

# Beyond Carbon: Wetlands, Water and Habitat Markets

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United States Department of Agriculture

# What are environmental markets?

Environmental markets are a voluntary means to reduce the cost of compliance with environmental regulations or to further the environmental goals.





# Environmental markets can...

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



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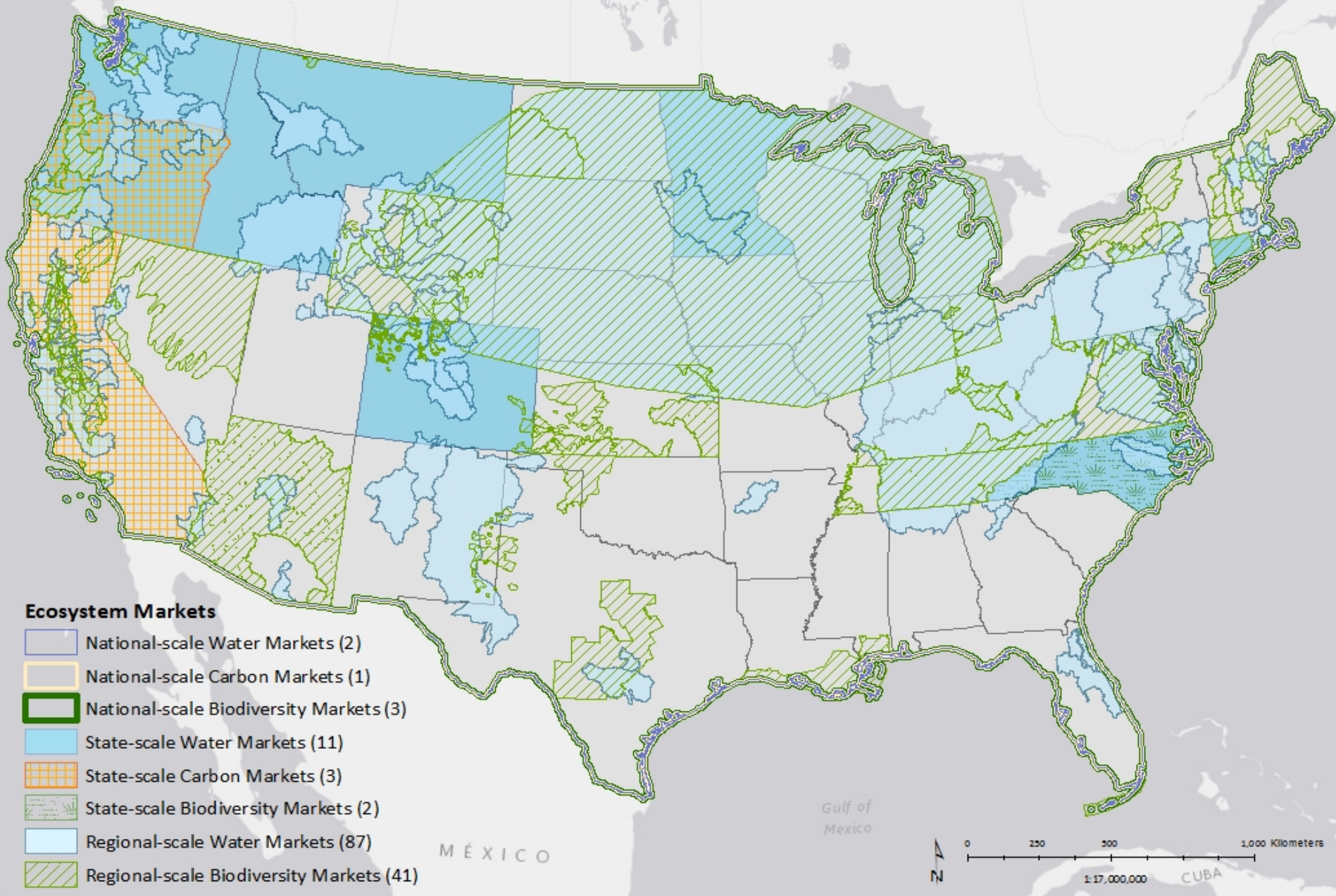
# What is bought and sold?

