

## Overall Goal

Can a farm-scale certification program like MAEAP be used as a meaningful “currency” for watershed conservation practice goals to meet ecological objectives?

## MAEAP Analysis Objectives

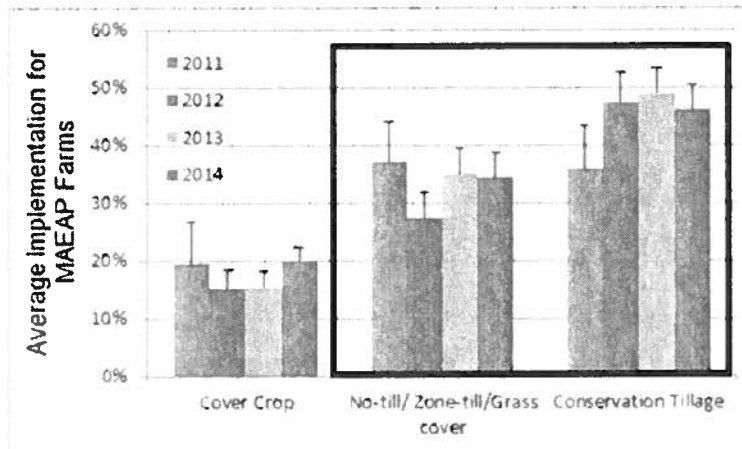
- What does MAEAP certification mean for conservation practice implementation at the farm scale?
- How much has been implemented in various hydrologic units?
- How does MAEAP implementation compare against our watershed goals?
- MAEAP data difficulties and recommendations

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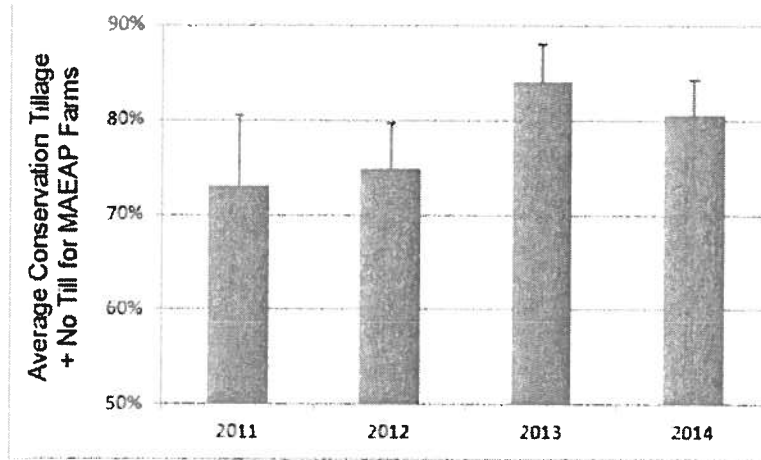
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## Practice Implementation Percentages For Individual Farms

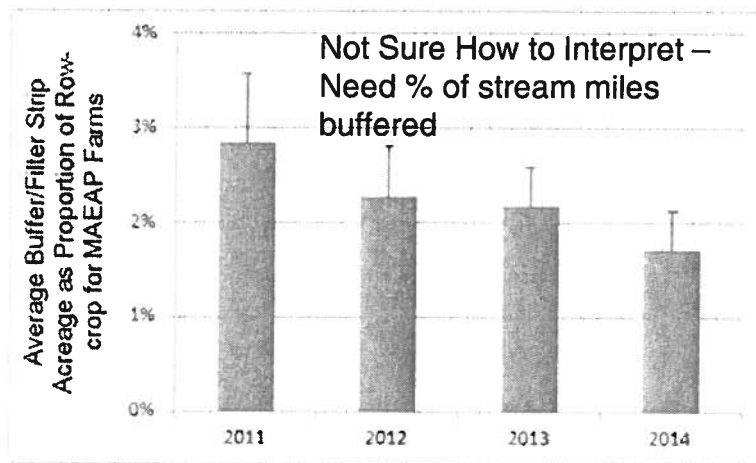
(as % of row crop acres)



