

# A

## APPENDIX A

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### Stakeholder Participation Materials



# *Yellow Birch Lake Comprehensive Management Plan Development Project*

In February of this year, the Yellow Birch Lake Conservation Union (YBLCU) Board of Directors successfully applied for two grants through the Wisconsin Department of Natural Resources (WDNR) to provide 75% of the funding needed to complete a *Comprehensive Lake Management Plan* for Yellow Birch Lake. The total project costs will be approximately \$24,300, including over \$1,300 in analysis fees from the State Laboratory of Hygiene and \$1,280 in volunteer labor. The YBLCU's cash contribution will be approximately \$5,780. The project was initiated by the Board of Directors after the WDNR advised the YBLCU that they would need to have an accepted management plan in place to continue treatments of Eurasian water-milfoil in Yellow Birch Lake.

Onterra, LLC, a lake management planning firm out of De Pere, has been hired to assist the YBLCU with the completion of the project and its associated studies. Tim Hoyman, a Certified Lake Manager and aquatic ecologist with Onterra, will work closely with the soon-to-be-formed Planning Committee to create a realistic and useable plan that will guide the YBLCU's management decisions in the future. Tim's work with the Planning Committee will combine the technical information derived through the studies with the sociological aspects of our lake and its users to produce a management plan expressly for Yellow Birch Lake and the YBLCU.

The project will include studies of the lake's watershed, water quality, and its plant community along with many public participation opportunities. Public participation components will include an introductory project kick-off meeting, a lake-wide comment solicitation, meetings with the Planning Committee, and a wrap-up meeting that will describe the study results and proposed management plan along with educational topics relating to them.

## **Ways You Can Be Involved:**

- Attend and participate in the project kick-off meeting that will be held August 13th at the Senior Center.
- If you are not a member already, please join the Yellow Birch Lake Conservation Union.
- If you are a member, please renew your annual membership.
- Complete and return the survey that will be mailed to you this fall.
- Keep an open and honest mind.



**Yellow Birch Lake Conservation Union – June 2005**

*For more information, please contact: Tim Hoyman, Onterra, LLC 135 South Broadway Suite C De Pere, WI 54115 [thoyman@onterra-eco.com](mailto:thoyman@onterra-eco.com)*



# Lake study begins on Yellow Birch

Yellow Birch Conservation Union (YBCU) members heard a preliminary report about the state of the lake from certified lake manager Tim Hoyman at the group's recent annual meeting.

The lake group hired Hoyman this year to perform an ecological survey of the lake. He is employed by Onterra LLC of Green Bay, a lake management planning firm.

Hoyman said that a three-year project is under way, with

sampling of the water quality and an initial inspection of some of the weed growth in the lake. The lake water will be sampled a total of six times for temperature, oxygen levels and chemicals in different strata of the lake. Checks will be made at the spring turnover and through the ice in the winter.

There also will be a comprehensive survey of aquatic vegetation, which will be completed next week, along with a community mapping of the floating and

emerging plants. Hoyman reported that he found no curlyleaf pondweed, a non-native invasive species, in Yellow Birch Lake when he did a specific study for the plant in June.

Hoyman also will do a study of the watershed into Yellow Birch Lake and will report on the effect other Chain lakes are having on Yellow Birch.

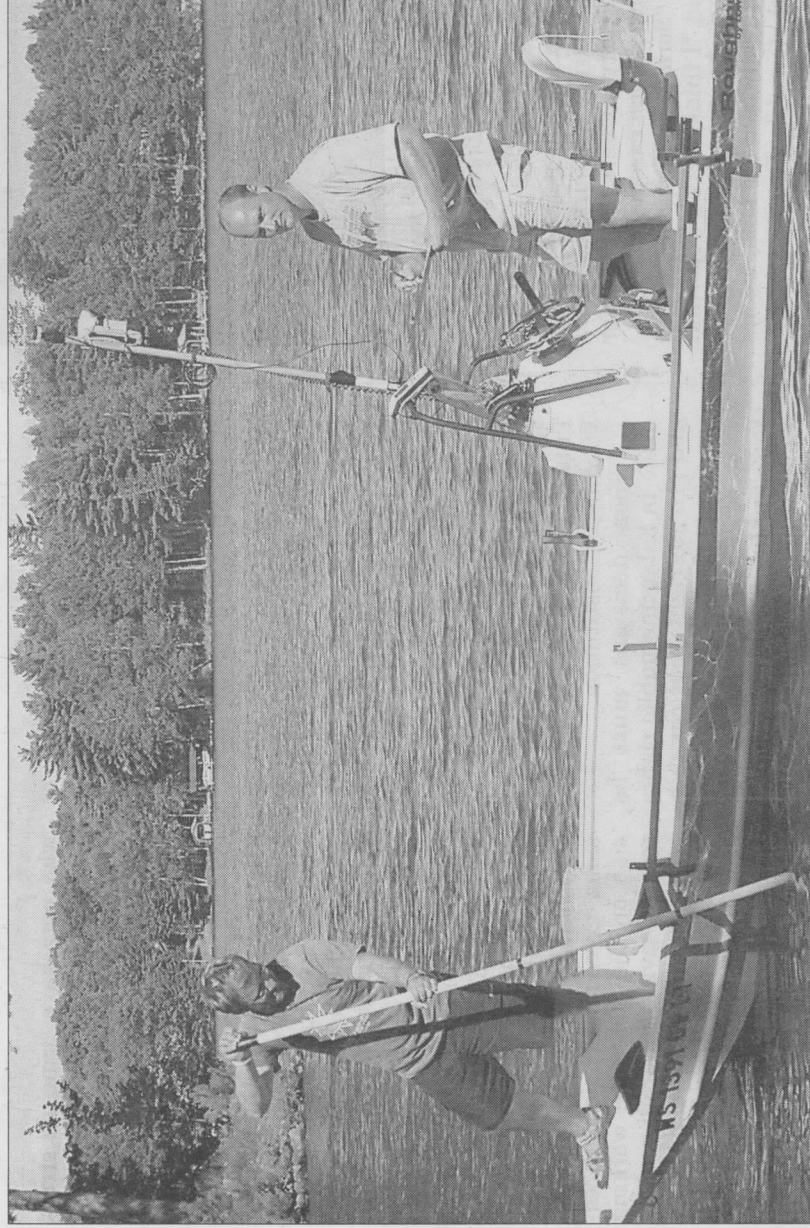
After the data has been gathered, he said he would also report on the presence of phospho-

