A

APPENDIX A

Public Participation Materials

Presentation Outline

- Onterra, LLC
- Why Create a Management Plan?
- Elements of a Lake Management Planning Project
  - Data & Information
  - Planning Process

Onterra, LLC

- Founded in 2005
- Staff
  - Five full-time ecologists
  - One part-time ecologist
  - One intern
- Services
  - Science and planning
- Philosophy
  - Promote realistic planning
  - Assist, not direct

Why create a lake management plan?

- To create a better understanding of lake's positive and negative attributes.
- To discover ways to minimize the negative attributes and maximize the positive attributes.
- To foster realistic expectations and dispel myths.
- To create a snapshot of the lake for future reference and planning.

A goal without a plan is just a wish!

Elements of an Effective Lake Management Planning Project

Data and Information Gathering

Environmental & Sociological

Planning Process

Brings it all together

Data and information gathering

- Study Components
  - Water Quality Analysis
  - Watershed Assessment
  - Aquatic Plant Surveys
  - Fisheries Data Integration
  - Stakeholder Survey

Water Quality Analysis

- Water Clarity
- Nutrient analysis
  - Lake trophic state (Eutrophication)
  - Limiting plant nutrient
- Chlorophyll-*a*
- Dissolved Oxygen

Watershed Assessment

- Delineation of drainage basin
- Land cover descriptions

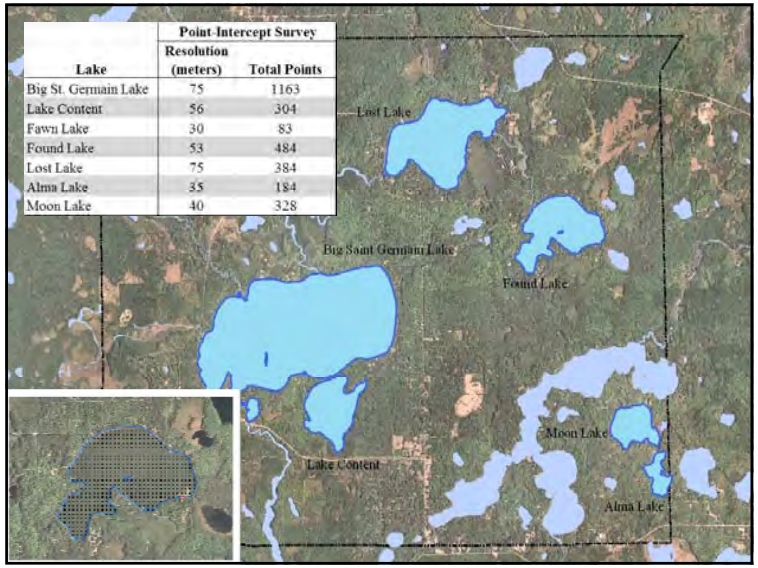
Aquatic Plant Surveys

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey
  - Point-intercept survey
  - Plant community mapping
    - Interesting comparisons with 2004-05 Data

Non-native Aquatic Plants

Curly-leaf Pondweed

Eurasian Water Milfoil



Lake	Point-Intercept Survey Resolution (meters)	Total Points
Big St. Germain Lake	75	1163
Lake Content	56	304
Fawn Lake	30	83
Found Lake	53	484
Lost Lake	75	384
Alma Lake	35	184
Moon Lake	40	328

Fisheries Data Integration

- No fish sampling completed
- Assemble data from WDNR, USGS, USFWS, & GLIFWC
- Fish survey results summaries (if available)
- Use information in planning as applicable

Stakeholder Survey

- Standard survey used as base
  - Planning committee developed additional questions and options
  - Must not lead respondent to specific answer through a "loaded" question
- Survey was approved by WDNR

Planning Process

Planning Committee Meetings

Study Results (including a stakeholder survey)
Conclusions & Initial Recommendations
Management Goals
Management Actions
Timeframe
Facilitator(s)

↓

Implementation Plan

St. Germain Planning Process

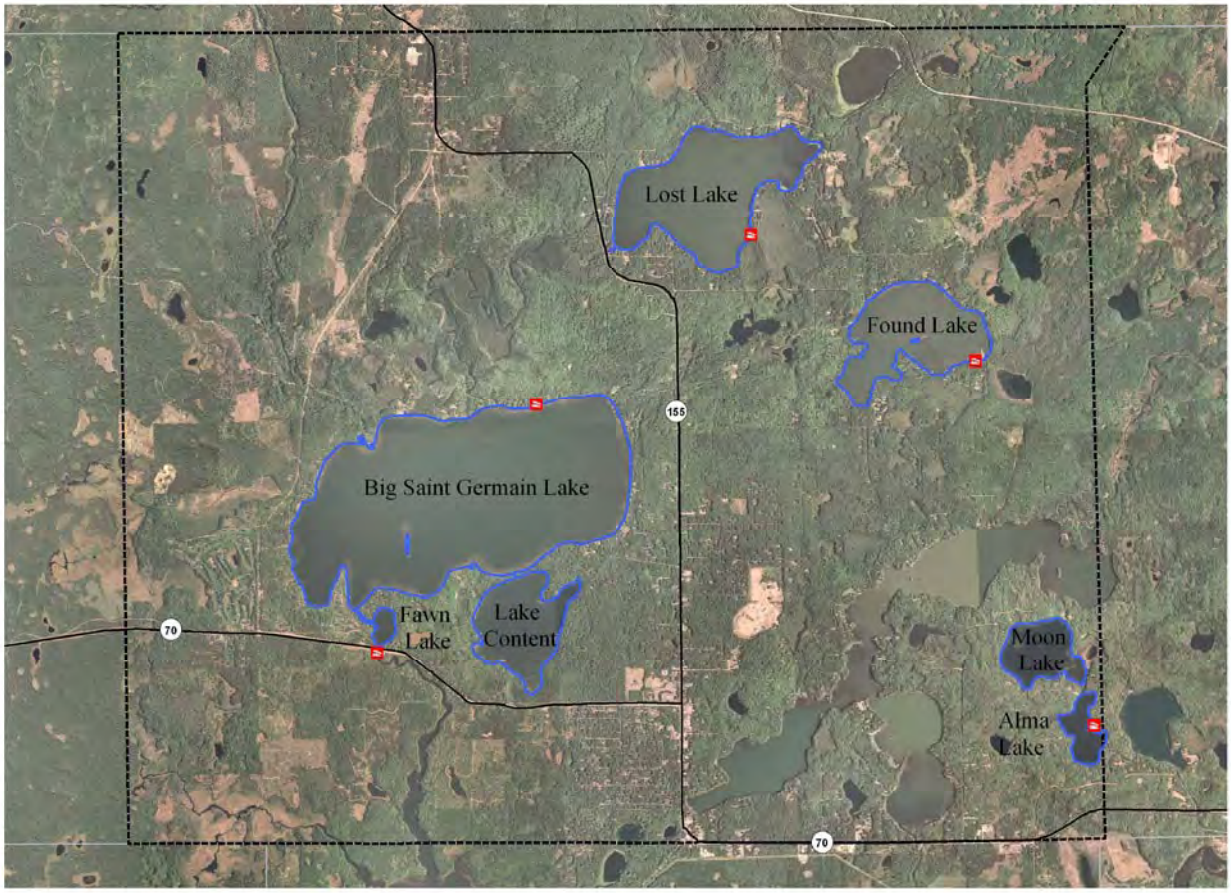
- Town-wide project brings on unique situation
  - Cost savings are great
  - Providing attention to individual lakes is difficult
- Lake representatives
  - Communication link between stakeholders from individual lakes and Planning Committee
- Stakeholder survey comments will be important