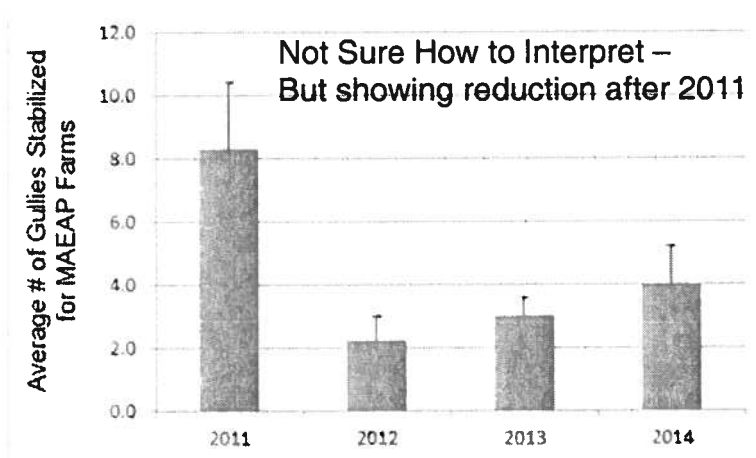
### Practice Implementation Percentages For Individual Farms (as % of row crop acres)



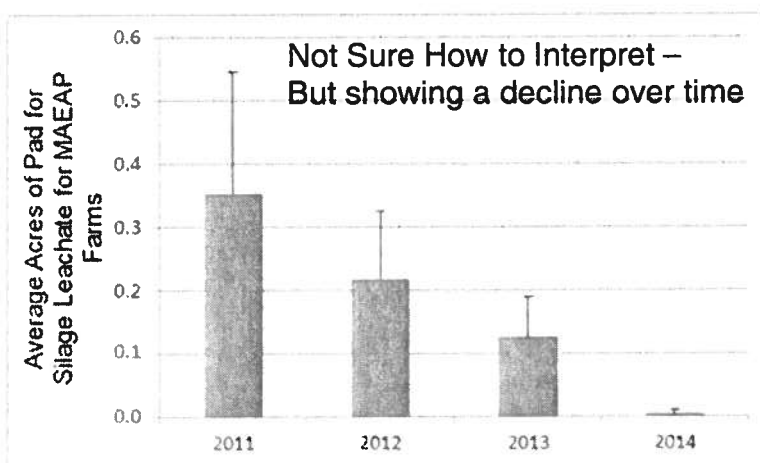
### Practice Implementation Percentages For Individual Farms (as % of row crop acres)



### Practice Implementation Percentages For Individual Farms (as # implemented per farm)



### Practice Implementation Percentages For Individual Farms (as acres implemented per farm)



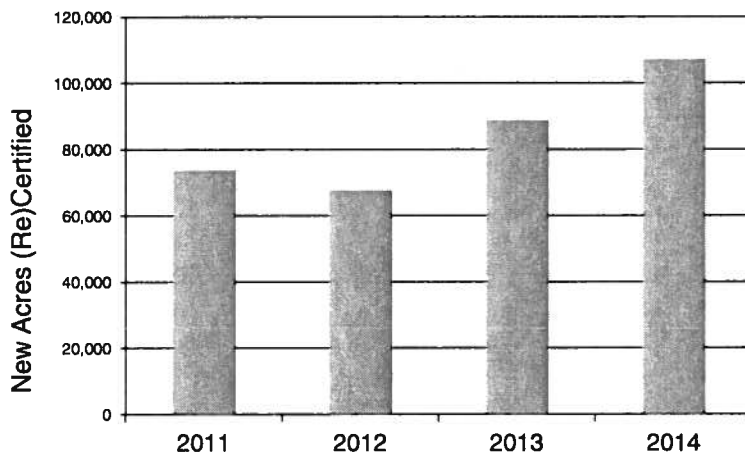
What does MAEAP certification mean for conservation practice implementation at the farm scale?