rus, which is a factor on how fast the lake is aging.

A comprehensive management plan will be presented by Hoyman, who will work with a YBCU committee to develop the long-term approach to correcting lake problems. Serving on the committee are John Mulleady, Bob Kuelthau, Jim Logan and Jon Socolofsky. Tim James will do water testing on Yellow Birch Lake.

The organization set dues for the coming year at \$100 per property owner.

The membership also elected officers for the year. They include Bill Lochte, chairman; Buzz Regez, secretary-treasurer; Molly Jaeger, communications; and Jon Socolofsky, membership.



Tim Hoyman, right, and helper Eddie Heath of Onterra LLC of Green Bay, were on Yellow Birch Lake last week completing a point intercept survey of plants in the lake. Hoyman, a certified lake manager, said that the firm also will be mapping the plant

communities in the lake. The survey has been commissioned by the Yellow Birch Conservation Union in an effort to establish a basis for a comprehensive lake management plan.

--Contributed Photo




**Yellow Birch Lake  
Conservation Union**

**Project Kick-off**  
*August 13, 2005*

Timothy A. Hoyman, CLM  
**Onterra LLC**  
*Lake Management Planning*


**Presentation Outline**

- Introduction to Lake Ecology
- Current Lake Project
  - Goals
  - Components



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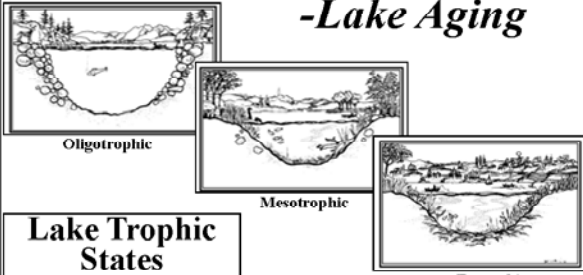
**General Lake  
Ecology**



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General Lake Ecology

**Eutrophication**  
*-Lake Aging*



Oligotrophic      Mesotrophic      Eutrophic

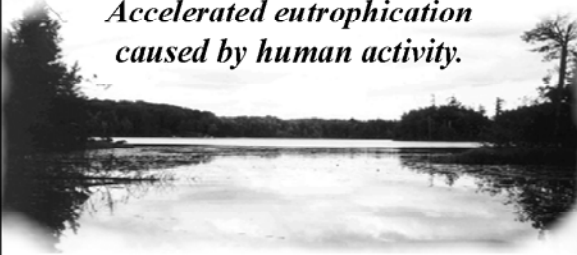
**Lake Trophic States**

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General Lake Ecology

**Cultural Eutrophication**

*Accelerated eutrophication  
caused by human activity.*

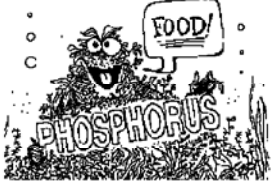


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General Lake Ecology

**Phosphorus**

- *Limiting Nutrient*
- *Controls Plant Abundance (Productivity)*
  - *Algae*
  - *Macrophytes*



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General Lake Ecology

### Aquatic Plants (macrophytes)

- Native Plants
- Exotic Plants (non-native)



### Native Aquatic Plants

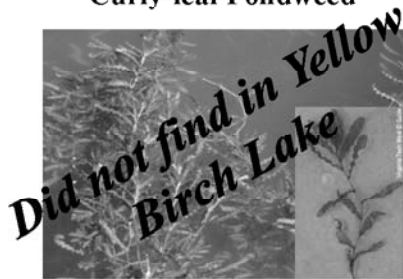


- Base of the Food Web
- Cover (not only fish)
- Nursery
- Sediment Stabilization

General Lake Ecology

### Non-native Aquatic Plants

Curly-leaf Pondweed



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General Lake Ecology

### Non-native Aquatic Plants

Eurasian Water-Milfoil



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General Lake Ecology

### Consequences of Exotics

- Competition with Natives
  - Monotypic Community
  - Decreased Recreational Value
  - Decreased Property Value



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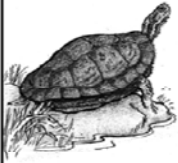
## Comprehensive Lake Management Plan



