

# Meeting Phosphorus Reduction Requirements

- **Pressure to control costs**
- **Regulatory requirements have cost implications**
- **Rock River TMDL**
- **Compliance thru the adaptive management option may save \$\$**

## 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

July 2011

Prepared for:

U.S. Environmental Protection Agency  
Region 5  
77 W. Jackson Blvd.  
Chicago, IL 60604

Wisconsin Department of Natural Resources  
101 S. Webster Street, PO Box 7921  
Madison, Wisconsin 53707-7921

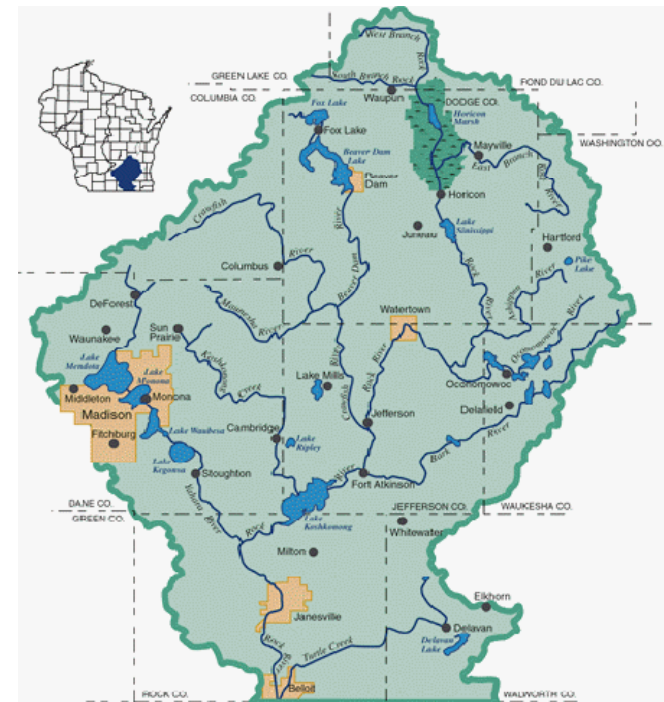


Prepared by:

THE  
CADMUS  
CORPORATION

# Rock River TMDL

- Approved by EPA in September, 2011
- TP and TSS
- Contains allocations for:
  - Nonpoint
  - MS4s (stormwater)
  - Point sources
- TP and TSS reductions required for most MS4s and point sources





# 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



# Point Sources With Outfalls in the Yahara Watershed

---

## WWTPs

Arlington  
MMSD  
Oregon  
Stoughton

## Others

MG&E  
Middleton-Tiedemann Pond  
DNR-Nevin Fish Hatchery

# MAMSWaP Permit TMDL Related Requirements

- **Develop plan if additional controls are needed.**
- **Submit plan to DNR within 3 years of TMDL approval.**
- **Plan needs to include an implementation schedule.**
- **Implemented as soon as practicable following DNR review.**



# Point Source Options for TP Compliance

- **Advanced treatment (filtration)**
- **Water quality trading**
- **Watershed adaptive management**
- **Combination**



# MS4 Options for TP Compliance

- Urban BMPs
- Water quality trading
- Watershed adaptive management-if under PS umbrella
- Combination



# What is Water Quality Trading

Purchasing offsets by funding less expensive practices.

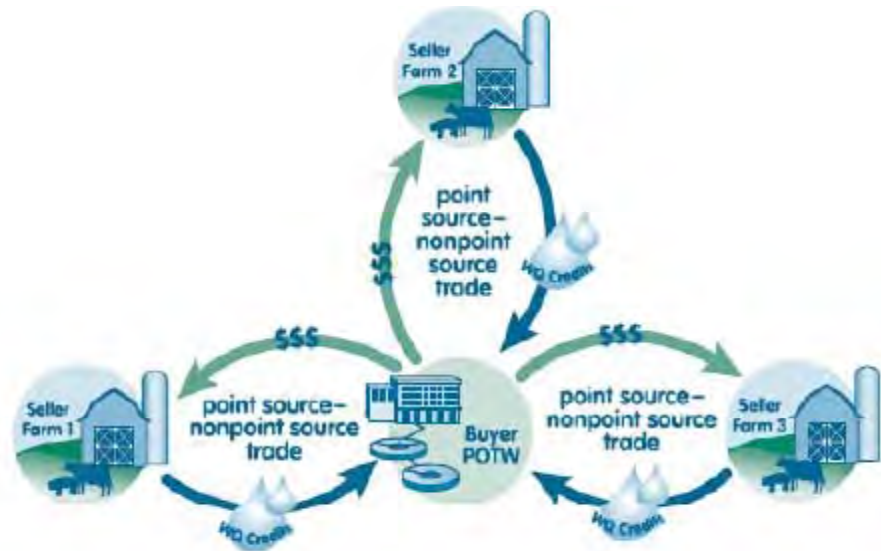
\$ typically move from urban to rural.