St. Germain Management Plan Documents

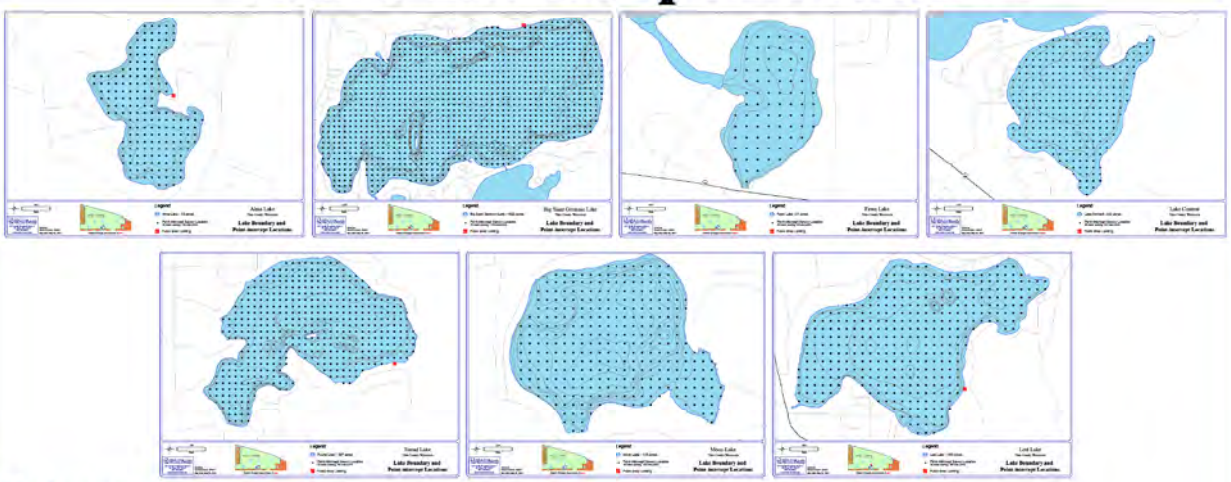
- Multiple document types
  - St. Germain Lakes Management Plan
  - Lake-Specific Results and Conclusions
  - Lake-Specific Implementation Plan (as applicable)
  - Appendices (raw data, etc.)
- Town-wide Compilation
  - All documents
- Individual Lake Document
  - Town-wide management plan
  - Lake-specific documents

Town of Saint Germain Lakes Management Planning Project

Project Lakes



Aquatic Plant Survey Point-Intercept Locations



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Lake Management Planning
www.onterra-eco.com

Town of Saint Germain Lakes Management Planning Project

In 2003, the Town of Saint Germain Board created the Saint Germain Town Lakes Committee as a standing advisory committee to the town government. The purpose of this committee is to coordinate a proactive community approach to the prevention and management of aquatic invasive species (AIS) in the town's lakes. The committee's goal is to enable the lake organizations representing the town's primary lakes to address the various lake management issues in a common and united manner. The committee has in the past, and will continue to address a broad scope of awareness, education and lake monitoring on a town-wide scale.

The Town Lakes Committee completed a town-wide aquatic plant management plan for the largest of the town's lakes in 2006 and has been working from that plan ever since. In August 2010, the committee partnered with multiple lake groups to successfully apply for over $67,000 in Wisconsin Lake Management Planning Grant funds to complete management plans for seven of the town's lakes (see adjacent poster). As described in more detail below, specific studies and assessments will be completed on each lake along with an intense stakeholder education and participation component. Further, the grants will fund many of the AIS educational program components that the Lakes Committee has been carrying out , improving upon, and updating since its creation.

Stakeholder Participation - Involving the people who care for and use lakes is a very important aspect of lake management planning. Creating an open dialog between the planners and the stakeholders leads to a more effective management plan that will meet the needs of lake users, while protecting the health of the lake.

In this project, the communication between planners and stakeholders will be facilitated by general meetings with the public at the beginning and end of the project; distribution of a stakeholder survey that to each property on the seven project lakes; and via meetings with the Saint Germain Lakes Committee. Through this project component, an effective management plan will be created on a town-wide basis and for each of the project lakes.

Water Quality Assessment - Water quality samples will be collected on the seven project lakes during the 2010 summer months. The information collected through the samplings will lead to a better understanding of each lake's water chemistry, nutrient content, susceptibility to zebra mussel infestation, and availability of dissolved oxygen from the lake's surface to its deepest depth. The data collected this summer will be combined with available historic data and used to assess possible long-term trends in each lake's water quality.

Watershed Assessment - Each lake has a natural drainage basin that provides a portion of the lake's annual water input. Using topographic maps, each lake's watershed will be delineated and modeling will be completed to determine its flushing rate (water residence time). In addition, information regarding the watershed's land use and cover will be utilized to understand the impact the watershed has the lake's nutrient budget.

Aquatic Plant Surveys - Aquatic plants are the foundation of a lake ecosystem by providing important habitat for many aquatic and terrestrial animals and by being a food-source for many of these creatures as well. During the summer of 2010 each of the seven project lakes will surveyed several times to document the presence or absence of invasive plants species and to characterize the existing native species present within the lake. The bulk of the plant information will be collected using the point-intercept survey methodology refined for Wisconsin lakes by the Wisconsin Department of Natural Resources. Based upon guidance supplied by the department, each lake will be surveyed by visiting numerous points throughout the lake (see adjacent poster). At each point within the lake's littoral zone (the area of a lake supporting plant growth), a rake is used to collect plants by scraping it along the bottom sediments. Each species found on the rake is recorded along with the point's depth and a characterization of the bottom sediment at that site. All data collected during the summer of 2010 will be compared with the data collected on the lake during the 2006 management planning effort.

Shoreline Assessment - Shoreline condition is an important aspect determining the overall health of a lake. As development occurs around a lake, not only is the shoreline's pollution buffering capacity reduced, but there is also a loss of important habitat that is used by terrestrial and aquatic wildlife.

As a part of this project, a shoreline assessment will be completed to inventory the condition of this important area on each lake. During each inventory, the lake's shoreline will be delineated into one of five categories ranging from natural/undeveloped to completely urbanized. With this information, the lake groups will be able to prioritize areas for potential shoreland restoration.

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Presentation Outline

- Current Lake Project Overview
- Planning Process
- Town-wide Study Results
  - Watershed
  - Water Quality
  - Aquatic Plants
- Town-wide Discussion
  - Question/Answer Session
  - Issue/Goal Discussion

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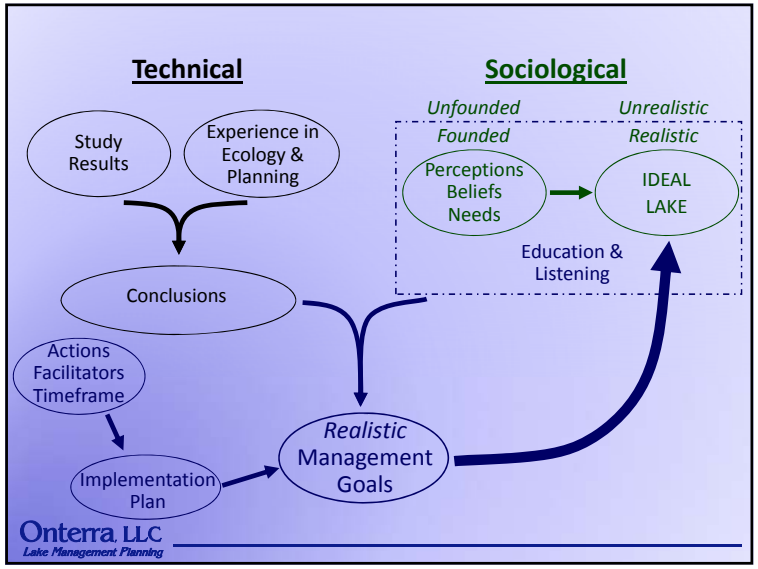

Town of Saint Germain Planning Process

- Town-wide project brings on unique situation
  - Cost savings are great
  - Providing attention to individual lakes is difficult
- Lake representatives
  - Communication link between stakeholders from individual lakes and Planning Committee
- Stakeholder survey information is important