- All acreage under nutrient management
- Fairly high conservation tillage (~80%) w/ nearly half no till
- Low cover crop (~20%)
- Probably reasonable buffer/filter strips, though difficult to evaluate
- Some practices show decreasing implementation, likely due to biggest issues addressed first

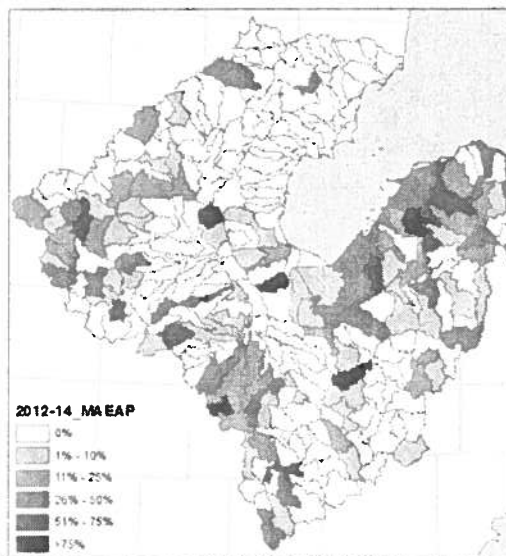
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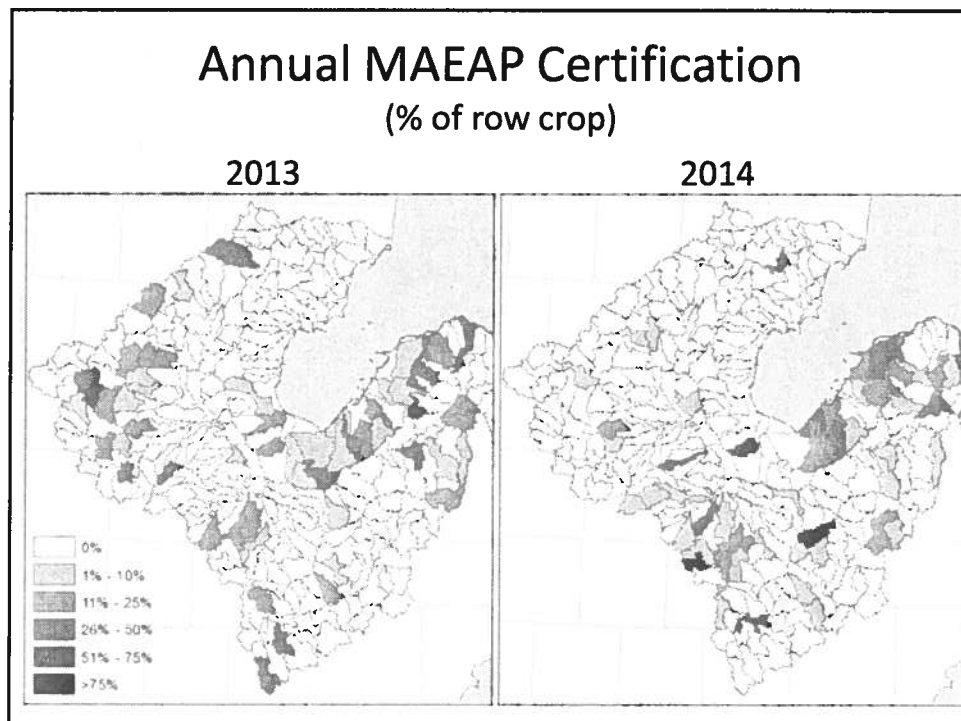
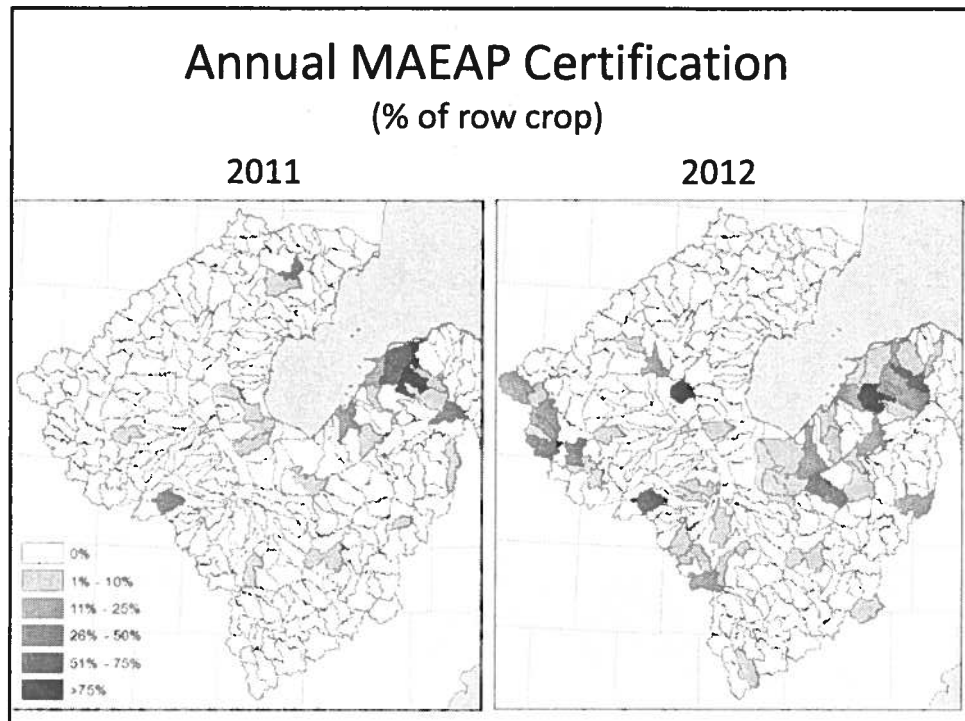
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### Annual (Re)Certification in Saginaw Bay (3-year certification cycle)

