

Addressing Impairment in Beaver Dam Lake and Beaver Creek

UW-Madison Water Resources Management
Practicum 2017

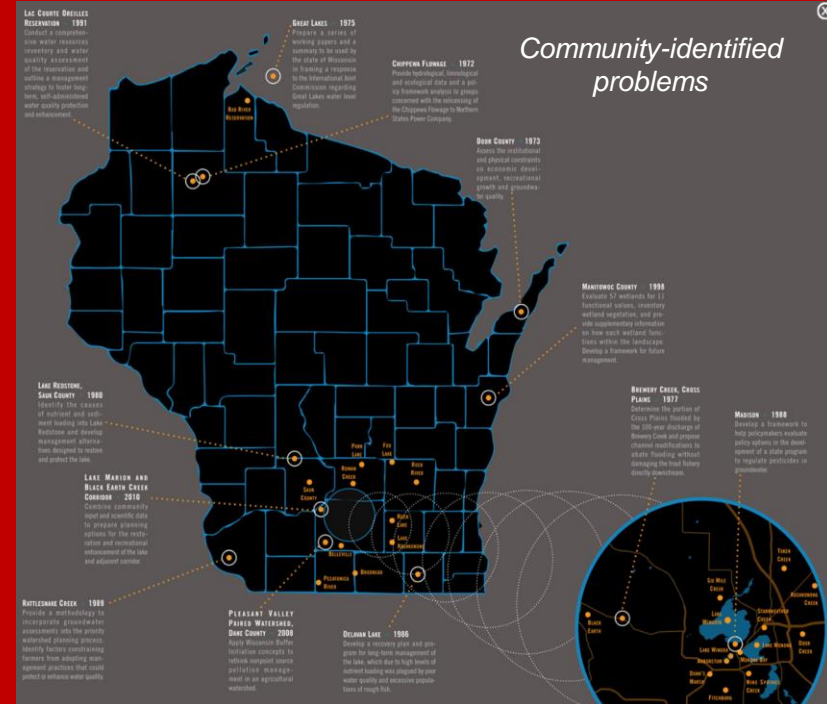




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Environmental Studies
UNIVERSITY OF WISCONSIN-MADISON



Anita Thompson, Professor and Chair
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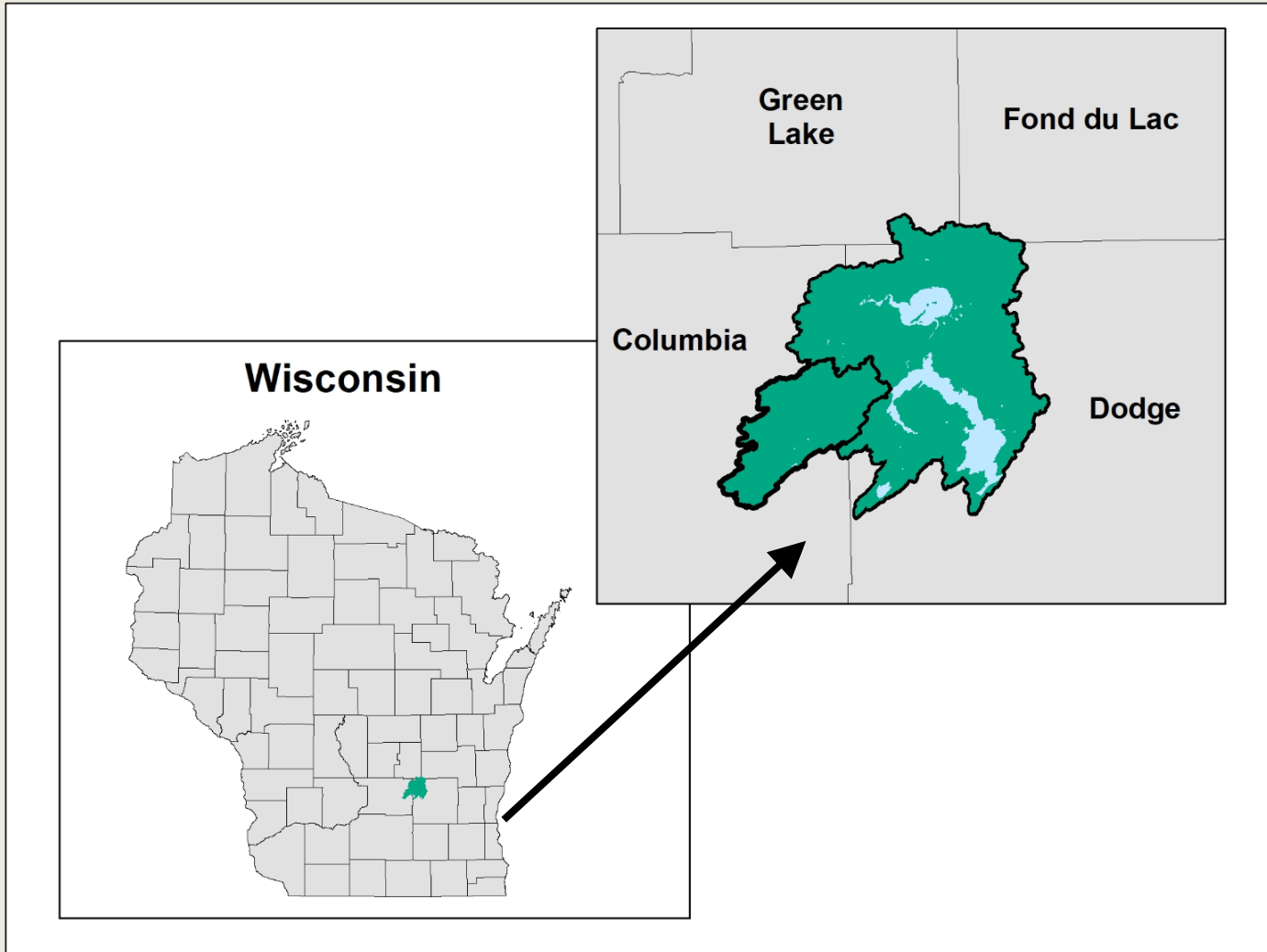
Addressing Impairment in Beaver Dam Lake and Beaver Creek

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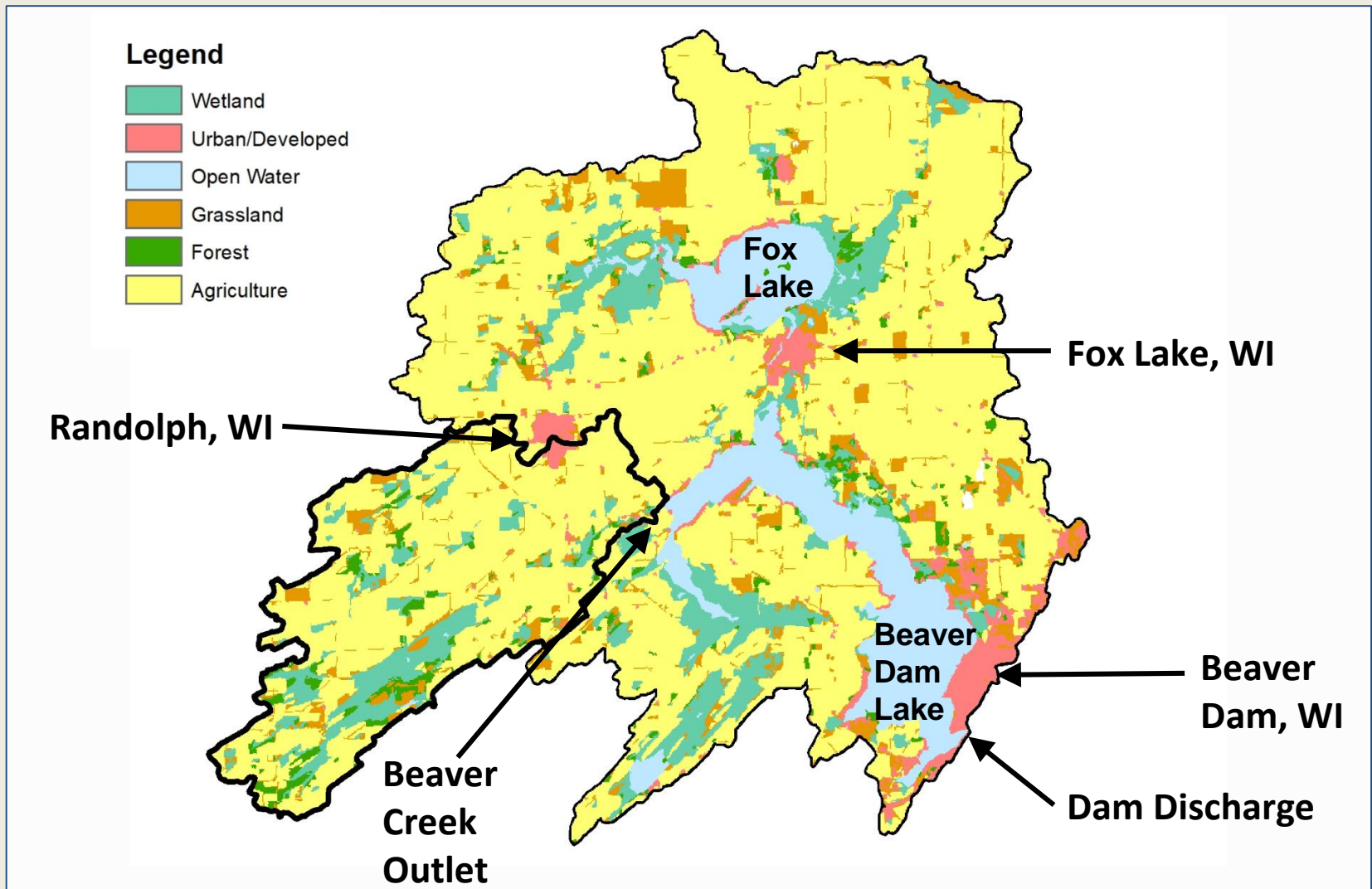
Introduction