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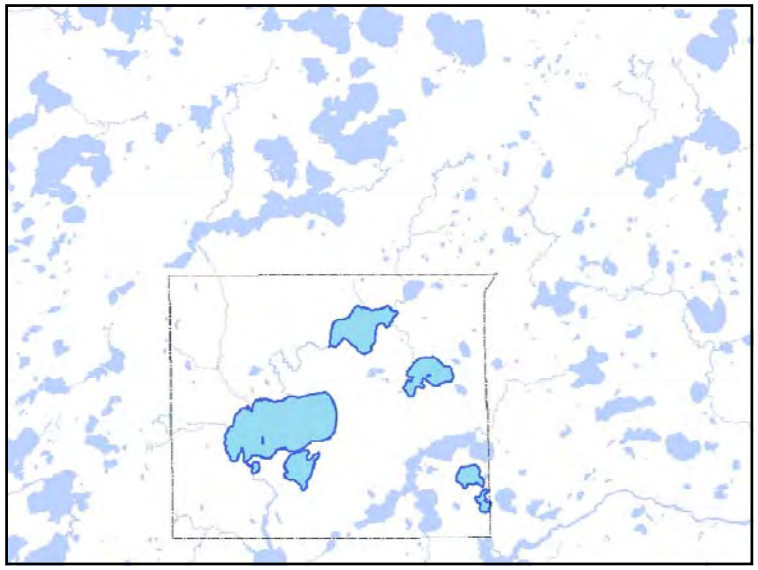
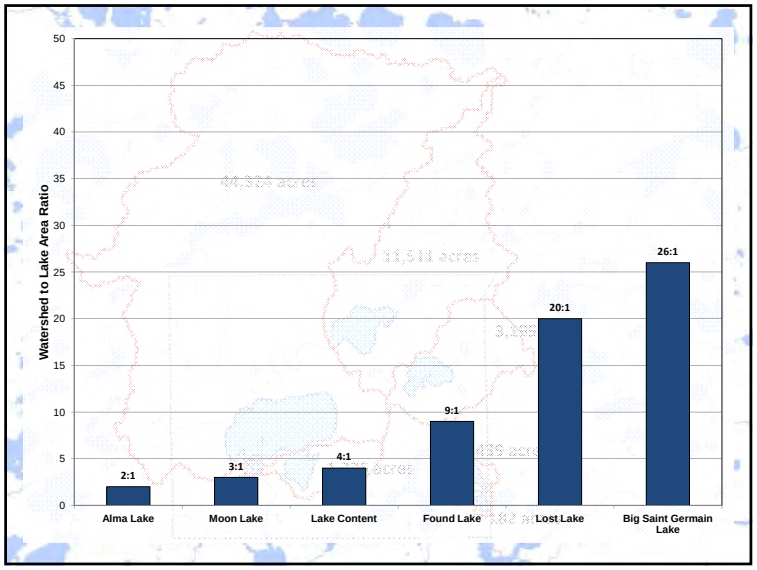
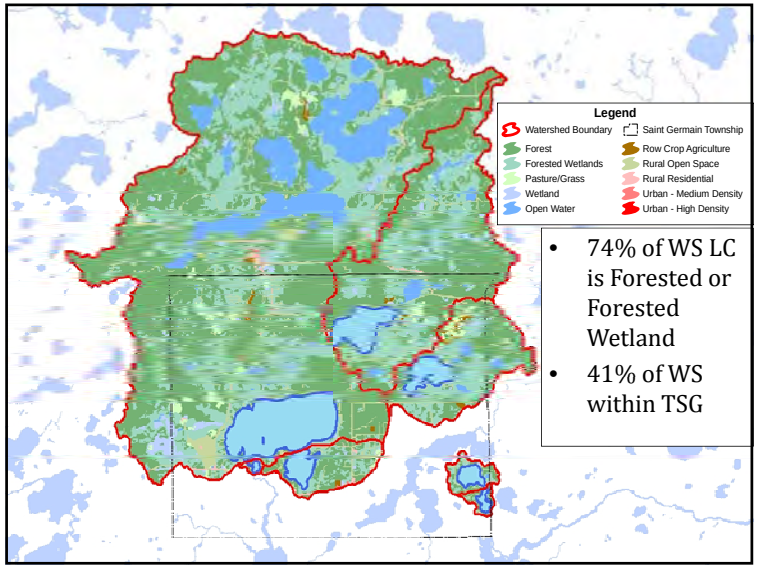
Lake Management Planning







- 74% of WS LC is Forested or Forested Wetland
- 41% of WS within TSG

Shoreland Assessment

- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- It does not look at lake shoreline on a property-by-property basis.
- Assessment ranks shoreland area from shoreline back 35 feet

Urbanized — **Natural**

Range

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Shoreline Assessment Category Descriptions

More Natural Habitat

Urbanized | Developed-Unnatural | Developed-Semi-Natural | Developed-Natural | Natural/Undeveloped

Greater Need for Restoration

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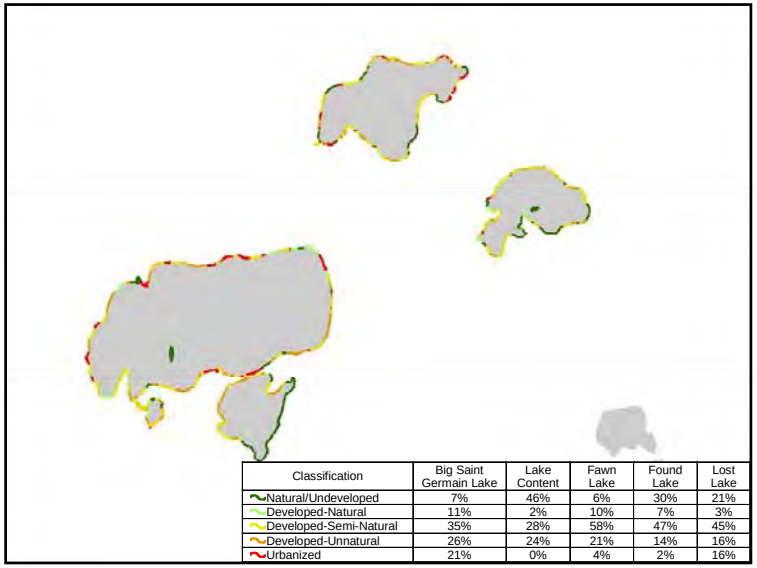
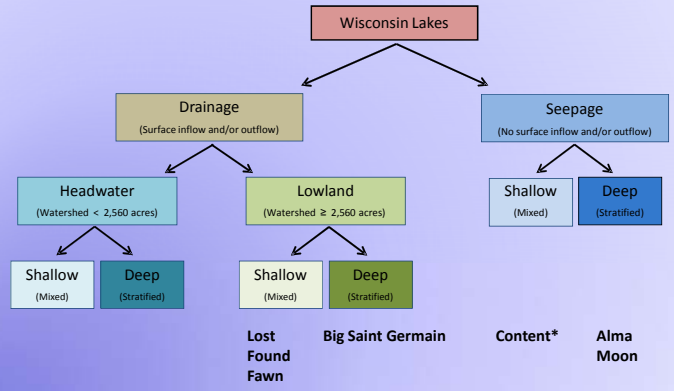


Classification	Big Saint Germain Lake	Lake Content	Fawn Lake	Found Lake	Lost Lake
Natural/Undeveloped	7%	46%	6%	30%	21%
Developed-Natural	11%	2%	10%	7%	3%
Developed-Semi-Natural	35%	28%	58%	47%	45%
Developed-Unnatural	26%	24%	21%	14%	16%
Urbanized	21%	0%	4%	2%	16%

Wisconsin Lakes Classification



Lost
Found
Fawn

Big Saint Germain

Content*

Alma
Moon

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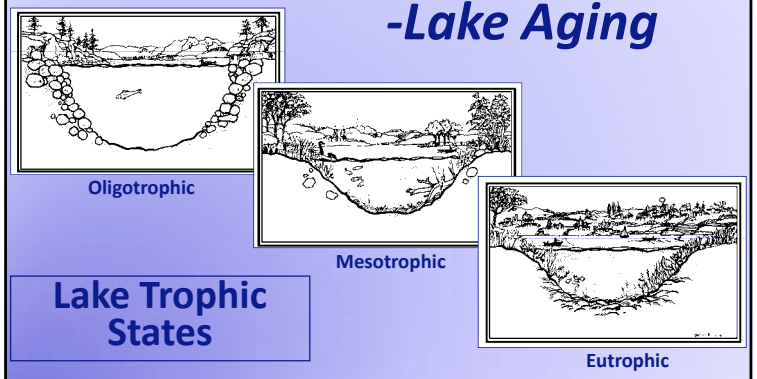
Eutrophication -Lake Aging



Oligotrophic

Mesotrophic

Eutrophic

Lake Trophic States

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Water Quality

- Phosphorus (Limiting Plant Nutrient)
- Chlorophyll-*a* (Algal Abundance)
- Water Clarity (Secchi Disk)

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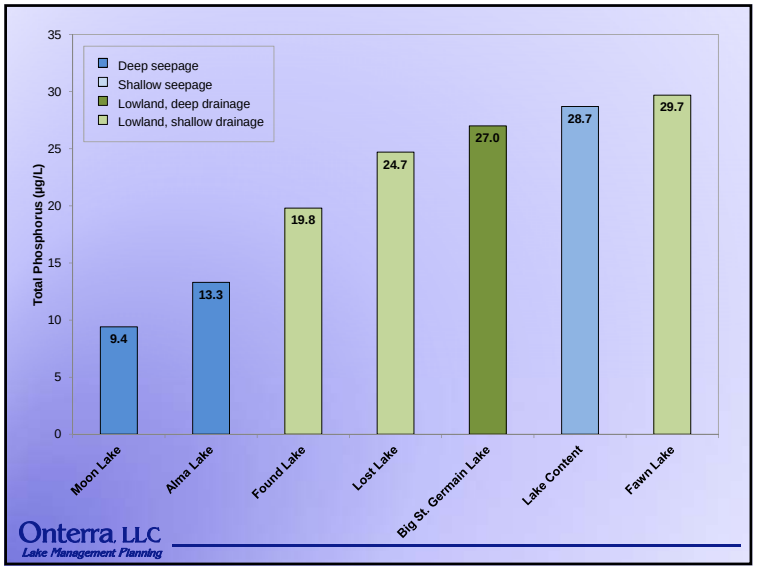

