

Lake Assessment, Planning and Management Workshop

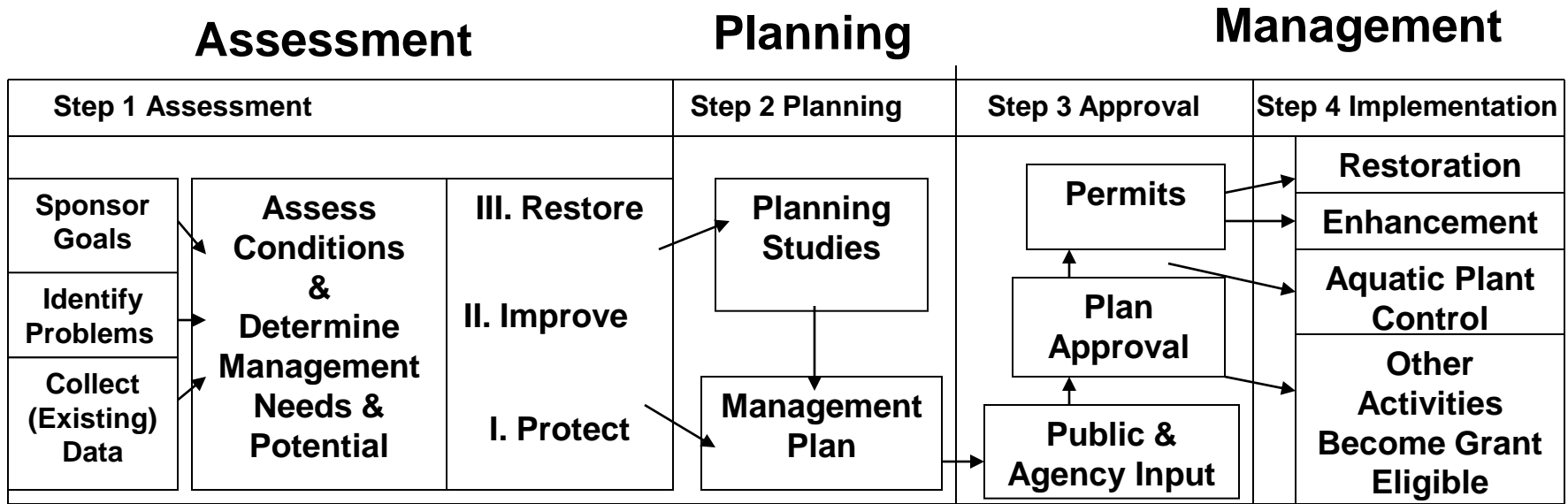


Wisconsin Lakes Convention
Green Bay, Wisconsin
April 14th. 2011

OVERVIEW

- Lake Assessment
 - Problem & Needs Identification
 - Data Collection & Monitoring
 - Condition Assessment
 - Expectations
 - Lake Planning
 - Outline of a Lake Management Plan
 - Management Strategies
 - Approval Process
 - Management Implementation
 - Q & A Discussion
-

What are we trying to accomplish?



Protection Grant Activities NOT requiring an approved *lake plan*

- Land Acquisition
- Wetland/Shoreland Restoration
- Ordinance Development

Getting Started

- Advisory Committee or Study Team
- Define the Study Process
- Communication and Education Plan
- General Goals
- Identify Problems



Study Team

Stakeholders

- Lake Residents
- Lake Users
- Watershed landowners
- Government
- Tribes
- Business

Functional Needs

- Science & Technology
 - Politics
 - Finance
 - Law & Enforcement
 - Education & Communication
 - Social Issues
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Goals vs Objectives

- Goals are general, set direction, start out broad and become more refined through out the process and information is revealed.
 - Objectives are specific, often numeric, measurable, used to mark progress toward a goal. They come at the end.
 - The first goals are general. Too soon for objectives - jump to conclusion.
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Goals: Maintain or Improve Existing Conditions?