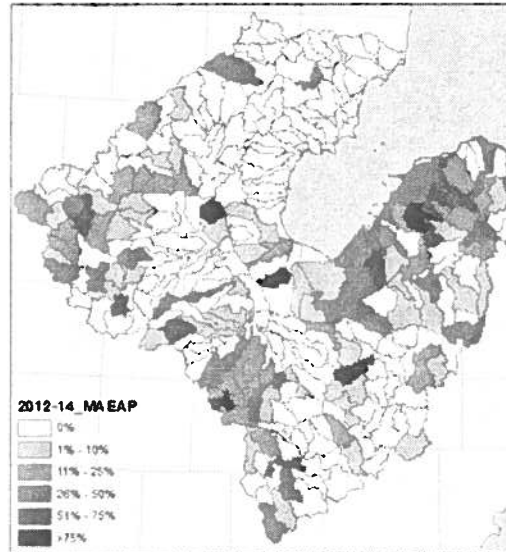


### Current (2012-14) MAEAP Certification (% of row crop)





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How much has been implemented in various hydrologic units?

- MAEAP implementation continues to increase
- Average row crop acreage in MAEAP across all Saginaw Bay HUCs is 9.1%
- Highest coverage in Pigeon-Pinnebog and other Saginaw Bay thumb tributary watersheds
- Also high coverage in Middle Shiawassee and upper Chippewa