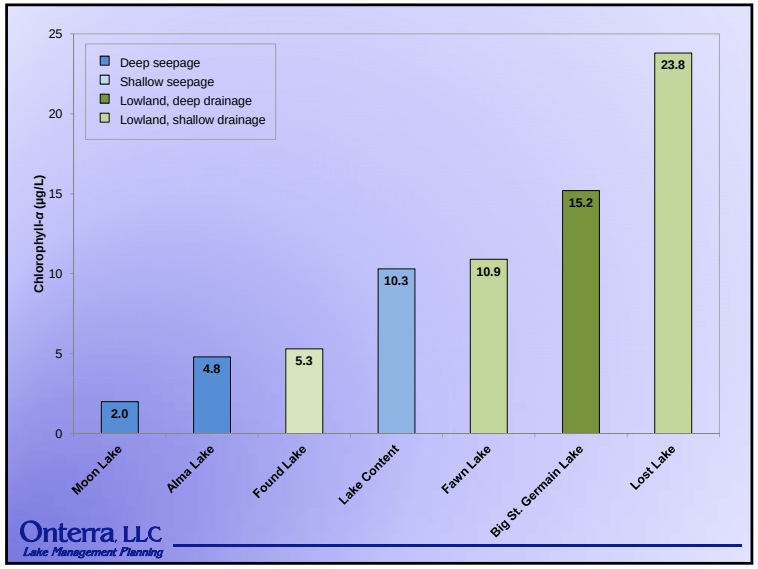

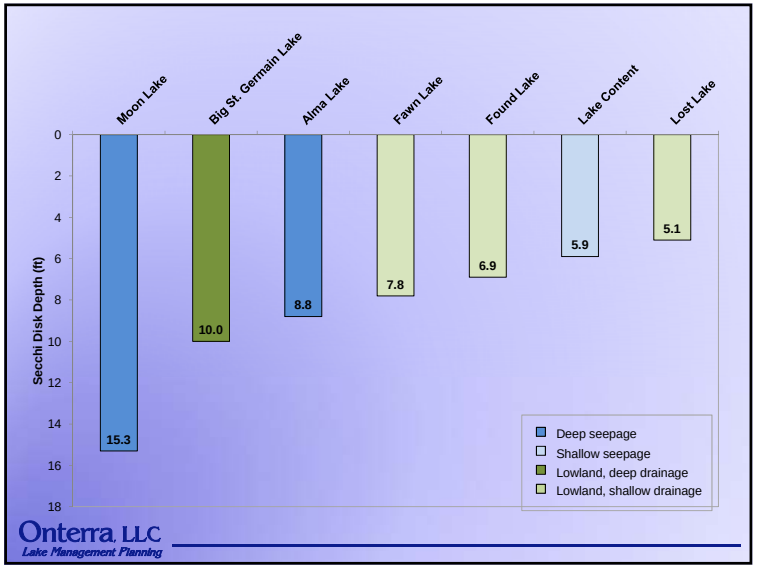

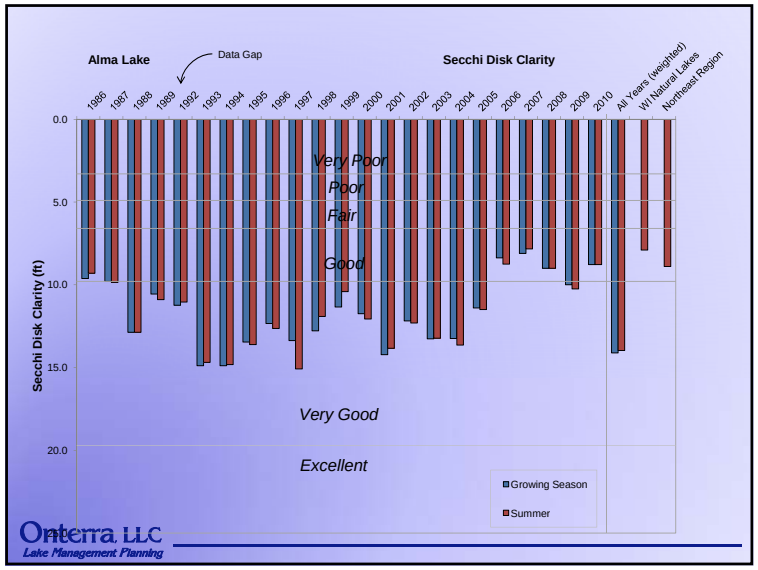
Alma Lake
Data Gap
Secchi Disk Clarity
1986
1987
1988
1989
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
All Years (weighted)
W/Natural Lakes
Northeast Region
Secchi Disk Clarity (ft)
0.0
5.0
10.0
15.0
20.0
Very Poor
Poor
Fair
Good
Very Good
Excellent
Growing Season
Summer
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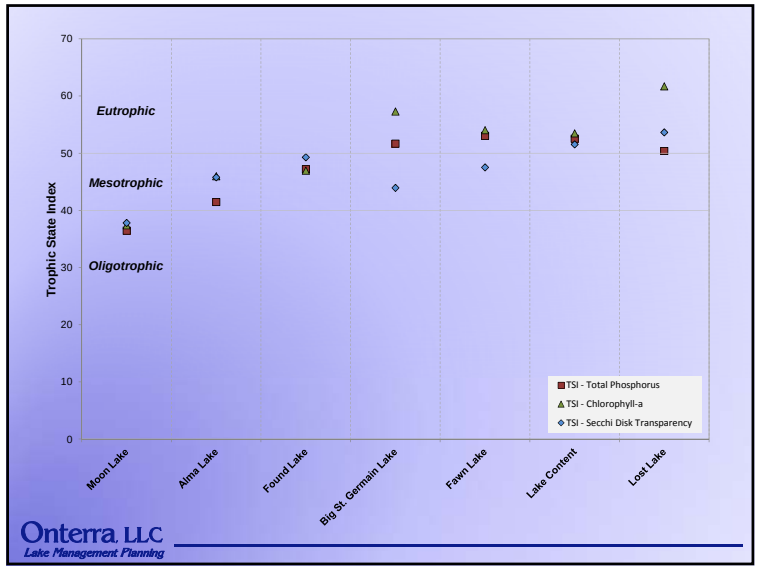
Trophic State Index
70
60
50
40
30
20
10
0
Eutrophic
Mesotrophic
Oligotrophic
TSI - Total Phosphorus
TSI - Chlorophyll-a
TSI - Secchi Disk Transparency
Moon Lake
Alma Lake
Found Lake
Big St. Germain Lake
Fawn Lake
Lake Content
Lost Lake
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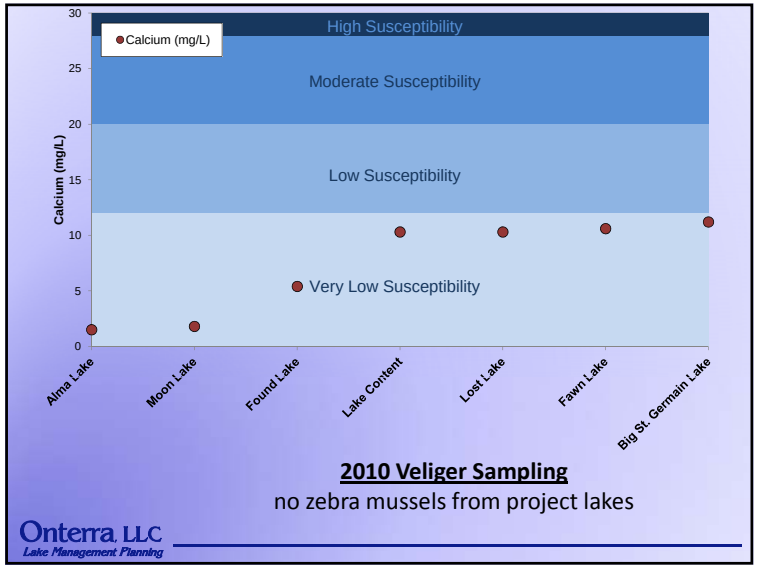
Calcium (mg/L)
30
25
20
15
10
5
0
High Susceptibility
Moderate Susceptibility
Low Susceptibility
Very Low Susceptibility
Alma Lake
Moon Lake
Found Lake
Lake Content
Lost Lake
Fawn Lake
Big St. Germain Lake
2010 Veliger Sampling
no zebra mussels from project lakes
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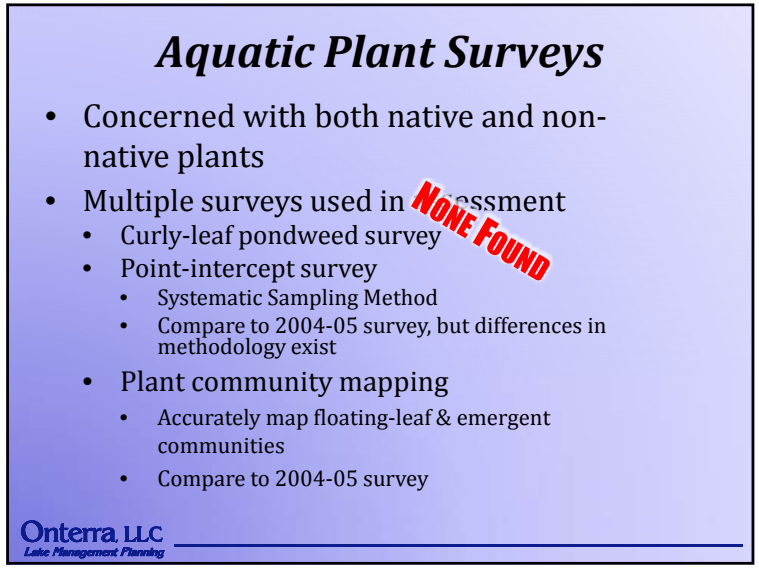
Aquatic Plant Surveys
Concerned with both native and non-native plants
Multiple surveys used in assessment
NONE FOUND
Curly-leaf pondweed survey
Point-intercept survey
Systematic Sampling Method
Compare to 2004-05 survey, but differences in methodology exist
Plant community mapping
Accurately map floating-leaf & emergent communities
Compare to 2004-05 survey
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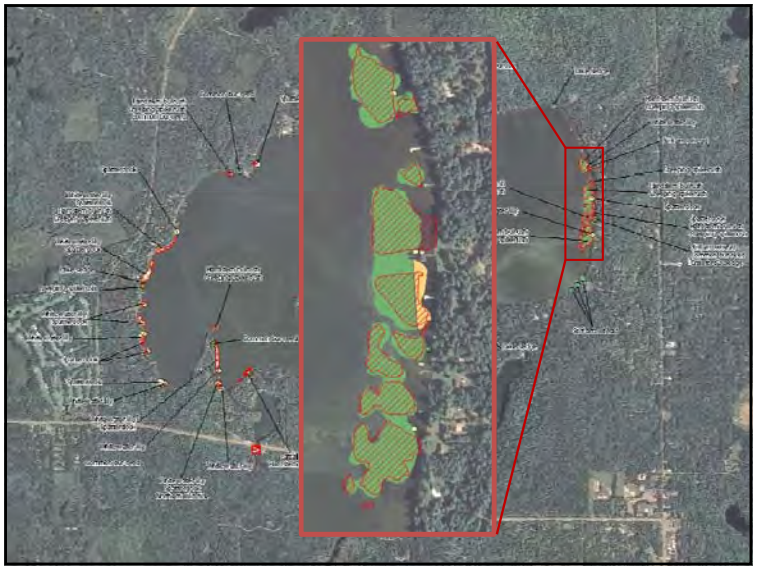
Lake Management Planning