Water Quality



Near Shore Habitat



Fisheries & Wildlife



Recreation



Aquatic Plants

Assessment of Current Conditions

- Describe the Lake's Current Condition
 - Determine What User's think
 - Collect Existing Data and Knowledge
 - Identify Data Gaps
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Sources of Existing Information

- Lake Natural Features – size, depth, hydrology
 - Previous Studies
 - Water Quality and Limnological Data
 - SWIMS
 - Watershed Conditions/Aerial photos/land use maps
 - Fish and Wildlife Surveys
 - Institutional and Social Information
 - Historical Information
 - User or Opinion Surveys
 - Lake Maps
-

Surveys and Questionnaires

- What are user's and resident's perceptions of the lakes condition, problems that need to be addressed, concerns about the future, aspects that need to be conserved or protected, willingness to be involved?
 - UWEX and DNR has templates of existing questionnaires. Need to be reviewed and approved by DNR Science Services in advance to assure QA.
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THE LAKE ASSESSMENT WANTS

TO KNOW.... How's my lake doing?

- Water Quality
 - Water clarity
 - Trophic status
 - Watershed Conditions
- Habitat
 - Fish and Aquatic Life
 - Plants/Invasives
 - Shoreland/Littoral
- Recreational Use
 - Boating
 - Swimming
 - Fishing
- Public Health
 - Blue-green algae
 - Bacteria



And What Problems Need Work

TIM'S STUFF HERE ON HOW TO

Outline of a Comprehensive Lake Management Plan

1. Introduction

- a. Purpose and Justification – why a plan needed
- b. Who it was developed for and by whom and how it is intended to be used
- c. Summary of finding and recommendations
- d. Copy of DNR approval letter

2. Goals and Objectives

Summary of what the plan is trying to achieve (goals) and the quantifiable steps (objectives) needed to get there.

3. Condition Assessment

3.1 Water quality

- a. An assessment of the lake's historical water quality, including at least one year of current base line limnological data.*

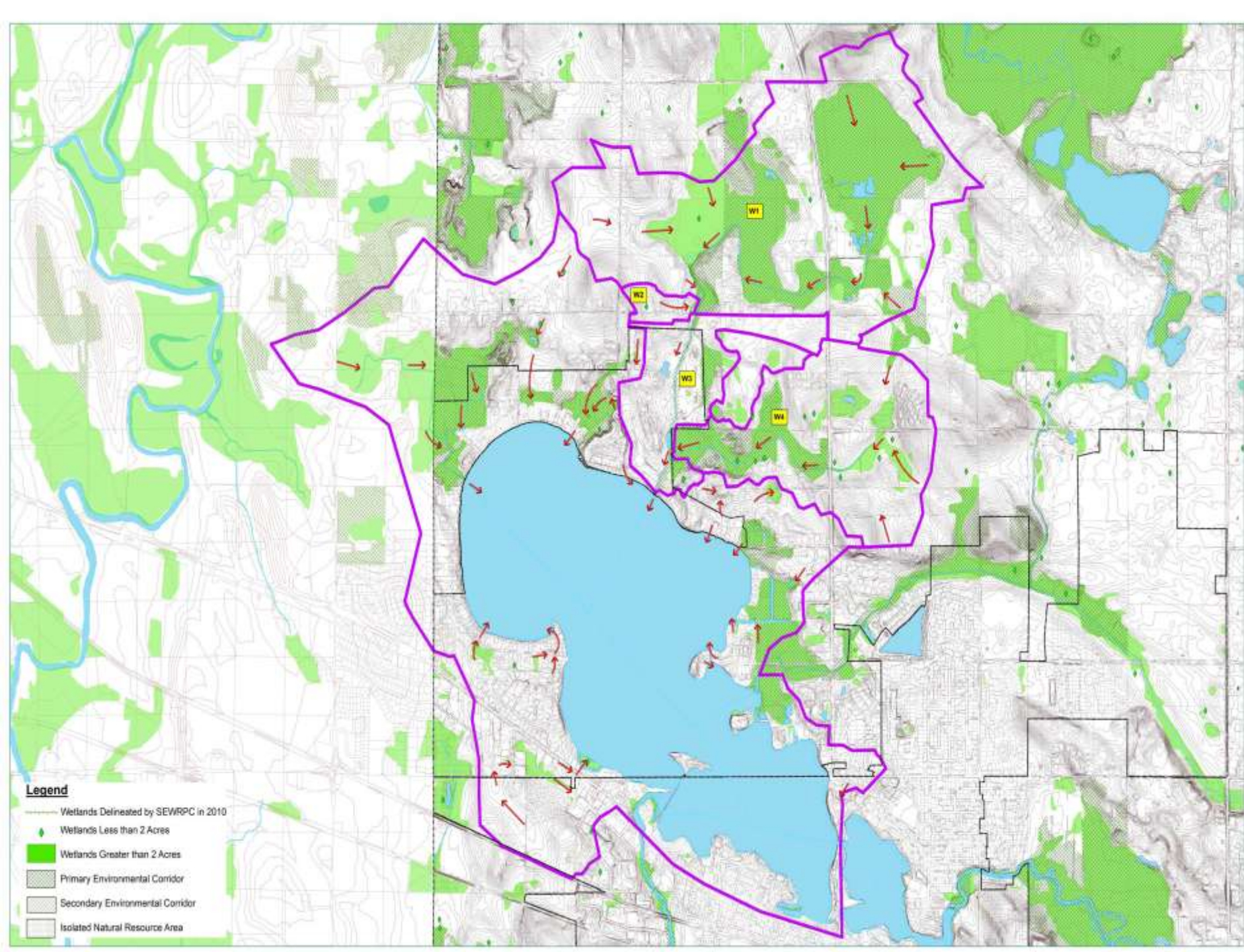
 - b. An identification of the water quality problems or threats to lake water quality including degradation of fish habitat and wetlands caused by nonpoint sources of pollution in the watershed.*
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3. Condition Assessment