**Ecosystem Services**  
(benefits people obtain from ecosystems)





# ECOSYSTEM MARKETS COVERAGE (COMPLIANCE & VOLUNTARY) IN THE U.S., 2015





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Sector	Volume	Year
Wetlands		
Banks	\$1.3 - \$2.2 billion	(2014)
In-Lieu Fees	\$0.65 billion	(2014)
Species and Habitat	\$2.0 - \$3.4 billion	(2011)
Carbon and Greenhouse Gas		
Voluntary	\$0.08 billion	(2013)
CA Regulatory	\$0.25 billion	(2014)
Water Quality		
Trading	\$0.01 billion	(2012)
PWS	\$0.005 billion	(2012)
Water Quantity		
In-stream buybacks	\$0.02 billion	(2011)

# ECOSYSTEM SERVICE INITIATIVE GROWTH OVER TIME IN THE U.S.

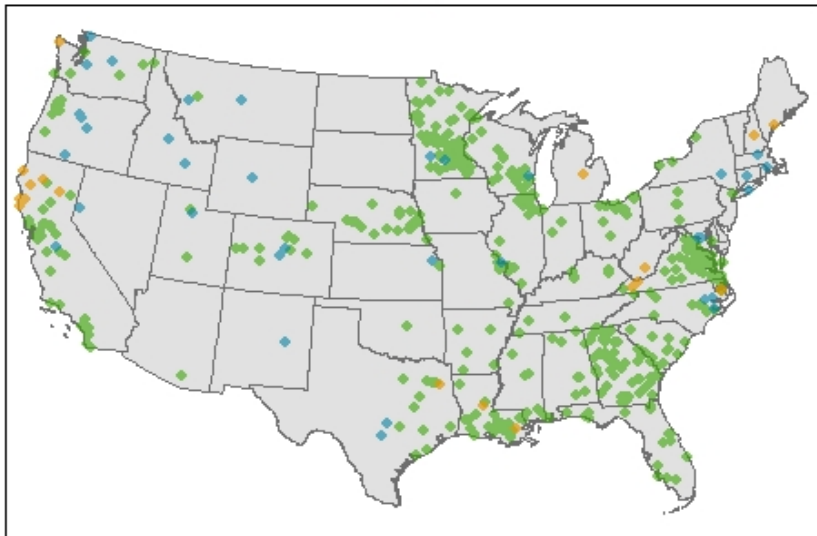
1985



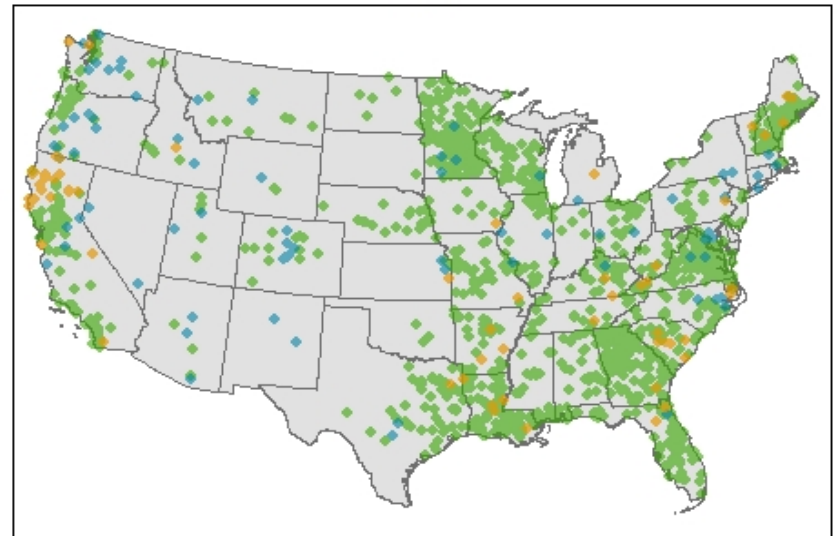
1995



2005

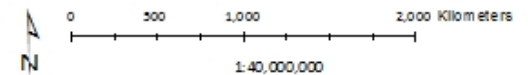


2015



## Ecosystem Service Initiatives by Asset Type

◆ Water Initiatives    ◆ Carbon Initiatives    ◆ Biodiversity Initiatives





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# Who are the buyers and sellers?

