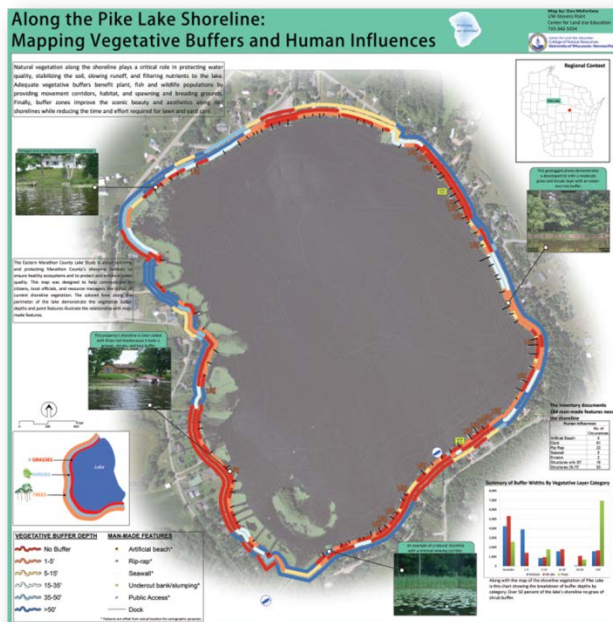




# GIS as a Tool for Mapping Shoreline Health



2014 Lakes Convention  
D. McFarlane, GIS Specialist  
Center for Land Use Education  
University of Wisconsin – Stevens Point

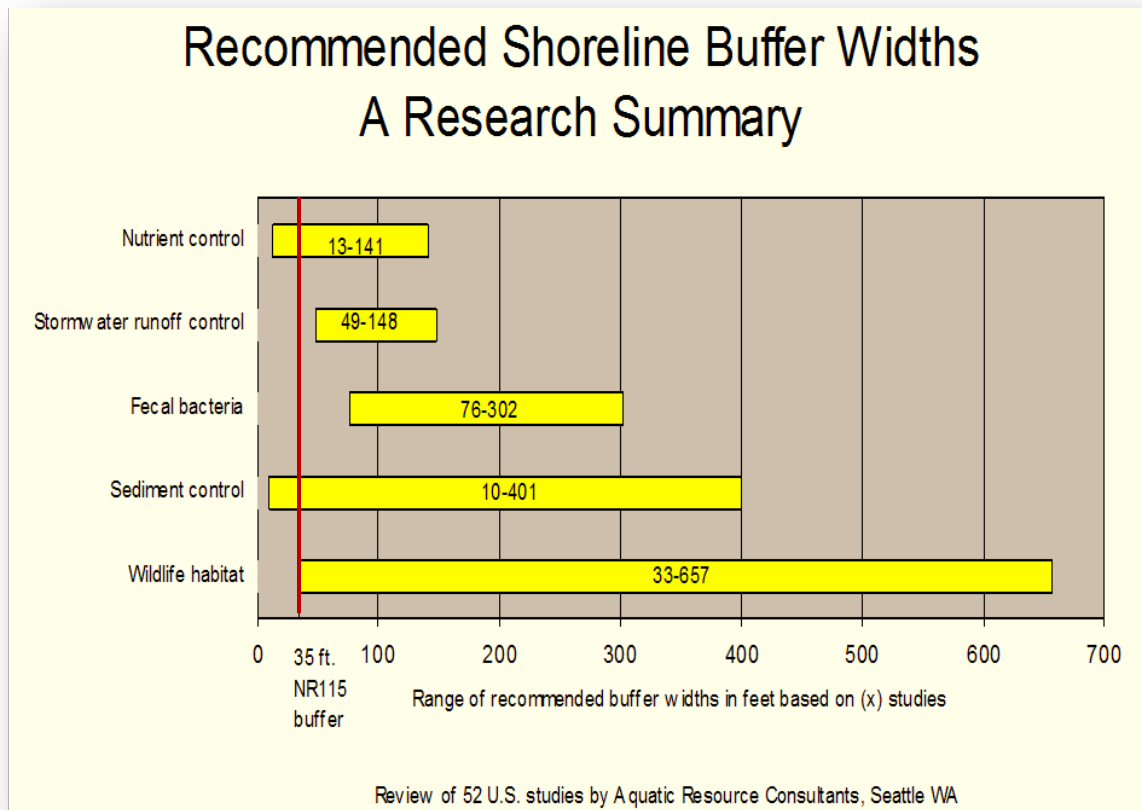


- Identify areas of shoreland that may need protection or restoration
- Provide a different perspective
- Develop a baseline for future comparison
- Provide specific information to property owners