3.1 Water quality

c. An assessment of the lake's watershed including:

- 1. A description of land uses listing each land use classification as a percentage of the whole and an estimate of the amount of nonpoint pollution loading produced by each category.*
 - 2. Identification and ranking of the most significant nonpoint source types and contributing areas.*
 - 3. A listing of known point sources of pollution affecting the lake or that have affected the lake.*
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Legend

- Wetlands Delineated by SEWRPC in 2010
- Wetlands Less than 2 Acres
- Wetlands Greater than 2 Acres
- Primary Environmental Corridor
- Secondary Environmental Corridor
- Isolated Natural Resource Area

3. Condition Assessment

3.1 Water quality

d. A description of the institutional framework affecting management of the lake including, local government jurisdictional boundaries, plans, ordinances including an analysis of the need for adoption of local ordinances for lake protection.

3. Condition Assessment

3.2 Fisheries & Aquatic Habitat

- a. An assessment of the lake's fishery and aquatic habitat including the extent of the lake area covered by aquatic plants and a characterization of the shoreline habitat and any known ecological relationships.*

 - b. An identification of the need for the protection and enhancement of fish and wildlife habitat, endangered resources, aesthetics or other natural resources.*
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3. Condition Assessment

3.2 Fisheries & Aquatic Habitat

c. An assessment and characterization of the habitat conditions in the lake's watershed and any known ecological relationships.



3. Condition Assessment

3.3 Recreational Use

A summary of the historical uses of the lake, including recreational uses up to the time of application, and how these uses may have changed because of water quality or habitat degradation



3. Condition Assessment

3.4 Other resource issues and management concerns

- a. A description of any other problems or issues perceived to need management actions.*
 - b. A description of any management actions taken or are in progress.*
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4. Analysis & Conclusions

- a. Identification of objectives to maintain or improve the lake's water quality, fisheries, aquatic habitat and recreational and other uses.*
 - b. Identification of target levels of control and resource protection needed to meet the objectives.*
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5. Management Alternatives

Identification and discussion of the alternative management actions considered for pollution control, lake restoration or other management including expected results.