Watershed



Introduction

Watershed



Introduction

Problem Statement

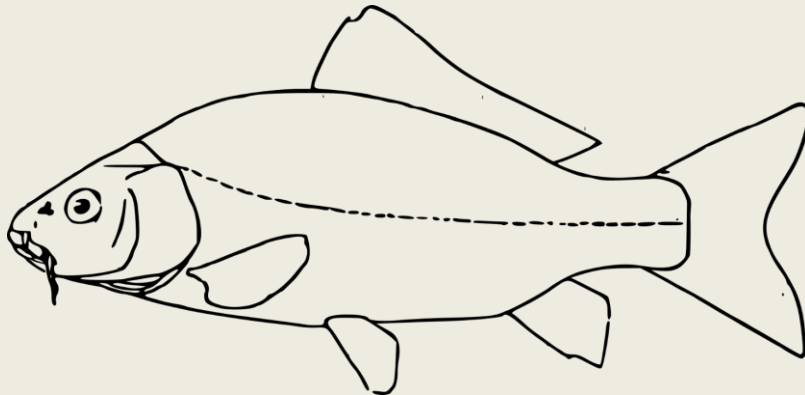
Algae blooms

Phosphorus

Shallow

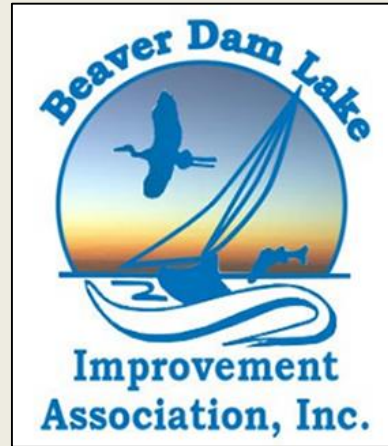
Warm temps

Carp



Introduction

BDLIA Partnership



UW-WRM

WDNR Lake
Planning Grant

Onterra, LLC