		Sellers	
Buyers		Individuals	Governments
	Individuals	<ul style="list-style-type: none"><li>• Markets for private ecosystem goods</li><li>• Land trust conservation easements</li><li>• Private environmental incentive payments</li><li>• Consumption-based donations</li><li>• Cap and trade markets</li></ul>	<ul style="list-style-type: none"><li>• Public goods and services financed by taxes</li><li>• Fees to government agencies for access to ecosystem goods</li><li>• Fees (taxes or charges) for license to discharge</li></ul>
	Gov't	<ul style="list-style-type: none"><li>• Incentives to private parties for provision of ecosystem services</li></ul>	<ul style="list-style-type: none"><li>• Federal grants for environmental protection</li></ul>





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*“USDA asserts no direct or indirect interest in credits generated with Farm Bill funds.”*

- (a) However, USDA retains the authority to ensure that Farm Bill program purposes are met. In addition, any requirements or standards of an environmental market in which a participant simultaneously enrolls to receive environmental credits must be compatible with the purposes and requirements of the USDA program contract.
- (b) The participant must meet all operation and maintenance (O&M) requirements for program-funded activities
- (c) Participants may not use program funds to implement conservation practices and activities that the participant is required to establish as a result of a court order.



# Environmental Markets & USDA

- 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.
- USDA established the Office of Environmental Markets (OEM)

*Example: FSA Conservation Reserve Program (CRP) performance data*



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

- 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 equivalent.**

# Office of Environmental Markets

What we do:

- Develop Tools
- Provide Information
- Create Opportunities







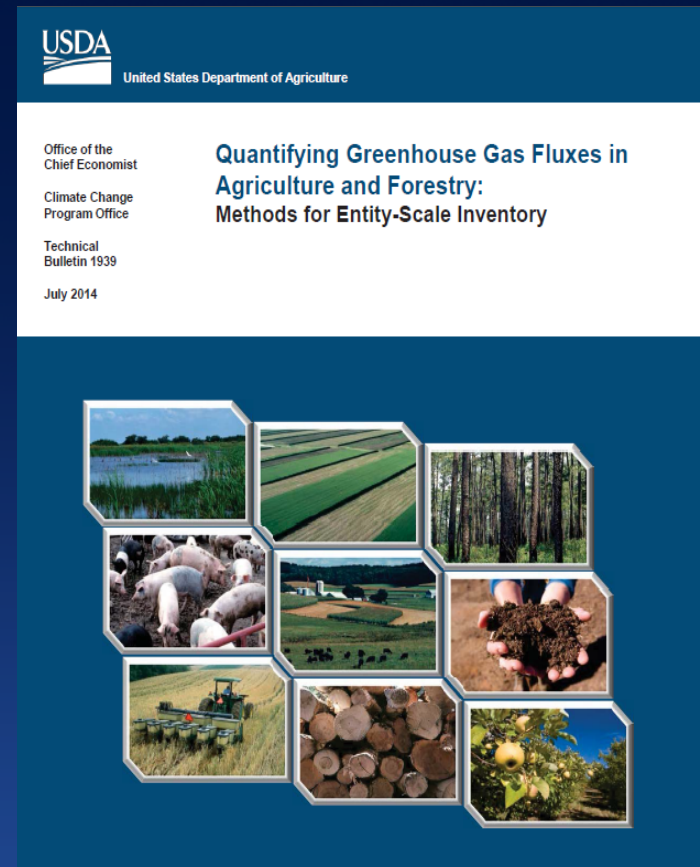
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# What is a tool?



# Properties of Effective Tools

- User-friendly
- Transparent
- Meaningful
- Appropriate
- Consistent
- Accepted
- Cost Effective
- Science-based
- Meet Regulatory Criteria





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[Home](#)[Water Quality](#)[Water Quantity](#)[Carbon](#)[Wetlands](#)[Habitats](#)[Tools](#)[Resources](#)[About](#)

