services benefits of land management practices	+	Protocol to report environmental services benefits	+	Registry to collect, record, and maintain benefits measured	+	Process to verify benefits registered
METRICS		**MARKET INFRASTRUCTURE**				

Build on existing activities or information

Consult with Federal and State government agencies and nongovernmental interests including farm, ranch and forestry producers; financial institutions involved in environmental services trading; academic institutions; NGO's; and private sector representatives

COORDINATION

USDA Priorities

- Work with those setting rules and regulations to facilitate participation of farmers and rural landowners
- Demonstrate, test and finance approaches
- Develop guidance and tools
- Communicate benefits
- Integrate market-based approaches into USDA programs
- Incorporate trading opportunities in 2014 Farm Bill programs

Metrics, Tools and References

Improving Consistency and Removing Barriers

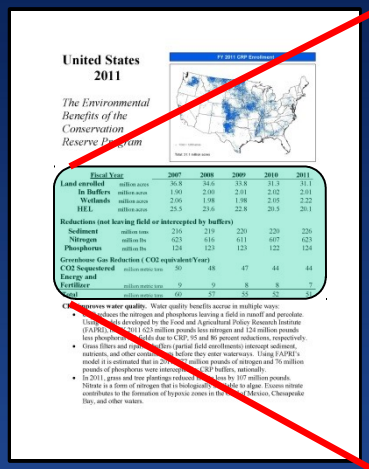
- Science-based
- User-friendly
- Meaningful
- Appropriate
- Consistent
- Accepted
- Meet regulatory criteria

Example: NRCS' conservation practice standards

United States Department of Agriculture

Farm Bill investments in metrics facilitate market-based approaches and improve programs

Example: FSA Conservation Reserve Program (CRP) performance data



United States
2011

The Environmental Benefits of the Conservation Reserve Program

FY 2011 CRP Enrollment

Fiscal Year		2007	2008	2009	2010	2011
Land enrolled	million acres	36.8	34.6	33.8	31.3	31.1
In Buffers	million acres	1.90	2.00	2.01	2.02	2.01
Wetlands	million acres	2.06	1.98	1.98	2.05	2.22
HEL	million acres	25.5	23.6	22.8	20.5	20.1
Reductions (not leaving field or intercepted by buffers)						
Sediment	million tons	216	219	220	220	226
Nitrogen	million lbs	623	616	611	607	623
Phosphorus	million lbs	124	123	123	122	124
Greenhouse Gas Reduction (CO2 equivalent/Year)						
CO2 Sequestered	million metric tons	50	48	47	44	44
Energy and Fertilizer	million metric tons	9	9	8	8	[illegible]
Total	million metric tons	60	57	55	52	[illegible]

CRP improves water quality. Water quality benefits accrue in multiple ways:

- [illegible]ches the nitrogen and phosphorus leaving a field in runoff and percolate. [illegible] developed by the Food and Agricultural Policy Research Institute (FAPRI), [illegible] 2011 623 million pounds less nitrogen and 124 million pounds less phosphorus [illegible] fields due to CRP, 95 and 86 percent reductions, respectively.
- Grass filters and rip[illegible] (partial field enrollments) intercept sediment, nutrients, and other contam[illegible] before they enter waterways. Using FAPRI's model it is estimated that in 20[illegible] million pounds of nitrogen and 70 million pounds of phosphorus were intercep[illegible] CRP buffers, nationally.
- In 2011, grass and tree plantings reduced [illegible] loss by 107 million pounds. Nitrate is a form of nitrogen that is biologically [illegible]able to algae. Excess nitrate contributes to the formation of hypoxic zones in the [illegible] of Mexico, Chesapeake Bay, and other waters.

CRP improves water quality.

- **Prevented 226 million tons of sediment, 623 million pounds nitrogen and 124 million pounds phosphorus from leaving the field.**

CRP enhances wildlife habitat.