Lake
Management
Plan

UW Department of
Civil and
Environmental
Engineering

Modeling data

Components

Stakeholder Engagement

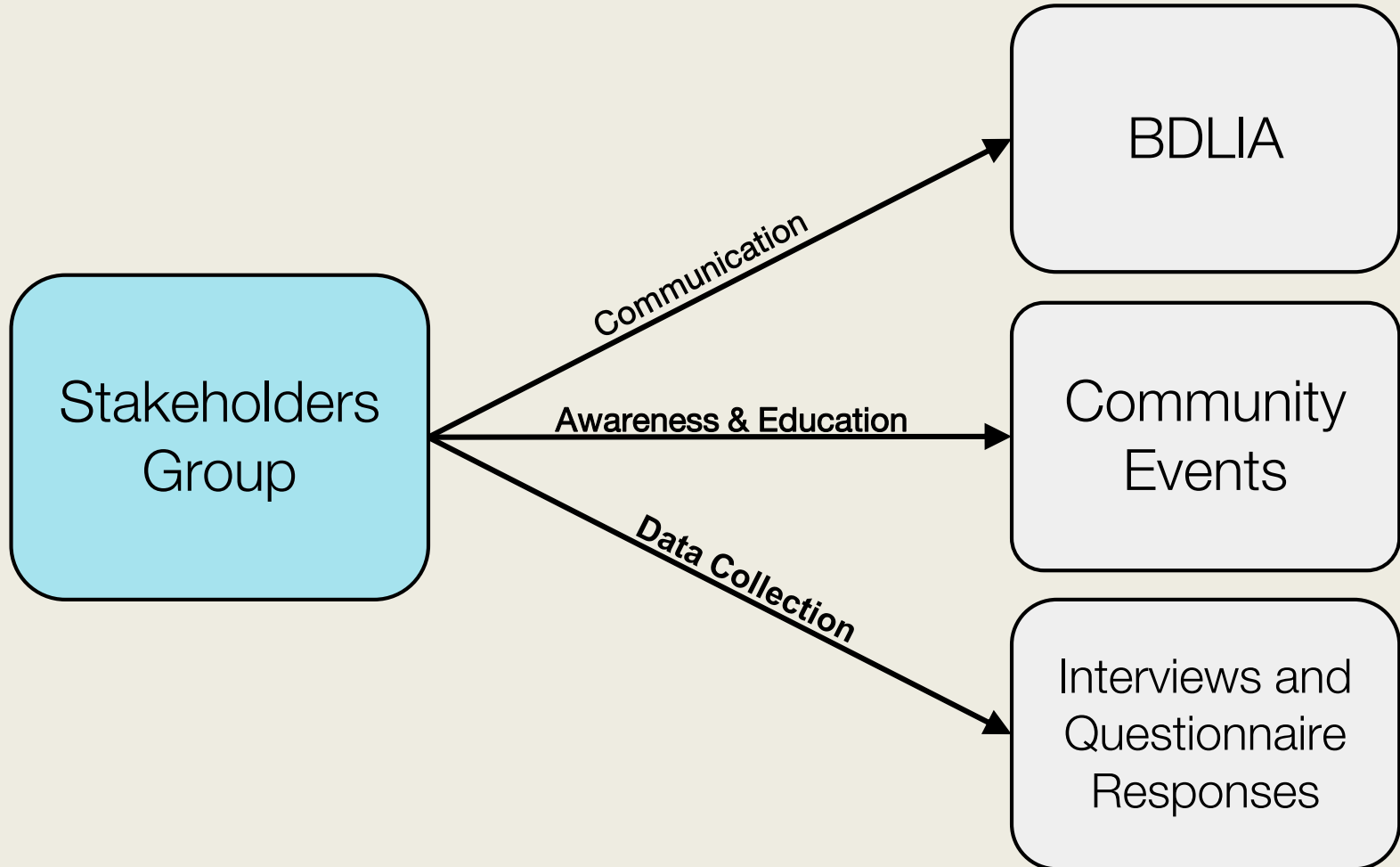
Beaver Dam Lake

Beaver Creek

Upland Beaver Creek

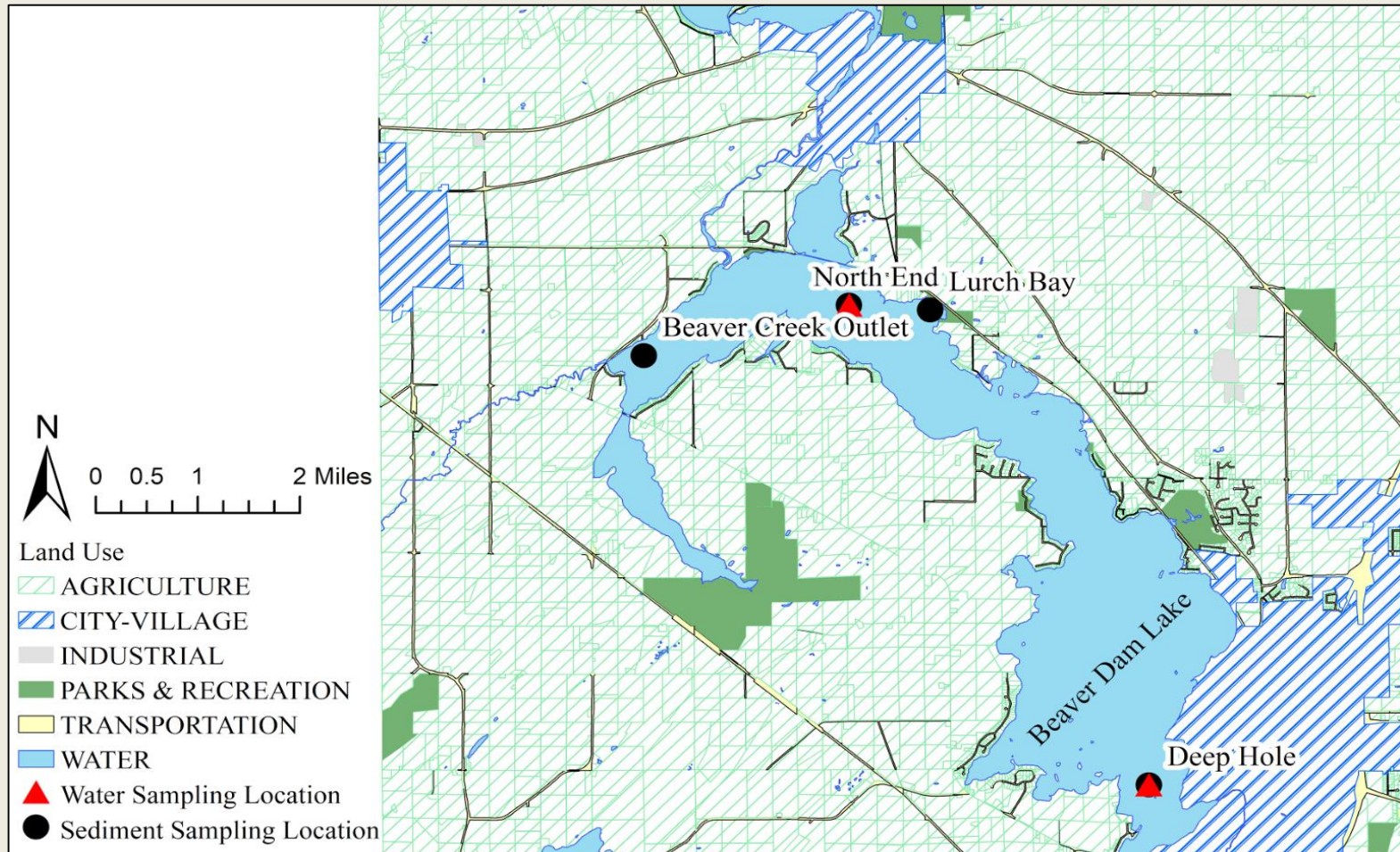
Stakeholders

Purpose