### Highlights

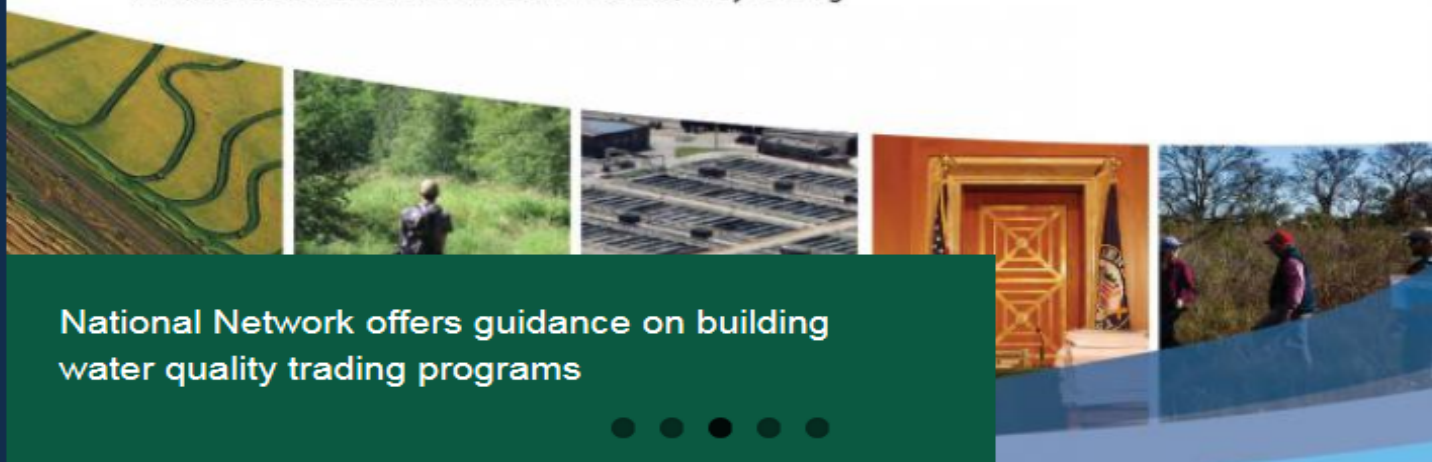
» National Network on Water Quality Trading: Building a Water Quality Trading Program

» USDA-EPA Water Quality Trading Roadmap

» USDA and Environmental Markets

## Building a Water Quality Trading Program: Options and Considerations

Version 1.0 | June 2015: Point-Nonpoint Trades  
A Product of the National Network on Water Quality Trading



National Network offers guidance on building water quality trading programs



### Welcome to the USDA's Environmental Markets Website

Environmental markets are an innovative policy approach to increasing funding for environmental conservation and are often viewed as a complement to traditional conservation programs. Current active and pilot markets exist for greenhouse gasses, water quality, water quantity, wetlands, and habitats.

Use this site to find more information about different types of environmental markets, market resources and tools, and more information about environmental market activities at USDA.

Questions? Feedback? [Contact us](#).

#### Environmental Markets in the News

- Water quality trading program awarded for innovation
- California Air Resources Board approves rice cultivation carbon offset protocol

Stay Connected



# Welcome to the USDA-EPA Water Quality Trading Roadmap

The Roadmap is a web resource that provides information on water quality trading in one searchable database.

Use the search bar to explore a topic, or search by type of document using the brief, permit, statute, law, and policy filters.

- [Learn more about the Roadmap](#)
- [Learn more about USDA and EPA's Partnership on water quality trading](#)



More on Water Quality Trading at [EPA](#)



More on Water Quality Trading at [USDA](#)



Designing a Program

Selling Credits

Purchasing Credits

## Water Quality Trading Roadmap

Advanced Search

Search

Find the answer to your question

Search filters applied

Topic

Water Quality Trading

### Water Quality Trading

+ Brief

+ Permit

+ Statute

+ Law

+ Policy

### Related Answers

[How are National Pollutant Discharge Elimination System \(NPDES\) permits involved in trades?](#) **New**

Under Florida's water quality trading administrative code, "at least one of the trading parties must have an individual wastewater or stormwater permit" and credit-generation activities must be



Water Quality Trading Toolkit  
for Permit Writers



Feature: [EPA Water Quality Trading Toolkit for Permit Writers](#)

This Toolkit is EPA's "how-to" manual on designing and implementing water quality trading programs. Click [here](#) to learn more about incorporating trading in NPDES permits and more.





# EnviroAtlas: Connecting Ecosystems, People, and Well-being

United States Environmental Protection Agency

LEARN THE ISSUES SCIENCE & TECHNOLOGY LAWS & REGULATIONS ABOUT EPA

## EnviroAtlas

You are here: EPA Home » Research » Ecosystem Research » EnviroAtlas Home

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### Navigating EnviroAtlas

- What are ecosystem services?
- How to use EnviroAtlas
- EnviroAtlas data
- Downloadable GIS tools
- Resources and publications
- Status of EnviroAtlas
- FAQs
- Tell us what you think

### EnviroAtlas Interactive Map

Click here for map

### Eco-Health Browser

Click here for browser

### Related Links: General

- Research at EPA
- Ecosystems Research
- Health Science Research
- Promoting Sustainability at the EPA
- Tampa Bay Ecosystems Research

More links

### Disclaimer

This is the first release of EnviroAtlas; the content will continue to be updated and may not be fully reviewed.