Draft statewide trading framework.

EPA guidance.

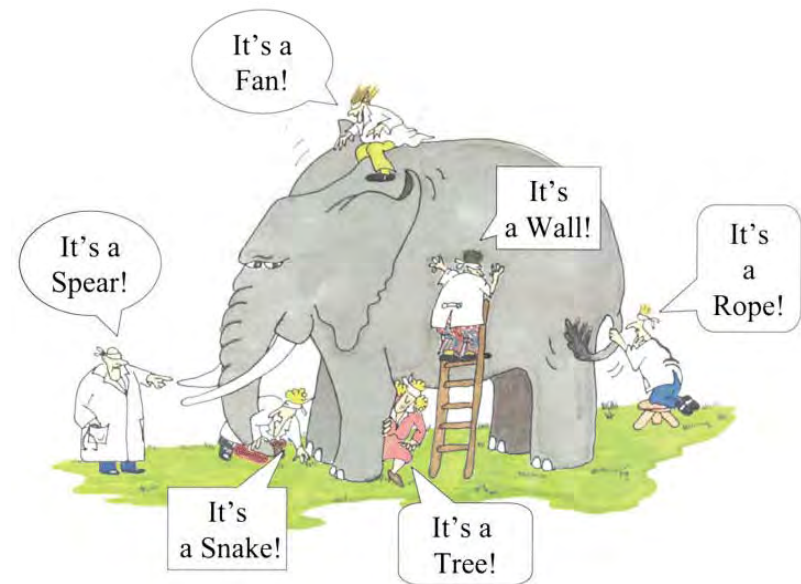
Examples nationally.

Uncertainties with trading.



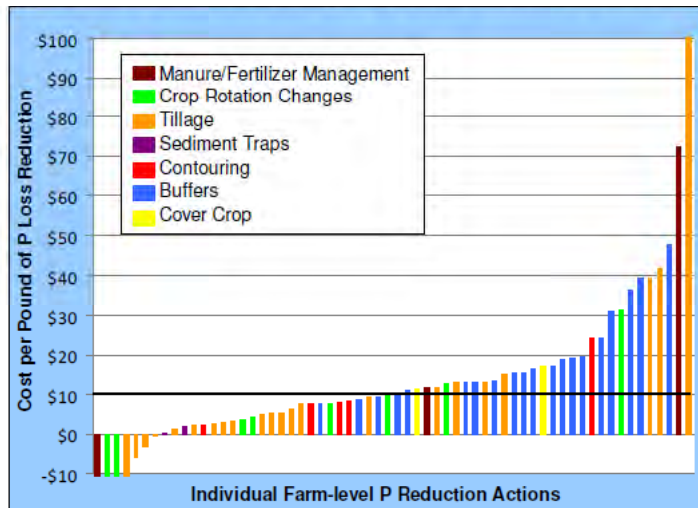
# What is Adaptive Management

- New approach-no current examples.
- Similar to trading but less restrictive & more flexible.
- Watershed focus.
- Goal-compliance at lowest cost.
- \$ likely to move primarily from urban to rural.