Current Project

## Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan



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Current Project

## Study Components

- Public Participation
- Watershed Modeling
- Water Quality
- Aquatic Vegetation
  - Curly-leaf Survey
  - Comprehensive Survey
- Plan Development



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Current Project

## Your Participation is Important to the Success of this Project



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Current Project

- Concerns
- Observations
- Questions



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# Thank You

*Many of the graphics used in this presentation were supplied by:*



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Lake Management Planning

## Contact Information

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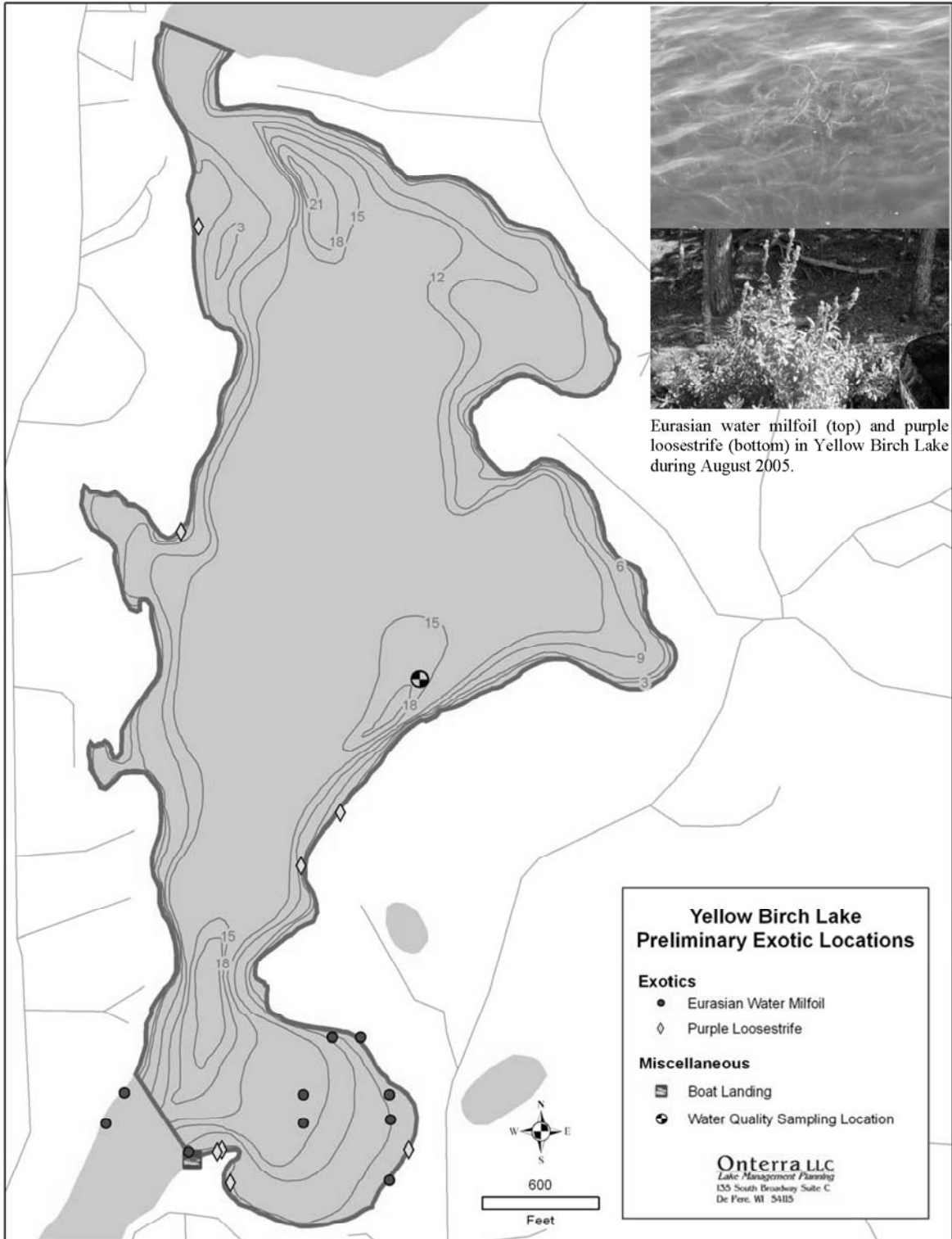
The Yellow Birch Lake Comprehensive Lake Management Planning Project is moving along smoothly and on schedule. With the exception of the winter lake sample, all of the fieldwork has been completed and the data analysis and mapping is well on its way. The next big step in the completion of the management plan will be the creation of a document reporting the findings of the studies that were completed. This report will be furnished to the Planning Committee which has been created by the Yellow Birch Lake Conservation Union (YBLCU) to assist with the planning effort. The report, which will be completed in early April, will be the primary topic during the Planning Committee meeting to be held in April. During the meeting, the Planning Committee will create a set of *working goals* for the management plan. *Management actions* will then be created to meet those goals. The goals and the management actions will comprise the *implementation plan* for the comprehensive management plan for Yellow Birch Lake.

Two plant studies were completed on the lake last summer. The first was conducted on June 16<sup>th</sup> and was completed specifically to locate curly-leaf pondweed. Curly-leaf pondweed is a non-native exotic plant that reaches its peak biomass much early than other aquatic plants; therefore the survey is completed in early summer to increase the chances of finding it. Fortunately, no curly-leaf pondweed was located in Yellow Birch Lake during the survey. The life cycle and the potential impacts the plant can have on lakes will be discussed more in the final report.