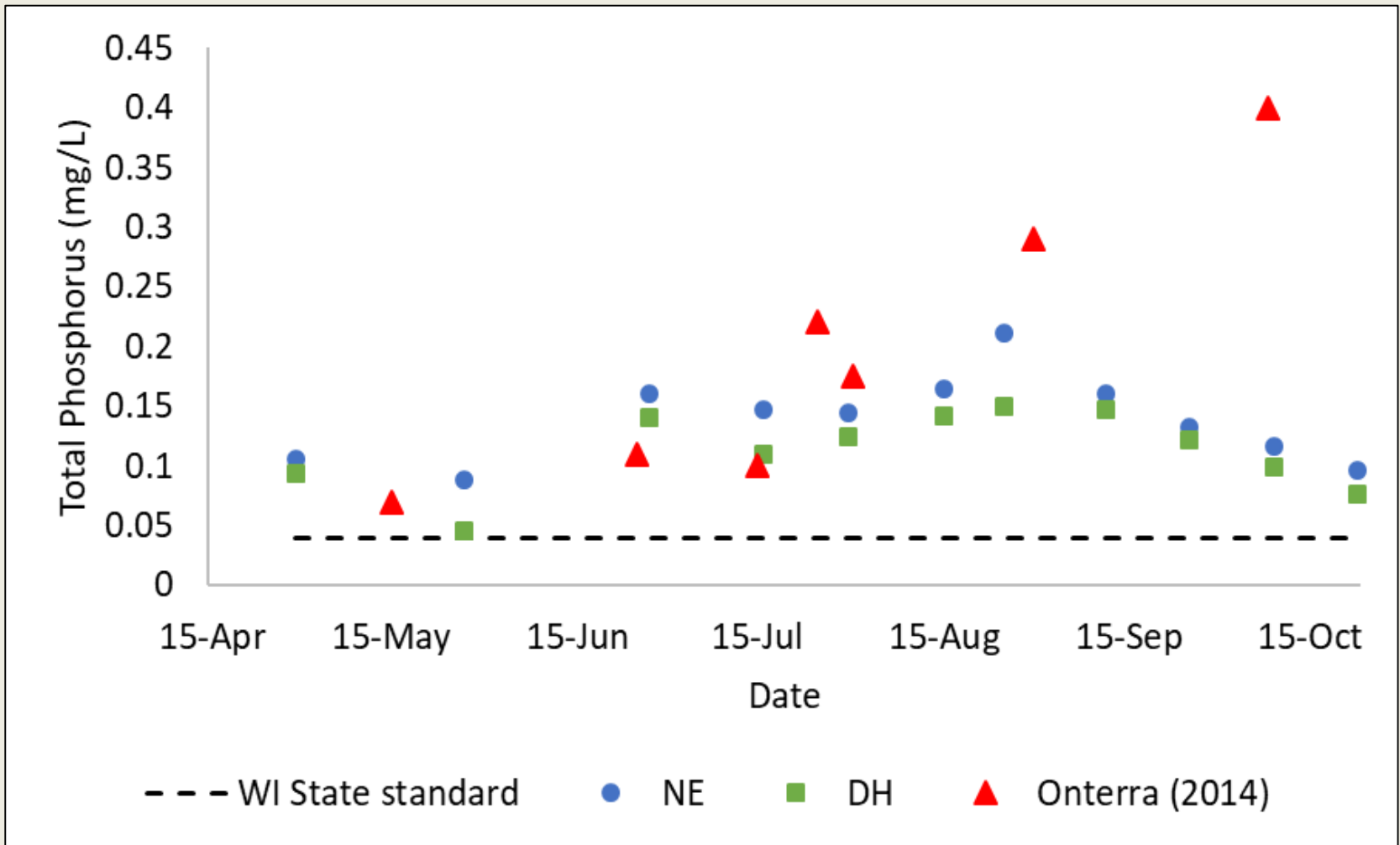
Beaver Dam Lake

Sampling Locations



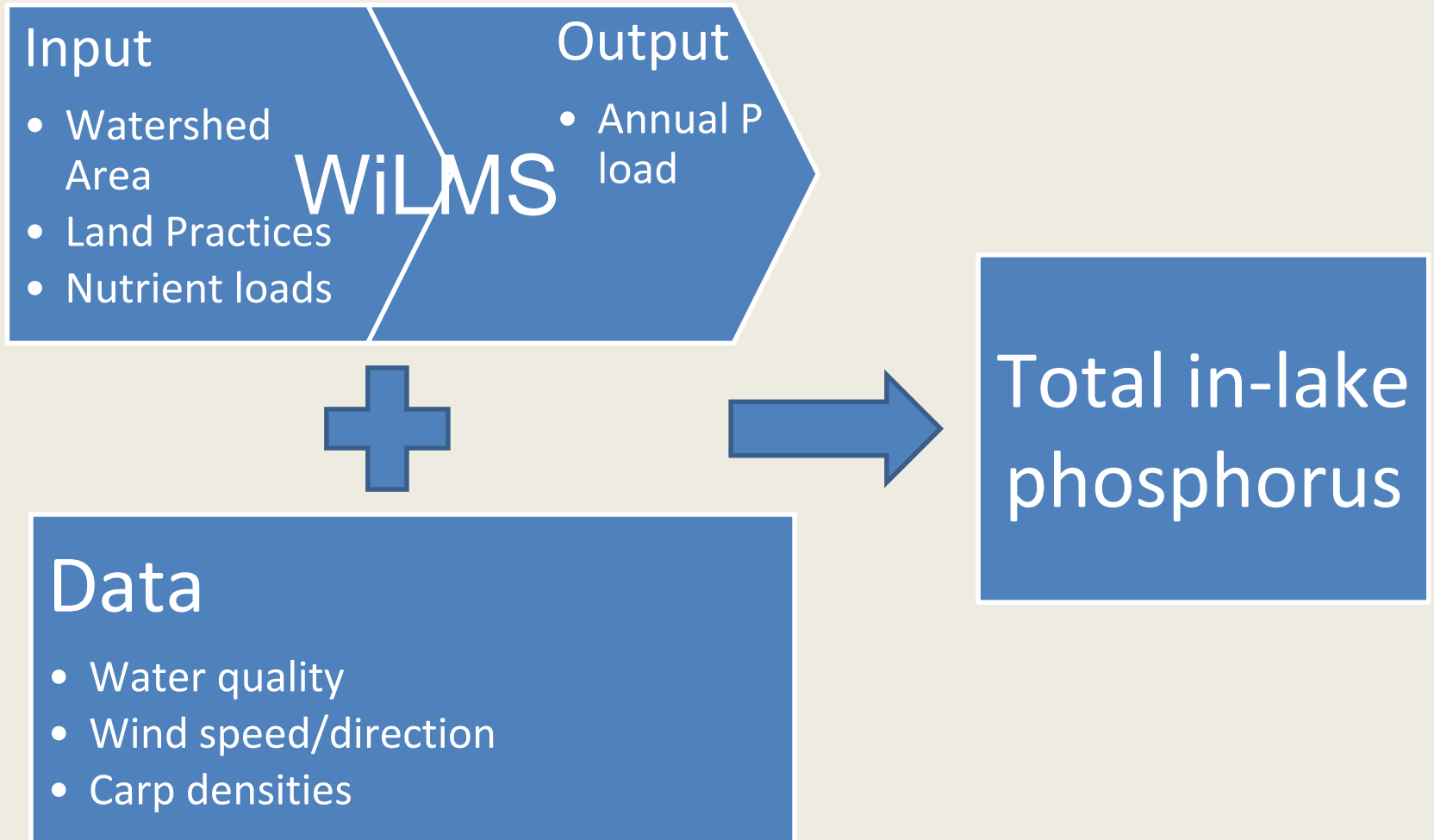
Beaver Dam Lake

Water Quality Results - TP



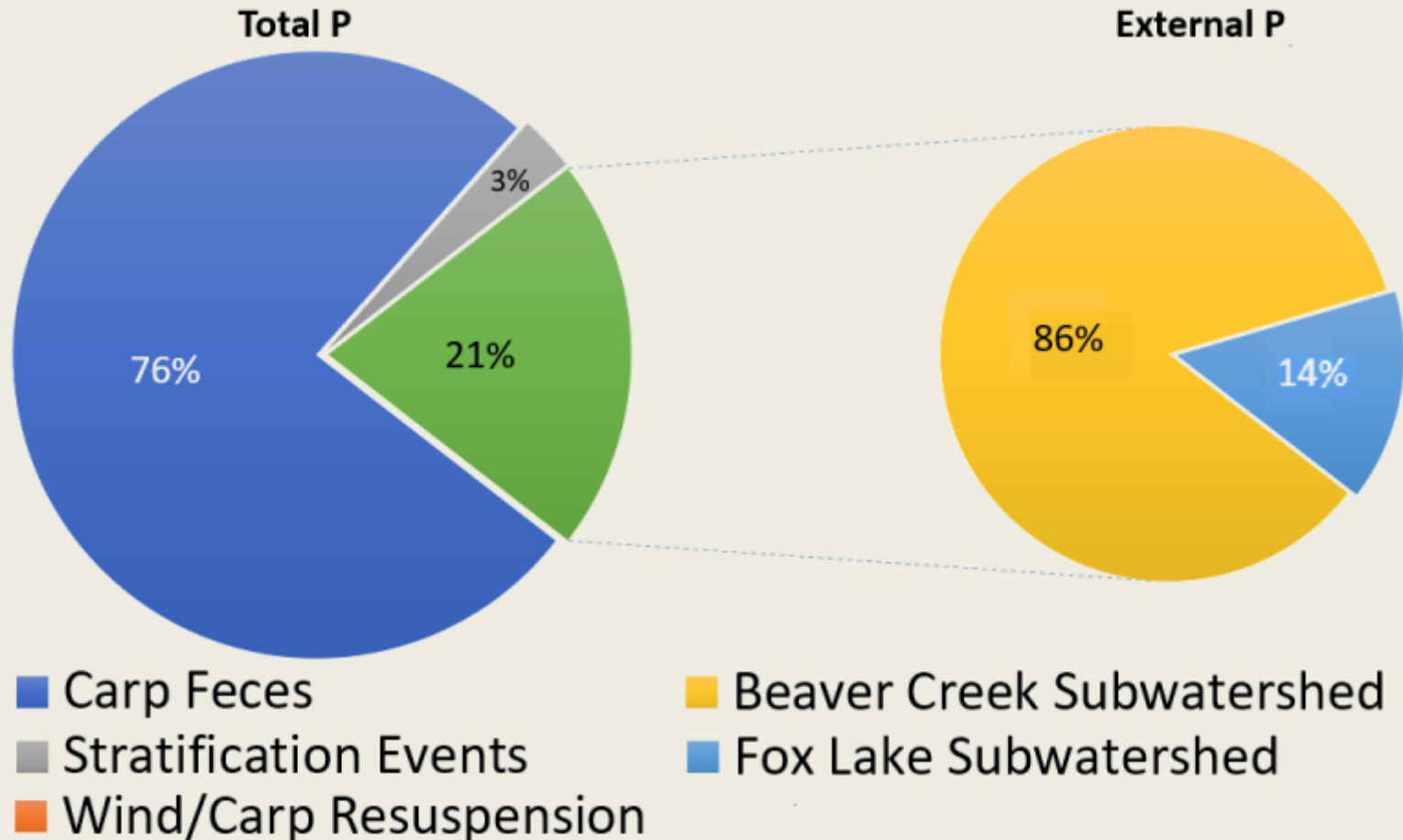
Beaver Dam Lake

P Modeling

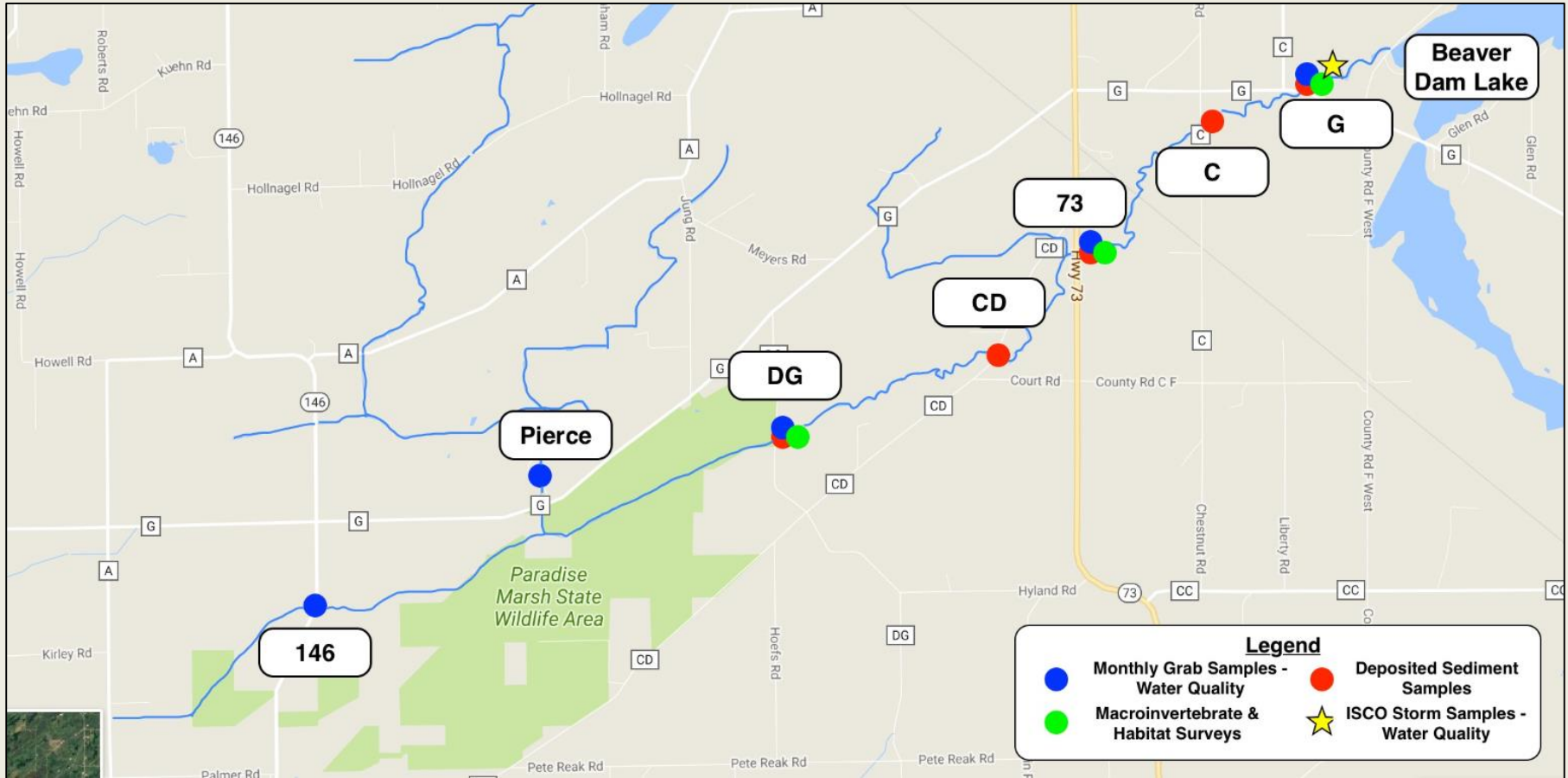


Beaver Dam Lake