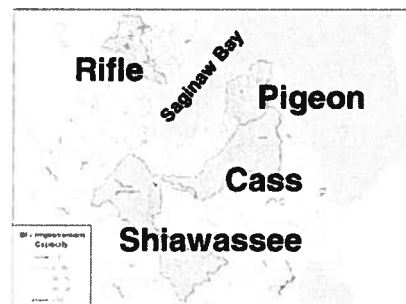


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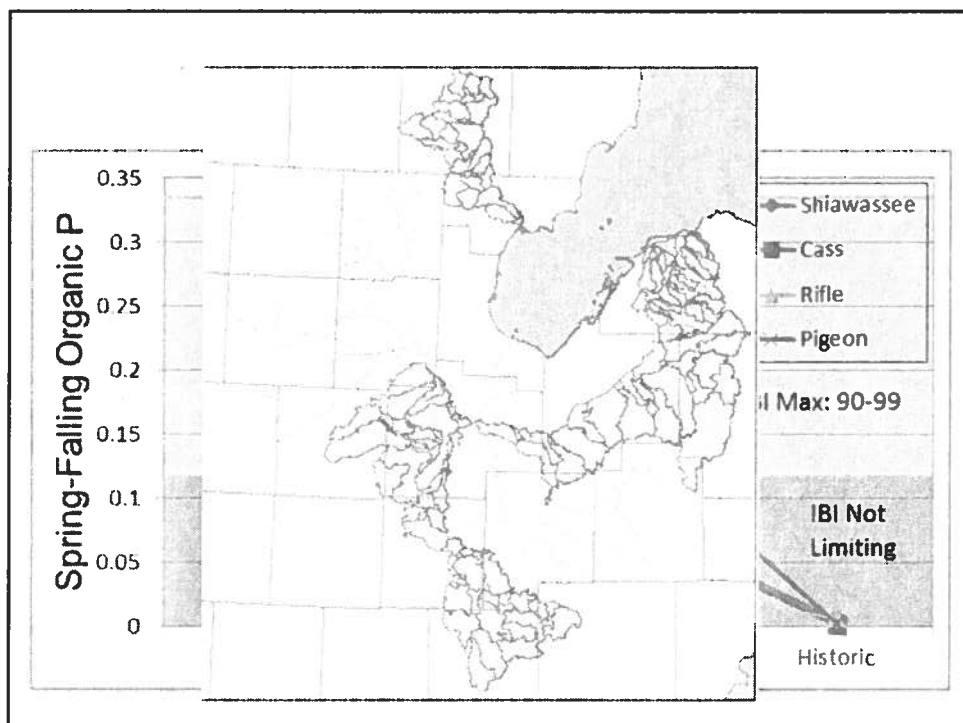
## How much is enough?

- Within 4 watersheds of Saginaw Bay
- Use SWAT to model changes in flow and water quality under different conservation practice scenarios
  - Current, Medium (25%), High (50%), Historic
- Develop realistic subbasin goals

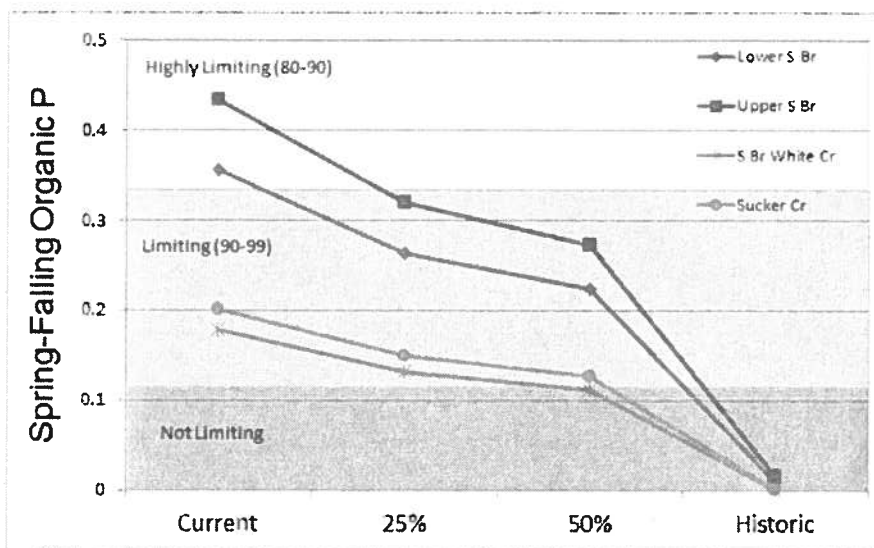


## Selected Practices

- Nutrient Management/  
Waste Utilization
- Conservation Crop Rotation
- Filter Strip
- Conservation Cover
- Residue and Tillage Management  
No-Till/Strip Till/Direct Seed
- Mulch Till, Residue Management
- Residue Management, No-Till/Strip Till
- Cover Crop
- Pasture and Hay Planting