A second, more in-depth plant study was completed on the lake during August 23<sup>rd</sup> and 24<sup>th</sup>. The comprehensive aquatic plant study inventories all plants, native and non-native found within the lake, and in some cases, on the immediate shoreline. The study is completed in two phases. The first consists of a point-intercept survey where plants are collected for identification using a rake at pre-determined locations throughout the lake. The points are laid out in a grid pattern at a specific distance. The points on Yellow Birch Lake were spaced at 45 meters, which resulted in 309 points within the lake boundaries. Of those, 229 points were considered to be within littoral zone (area of the lake where plants grow). It was surprising that only 57 points were found to actually contain aquatic plants. The information collected during the point-intercept survey makes up the bulk of the data used during the analysis.

The second phase of the comprehensive aquatic plant study includes the mapping of aquatic plant communities around the lake. The communities are separated primarily by life form: emergents, submergent, and floating-leaf. This information supplements the data collected during the point-intercept survey, but also provides an excellent “snapshot” of the aquatic plant community as it existed during the summer of 2005.

Two exotic plant species were located during the August study; Eurasian water milfoil and purple loosestrife (please see map on reverse). Neither was found to be at nuisance levels, so keeping them under control will likely not be a problem. Management options for both plants will be addressed within the plan. Carolyn Scholl, Lakes Specialist for Vilas County has already been contacted concerning the purple loosestrife. The management of the Eurasian water milfoil will likely be integrated within the management plan for the Eagle Chain that is being sponsored by the Town of Washington and the Wisconsin Dept. of Natural Resources.

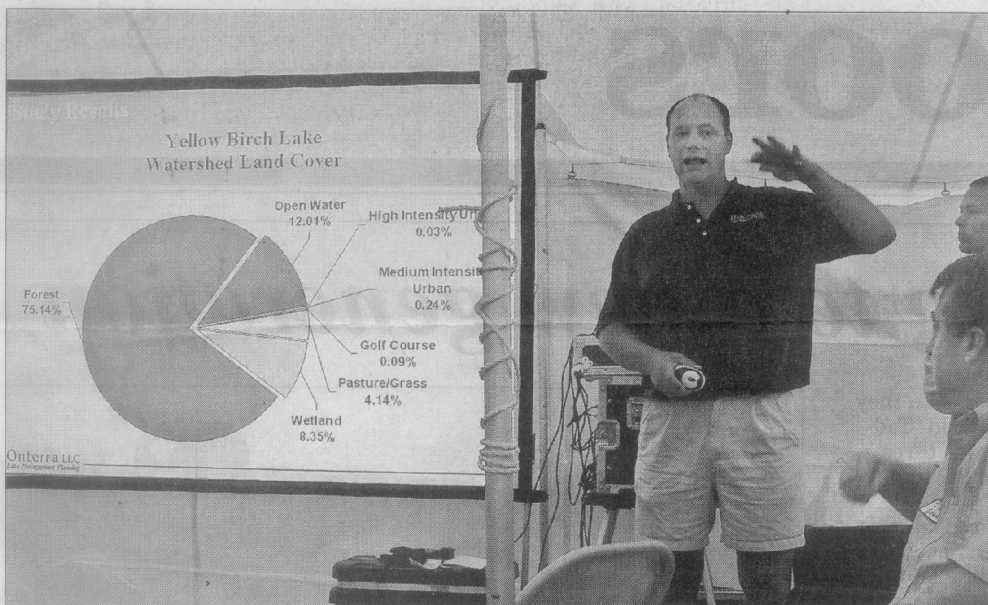


Eurasian water milfoil (top) and purple loosestrife (bottom) in Yellow Birch Lake during August 2005.

**Yellow Birch Lake  
Preliminary Exotic Locations**

- Exotics**
- Eurasian Water Milfoil
  - ◇ Purple Loosestrife
- Miscellaneous**
- ▣ Boat Landing
  - ⊗ Water Quality Sampling Location

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Tim Hoyman, a certified lake manager, discussed the condition of Yellow Birch Lake with the Yellow Birch Conservation Union at the group's annual meeting. --Contributed Photo

# Yellow Birch Lake group is ahead of curve on milfoil

More than 50 residents of Yellow Birch Lake on the Eagle River Chain of Lakes gathered last week for their association's third annual meeting and a discussion on the lake's condition.

The meeting was held at the lakefront of Jim and Beth Logan on McKinley Blvd. and included a first-time brat fry for the group.

The highlight of the meeting was a report presented by Tim Hoyman of Onterra, a certified lake manager. The Yellow Birch Conservation Union hired Hoyman last year to assess the lake's condition and to formulate plans for the future. He reported on the extensive analysis of the lake, including its aquatic plant community, water quality and large watershed.

Hoyman said that he felt that the Yellow Birch Conservation Union is ahead of the curve on keeping the milfoil problem to a minimum, but stressed that the association is going to have to continually monitor the lake and treat when necessary.

The survey showed that 27 different species of aquatic plants were found in Yellow Birch Lake, and all but two are native species. Hoyman pointed out that a good diversity of aquatic plant life leads to a more stable lake.

"The species diversity in Yellow Birch is very good. It also helps maintain a better fishery," he said.

The two exotic plant species he found are Eurasian water milfoil and purple loosestrife, which need to be controlled, as the lake association has been doing, he stated.

