

# Clean Water

## Working Together to Achieve Results

- Water resources are highly valued
- New regulations obligations
- New compliance approach promotes cost effective solutions.





# Phosphorus Regulations

- **NR 102-numeric water quality criteria**
- **NR 151-runoff management (PI)**
- **NR 217-implementation framework for point sources**
- **Rock River TMDL**

## Total Maximum Daily Loads for Total Phosphorus and Total Suspended Solids in the Rock River Basin

Columbia, Dane, Dodge, Fond du Lac, Green, Green Lake, Jefferson, Rock, Walworth, Washington, and Waukesha Counties, Wisconsin

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Prepared for:

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# What is a TMDL?

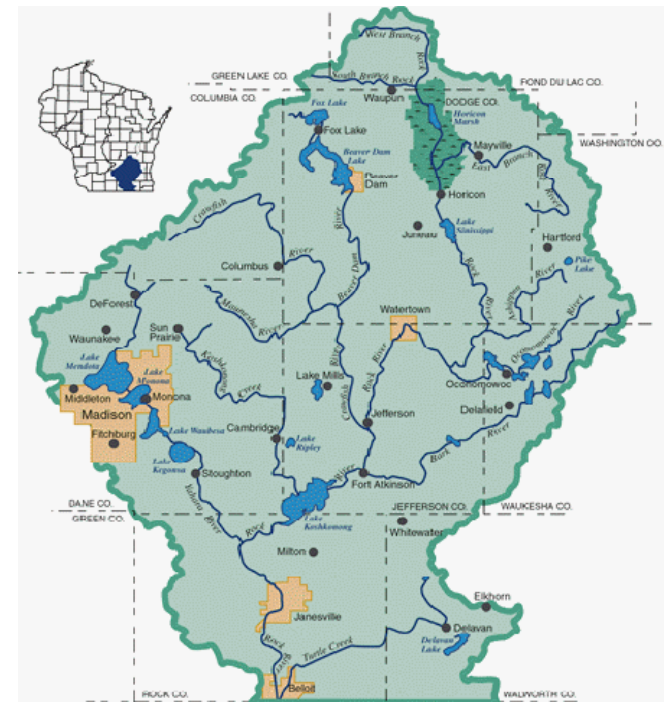
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## Total Maximum Daily Load

- **Maximum amount of a pollutant that an impaired water can receive and still meet standards**
- **Analysis of sources**
- **Allocation of allowable loads**

# Rock River TMDL

- Approved by EPA in September, 2011
- Addresses impairments caused by TP and TSS
- Reductions required from all sources in the Yahara Watershed:
  - Nonpoint
  - MS4s (stormwater) (25)
  - Point sources (7)



# Rock River TMDL-Stormwater Dischargers (MS4s) With Outfalls in the Yahara Watershed

## Cities

Fitchburg  
 Madison  
 Middleton  
 Monona  
**Stoughton**  
 Sun Prairie

## Villages

**Cottage Grove**  
 DeForest  
 Maple Bluff  
 McFarland  
 Shorewood Hills  
 Waunakee

## Towns

Blooming Grove  
**Bristol**  
 Burke  
**Cottage Grove**  
**Dunkirk**  
**Dunn**  
 Madison  
 Middleton  
**Pleasant Springs**  
 Westport  
 Windsor

## Others

Dane County  
 UW-Madison



Black = MAMSWaP Permittees



# Example of Rock River TMDL Allocations

Permittee	Reach	TP-Baseline (lbs/year)	TP-Allocation (lbs/year)	TP-Reduction (lbs/year)	TSS-Baseline (tons/year)	TSS-Allocation (tons/year)	TSS-Reduction (tons/year)
Middleton-T. Pond	64	1,155	664	491	17	8	9
Middleton-City	62	2,033	234	1,799	201	28	173
Middleton-City	63	10	10	0	1	2	(1)
Middleton-City	64	804	233	571	79	22	57
<b>Total</b>		<b>4,002</b>	<b>1,141</b>	<b>2,861</b>	<b>298</b>	<b>60</b>	<b>238</b>