- **Independent studies identified benefits to Prairie Pothole ducks, ringed-neck pheasants, sage grouse, northern bobwhite quail, and other grassland birds.**

CRP sequesters carbon.

- **Sequestered 51 million metric tons CO2**

Nutrient Tracking Tool (NTT)

- NTT was built for Nutrient Trading
- It is a user friendly, web-based interface for Agriculture Policy Extender (APEX) Data provisioning is automated to Area of Interest (AOI):
  - 50 years of daily time step data
  - Soil information from web soil survey
  - Agronomic information from LMOD

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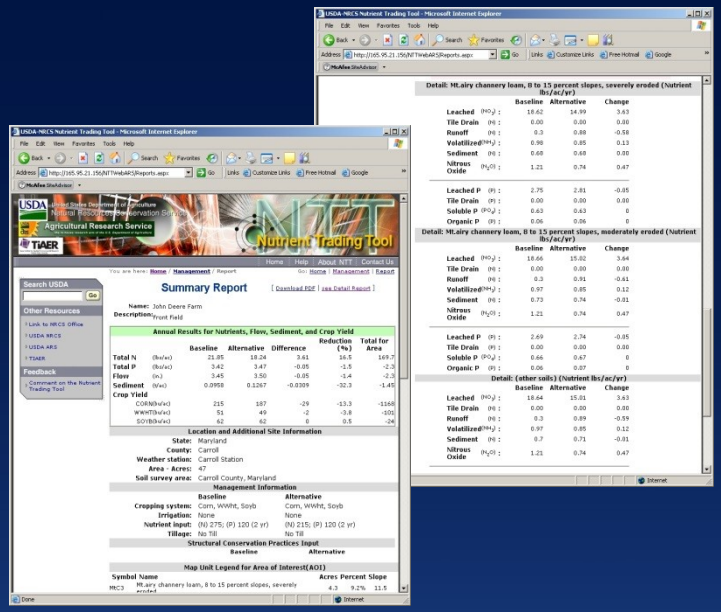
Nutrient Tracking Tool (NTT)

NTT calculates the output of the APEX model in terms of *delta* products or the difference between existing conditions and proposed conservation.



Existing Condition - Proposed Conservation = Nitrogen and Phosphorus Saved

Market Infrastructure

Reducing Uncertainty

- Transparent
- Guidelines
  - eligibility
  - baselines
  - verification protocols
  - registry design for tracking credits
- Demonstrations
- Analysis and Evaluation
  - Coordinate agencies, tribes, and stakeholders

Example: NRCS' Conservation Innovation Grants (CIG)