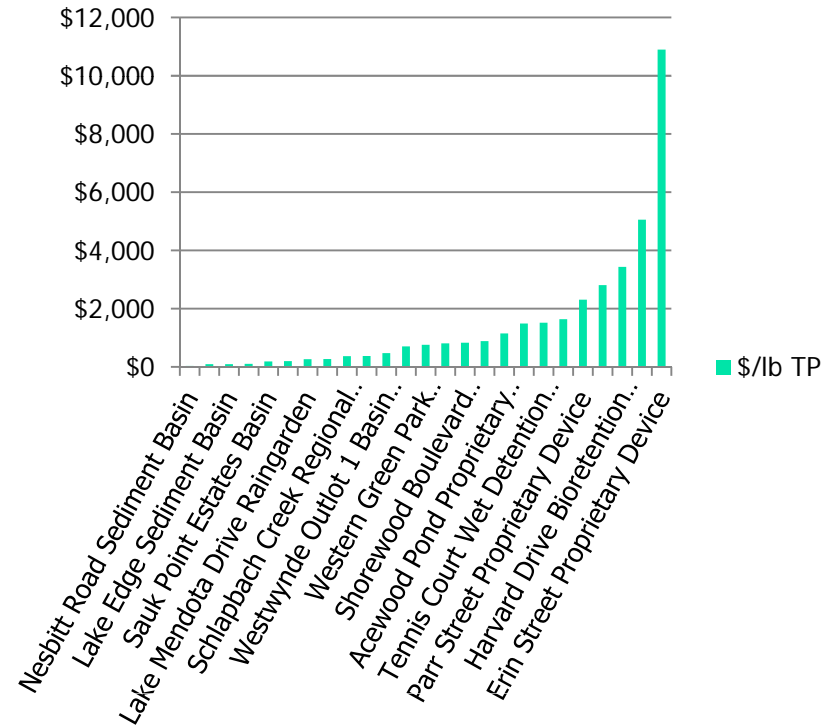


# Wide Range of Unit Costs for both Ag and Urban Management Practices

Iowa ag BMP Pilot Project



Urban Water Quality Grant Practices



## Some Urban BMPs

### Urban Water Quality Grant Summary (2005-2009)

Practice	\$/lb TP	lb/yr TP
Nesbitt Road Sediment Basin	\$34	46.0
Farwell Street Sediment Basin	\$94	50.6
Lake Edge Sediment Basin	\$96	36.5
Commerce Park 1 Sediment Basin	\$105	36.8
Sauk Point Estates Basin	\$188	27.3
Cherrywood Acres Basin	\$203	46.7
Lake Mendota Drive Raingarden	\$269	2.2
Eton Ridge Raingarden	\$270	9.1
Schlapbach Creek Regional Basin	\$369	53.2
Inlet Filter Installation	\$373	1.1
Westwynde Outlot 1 Basin Retrofit	\$476	10.8
Dunn's Marsh Sediment Basin	\$707	14.1