Full disclaimer

### What is EnviroAtlas?

EnviroAtlas is a collection of interactive tools and resources that allows users to explore the many benefits people receive from nature, often referred to as ecosystem services. Key components of EnviroAtlas include the following:

- A multi-scaled **Interactive Map** with broad scale data for the lower 48 states and fine scale data for selected communities
- The **Eco-Health Relationship Browser**, which shows the linkages between ecosystems, the services they provide, and human health
- Ecosystem services information**, GIS and analysis tools, and written resources

### Why is EnviroAtlas useful?

Though critically important to human well-being, ecosystem services are often overlooked. EnviroAtlas seeks to measure and communicate the type, quality, and extent of the goods and services that humans receive from nature so that their true value can be considered in decision-making processes.

Using EnviroAtlas, many types of users can access, view, and analyze diverse information to better understand how various decisions can affect an array of ecological and human health outcomes. EnviroAtlas is available to the public and houses a wealth of data and research.

### Learn how to use EnviroAtlas

Watch the EnviroAtlas demonstration video to learn more about the Interactive Map and its functions.

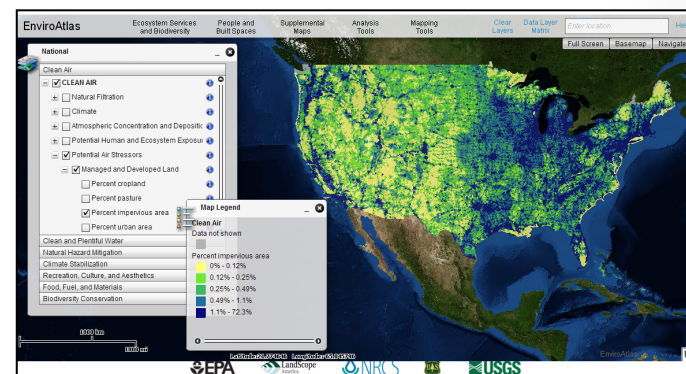
- See how people are using EnviroAtlas
- Browse the available EnviroAtlas data (22pp, 210K, About PDF)

### About Us

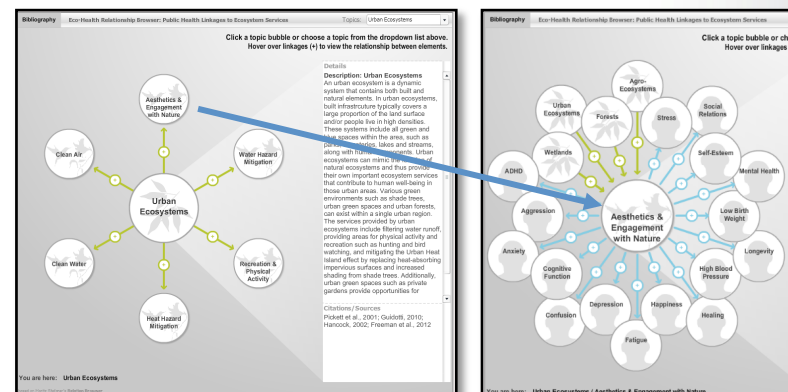
EnviroAtlas is a collaborative project developed by EPA, in cooperation with the US Geological Survey (USGS), the US Department of Agriculture's Natural Resources Conservation Service (NRCS) and Forest Service, and Landscape America. Produced by the collective effort of federal employees, contractors, and non-governmental organizations, EnviroAtlas develops and incorporates data from federal, state, community, and non-governmental organizations.

Meet the EnviroAtlas team...

Learn more about EnviroAtlas...



Interactive Mapping Application



Eco-Health Relationship Browser

<http://enviroatlas.epa.gov>

# What is EnviroAtlas?

A web-based tool giving users ability to view, analyse, and download information to inform decisions concerning the places in which we live, work, derive resources, and play

- Multi-agency effort – EPA, DOI, USDA
- Geospatial indicators and indices of the supply, demand, and benefits
- Drivers of change
- Reference data (e.g., boundaries, land cover, soils, hydrography, impaired water bodies, wetlands, demographics, community design)
- Analytic, mapping, and interpretive tools





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# EnviroAtlas Market Plug-in



Data and analytics on markets and payments for ecosystem services

## Market Fundamentals

- Map of programs
  - Water, carbon, biodiversity
  - Active and developing
  - Public, private, PPP
- Map of opportunities
- Map of barriers
- Map of outcomes
- Map of investment levels
- Map of growth

## Markets in Context

- Markets vs climate risk
- Markets vs conservation priorities
- Markets vs ecosystem service value
- Markets vs public health indicators
- Markets vs economic indicator
- Markets vs productive lands
- Markets vs public & private lands





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# Can CMS efforts contribute to markets for wetlands, water and habitat?