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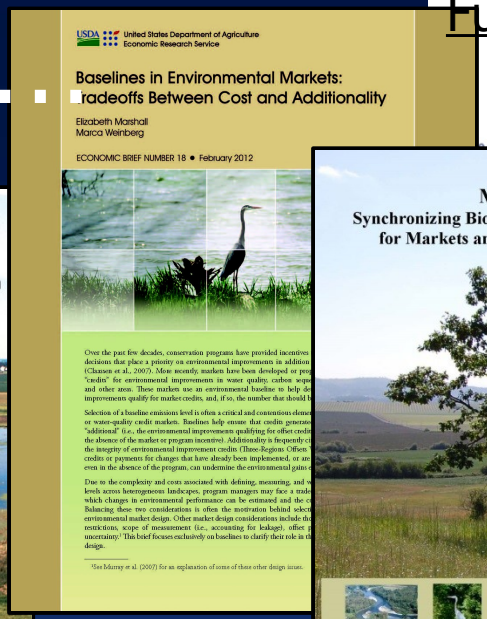
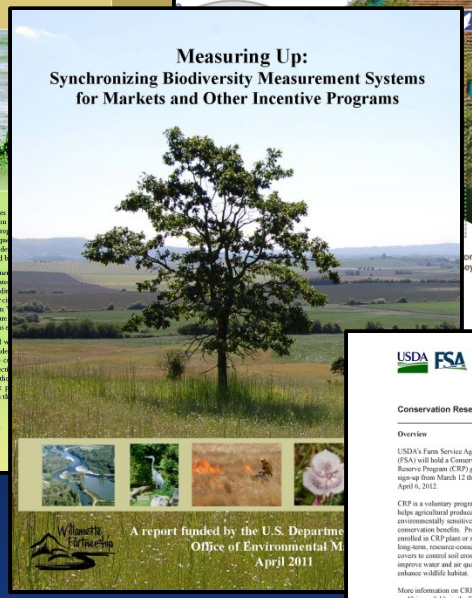
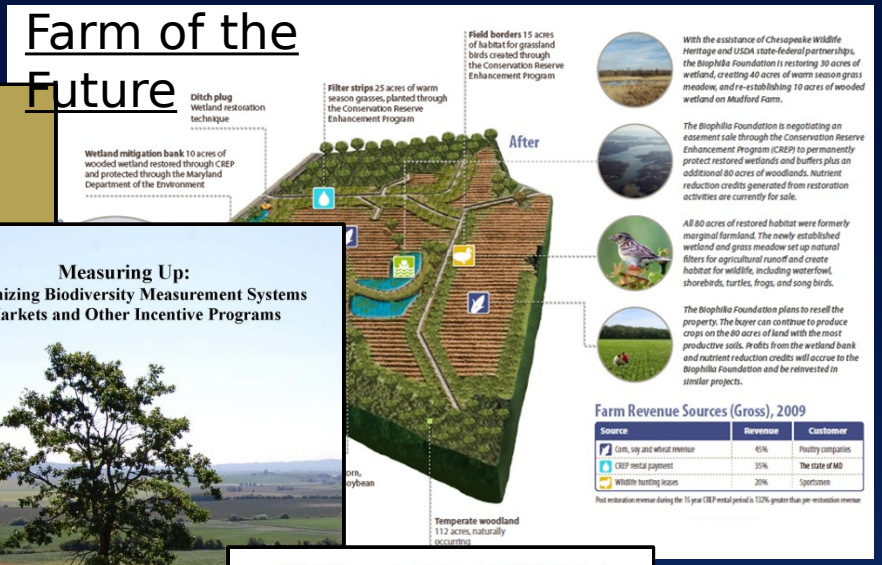
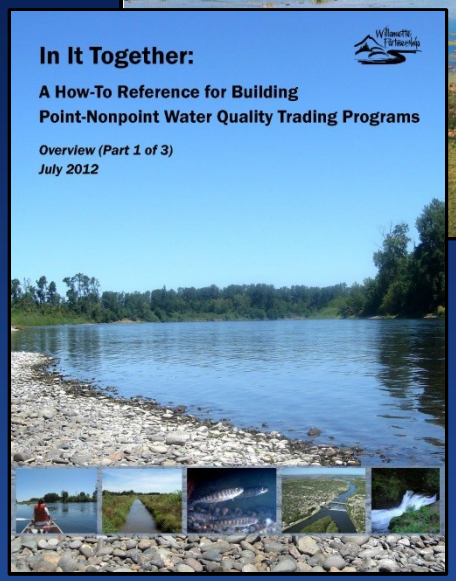
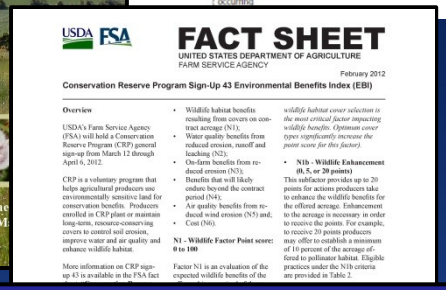
Some Examples…