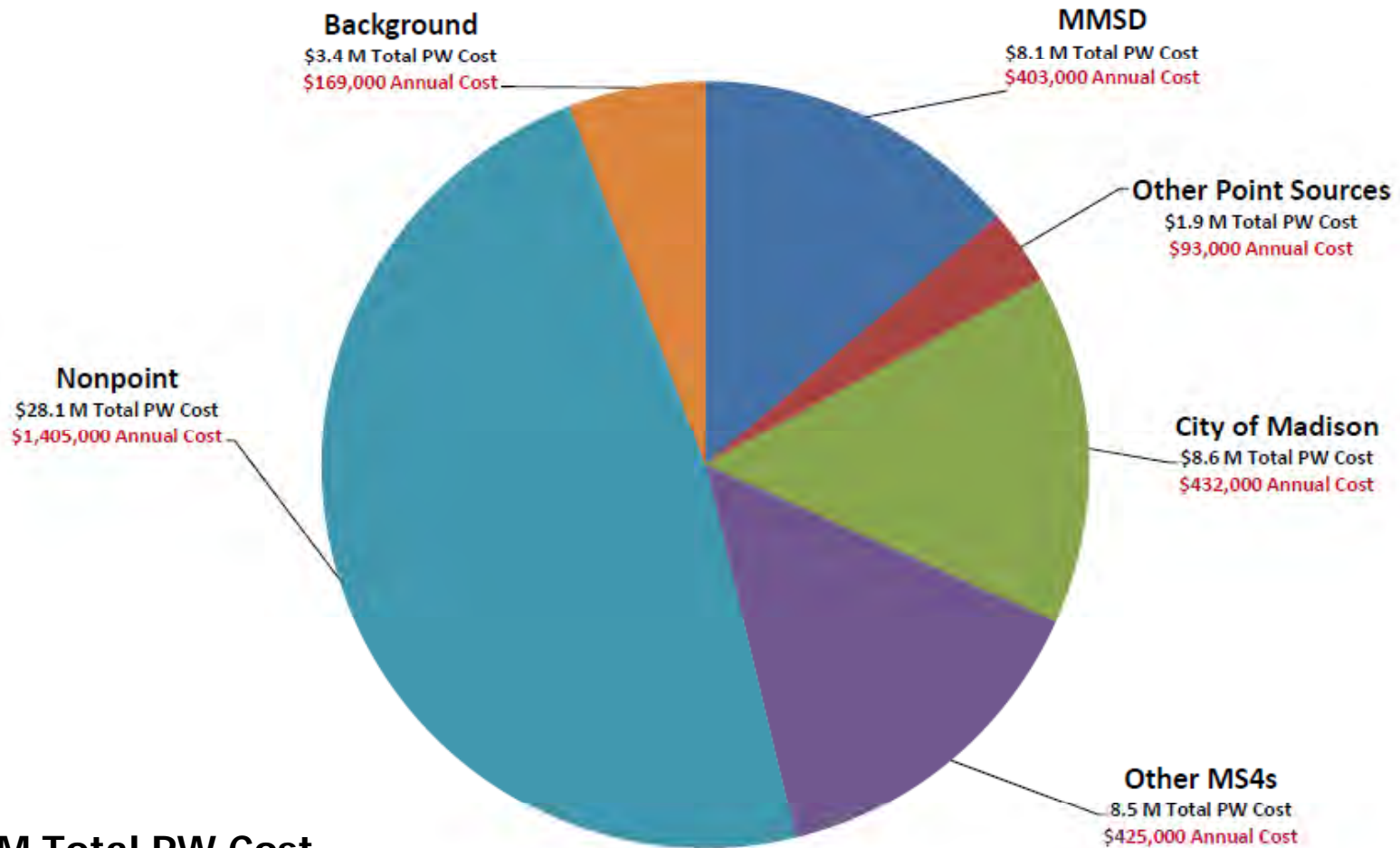
Practice	\$/lb TP	lb/yr TP
Western Green Park Bioretention Basins	\$759	9.7
Commerce Park 2 Sediment Basin	\$807	6.4
Shorewood Boulevard Bioretention Basin	\$830	1.1
Marsh/Siggelkow Sediment Basin	\$886	6.2
Acewood Pond Proprietary Device	\$1,153	1.7
Circle Close Bioretention Basin	\$1,494	0.4
Tennis Court Wet Detention Basin	\$1,517	11.3
Pheasant Branch Sediment Basin	\$1,639	0.6
Parr Street Proprietary Device	\$2,308	1.3
Topping Road Bioretention Basin	\$2,811	0.3
Harvard Drive Bioretention Basin	\$3,434	0.3
Bioretention Basin - Kipp Corp.	\$5,055	0.3
Erin Street Proprietary Device	\$10,897	0.3