Lake	Resolution (meters)	Total Points
Big St. Germain Lake	75	1163
Content Lake	56	304
Fawn Lake	30	83
Found Lake	53	484
Lost Lake	75	384
Alma Lake	35	184
Moon Lake	40	328
		2,930

Point-intercept Surveys



Plant Data Overview

- 85 Native Plants
  - 40 Submergent
  - 38 Emergent
  - 4 Floating-leaf
  - 3 Free-floating
- 1 Non-native Emergent
  - Purple loosestrife on Found Lake
- EWM not confirmed on Lost Lake

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Aquatic Plants

Wisconsin Ecoregions

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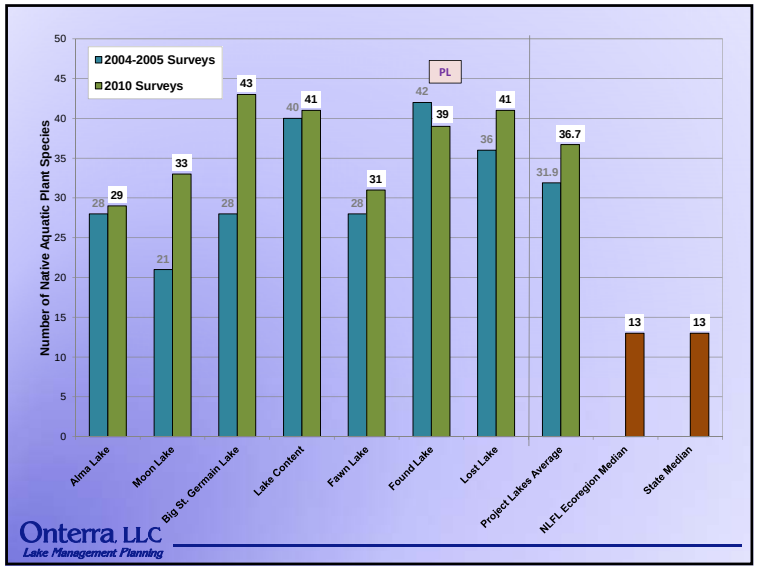
2004-2005 Surveys
2010 Surveys
PL
Number of Native Aquatic Plant Species
28
29
21
33
28
43
40
41
28
31
42
39
36
41
31.9
36.7
13
13
Alma Lake
Moon Lake
Big St. Germain Lake
Lake Content
Fawn Lake
Found Lake
Lost Lake
Project Lakes Average
NLFL Ecoregion Median
State Median
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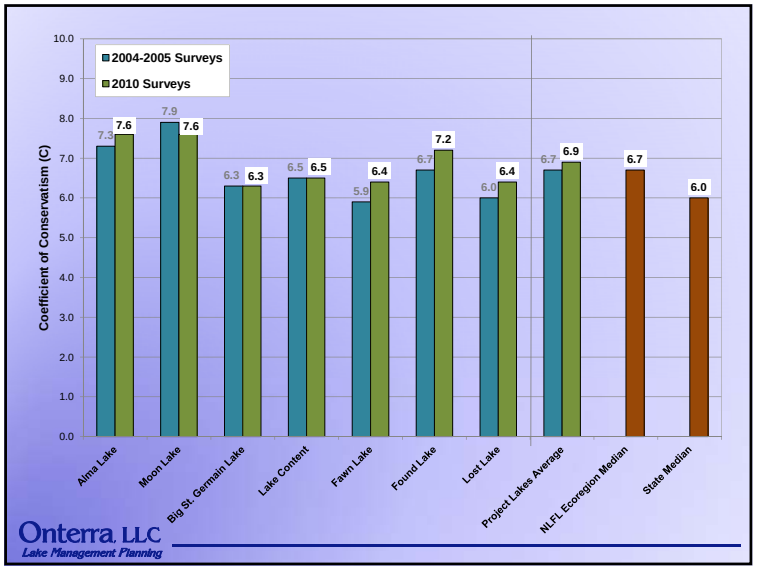
2004-2005 Surveys
2010 Surveys
Coefficient of Conservatism (C)
7.3
7.6
7.9
7.6
6.3
6.3
6.5
6.5
5.9
6.4
6.7
7.2
6.0
6.4
6.7
6.9
6.7
6.0
Alma Lake
Moon Lake
Big St. Germain Lake
Lake Content
Fawn Lake
Found Lake
Lost Lake
Project Lakes Average
NLFL Ecoregion Median
State Median
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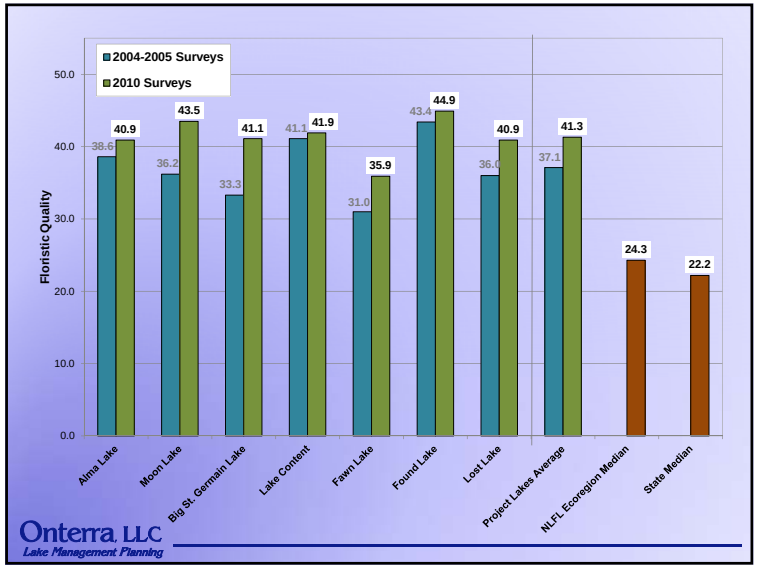
2004-2005 Surveys
2010 Surveys
Floristic Quality
38.6
40.9
36.2
43.5
33.3
41.1
41.1
41.9
31.0
35.9
43.4
44.9
36.0
40.9
37.1
41.3
24.3
22.2
Alma Lake
Moon Lake
Big St. Germain Lake
Lake Content
Fawn Lake
Found Lake
Lost Lake
Project Lakes Average
NLFL Ecoregion Median
State Median
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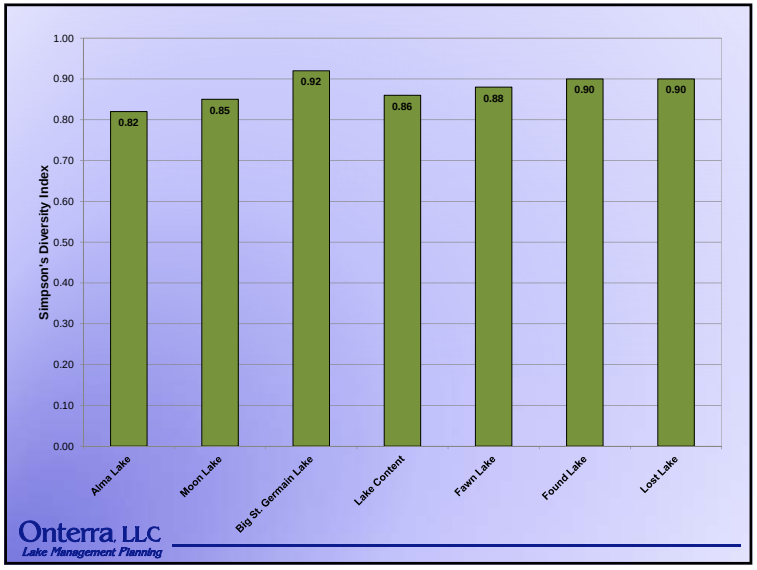
Lake Management Planning