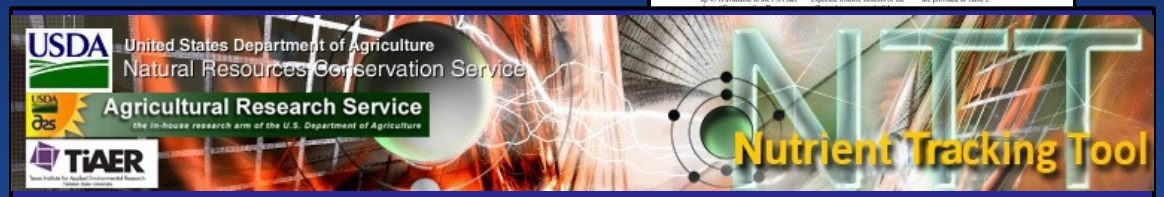












http://nn.tarleton.edu/NTT/

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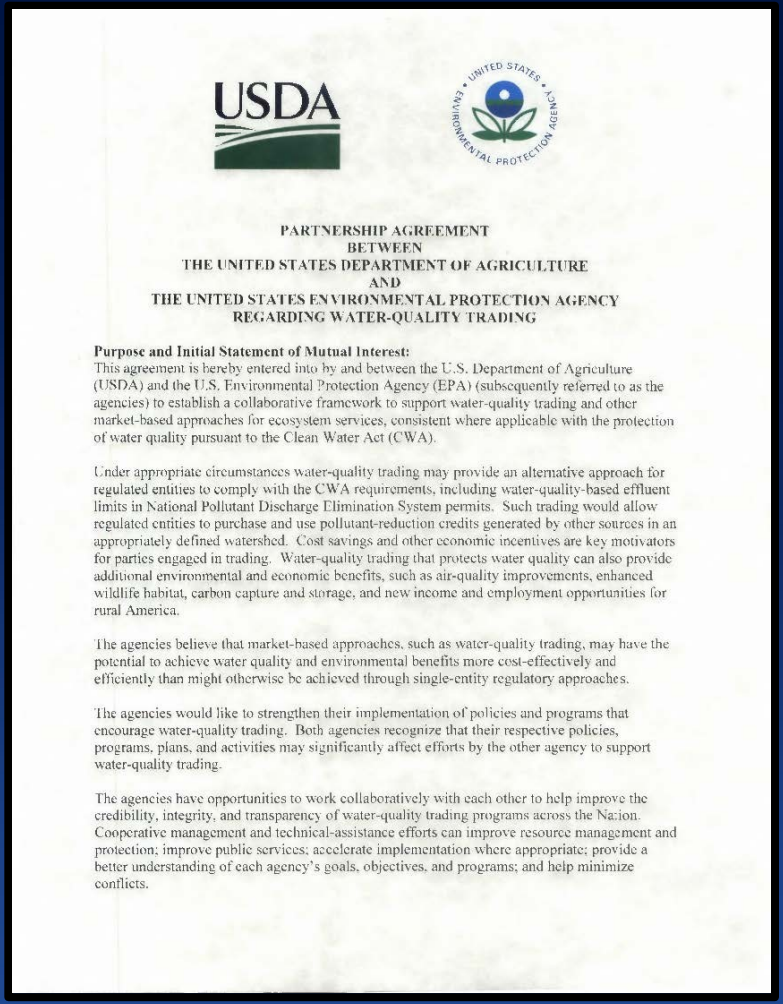
New USDA - EPA Partnership

Collaborate on tool and information resources, to guide decision making, program design and implementation, improve environmental performance, and foster appropriate consistency and integrity across regional trading initiatives.



PARTNERSHIP AGREEMENT
BETWEEN
THE UNITED STATES DEPARTMENT OF AGRICULTURE
AND
THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGARDING WATER-QUALITY TRADING

Purpose and Initial Statement of Mutual Interest:
This agreement is hereby entered into by and between the U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA) (subsequently referred to as the agencies) to establish a collaborative framework to support water-quality trading and other market-based approaches for ecosystem services, consistent where applicable with the protection of water quality pursuant to the Clean Water Act (CWA).