Hoyman pointed out that the lake has 241 square miles of watershed, 75% of which is in forested land, which helps act as a buffer and delivers the least amount of phosphorus on a per-acre basis. Sixty-five square miles of the watershed, including a portion in Upper Michigan, flow through the Deerskin River, with the remainder in the Eagle River watershed. He also commented that 83 times a year the lake water changes, a fast flushing action through the chain.

He concluded that the group will also need to act locally, educating lake residents about the lake's condition and encouraging shoreland restoration.

Hoyman pointed out that while much of the lakefront of Yellow Birch is in a native state, residents with developed lawns need to be encouraged to plant a buffer strip of native plants and shrubs at the lakefront. He said this

will help to decrease the runoff of phosphorus and sediments, which develop algal growth. He also encouraged lake residents to work with Vilas County to control the purple loosestrife.

Following Hoyman's presentation, Bill Lochte, president of the association, led a business meeting and reported on the organization's activities the past year. He said that because the group was forming a lake management plan, Yellow Birch was one of very few lakes allowed to treat Eurasian water milfoil in May of this year. The amount treated was down to 2.2 acres, in seven different locations.

The group also elected officers and set dues at \$100 per property owner for the 2006-'07 year. Officers for the coming year will be Bill Lochte, president; Buzz Regez, secretary; Jon Socolofsky, treasurer; Molly Jaeger, communications and Jim Logan, director at-large. Serving on the lake management plan committee are Bob Kuelthau, Tim James, Jim Logan, Jon Socolofsky and Bill Lochte.

"The meeting was a great success," said Lochte. "People came to learn about the lake, get to know each other and have fun."



*Yellow Birch Lake Comprehensive Management Plan*




**Study Results & Conclusions**  
July 8, 2006

**Timothy A. Hoyman, CLM**  
Onterra LLC  
*Lake Management Planning*

*Presentation Outline*

- Project Refresher
- General Lake Ecology
- Study Results
- Conclusions




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Project Overview

**Study and Plan Goals**

- Collect & Analyze Data
- Construct Long-term & Useable Management Plan




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Project Overview


**Study Components**

- Public Participation
- Watershed Modeling
- Water Quality
- Aquatic Vegetation
  - Curly-leaf Pondweed Survey
  - Comprehensive Survey
- Plan Development



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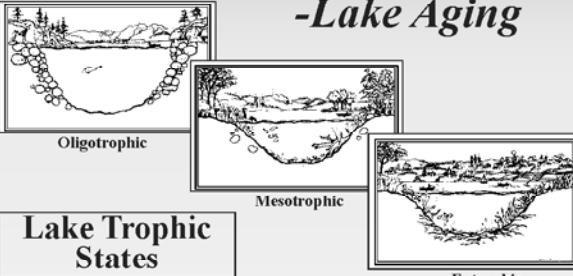
*General Lake Ecology*



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General Lake Ecology

**Eutrophication -Lake Aging**



Oligotrophic      Mesotrophic      Eutrophic

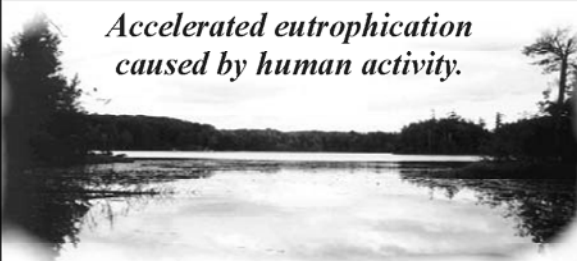
**Lake Trophic States**

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General Lake Ecology

## Cultural Eutrophication

*Accelerated eutrophication  
caused by human activity.*

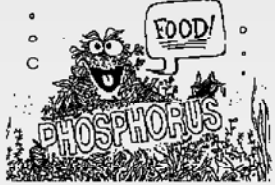


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General Lake Ecology

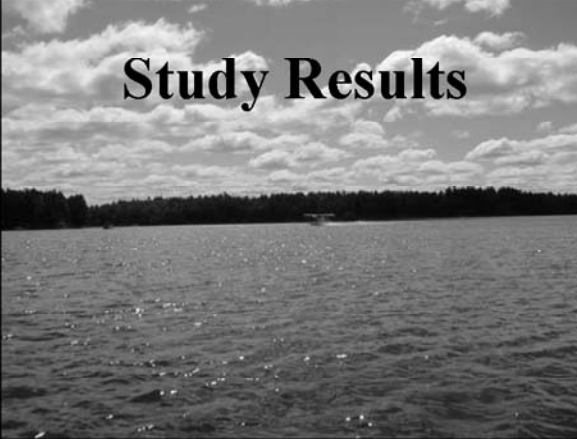
## Phosphorus

- Limiting Nutrient
- Controls Plant Abundance (Productivity)
  - Algae
  - Macrophytes