Tax Key	Property Address (If Applicable)	Feature Description	Storm Water Management Details, Effectiveness	Approximate Size of Project Element	Estimated Implementation Cost	Estimated* Easement Cost (Appraisal)	RMP Priority Ranking	Ranking Justification
OCOT049999002	W389N7534 PENNSYLVANIA S	75' Buffer Strip in a Conservation Easement	Collect and slow runoff, filtering out sediment and insoluble pollutants while encouraging infiltration. As runoff flows through the buffer vegetation, its velocity is reduced, releasing its load of suspended solids and promoting infiltration.	847 linear feet, 1.46 acres, one side of 75' buffer	\$3,650	\$16,060	1	Relatively low cost, interested participant, size of project is substantial.
OCOT049999002	W389N7534 PENNSYLVANIA S	Invasive Vegetation Clearing & Stream Bank Stabilization	Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks. Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	847 linear feet	\$25,410	NA	6	Stream bank is moderately degraded, interested participant, low invasive plant present.
OCOT0499995005	Lang Road	Water Quality Basin in a conservation easement	Slows water, and allows sediment to drop out of runoff.	2.19-acre pond	\$75,000	\$24,090	4	Cost of installation is high, relatively small drainage area, interested participant.
OCOT0499995005	Lang Road	Wetland restoration/expansion in a Conservation Easement	Provide a natural mechanism for intercepting water as it runs off adjacent agricultural field. Wetlands filter pollutants, promote infiltration, and allow for sediment to settle from runoff.	075-acre wetland	\$5,000	\$8,250	5	Landowner prefers pond, relatively small drainage area, cost of land, landowner would like to farm the area.
OCOT0499995005	Lang Road	75' Buffer Strip in a Conservation Easement	Collect and slow runoff, filtering out sediment and insoluble pollutants while encouraging infiltration. As runoff flows through the buffer vegetation, its velocity is reduced, releasing its load of suspended solids and promoting infiltration.	734 linear feet, 2.53 acres, two sides of 75' buffer	\$6,325	\$27,830	2	Relatively low cost, interested participant, size of project is substantial.
OCOT0499995005	Lang Road	Invasive Vegetation Clearing & Stream Bank Stabilization	Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks. Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	7,341 linear feet	\$44,040	NA	10	Stream bank is not terribly degraded, project is relatively large.
OCOT0515999	N67W37845 CTH K	75' Buffer Strip in a Conservation Easement & Invasive Vegetation Clearing	Buffer strips collect and slow runoff, filtering out sediment and insoluble pollutants while encouraging infiltration. As runoff flows through the buffer vegetation, its velocity is reduced, releasing its load of suspended solids and promoting infiltration. Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks.	1,690 linear feet, 5.82 acres	\$14,550	\$64,020	3	A berm currently exists on the farmland adjacent to the stream so need is not as severe, project size is substantial, project cost is somewhat high due to size.
OCOT0500017		Invasive Vegetation Clearing & Stream Bank Stabilization	Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks. Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	Both sides: 847 linear feet and 1,170 linear feet	\$95,610	NA	7	Interested participant, labor contribution, invasive plants present, substantial project size.
OCOT0499993004	N72W38508 LANG RD	Invasive Vegetation Clearing & Stream Bank Stabilization	Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks. Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	249 linear feet (both sides)	\$14,940	NA	9	Relatively small project size, invasives present, bank degraded.
OCOT0499993005		Invasive Vegetation Clearing & Stream Bank Stabilization	Invasive vegetation clearing will reduce competition with native plants, thereby reducing the rate of erosion along banks. Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	579 linear feet	\$34,740	NA	8	Relatively small project size, invasives present, bank degraded.
LLV.0510097	W389N6996 PENNSYLVANIA ST	Stream Bank Stabilization	Stabilization will restore banks to no more than a 3:1 slope, reducing slumping and erosion that carries sediment downstream.	100 linear feet	6000	NA	11	Relatively small project size, bank is moderately degraded.

6. Recommended Management Plan

- a. *An analysis of the need for and a list of the proposed management actions that will be implemented to achieve of the target level of pollution abatement or resource protection.*
 - b. *A strategy for tracking, evaluating and revising the plan including water quality monitoring.*
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I. Protection



Protection Lake Characteristics

Good to excellent lake conditions
Beneficial uses are being met
Public satisfied with resource condition
Low impacted lakes, *generally* smaller, less developed
seepage lakes in forested watersheds

Maintain Existing Conditions

II. Improvement

Halt degradation
Manage specific problems

Improvement Lake Characteristics

Good to fair water quality but signs of decline

Problems or threats require action.