*Yes!*





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# How can CMS efforts contribute to other environmental markets?

- Basic science and data

*“improving the accuracy, quantitative uncertainties, and utility of products for supporting national and international policy, regulatory, and management activities.”*

- Market innovation

*“development of carbon Monitoring Reporting and Verification [MRV] systems which can support current carbon trading protocols.”*



# Market-based approaches will not work everywhere

Market-based approaches work where:

- There is a strong "driver" (regulatory or financial)
- Participants have different abatement costs
- Uncertainty can be reduced
- Stakeholders and regulators work together to design and implement trading programs



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# Market-based approaches work if...

... the Buyers, Sellers and Regulators are  
Confident in the Efficiency & Credibility of  
the Programs

**Good**

**Science**

...and the Public's Interest is Protected

**Good**



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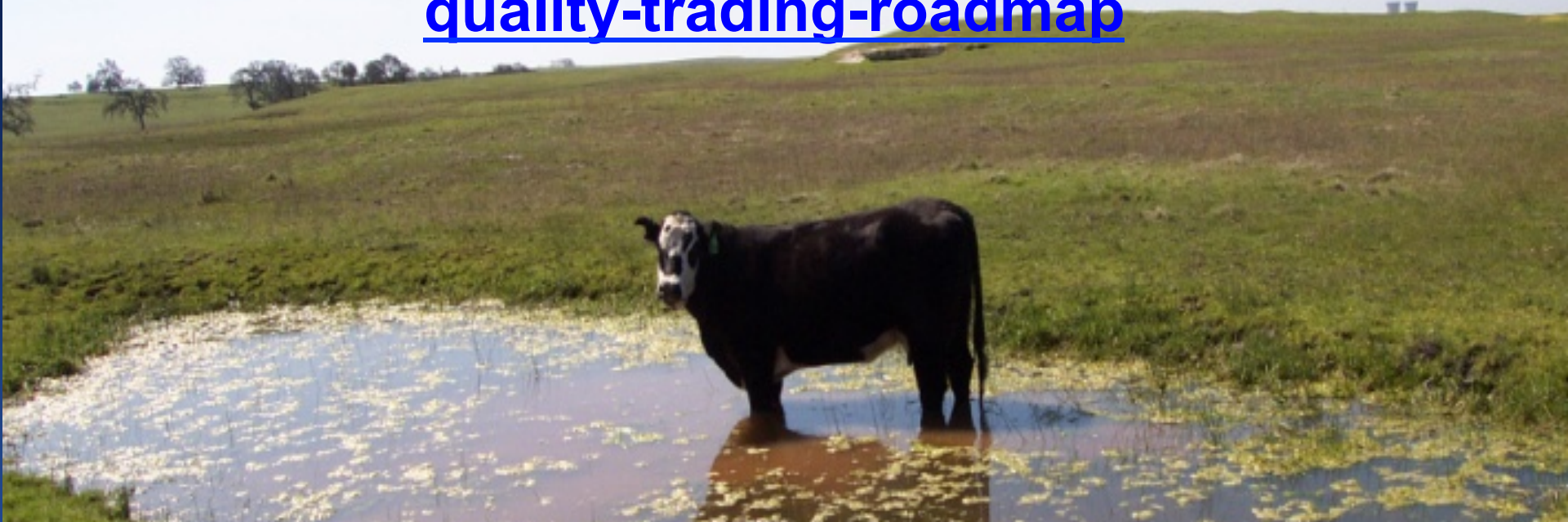
# On-line Links

**USDA Environmental Markets Home Page:**

**<http://www.usda.gov/environmentalmarkets>**

**USDA – EPA Water Quality Trading Roadmap Tool:**

**<http://oem.usda.gov/welcome-usda-epa-water-quality-trading-roadmap>**





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# Questions?

**e-mail: [chartley@oce.usda.gov](mailto:chartley@oce.usda.gov)**