## Dose Response - Subbasins

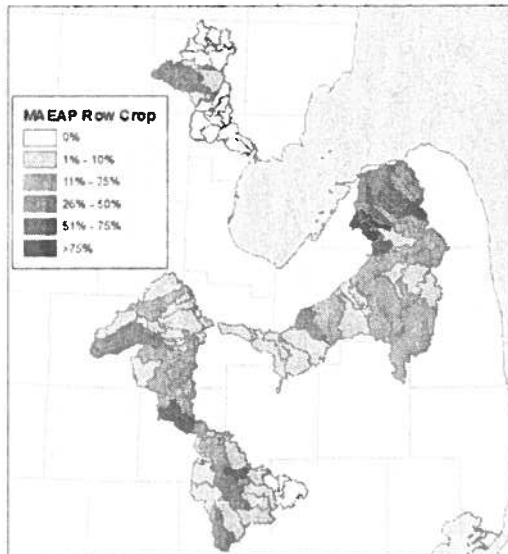


## Subwatershed Comparison

- Used the most limiting water quality variable in each subwatershed to determine fish health
- Based on relationships between fish health and each water quality variable
- Comparisons across scenarios (current, 25%, 50%)



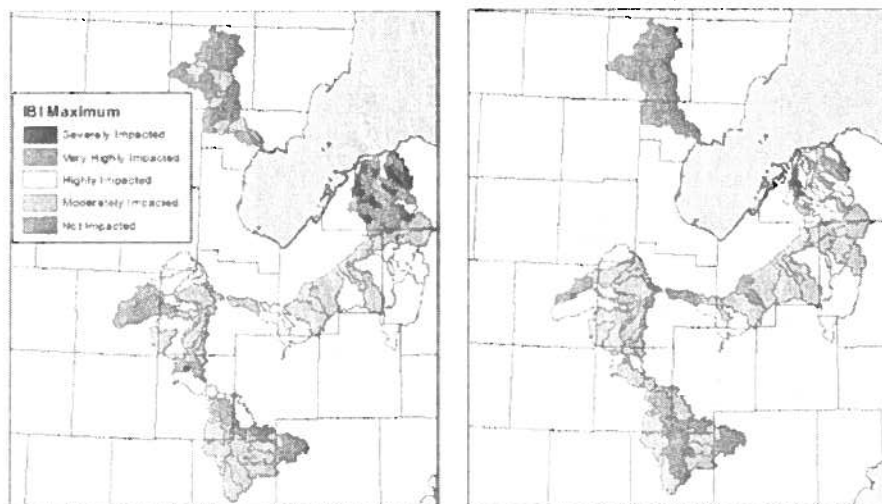
## Subbasin MAEAP Implementation



## Subwatershed Comparison

Current Condition

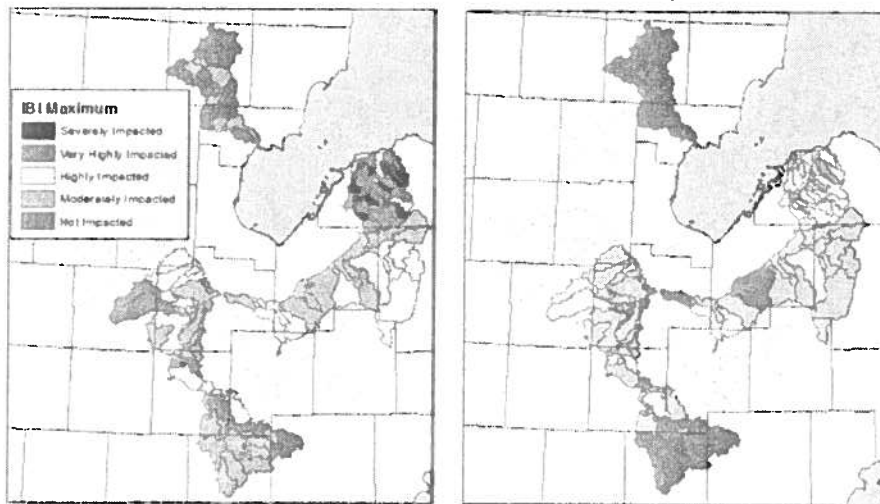
25% BMP Implementation



## Subwatershed Comparison

Current Condition

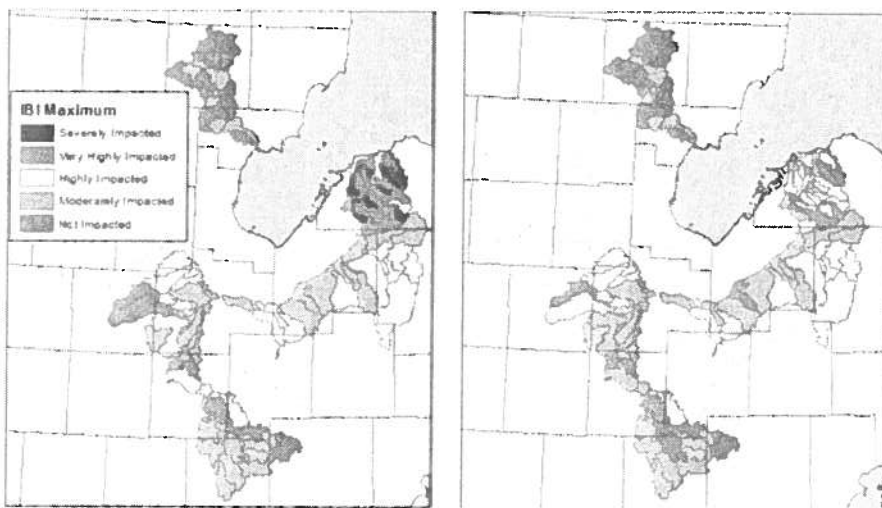
50% BMP Implementation



## Subwatershed Comparison

Current Condition

Current MAEAP



How does MAEAP implementation compare against our watershed goals?

- Definitely seeing improvement in many sub-basins, with highest improvement in the Pigeon-Pinnebog
- Improvements are patchy, since the program is patchy