Nuisance plants, user conflicts, public complaints

Fishing pressure/poor recruitment

Mid sized to larger lakes - Higher watershed to lake area ratios

Transitional lakes and landscapes



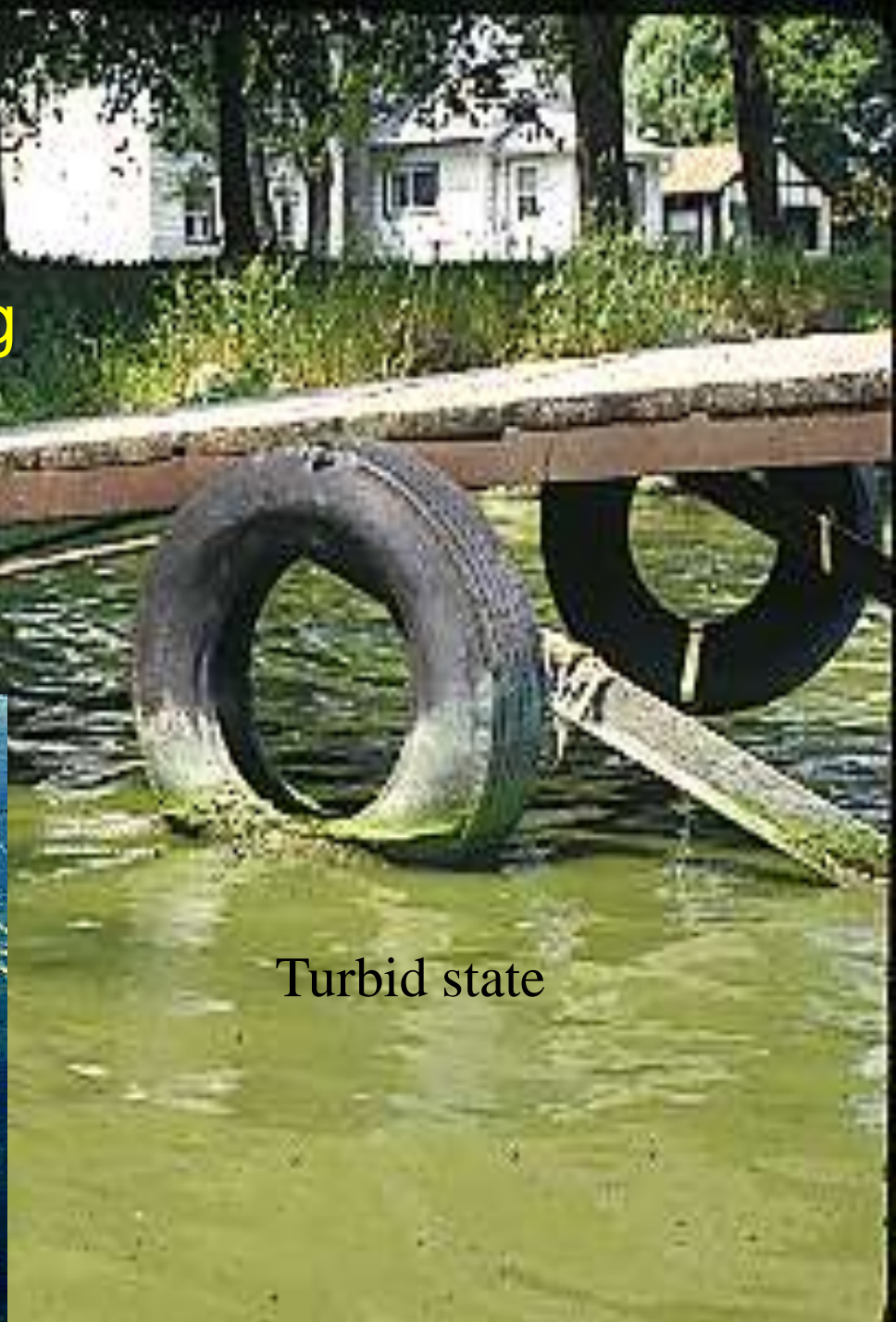
III. Restoration

Return to some pre-existing condition

Restore beneficial uses



Clear water state



Turbid state

Shoreland Management

I. Protection Strategies

- Most protective county lake classification
 - Control density/impact of new development
 - Large lot and buffer dimensional standards
 - Deeper setbacks
 - Limit key hole development
 - Retention of natural vegetation
 - Strict pier development - No boat houses