# Rock River TMDL-Point Sources With Outfalls in the Yahara Watershed

## WWTPs

Arlington

MMSD

Oregon

Stoughton

## Others

MG&E

Middleton-Tiedemann Pond

DNR-Nevin Fish Hatchery



# Potential P Reduction Approaches

- Traditional-treatment and/or control
- Water quality trading
- Adaptive management
- Combination



# Traditional Compliance Approaches

- Independent actions
- Discharge focused solutions
- Expensive



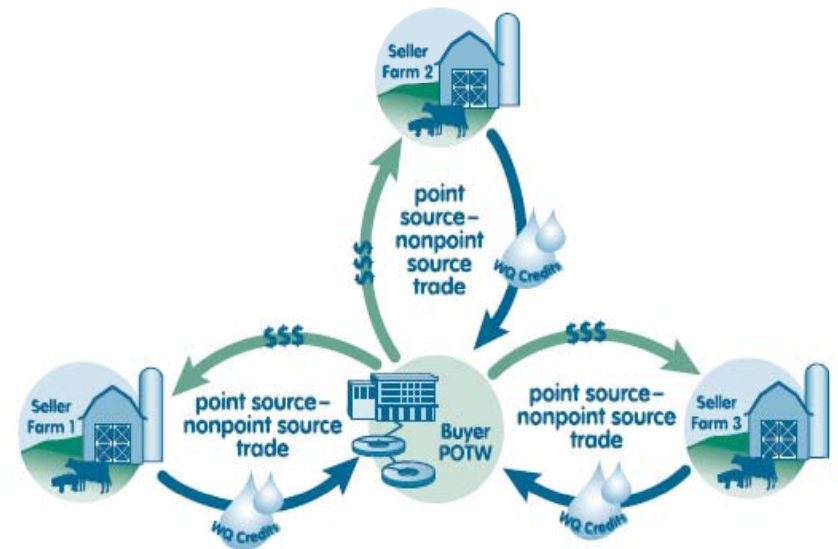
# What would this look like for MMSD?

- Build complex and expensive technology
- Resource intensive
- Large carbon footprint



# Water Quality Trading

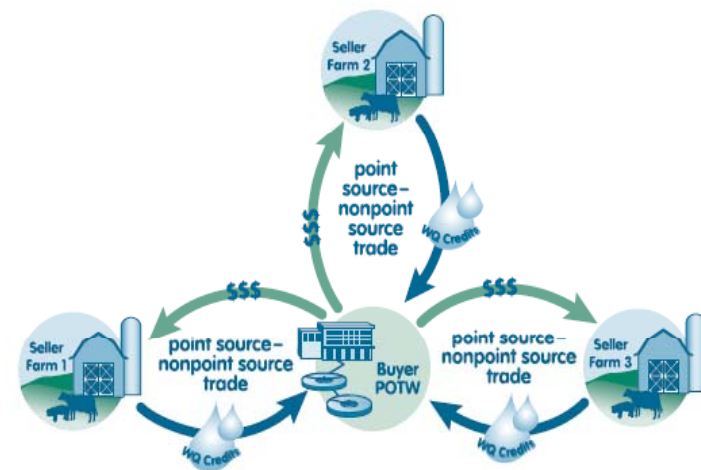
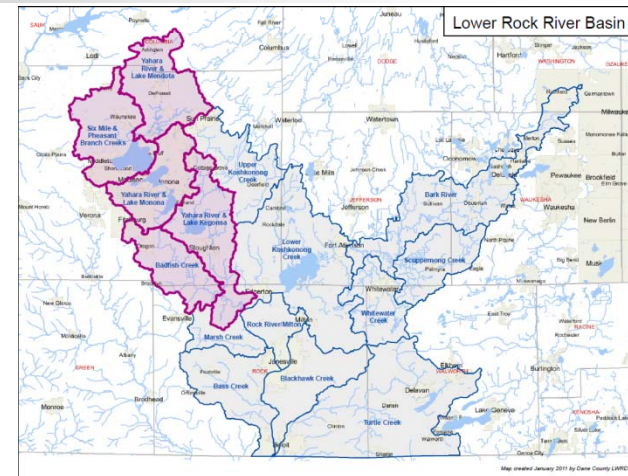
- Different sources have different control costs
- Entities with higher control costs fund practices with lower costs
- Purchaser receives credit for reductions
- WDNR has developed a draft trading framework
- Trade ratio
  - 2:1 common
  - Functional ratio could be higher