## Key Question

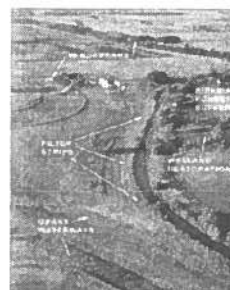
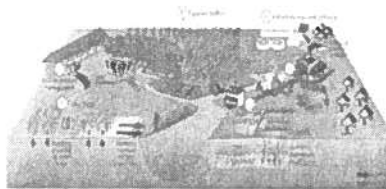
Can a farm-scale certification program like MAEAP be used as a meaningful “currency” for watershed conservation practice goals to meet ecological objectives?

What does MAEAP certification mean for BMP implementation at farm scale?

Does MAEAP certification = CEAP scenarios?

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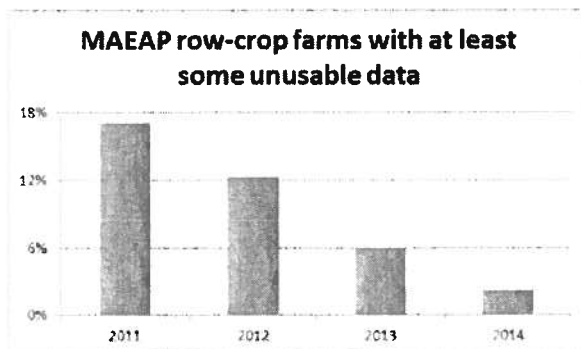


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### MAEAP data difficulties and recommendations

- Program has worked on data difficulties, which have declined from 2011-2014.



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- Program has worked on data difficulties, which have declined from 2011-2014.
- Program is going to discuss having technicians estimate the proportion of streams buffered on MAEAP farms.