# What is Health Shoreland Vegetation?

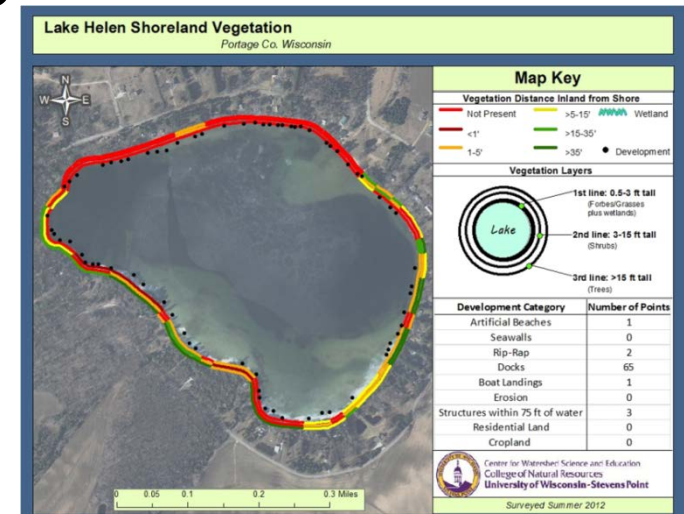
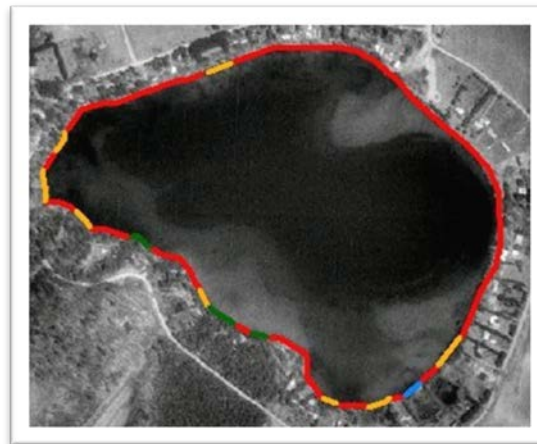
- A combination of native flowers and grasses/shrubs/trees
- Should extend at least 35 feet inland





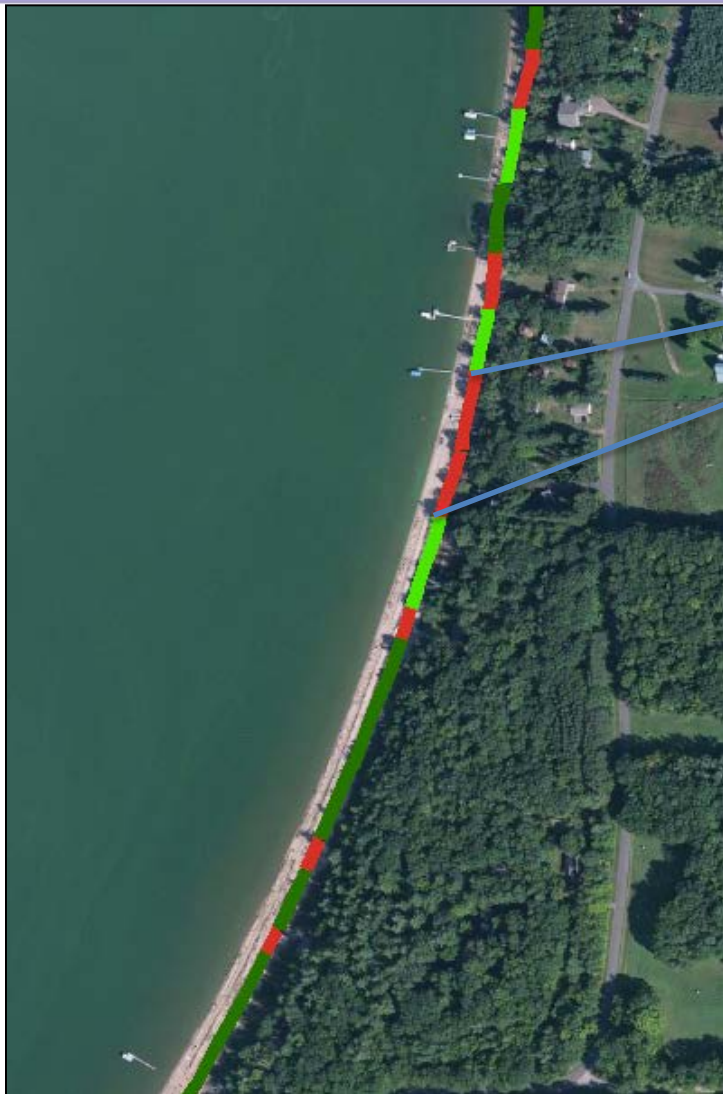
# Portage County 2002 to 2012

- 21 lakes surveyed in both years
- Comparing “developed” and “undeveloped” shorelands:
  - 9 Improved by 400 to 4,800 feet
  - 2 Decreased by approx. 400 feet
  - 10 Remained about the same