 - Septic monitoring and maintenance
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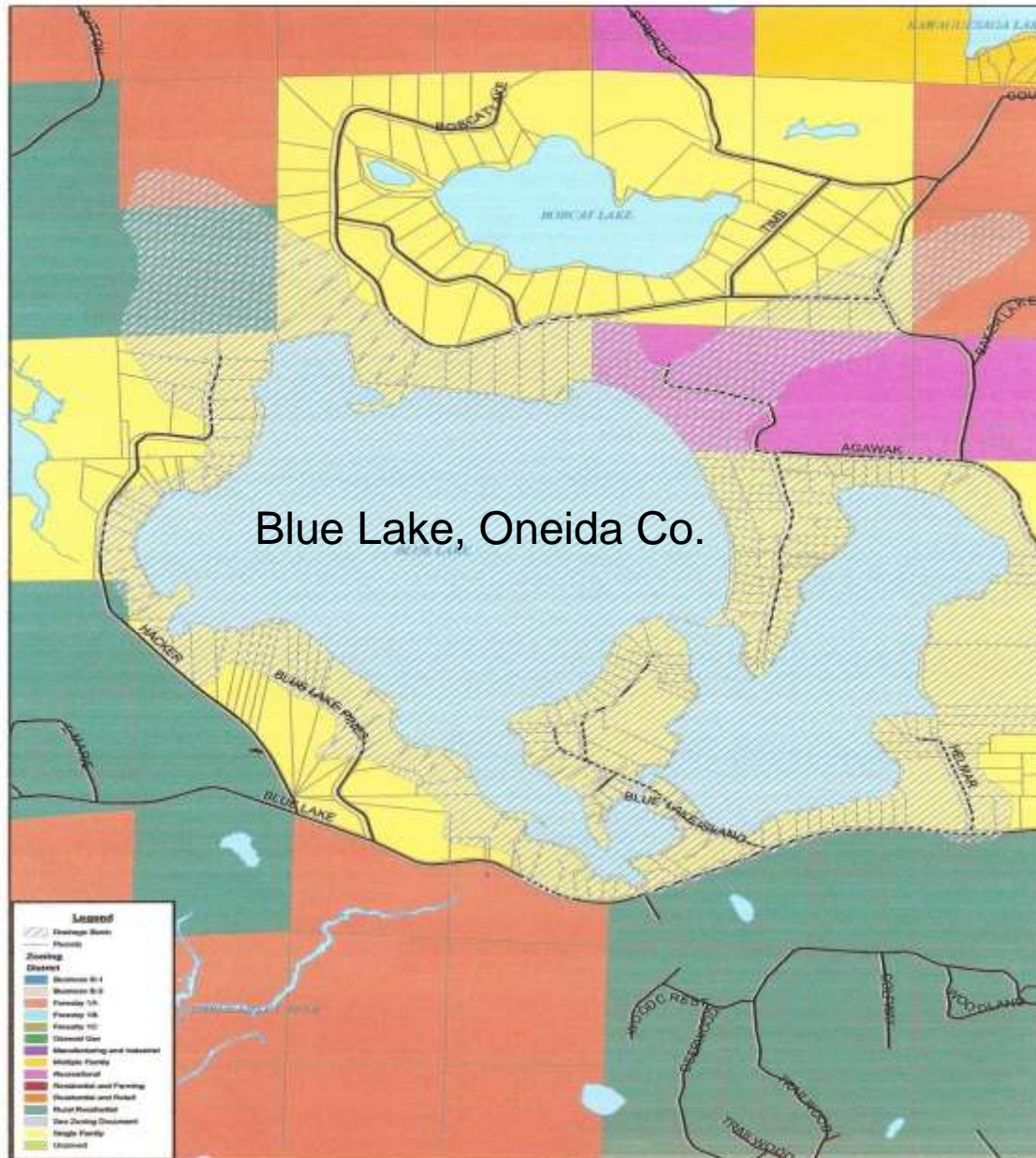
Watershed Management

I. Protection Strategies

- Land use planning and zoning
 - Ordinance development and enforcement
 - Stormwater, construction site erosion, wetlands
 - Critical Site Identification
 - Environmental corridors
 - Obvious problem sites: feedlots, drain tiles
 - Voluntary deed restrictions, best management practices, acquisition
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Zoning

Blue Lake Preservation Association
Blue Lake, Oneida County, Wisconsin



Blue Lake, Oneida Co.