Simpson's Diversity Index
0.82
0.85
0.92
0.86
0.88
0.90
0.90
Alma Lake
Moon Lake
Big St. Germain Lake
Lake Content
Fawn Lake
Found Lake
Lost Lake
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Conclusions

- Overall watersheds are in great condition.
  - Land cover is high quality and minimally exports phosphorus
  - Largest, controllable contributor is likely shoreland properties
- Water quality is excellent
  - Except for possibly Alma Lake, no negative long-term trends
- Aquatic plant community
  - Based upon standard analysis, native community is of high quality
  - Some lakes show symptoms of moderate disturbance
  - "Nuisance Conditions" may be present on Lost Lake

TSG Lakes are Very Healthy!

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Initial Goals

- Maintain Current Water Quality Conditions

Lake	CLMN Status
Alma	Chemistry
Big Saint Germain	Secchi
Lake Content	Ended in 2004
Fawn	Secchi
Found	Chemistry
Lost	Ended in 2008
Moon	Chemistry

- Prevent Introduction and Establishment of AIS
  - Found Lake Purple Loosestrife Control & Monitoring
  - Continue "Protection Mode" as initiated in 2005
    - Realistic expectations based upon volunteerism

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Slide Modified From 2005 TSG Meeting

Protection Mode

The Most Difficult Plan to Implement

Course of action can seem undefined
Status quo equals success
- Goal is already met
- Motivation can be difficult

Volunteer involvement is essential

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Slide Modified From 2005 TSG Meeting

Protection Mode

Three-prong Approach

Prevention
- CBCW (paid and volunteer)

Education
- Grocery bags, bait bucket labels, placemats, coasters, info booth, trailer signage, news releases

Early Detection
- Volunteer AIS surveillance monitoring
- Periodic professional evaluation

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Lake Management Planning

Presentation Outline

- Current Lake Project Overview
- Planning Process
- Town-wide Study Results
  - Watershed
  - Water Quality
  - Aquatic Plants
- Town-wide Discussion
  - Question/Answer Session
  - Issue/Goal Discussion

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Lake Management Planning

Town of Saint Germain Planning Process

- Town-wide project brings on unique situation
  - Cost savings are great
  - Providing attention to individual lakes is difficult
- Lake representatives
  - Communication link between stakeholders from individual lakes and Planning Committee
- Stakeholder survey information is important

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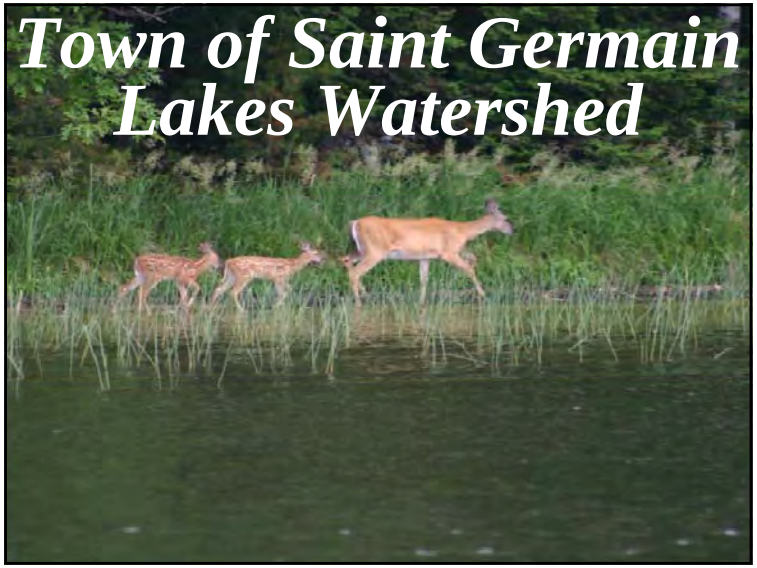
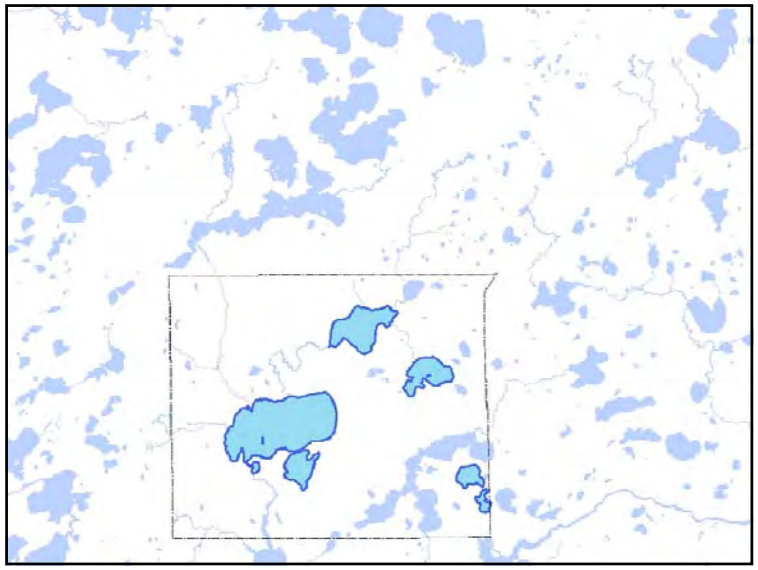
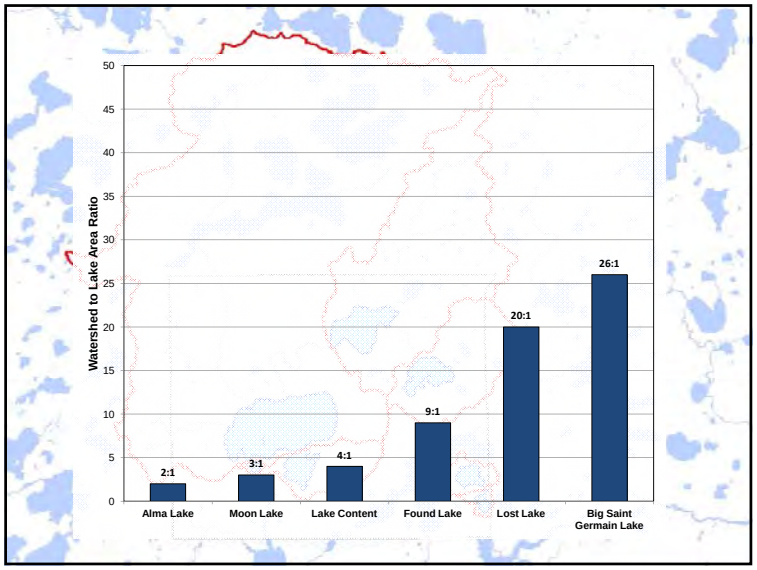
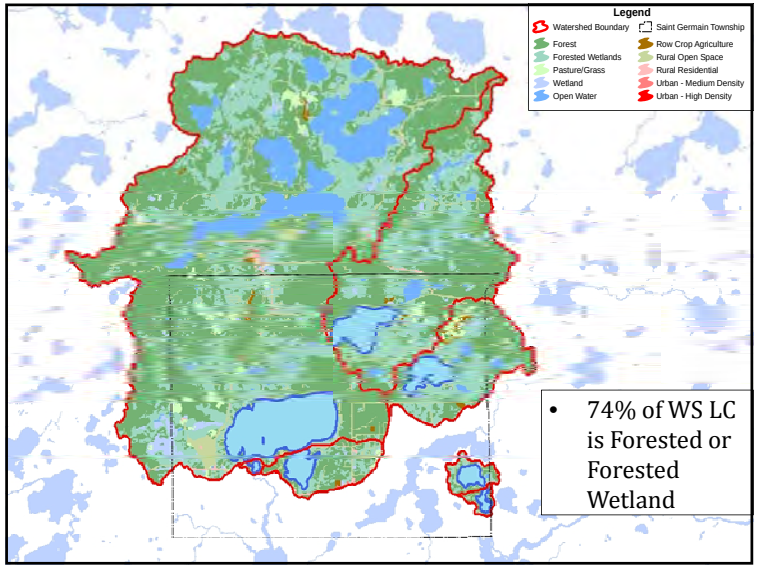
Lake Management Planning