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## Study Results




Study Results



Study Results

## Water Quality


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



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Study Results

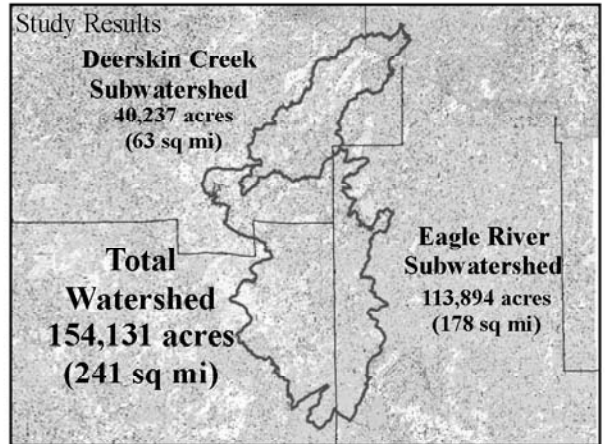
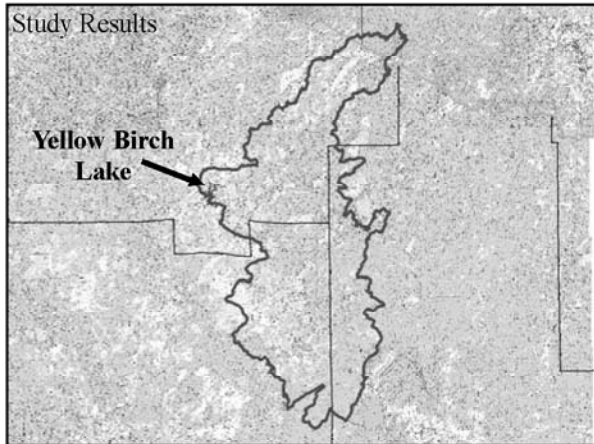
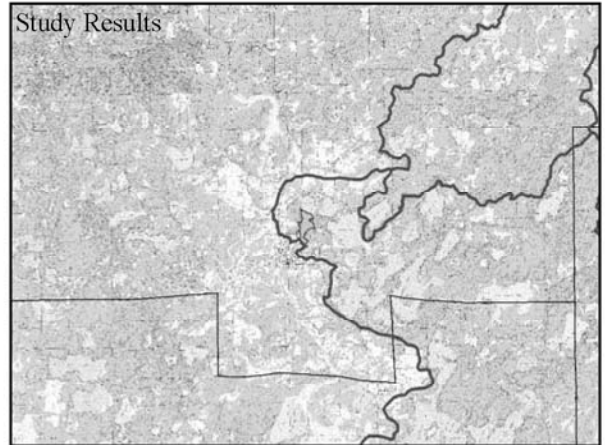
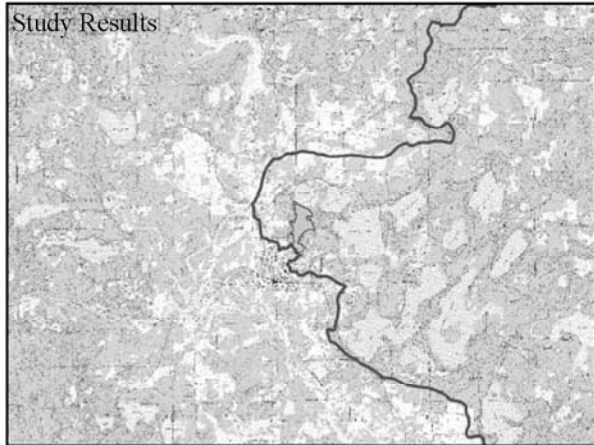
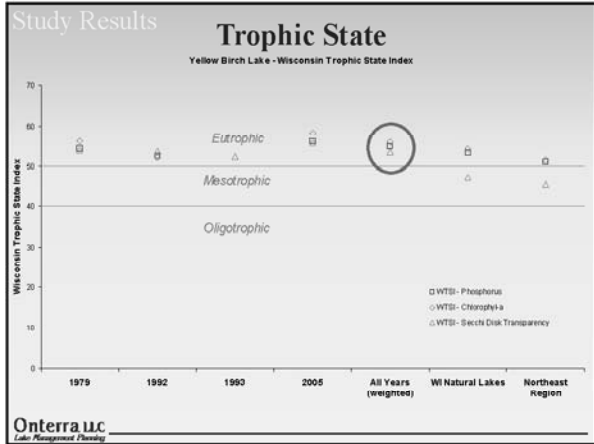
## Water Quality Regions



