



United States Department of Agriculture

# Influence of Risk on Transaction Costs in WQT Markets



# Risks influencing transaction costs

- Scientific and Biophysical Uncertainty
- Extreme Events
- Buyer Risk
- Market Risk
- Regulatory Risk



# SCIENTIFIC AND BIOPHYSICAL UNCERTAINTY

An aerial photograph of a rural landscape. A winding river flows through the center, bordered by lush green trees. To the left, there are large, dark brown agricultural fields. To the right, more green fields and a line of trees are visible. The overall scene depicts a mix of natural and agricultural environments.

Uncertainty as to how activities on the land, like agricultural practices, perform given natural variations in weather, soil, topography, etc.

Uncertainty regarding our ability to accurately predict and estimate the performance of conservation practices.






# MECHANISMS TO ADDRESS UNCERTAINTY

- Direct measurement
- Estimation tools/models & BMP effectiveness rates
- Fixed values
- Trade ratios



# EXTREME EVENTS



Uncertainty associated with extreme or stochastic events that can lead to failure of nonpoint source control measures

# MECHANISMS TO ADDRESS UNCERTAINTY

- Aggregators
- Centralized Credit Reserve

## Credit Calculation

Nitrogen Reductions to Edge of Watershed Segment:

Delivery Ratio:<sup>1</sup>

**Nitrogen Reductions to Chesapeake Bay:**

Credits Retired to Meet the Threshold:

**Total Credits Generated:**

Credits sent to DEP Reserve:<sup>2</sup>

**Total Credits Available to Trade**

	654.48	lbs/yr
(x)	0.73	
(=)	479.74	lbs/yr
(x)	0%	
(=)	480	Credits/Year
(x)	10%	
(=)	432	Credits/Year

Ex. Pennsylvania pools 10% of all credits into a centralized insurance reserve that can be used for compliance purposes in case of project failure





# Buyer Risk

Risk that the credit buyer will be in noncompliance as a result of a credit seller not abiding by the agreement to implement and maintain the conservation practice as planned.





# MECHANISMS TO ADDRESS UNCERTAINTY

- Aggregators
- Verification
- Shared liability





# Market Uncertainty

Uncertainty that there will be adequate supply and/or demand for credits.

Silver King  
White Sweet  
Corn

.50 \$ an ear

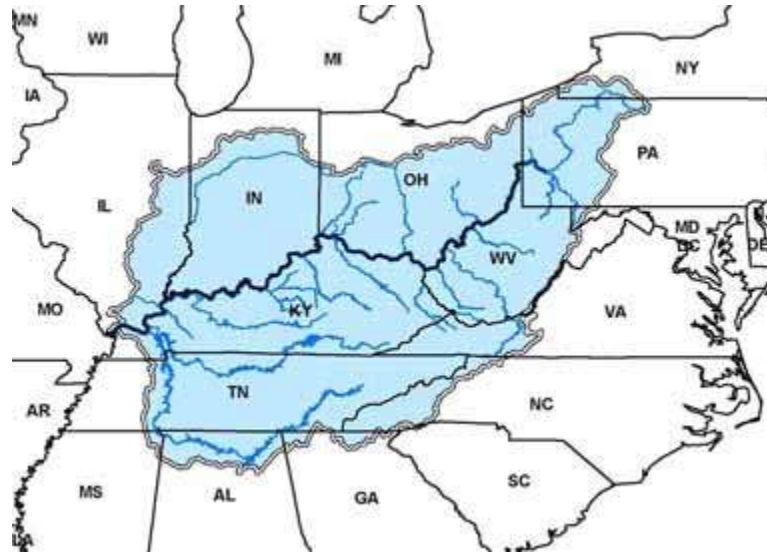


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Image Kristen Taylor

# MECHANISMS TO ADDRESS UNCERTAINTY

- Preimplementation certification
- Credit banks
- Government guarantee



Ex. Ohio River Basin project purchases credits from producers. Credits are aggregated into a bank and re-sold to third parties.



# Regulatory Uncertainty

An aerial photograph of a large body of water, likely a reservoir or lake, covered in a thick, bright green algal bloom. The bloom extends across most of the water's surface. In the background, there is a dense line of green trees bordering the water. To the left of the trees, a patch of brown, cleared land is visible. The overall scene suggests a significant environmental issue related to water quality.

Uncertainty around whether regulations will change or be challenged, or if permit requirements or credit calculations can be subject to change.

# MECHANISMS TO ADDRESS UNCERTAINTY

- Program conservatism
  - Trading ratios
  - Verification requirements
- Ag certainty
- Grandfathering

## States poised to offer break to farms that install BMPs

Amnesty from new rules would be granted to those who fully implement plans and agree to inspections.

By Rona Kobell on April 01, 2013

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Left to right: Maryland Department of the Environment Secretary Robert Summers; Maryland Department of Agriculture Secretary Earl "Buddy" Hance; Sen. Thomas "Mac" Middleton; and Assistant Agriculture Secretary Royden Powell testify in favor of the ag certainty bill. Agriculture proponents argue that farmers need certainty to plan their businesses, and in exchange will promise to put in water-protection practices that aren't required. (Dave Harp)



# Conclusions

- Risk and Uncertainty should be addressed holistically
- Be aware of trade-offs between addressing risk and uncertainty and increasing transaction costs



# Thank You!

Questions?

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