Shoreland Assessment

- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- It does not look at lake shoreline on a property-by-property basis.
- Assessment ranks shoreland area from shoreline back 35 feet

Urbanized — Range — **Natural**

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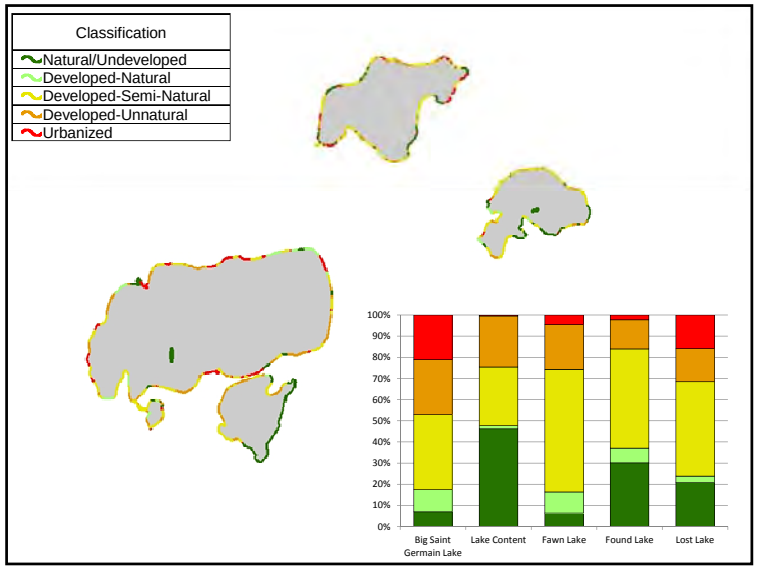
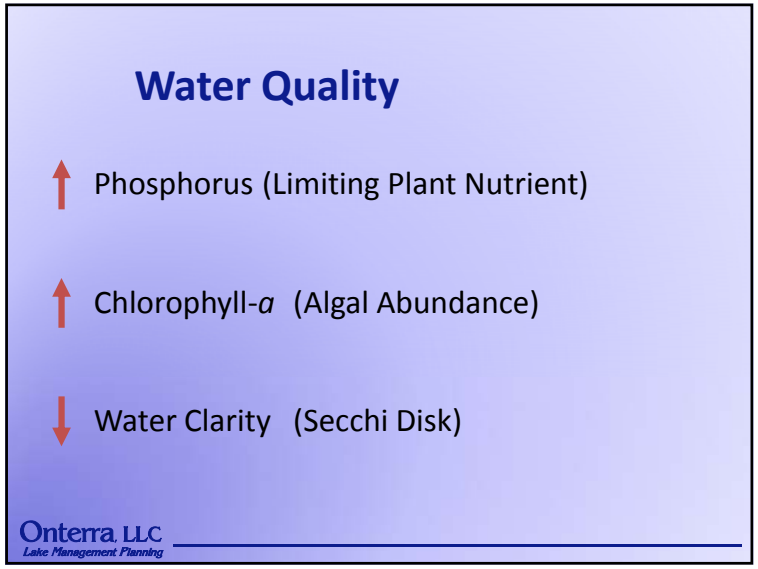
Lake Management Planning


Classification
Natural/Undeveloped
Developed-Natural
Developed-Semi-Natural
Developed-Unnatural
Urbanized
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Big Saint Germain Lake
Lake Content
Fawn Lake
Found Lake
Lost Lake


Water Quality
Onterra, LLC
Lake Management Planning


Water Quality
Phosphorus (Limiting Plant Nutrient)
Chlorophyll-a (Algal Abundance)
Water Clarity (Secchi Disk)
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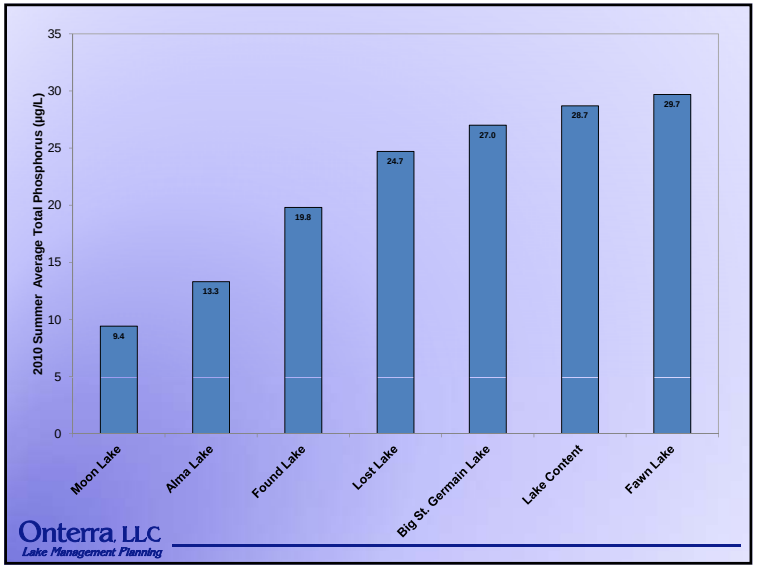
2010 Summer Average Total Phosphorus (µg/L)
35
30
25
20
15
10
5
0
9.4
13.3
19.8
24.7
27.0
28.7
29.7
Moon Lake
Alma Lake
Found Lake
Lost Lake
Big St. Germain Lake
Lake Content
Fawn Lake
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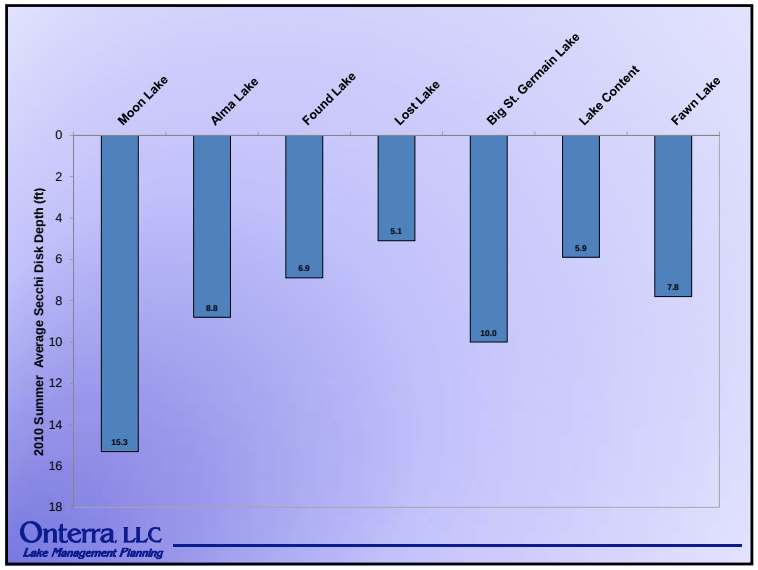