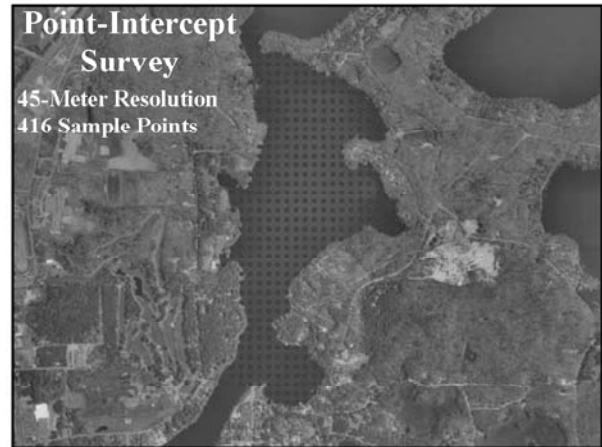
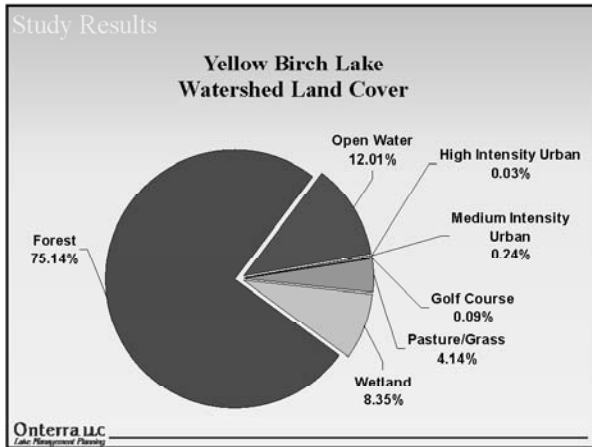
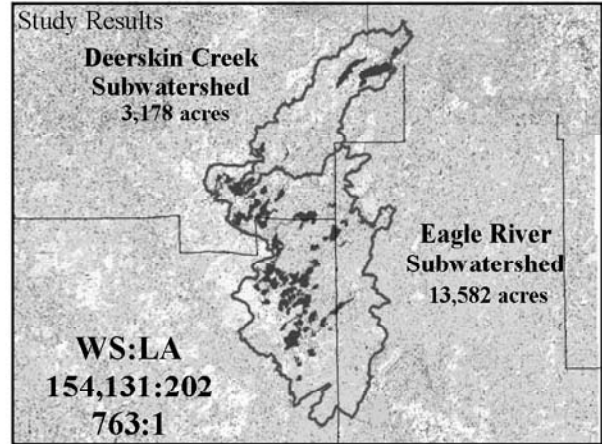
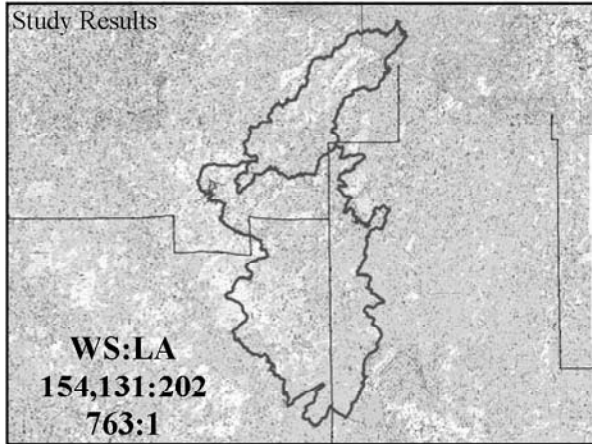
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•Yellow Birch Lake Study Results & Conclusions  
Presentation



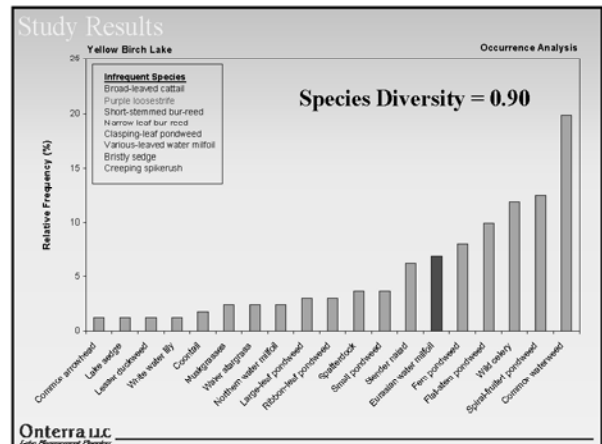
•Yellow Birch Lake Study Results & Conclusions  
Presentation



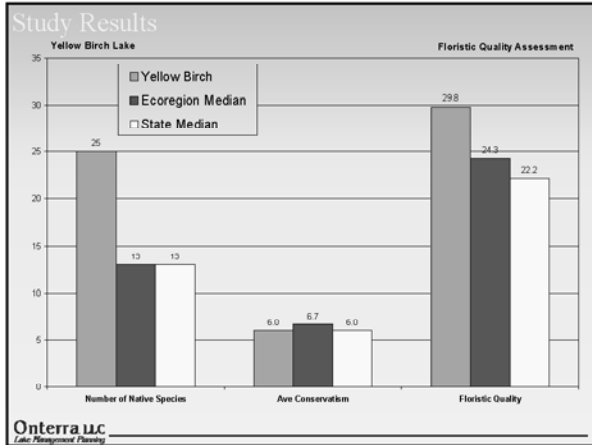
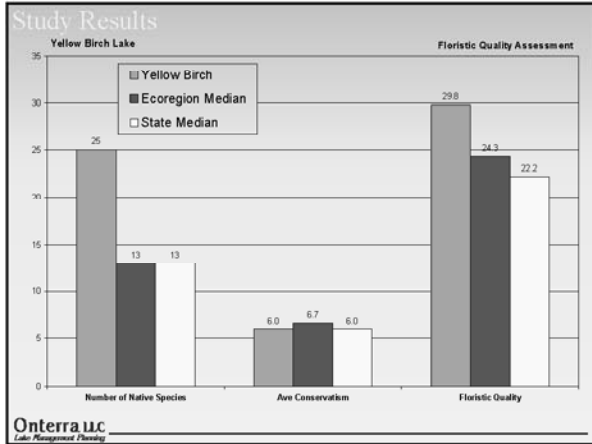
Study Results