# New Compliance Approach

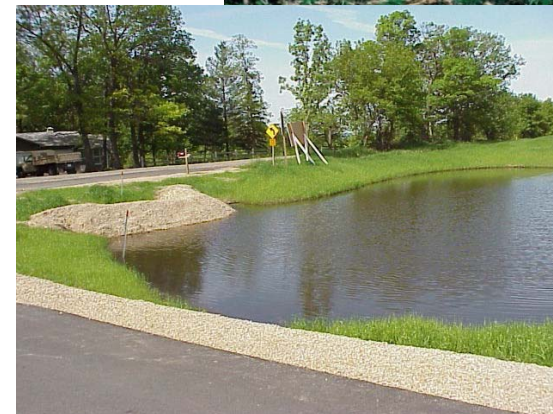
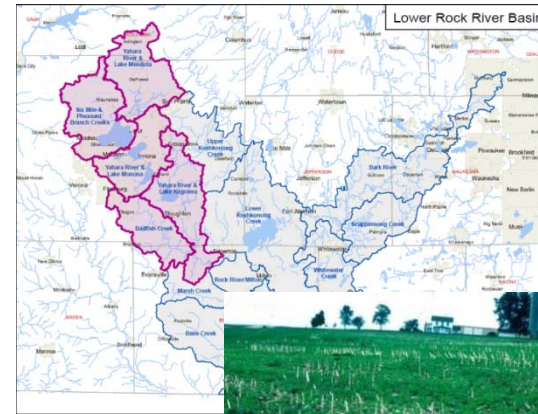
## Watershed Adaptive Management

- Watershed based focus
- Pool resources and invest in lower cost solutions
- Solutions similar to trading
- Not bound by draft trading framework
- High level of flexibility
- No explicit trade ratio
- Application has to be made by an NR 217 regulated facility