P Sources



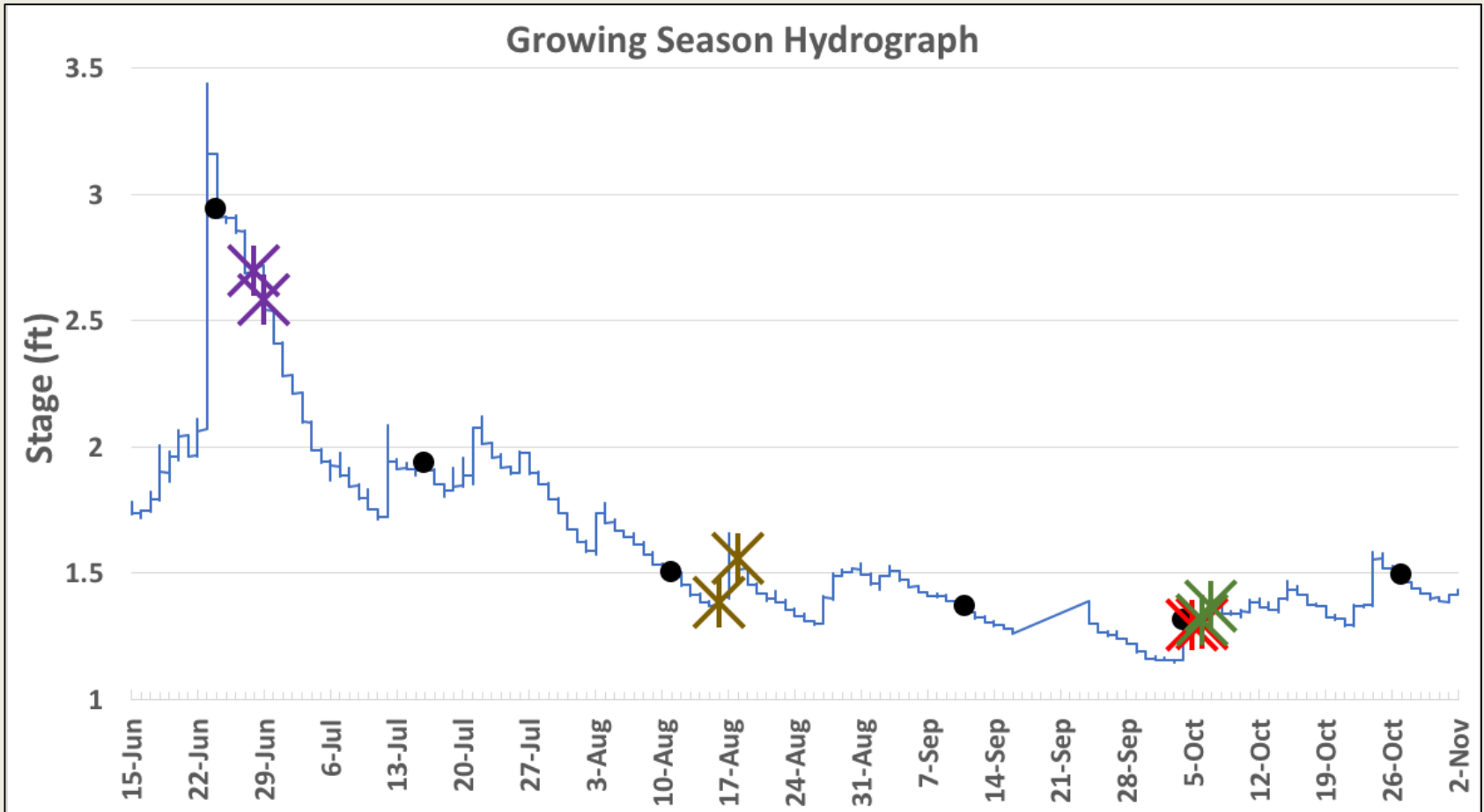
Beaver Creek Sampling Sites



*Sites 146 and Pierce added in September

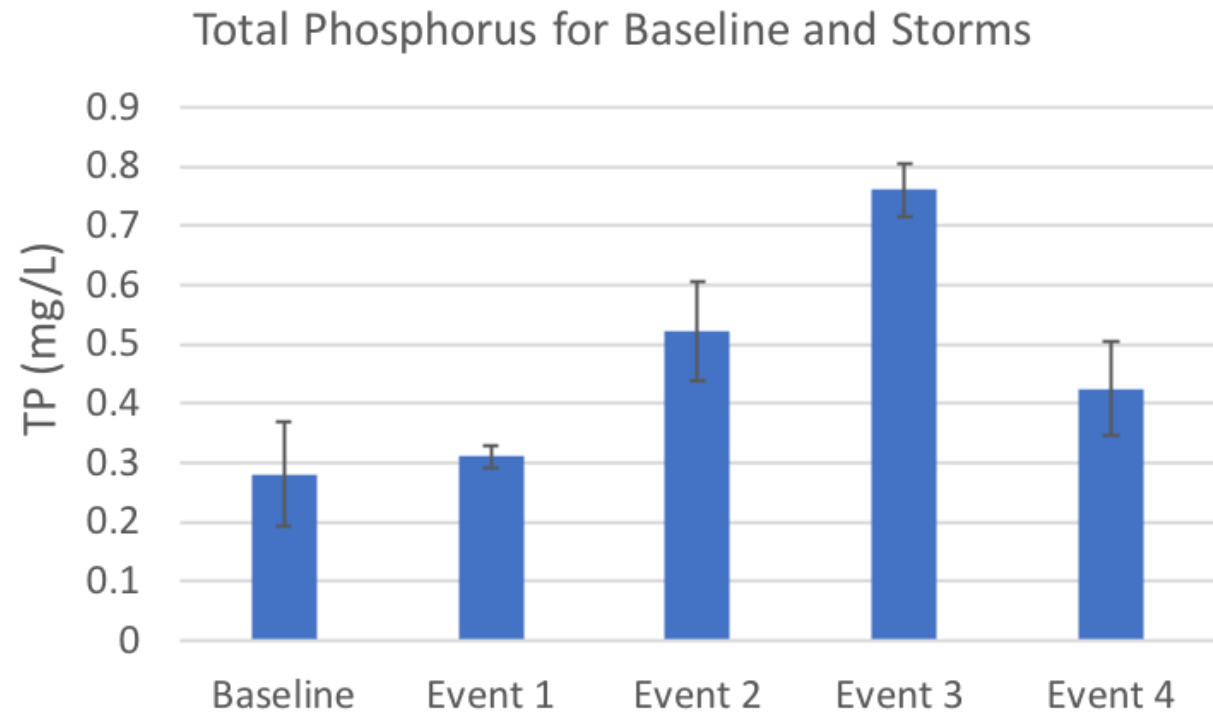
Beaver Creek

Stage Height



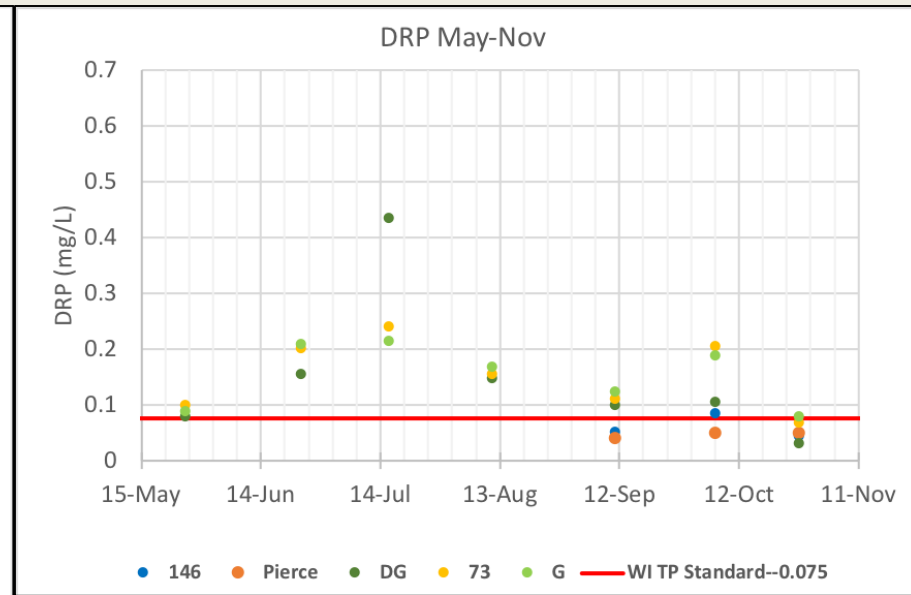
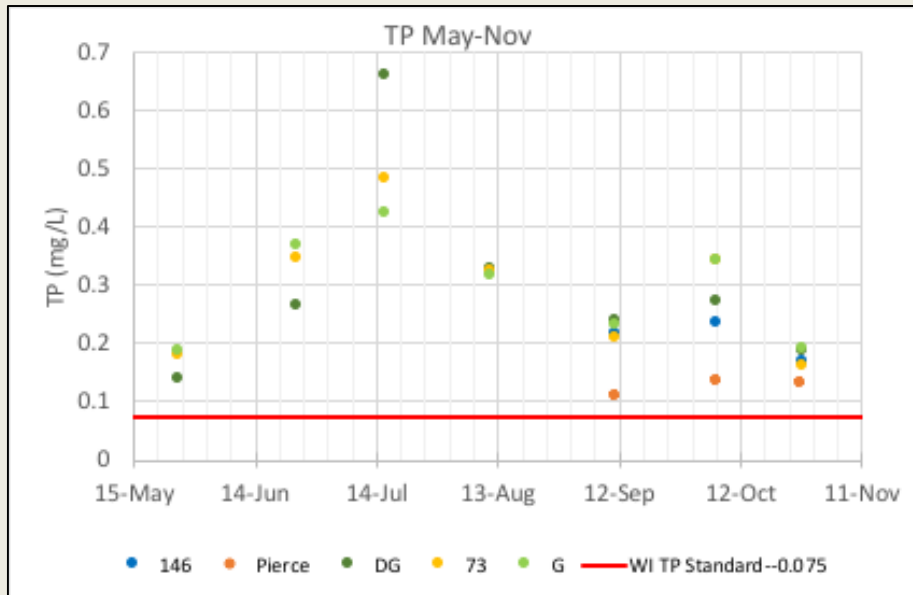
Beaver Creek