Under appropriate circumstances water-quality trading may provide an alternative approach for regulated entities to comply with the CWA requirements, including water-quality-based effluent limits in National Pollutant Discharge Elimination System permits. Such trading would allow regulated entities to purchase and use pollutant-reduction credits generated by other sources in an appropriately defined watershed. Cost savings and other economic incentives are key motivators for parties engaged in trading. Water-quality trading that protects water quality can also provide additional environmental and economic benefits, such as air-quality improvements, enhanced wildlife habitat, carbon capture and storage, and new income and employment opportunities for rural America.

The agencies believe that market-based approaches, such as water-quality trading, may have the potential to achieve water quality and environmental benefits more cost-effectively and efficiently than might otherwise be achieved through single-entity regulatory approaches.

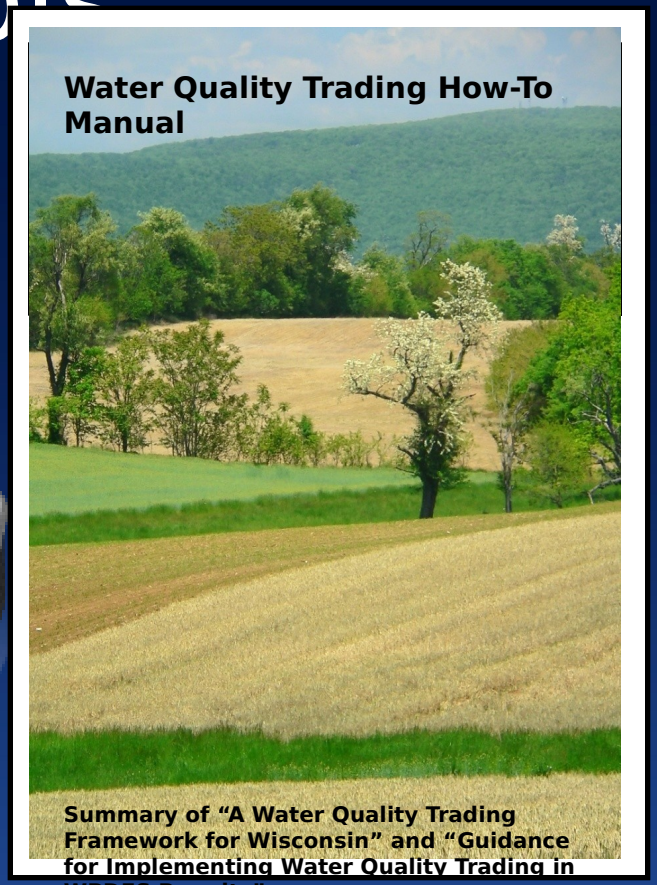
The agencies would like to strengthen their implementation of policies and programs that encourage water-quality trading. Both agencies recognize that their respective policies, programs, plans, and activities may significantly affect efforts by the other agency to support water-quality trading.

The agencies have opportunities to work collaboratively with each other to help improve the credibility, integrity, and transparency of water-quality trading programs across the Nation. Cooperative management and technical-assistance efforts can improve resource management and protection; improve public services; accelerate implementation where appropriate; provide a better understanding of each agency's goals, objectives, and programs; and help minimize conflicts.