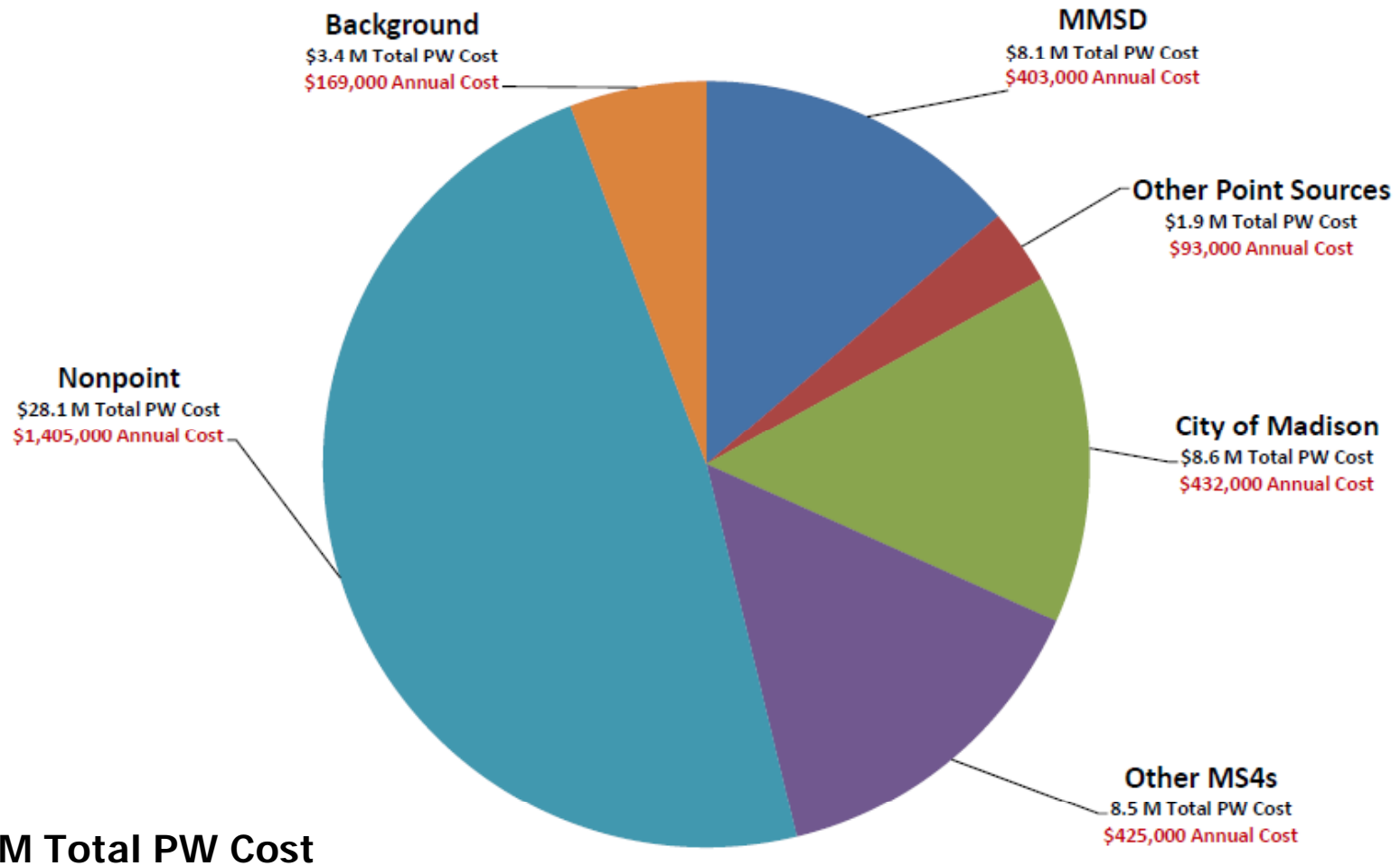
# Adaptive Management Basics

- MMSD focus is on Yahara Watershed
- TMDL used to calculate total watershed load reduction
- Costs calculated with input from Dane County Land and Water Resources
- Proportional assignment of costs
- Practices can occur throughout watershed
- TMDL obligations met



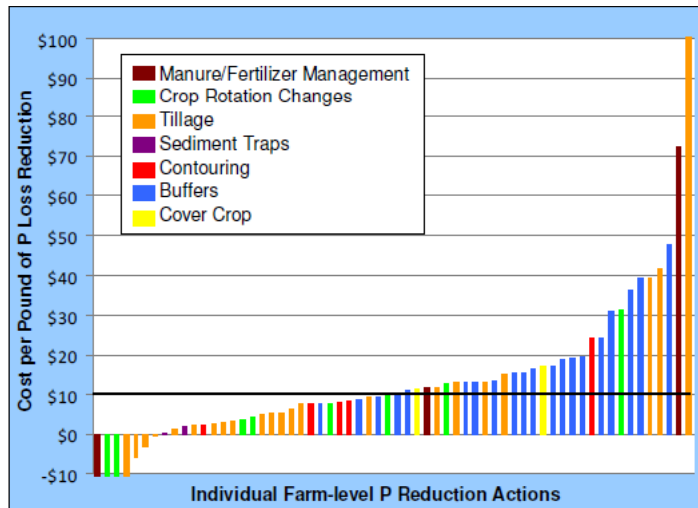
# What is the Potential Price Tag For Adaptive Management?