Storms & Baseline - TP



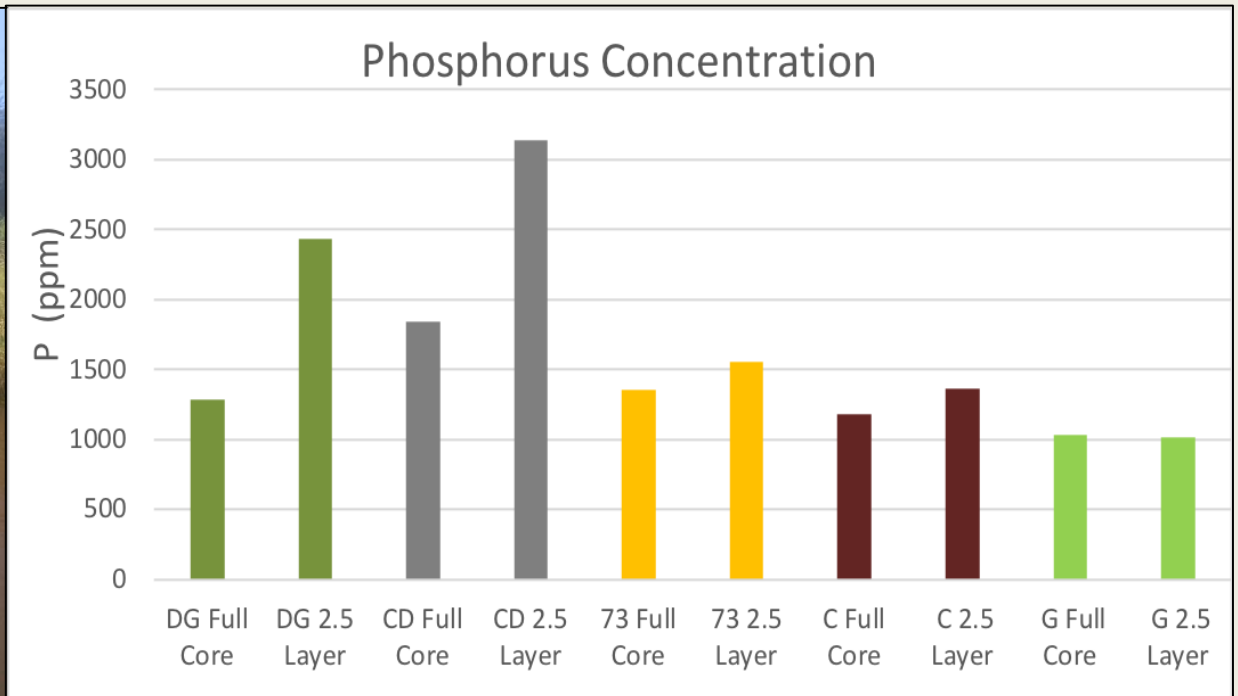
Beaver Creek

Water Quality TP & DRP



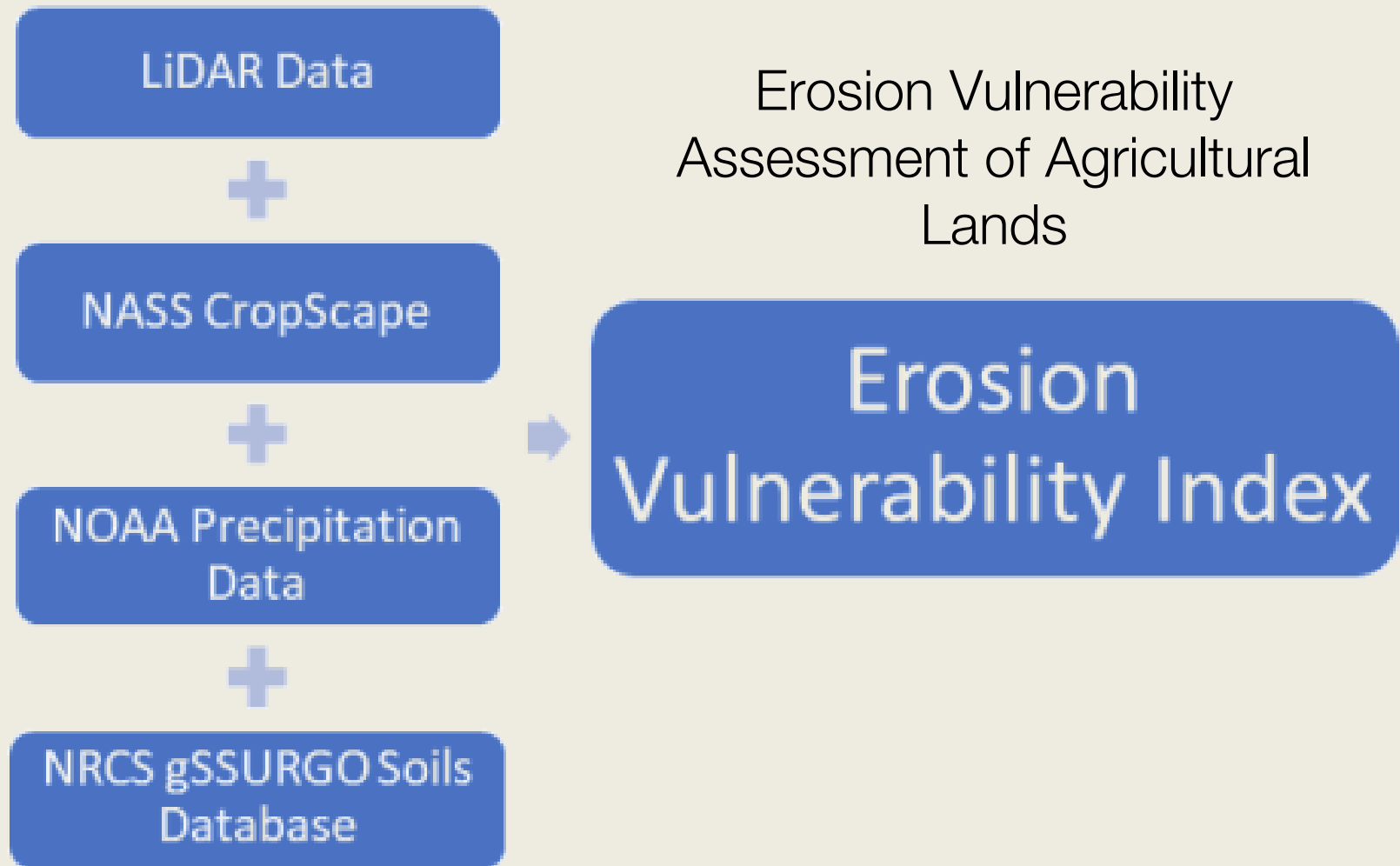
Beaver Creek

Sediment P At Each Site



Upland Beaver Creek

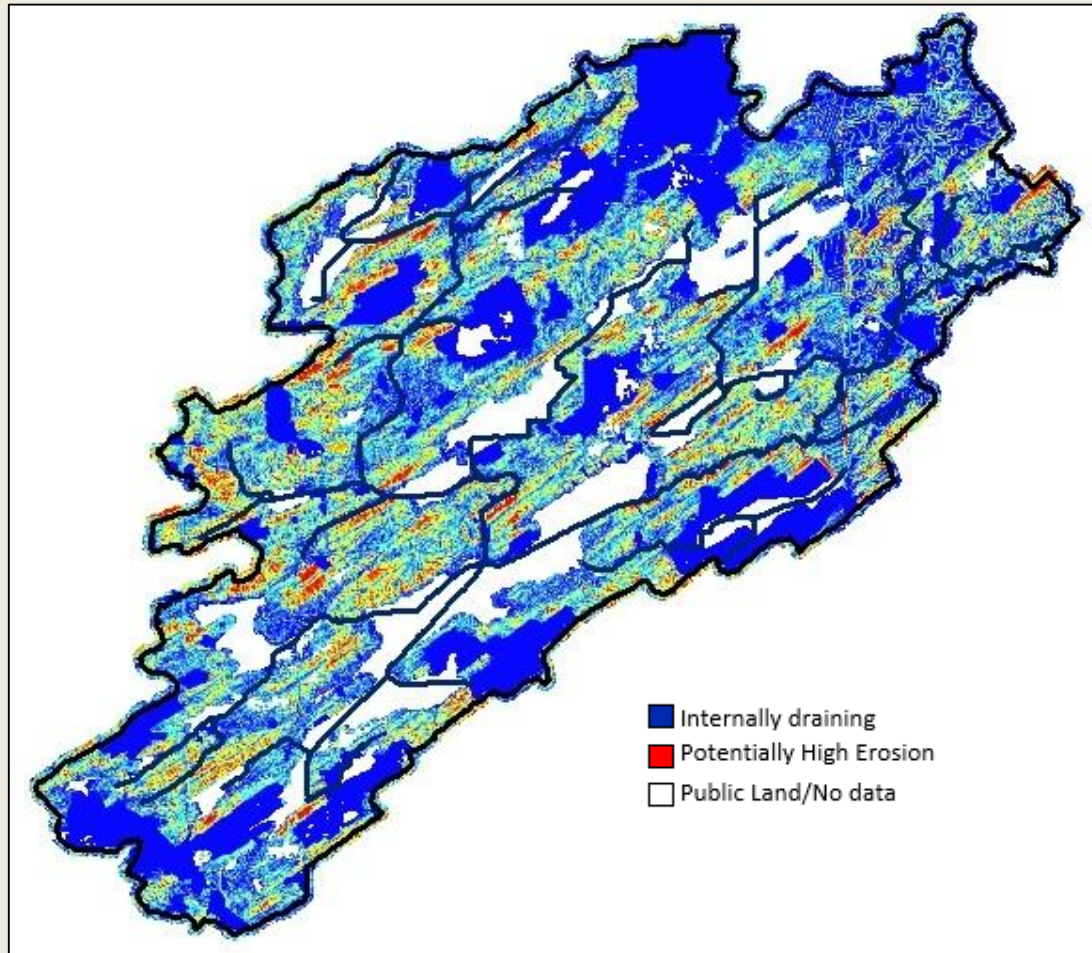
EVAAL Model



Upland Beaver Creek

Final EVAAL Results

Erosion Vulnerability Index