# Urban BMPs

- Sediment control
- Low TP yield
- High cost per lb of TP



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



**\$59 M Total PW Cost**

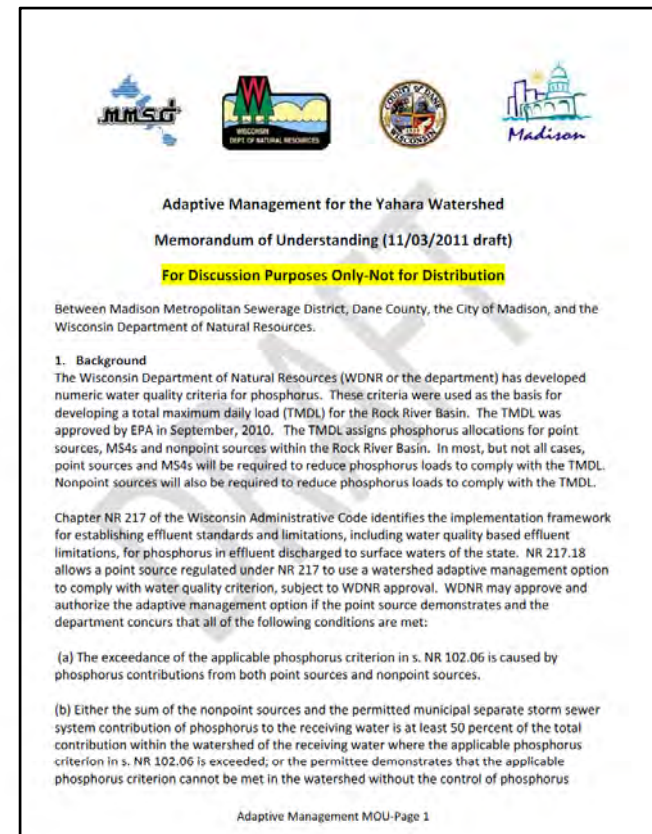


## Adaptive Management Estimated Costs (Full Scale Implementation)

Entity	Total PW Cost	Annual Cost	Entity	Total PW Cost	Annual Cost
Blooming Grove, Town	\$240,000	\$12,000	Shorewood Hills, Village	\$120,000	\$6,000
Bristol, Town	\$220,000	\$11,000	Stoughton, City	\$0	\$0
Burke, Town	\$610,000	\$30,500	Sun Prairie, City	\$340,000	\$17,000
Cottage Grove, Town	\$340,000	\$17,000	Waunakee, Village	\$580,000	\$29,000
Cottage Grove, Village	\$130,000	\$6,500	Westport, Town	\$500,000	\$25,000
Deforest, Village	\$440,000	\$22,000	Windsor, Town	\$720,000	\$36,000
Dunkirk, Town	\$0	\$0			
Dunn, Town	\$340,000	\$17,000	MMSD	\$8,060,000	\$403,000
Fitchburg, City	\$1,140,000	\$57,000	Oregon	\$1,210,000	\$60,500
Madison, City	\$8,640,000	\$432,000	Stoughton	\$300,000	\$15,000
Madison, Town	\$310,000	\$15,500	Arlington	\$20,000	\$1,000
Maple Bluff, Village	\$100,000	\$5,000	Middleton-Tiedemann	\$260,000	\$13,000
McFarland, Village	\$390,000	\$19,500	DNR-Nevin	\$60,000	\$3,000
Middleton, City	\$1,260,000	\$63,000	MGE	\$10,000	\$500
Middleton, Town	\$250,000	\$12,500			
Monona, City	\$460,000	\$23,000	Background	\$3,380,000	\$169,000
Pleasant Springs, Town	\$0	\$0	Nonpoint	\$28,100,000	\$1,405,000

# Adaptive Management Pilot Project

- MMSD and partners will conduct a pilot project.
- MOU between DNR, MMSD, City of Madison and Dane County.
- Other MS4s and point sources invited/encouraged to participate.





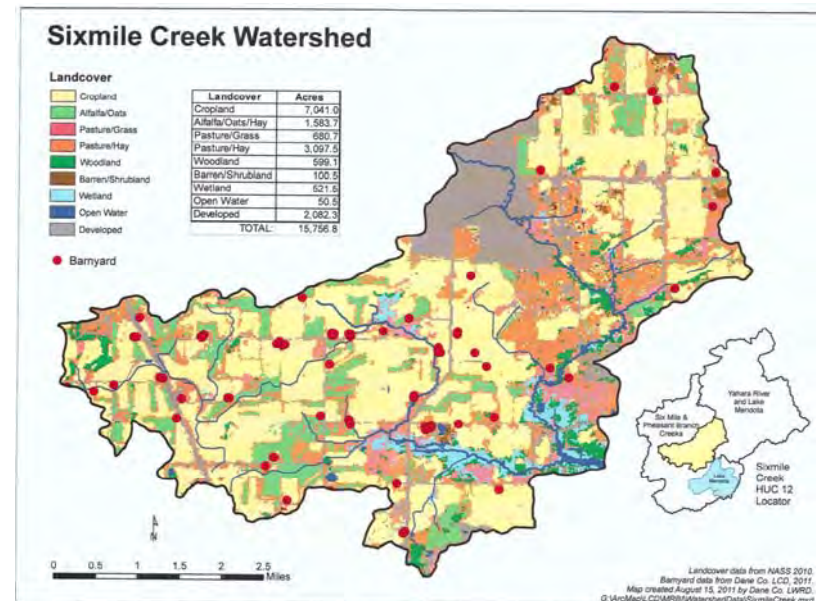
# Pilot Project Goals

---

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

# Pilot Project-Additional Details

- 3 year duration.
- Planning starts now.
- Implementation begins in 2013.
- Total cost ~ \$3 Million.
- Cost proportional to required TP reduction.
- No financial commitment until 2013.





# 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



# Why should you participate?

---

- Ensure that the your interests and questions are addressed.
- Preserve the opportunity to participate in a full scale project.
- Future cost savings.
- Regulatory certainty thru MOU.
- Not competing with each other.





# Next Steps

---

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