**Yahara Watershed Adaptive Management Cost Estimates  
(Point Sources at Current Phosphorus Loads)**

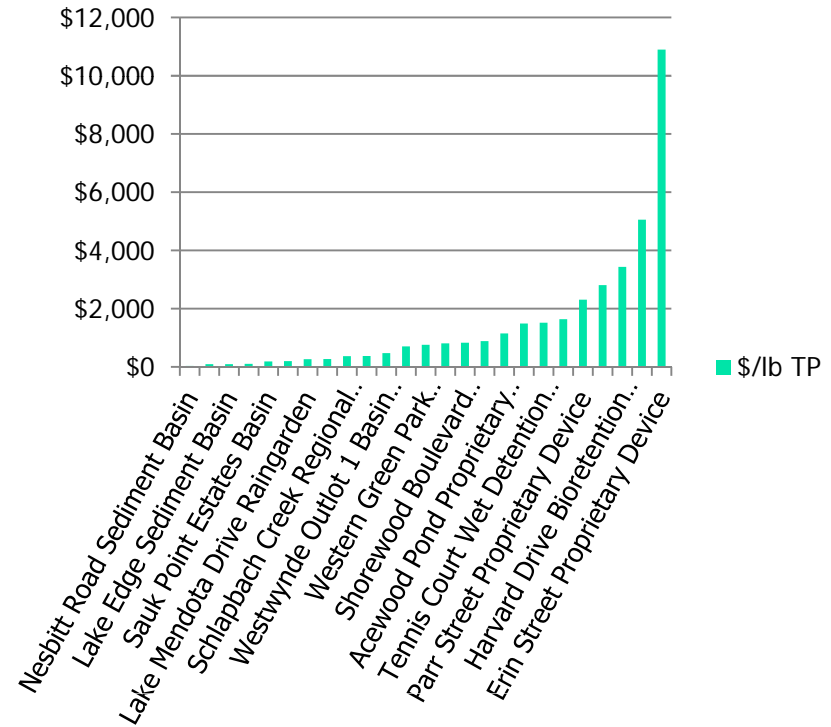


# A Wide Range of BMPs and Costs

## Iowa ag BMP Pilot Project




## Urban Water Quality Grant Practices



# How do we move forward?

- Test drive thru a pilot project
- MOU:
  - Brief background information
  - Regulatory considerations
  - Pilot project goals
  - How success is measured
- MMSD, Dane County, City of Madison, and DNR
- Others to be added



**Adaptive Management for the Yahara Watershed**  
**Memorandum of Understanding (11/03/2011 draft)**  
**For Discussion Purposes Only-Not for Distribution**

Between Madison Metropolitan Sewerage District, Dane County, the City of Madison, and the Wisconsin Department of Natural Resources.

**1. Background**  
The Wisconsin Department of Natural Resources (WDNR or the department) has developed numeric water quality criteria for phosphorus. These criteria were used as the basis for developing a total maximum daily load (TMDL) for the Rock River Basin. The TMDL was approved by EPA in September, 2010. The TMDL assigns phosphorus allocations for point sources, MS4s and nonpoint sources within the Rock River Basin. In most, but not all cases, point sources and MS4s will be required to reduce phosphorus loads to comply with the TMDL. Nonpoint sources will also be required to reduce phosphorus loads to comply with the TMDL.

Chapter NR 217 of the Wisconsin Administrative Code identifies the implementation framework for establishing effluent standards and limitations, including water quality based effluent limitations, for phosphorus in effluent discharged to surface waters of the state. NR 217.18 allows a point source regulated under NR 217 to use a watershed adaptive management option to comply with water quality criterion, subject to WDNR approval. WDNR may approve and authorize the adaptive management option if the point source demonstrates and the department concurs that all of the following conditions are met:

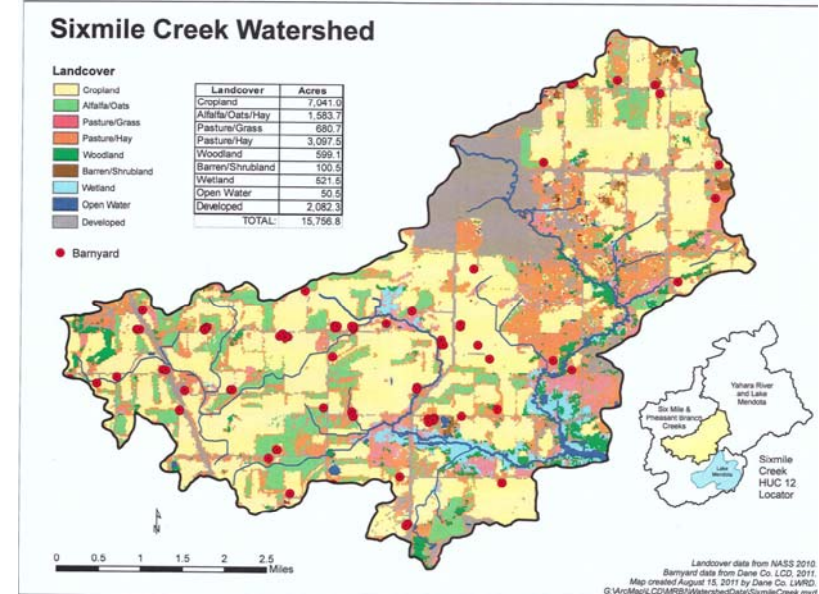
(a) The exceedance of the applicable phosphorus criterion in s. NR 102.06 is caused by phosphorus contributions from both point sources and nonpoint sources.