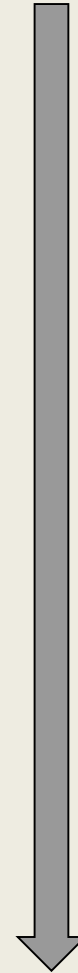


Recommendations Outline

Stakeholder Engagement

Beaver Dam Lake Water Quality

Beaver Creek Water Quality



Recommendations

Stakeholder Engagement

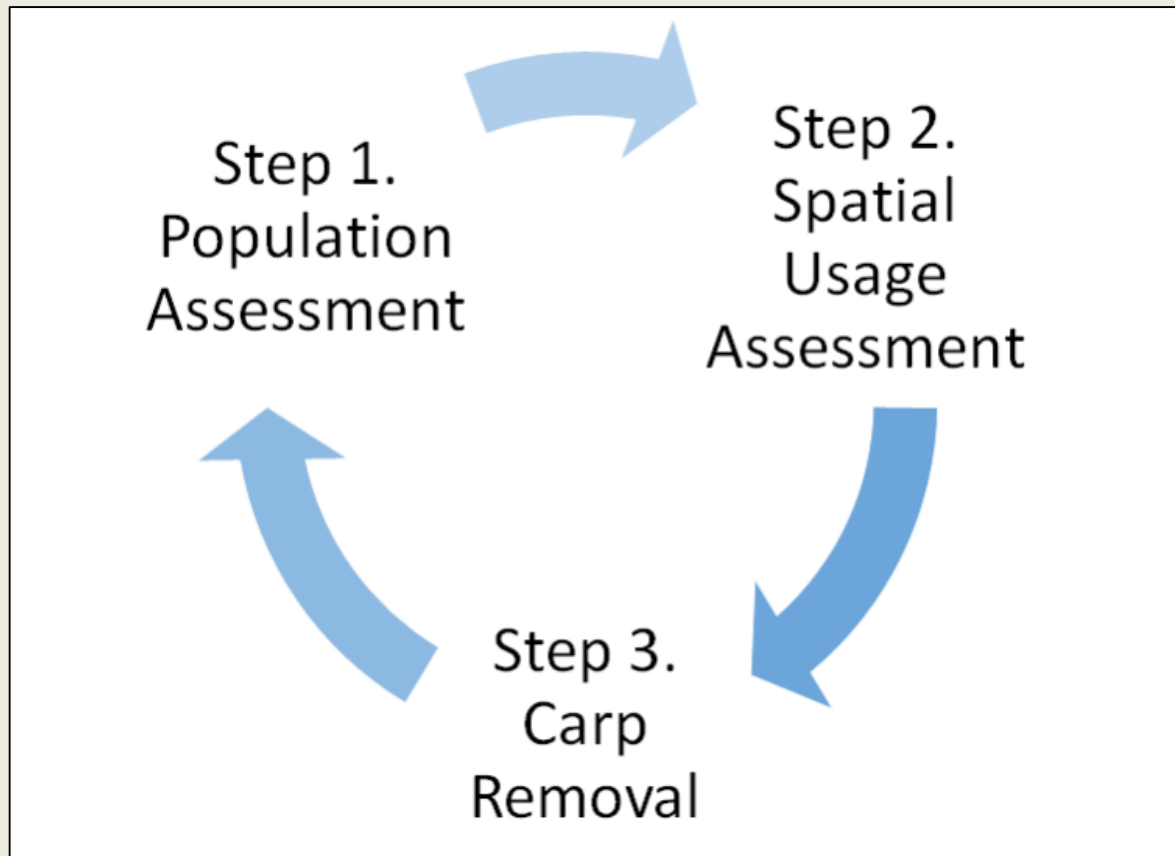
- School partnership water studies
- Community workshops/volunteer events
- Farmer Led Council in Columbia County