Watershed Management

II Improvement Strategies

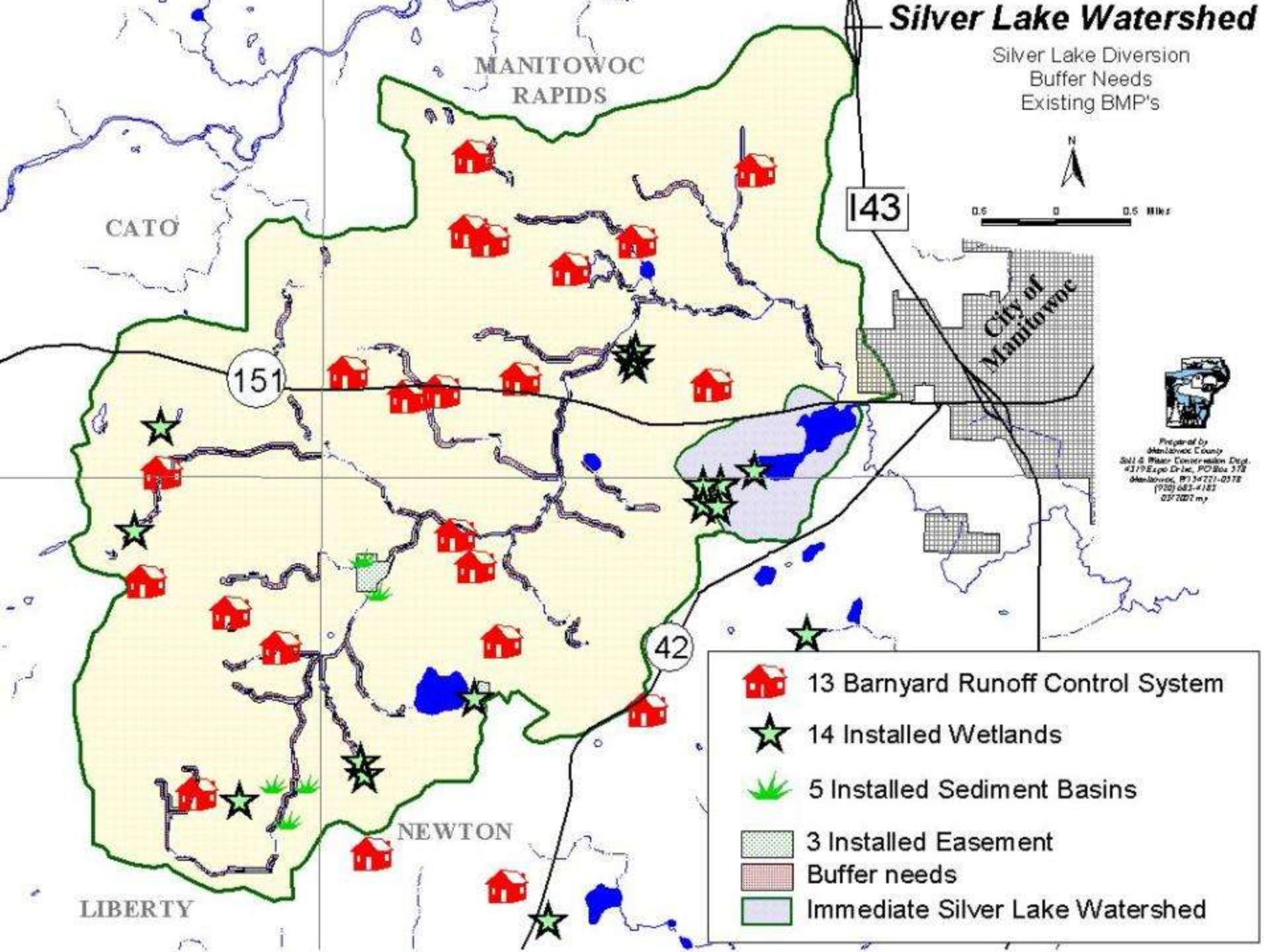
Develop Targeted Best Management Practices Plan

- Urban runoff controls
- Grass waterways
- Buffer strips
- Manure storage/feedlots
- Sediment basins
- Land & Easements Acquisition



Silver Lake Watershed

Silver Lake Diversion
Buffer Needs
Existing BMP's



Prepared by
Manitowoc County
Soil & Water Conservation Dept.
4119 Expo Dr. W., PO Box 378
Manitowoc, WI 54221-0378
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03/2007.mj