(b) Either the sum of the nonpoint sources and the permitted municipal separate storm sewer system contribution of phosphorus to the receiving water is at least 50 percent of the total contribution within the watershed of the receiving water where the applicable phosphorus criterion in s. NR 102.06 is exceeded; or the permittee demonstrates that the applicable phosphorus criterion cannot be met in the watershed without the control of phosphorus

Adaptive Management MOU-Page 1

# Adaptive Management Pilot Project

- Strategic location
- 4 year duration
- \$3 million cost
- All participants contribute \$





# Pilot Project-Estimated Costs

<b>Entity</b>	<b>Total Cost</b>	<b>Annual Cost</b>	<b>Entity</b>	<b>Total Cost</b>	<b>Annual Cost</b>
Blooming Grove, Town	\$11,500	\$3,800	Shorewood Hills, Village	\$5,600	\$1,900
Bristol, Town	\$10,300	\$3,400	Stoughton, City	\$0	\$0
Burke, Town	\$28,600	\$9,500	Sun Prairie, City	\$15,900	\$5,300
Cottage Grove, Town	\$15,900	\$5,300	Waunakee, Village	\$27,400	\$9,100
Cottage Grove, Village	\$6,000	\$2,000	Westport, Town	\$23,600	\$7,900
Deforest, Village	\$21,000	\$7,000	Windsor, Town	\$33,900	\$11,300
Dunkirk, Town	\$0	\$0			
Dunn, Town	\$15,900	\$5,300	MMSD	\$380,600	\$126,900
Fitchburg, City	\$53,700	\$17,900	Oregon	\$56,900	\$19,000
Madison, City	\$408,100	\$136,000	Stoughton	\$14,200	\$4,700
Madison, Town	\$14,600	\$4,900	Arlington	\$800	\$300
Maple Bluff, Village	\$4,500	\$1,500	Middleton-Tiedemann	\$12,300	\$4,100
McFarland, Village	\$18,500	\$6,200	DNR-Nevin	\$2,700	\$900
Middleton, City	\$59,400	\$19,800	MGE	\$400	\$100
Middleton, Town	\$11,900	\$4,000			
Monona, City	\$21,600	\$7,200	Background	\$159,600	\$53,200
Pleasant Springs, Town	\$0	\$0	Nonpoint	\$1,326,400	\$442,100



# Pilot Project Goals

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- Evaluate BMPs-cost, performance and ability to implement.
- Gain experience working with broker and farmers.
- Assess water quality impacts.
- Develop supporting information for potential N credits.
- Assess the level of community support/acceptance.
- Evaluate funding mechanisms for nonpoint.

# Why Others Should Participate in the Pilot? (MS4s and Point Sources)

- Pilot will inform whether a full scale project can be implemented
- Potential future cost savings with full scale implementation
  - Stormwater and wastewater
- Ensure that your questions/issues are addressed
- Preserve compliance options
- Innovative approach may have potential for other parameters





# What is the “Ask”?

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- **Participate in the pilot project**
- **Participants should continue to evaluate other compliance options**
- **Use information from pilot to inform selection of the ultimate compliance strategy**



# Next Steps

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- **Finalize the MOU.**
- **Bring others under the adaptive management pilot umbrella and add to MOU.**
- **Develop detailed scope for pilot project**
- **Continue work on developing the adaptive management plan.**
- **Explore additional funding sources.**
- **Outreach + information sharing + education.**