Recommendations

Lake Water Quality

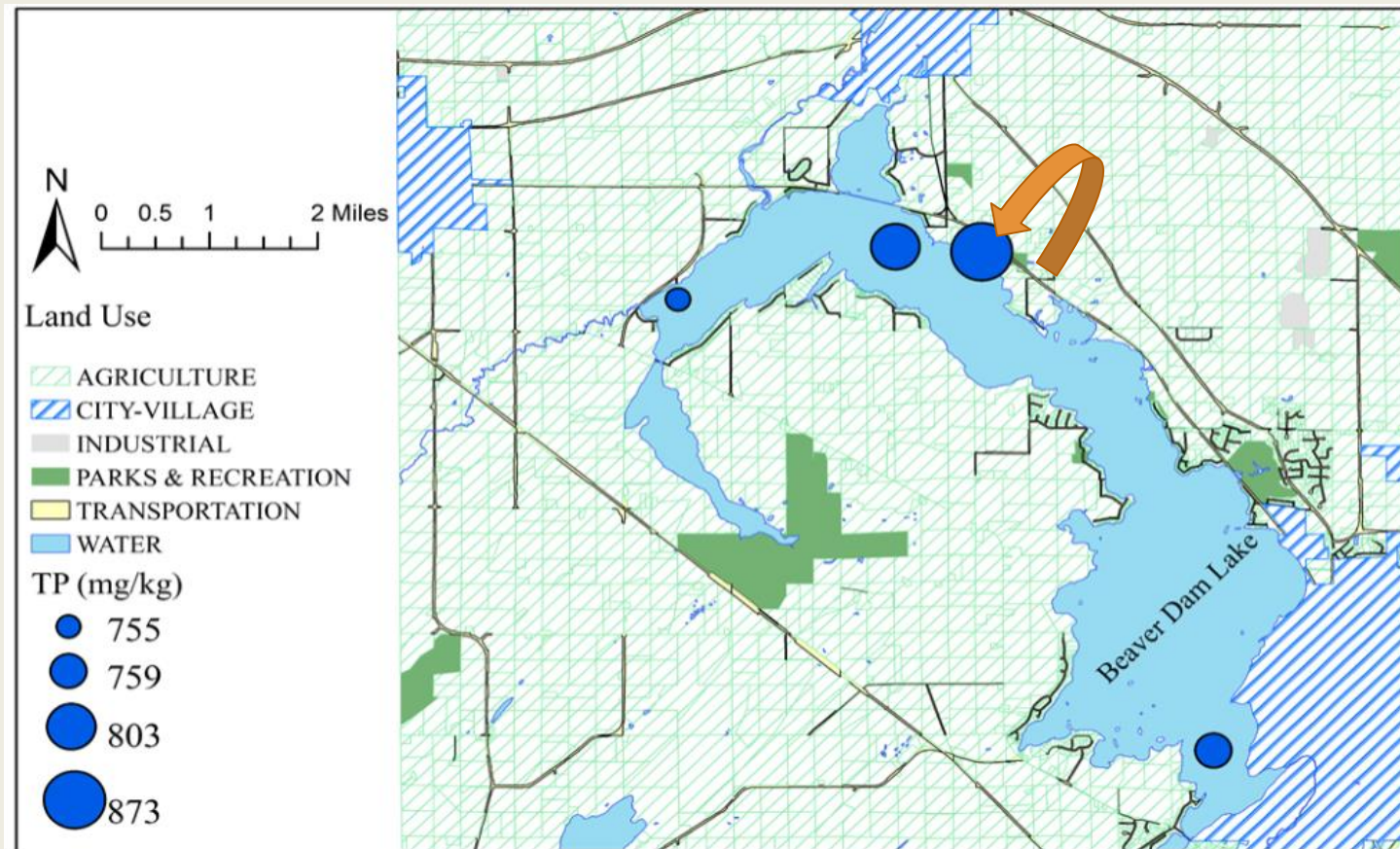
Active Carp Management Plan



Recommendations

Lake Water Quality

Shoreline Erosion Assessment

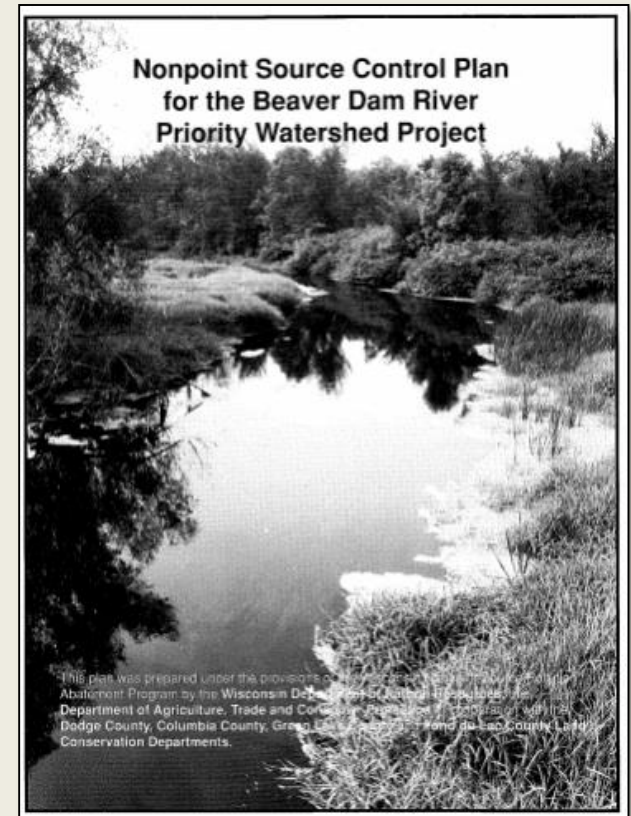


Recommendations

Creek Water Quality

Update Watershed Plan EPA 9 Key Element Framework

1 Identify the causes and sources that need to be controlled to achieve pollutant load reductions. This includes quantifying significant sources and background levels using maps and tables.	5 Develop an information & education component to encourage participation and Plan implementation.
2 Estimate the pollutant load reductions expected from selected management measures.	6 Develop a schedule for implementing the management measures identified in the Plan.
3 Describe management measures that need to be implemented to achieve load reductions. Map priority areas for implementing practices.	7 Describe interim, measurable milestones to assess if the Plan is being implemented.
4 Estimate amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement the Plan.	8 Identify a set of criteria to determine whether Plan objectives are or are not being achieved over time. Outline how and when the Plan will be revised if progress is not being made.
	9 Develop a monitoring component to evaluate the effectiveness of the implementation efforts over time using criteria from elements 6, 7 and 8.



Thank You!

To our many partners

Beaver Dam Lake Improvement Association

Wisconsin Department of Natural Resources

Agricultural Producers

Anita Thompson, UW-Madison WRM Advisor

Bill Foley

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Rob Montgomery

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Jaclyn Meyer



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