# Vegetation Survey



Shoreline Vegetation Survey					
Lake Name: _____			Researchers: _____		
Date: _____			GPS Unit: _____		
Weather: _____					
Shoreline Segment From Map					
Map ID or Waypoint Range: _____					
Shoreline Vegetation and Ground Conditions					
<b>Dominant Shoreline Cover Type</b> (check one)		Please indicate the <b>UNMOWED Buffer Width</b> that you observe that is immediately adjacent to the water's edge (Check one).		<b>Buffer Density</b>	
Mowed lawn	<input type="checkbox"/>	No Buffer*	<input type="checkbox"/>	Sparse (30%)	<input type="checkbox"/>
Organic/Leaf pack (Undisturbed)	<input type="checkbox"/>	<1'	<input type="checkbox"/>	Moderate (30-70%)	<input type="checkbox"/>
Barren/Dirt (Disturbed)	<input type="checkbox"/>	1-5'	<input type="checkbox"/>	Dense (>70%)	<input type="checkbox"/>
Impervious Surface	<input type="checkbox"/>	5-15'	<input type="checkbox"/>		
Short <b>Unmowed</b> Vegetation	<input type="checkbox"/>	15-35'	<input type="checkbox"/>		
New Shoreland Restoration	<input type="checkbox"/>	35-50'	<input type="checkbox"/>		
		>50'	<input type="checkbox"/>		
*Check this when Mowed Lawn, Barren/Dirt, or Impervious Surface is selected as the dominant shoreline cover type.					
Tall Shoreland Vegetation					
Are trees and shrubs present?	Present	<input type="checkbox"/>	<b>Tree/Shrub Density</b>		
	Absent	<input type="checkbox"/>	Sparse (<30%)	<input type="checkbox"/>	
			Moderate (30-70%)	<input type="checkbox"/>	
			Dense (>70%)	<input type="checkbox"/>	
In-Lake Woody Structure					
Is woody habitat present in the water and near the shoreline?			Present	<input type="checkbox"/>	
			Absent	<input type="checkbox"/>	
Shoreland Slope					
Approximate slope of shore zone area	Flat (<5%)	Moderate (5-15%)	Steep (>15%)		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		





# Shoreland Alterations



## Shoreline Human Influence Survey

Lake Name: \_\_\_\_\_ Researchers: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Weather: \_\_\_\_\_ GPS Unit: \_\_\_\_\_

### Shoreland Alterations

Feature Type	Map ID	Est. Length (ft)	Condition	Feature Type	Map ID	Est. Length (ft)	Condition
Artificial Beach			Poor <input type="checkbox"/>	Principle Structure 0-35'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Boat Landing			Poor <input type="checkbox"/>	Principle Structure 35-75'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Culvert		NA	Poor <input type="checkbox"/>	Other Structure 0-35'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Dam/Spillway			Poor <input type="checkbox"/>	Other Structure 35-75'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Dock/Pier		NA	Poor <input type="checkbox"/>	Rip Rap			Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Erosion			Low <input type="checkbox"/>	Seawall			Poor <input type="checkbox"/>
			Moderate <input type="checkbox"/>				Fair <input type="checkbox"/>
			Severe <input type="checkbox"/>				Good <input type="checkbox"/>

### Shoreland Alterations

Feature Type	Map ID	Est. Length (ft)	Condition	Feature Type	Map ID	Est. Length (ft)	Condition
Artificial Beach			Poor <input type="checkbox"/>	Principle Structure 0-35'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Boat Landing			Poor <input type="checkbox"/>	Principle Structure 35-75'		NA	Poor <input type="checkbox"/>
			Fair <input type="checkbox"/>				Fair <input type="checkbox"/>
			Good <input type="checkbox"/>				Good <input type="checkbox"/>
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			Good <input type="checkbox"/>				Good <input type="checkbox"/>
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			Good <input type="checkbox"/>				Good <input type="checkbox"/>
Erosion			Low <input type="checkbox"/>	Seawall			Poor <input type="checkbox"/>
			Moderate <input type="checkbox"/>				Fair <input type="checkbox"/>
			Severe <input type="checkbox"/>				Good <input type="checkbox"/>