Scientific Name	Common Name	Coefficient of Conservatism (c)
<i>Carex comosa</i> *	Bristy sedge	5
<i>Carex lasiocarpa</i>	Lake sedge	6
<i>Elaeagnus parviflora</i> *	Common oleaster	6
<i>Lythrum salicaria</i>	Purple loosestrife	Exotic
<i>Sagittaria arifolia</i>	Common arrowhead	2
<i>Typha latifolia</i>	Broad-leaved cattail	1
<i>Lemna minor</i>	Lesser duckweed	5
<i>Najas variegata</i>	Spatterdock	6
<i>Nymphaea odorata</i>	White water lily	6
<i>Sparganium angustifolium</i>	Narrow-leaf bur-reed	9
<i>Sparganium emersum</i>	Short-stemmed bur-reed	8
<i>Ceratophyllum demersum</i>	Cornfoot	3
<i>Chara sp.</i>	Mudgrass	7
<i>Eelodea canadensis</i>	Common waterweed	3
<i>Potamogeton amplifolius</i>	Water stargrass	6
<i>Myriophyllum heterophyllum</i>	Various-leaved water milfoil	7
<i>Myriophyllum sibiricum</i>	Spotted water milfoil	7
<i>Myriophyllum spicatum</i>	European water milfoil	Exotic
<i>Najas flexilis</i>	Lesser duckweed	5
<i>Potamogeton amplifolius</i>	Large-leaf pondweed	7
<i>Potamogeton nodosus</i>	Blow-leaf pondweed	7
<i>Potamogeton pectinatus</i>	Small pondweed	7
<i>Potamogeton zosterifolius</i>	Clasping-leaf pondweed	5
<i>Potamogeton zosterifolius</i>	Fern pondweed	8
<i>Potamogeton zosterifolius</i>	Spiral-fruited pondweed	8
<i>Potamogeton zosterifolius</i>	Flat-stem pondweed	6
<i>Valisneria spiralis</i>	Wild celery	6

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Lake Management Planning

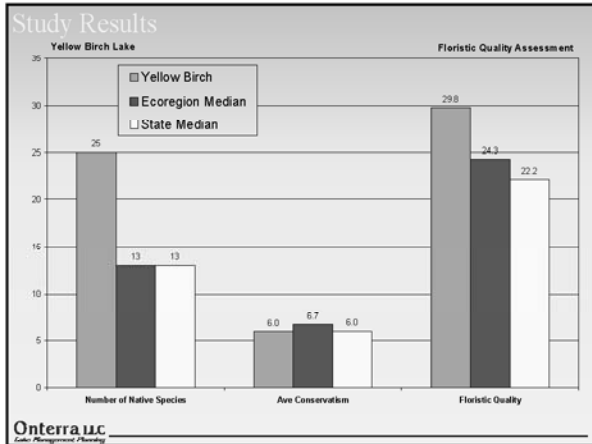


•Yellow Birch Lake Study Results & Conclusions  
Presentation



Life Form	Scientific Name	Common Name	Coefficient of Conservatism (c)
Emergent	<i>Carex comosa</i> *	Brillly sedge	5
	<i>Carex lasiocarpa</i>	Lake sedge	6
	<i>Eleocharis palustris</i> **	Creeping spikegrass	6
	<i>Littoralea scabra</i>	Purple loosestrife	Endic
	<i>Sagittaria latifolia</i>	Common arrowhead	3
	<i>Typha latifolia</i>	Broad-leaved cattail	1
FF	<i>Lemna minor</i>	Lesser duckweed	5
FL	<i>Najas variegata</i>	Spatterdock	6
	<i>Ruppia obovata</i>	White water lily	6
FUE	<i>Scheuchzeria palustrata</i>	Narrow leaf bur-reed	9
	<i>Sparganium angustifolium</i>	Spork stemmed bur-reed	9
Submergent	<i>Ceratophyllum demersum</i>	Coptail	3
	<i>Chara sp.</i>	Muskgrasses	7
	<i>Eelodea canadensis</i>	Common waterweed	3
	<i>Heteranthera dubia</i>	Water hyacinth	8
	<i>Myriophyllum heterophyllum</i>	Various-leaved water milfoil	7
	<i>Myriophyllum spicatum</i>	Northern water milfoil	7
	<i>Myriophyllum spicatum</i>	Eurasian water milfoil	6
	<i>Najas flexilis</i>	Slender naiad	Endic
	<i>Potamogeton amplifolius</i>	Large-leaf pondweed	7
	<i>Potamogeton ephedrus</i>	Ribbon-leaf pondweed	8
	<i>Potamogeton nodosus</i>	Round pondweed	7
	<i>Potamogeton richardsonii</i>	Clasping-leaf pondweed	5
	<i>Potamogeton zosterifolius</i>	Fern pondweed	9
	<i>Potamogeton spiralis</i>	Spiral-fruted pondweed	8
	<i>Potamogeton zosterifolius</i>	Flat-leaf pondweed	6
	<i>Vallisneria spiralis</i>	Widgeon	5

FF = Free Floating  
FL = Floating Leaf  
FUE = Floating Leaf and Emergent  
\* = Incidental



## Conclusions

- **Yellow Birch Lake is eutrophic.**
  - Watershed controls phosphorus loads.
    - Water quality is good considering the size of watershed.
  - Must act locally to control immediate loads.
  - Must continue water quality monitoring so trends can be developed for future management efforts.
- **Aquatic plant community is outstanding.**
  - Not many aquatic plants, so protection is key to keeping good aquatic plant habitat.
  - Non-natives are biggest threat to aquatic plant community.
  - Keeping exotics under control is essential for health of aquatic plant community and lake.

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Lake Management Planning

# Thank You

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