Recreational Use Fish & Aquatic Habitat

I. Protection Strategies

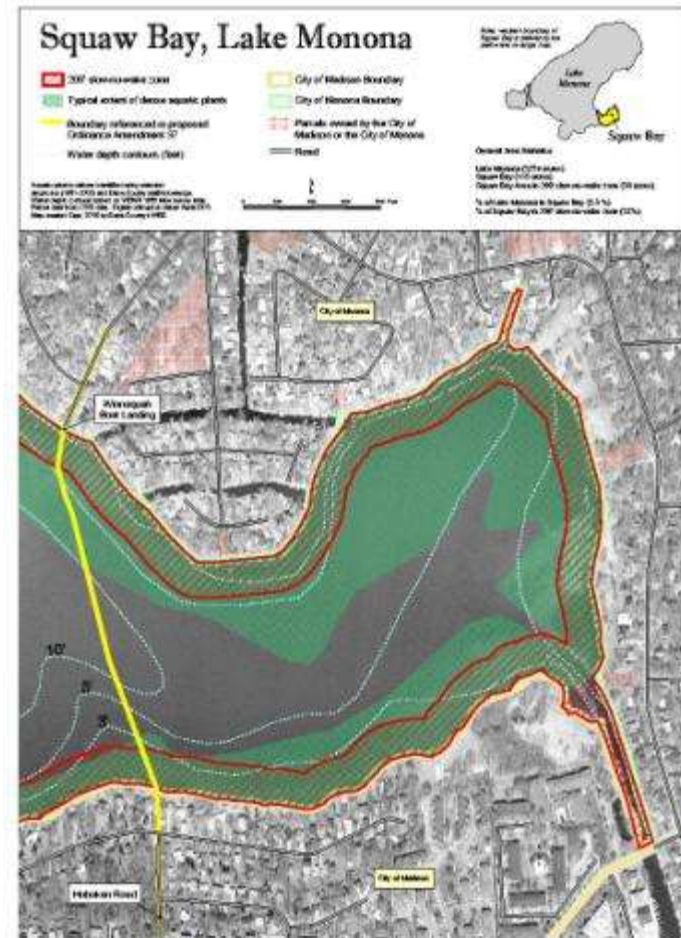


- Boats
 - No wake restrictions
 - Courtesy codes
- Fisheries
 - Voluntary catch and release
 - Special regulations for unique fisheries
- Invasives
 - Shield lakes
 - Boat inspections

Recreational Use Fish & Aquatic Habitat

II. Management Strategies

- Aquatic Plant Management Plans
 - Harvesting
 - Sensitive Area/Critical Habitat Designation
- Boats
 - Time of Day Use Restrictions or No Wake Zones
 - Lake Use Zoning
- Fisheries
 - reduced bag limits
 - protective slots



Restoration Strategies

III. In-lake management

- Alum, nutrient inactivation
- Large-scale herbicide treatments
- Drawdowns
- Biomanipulation
- Fish rehabilitation (rotenone)
- Aeration
- Hypolimnetic (bottom) withdrawals



Lake Tomah Extreme Makeover

- Drawdown (1 yr)
- Carp eradication
- Shoreland restoration
- Watershed assessment
- Ag and urban BMP's
- Boating ordinance
- Fish restocking
- AIS prevention

Tomah Lake Committee

City of Tomah
513 Rochester Avenue
Tomah, WI 54682

Lake Committee
Phone: 608-274-7422
Fax: 608-274-7424

Lake Tomah Management Plan

A Strategy to Improve the Recreational Use
and Ecological Value of Lake Tomah



Photo by Terry Amundson, Tomah, WI

Tomah Lake Committee Members

Neil Burnham
Mike Grandinetti
Joe McDaniell
Kim Melko

Pat Olson
Pat Rezin
Don Rosovikuz

Monitoring

I. Protection Strategies

- Compliance & Stewardship
- Lake Organization
 - Limited
- Monitoring - Secchi, AIS, shoreland watch



Plan Approval

- Public and Agency input throughout
 - Public Comments on final draft recorded
 - Approved by local management organization
 - Submit to DNR 60 days before May 1 grant deadline
 - DNR provide approval letter with or with out conditions
 - Place in final plan
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Implementation

- Action, Project or work plan
 - Take some elements of the plan and make it a project - 1-5 years
 - Who does what when?
 - Budget
 - Basis for grant application, permits, design work
-

How the process fits lake grants

- Small Scale Planning Grants - \$3,000
 - Organize, Prepare, Data Collection, Surveys
 - Large Scale Planning Grants - \$10,000 (\$25,000)
 - Plan preparation
 - Planning Studies
 - Lake Protection Grants - \$200,000
 - Final Designs & Implementation
-

Questions

- Process – what is it missing?