Aquatic Plant Surveys

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey NONE FOUND
  - Point-intercept survey
    - Systematic Sampling Method
  - Plant community mapping
    - Accurately map floating-leaf & emergent communities
    - Compare to 2004-05 survey

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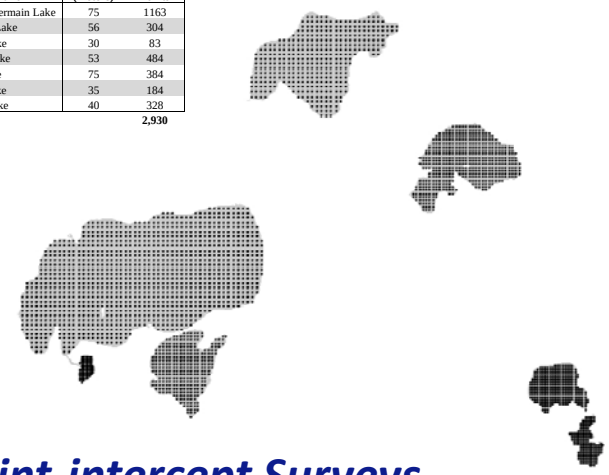
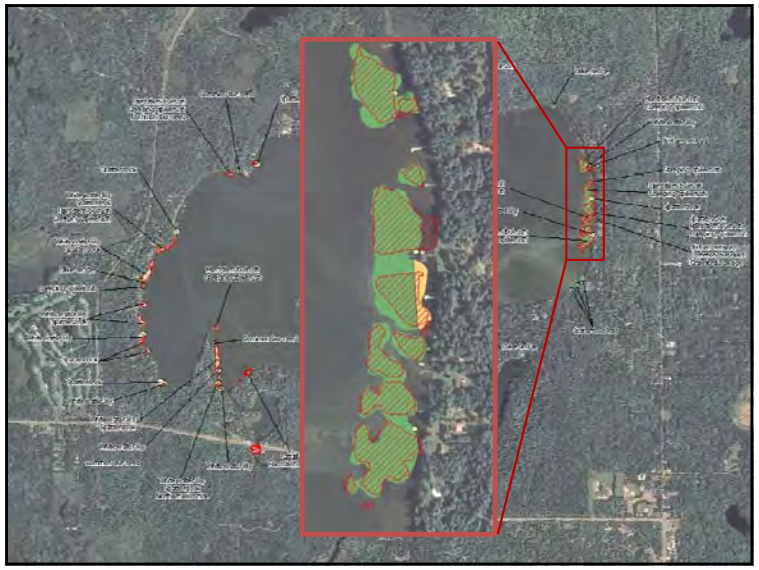
Lake	Resolution (meters)	Total Points
Big St. Germain Lake	75	1163
Content Lake	56	304
Fawn Lake	30	83
Found Lake	53	484
Lost Lake	75	384
Alma Lake	35	184
Moon Lake	40	328
		2,930



Point-intercept Surveys



Plant Data Overview

- 85 Native Plants
  - 40 Submergent
  - 38 Emergent
  - 4 Floating-leaf
  - 3 Free-floating
- Neither CLP or EWM located
  - Single occurrence of Purple Loosestrife observed
  - Promptly removed by lake residents

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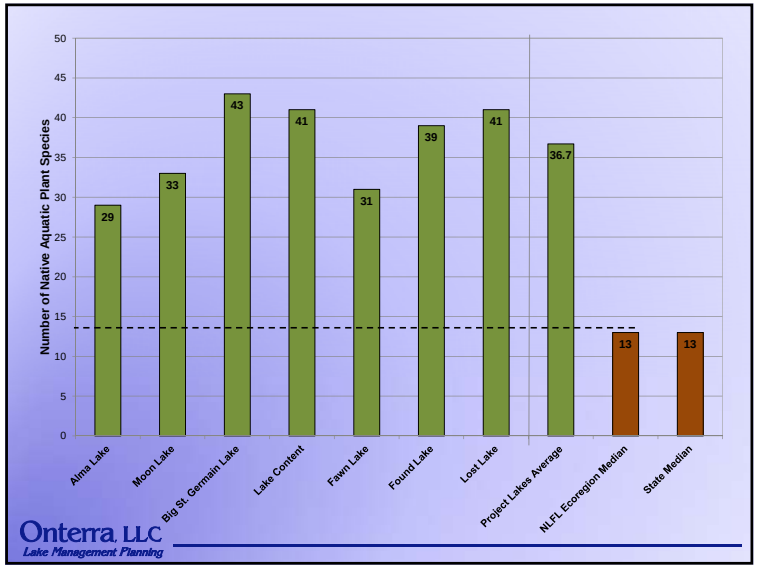

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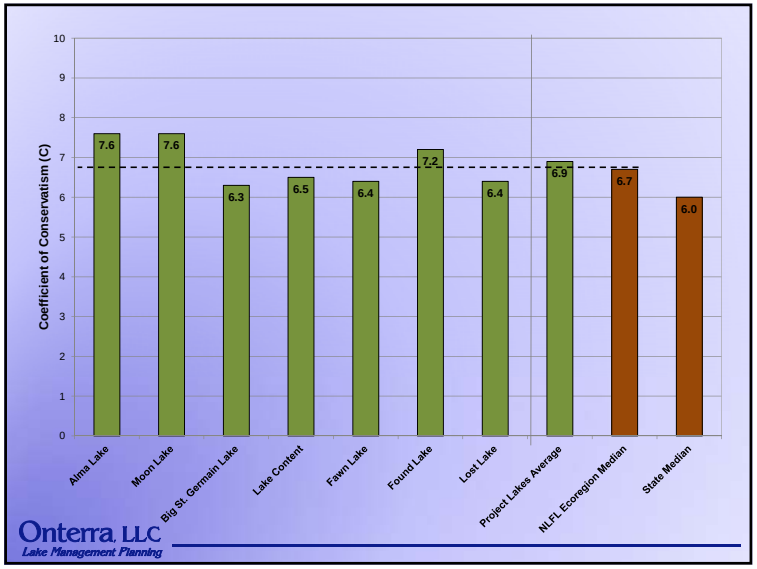

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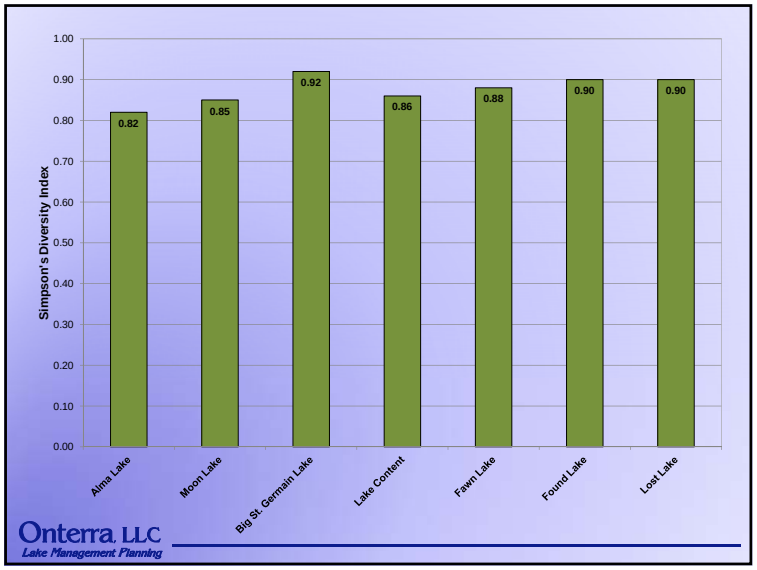

Conclusions

- Overall watersheds are in great condition.
  - Land cover is high quality and minimally exports phosphorus
  - Largest, controllable contributor is likely shoreland properties
- Water quality is excellent
  - As to be expected for each lake considering lake type and watershed size
- Aquatic plant community
  - Based upon standard analysis, native community is of high quality
  - Some lakes show symptoms of moderate disturbance

TSG Lakes are Very Healthy!

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Project Goals

- Maintain Current Water Quality Conditions

Lake	CLMN Status
Alma	Chemistry
Big Saint Germain	Secchi
Lake Content	Ended in 2004
Fawn	Secchi
Found	Chemistry
Lost	Ended in 2008
Moon	Chemistry

- Prevent Introduction and Establishment of AIS
  - Continue "Protection Mode" as initiated in 2005
    - Realistic expectations based upon volunteerism

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Slide Modified From 2005 TSG Meeting

Protection Mode

Three-prong Approach

Prevention
- CBCW (paid and volunteer)

Education
- Grocery bags, bait bucket labels, placemats, coasters, info booth, trailer signage, news releases

Early Detection
- Volunteer AIS surveillance monitoring
- Periodic professional evaluation

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