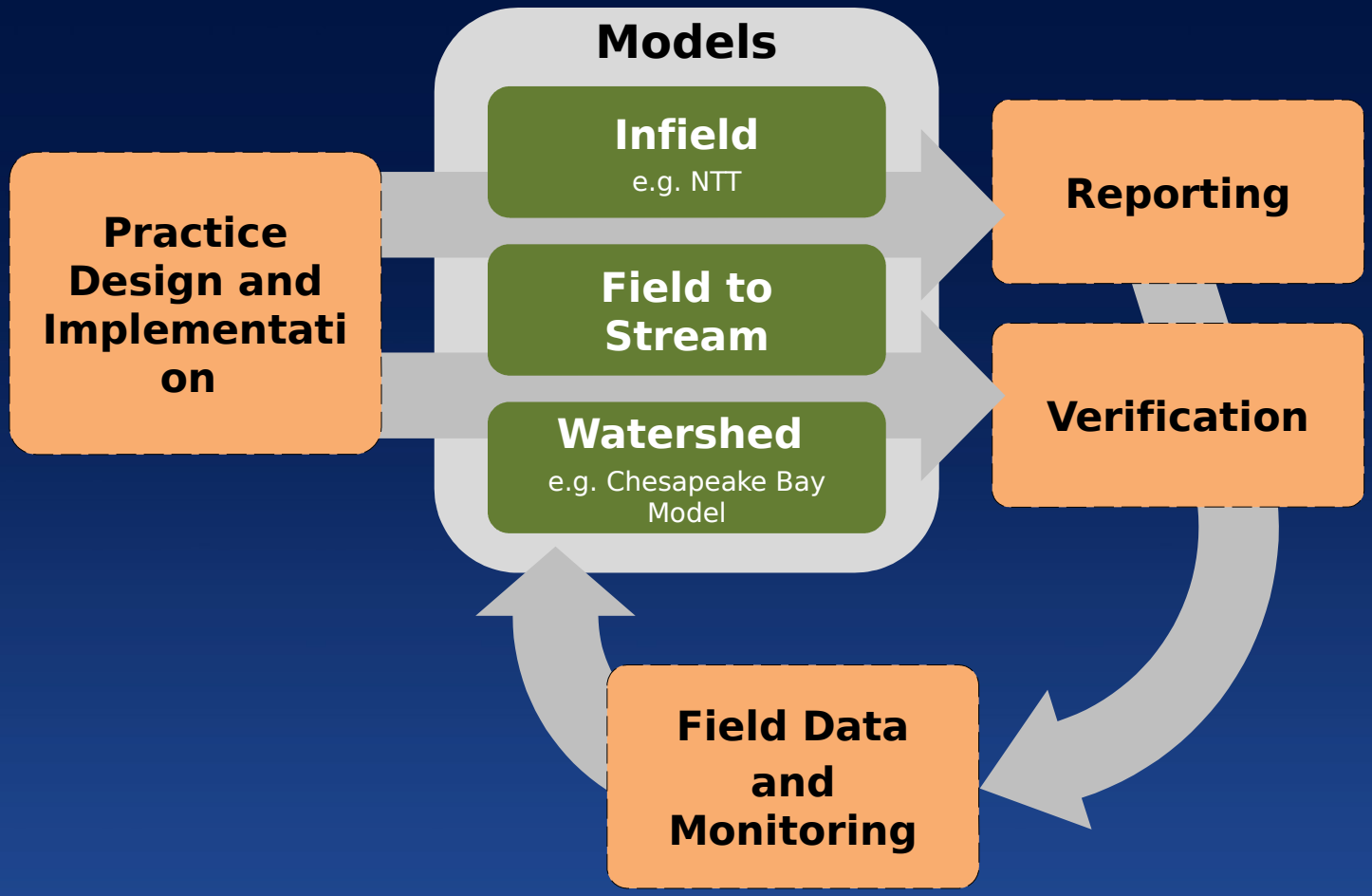
United States Department of Agriculture

Nutrient Trading Program Decision Making Tools

- CCAs, TSPs and others trained in nutrient management plan development
  - Credit Calculators
  - Credit Trading Rule



Opportunities for Consultants



USDA Relationship with Consultants

- Voluntary
- NRCS or producers can contract for services
- Begins with TSP certification
- There are many certification categories, each has national standards that set minimum proficiency criteria
- Cost-share payments are available to assist producers cover TSP costs

Questions?

Where Can You Find Out More About Nutrient Trading and other Markets for Ecosystem Services ?

http://www.usda.gov/oce/environmental_markets/