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Section I: Application Type

Lake Management Planning Grant

Check one:

Large-scale planning grant

Small-scale planning grant

Check one:

Lake education

Organizational development

Other study or assessment, or multiple-purpose project

Lake Management Protection Grant

Check one:

Wetland restoration

Ordinance development

Lake improvement

Lake classification

Land or easement acquisition

Legislative District Numbers	
Senate	Assembly
10	28

To determine your legislative district, go to <http://165.189.139.210/WAML/>
Type in complete address, next screen shows information.

Section II: Applicant Information

Applicant Long Lake Protection and Rehabilitation District			Type of Eligible Applicant		
Lake Name Long Lake		Size in Acres 272.00	<input type="checkbox"/> County	<input type="checkbox"/> Tribe	<input type="checkbox"/> Other Governmental Unit
Project County/Township/Section/Range Polk County/T34N/S6,7,8/R17W			<input type="checkbox"/> City	<input type="checkbox"/> Sanitary District	<input type="checkbox"/> Non Profit Conservation Organization
Authorized Representative Named by Resolution Mike Krieg			<input type="checkbox"/> Village	<input checked="" type="checkbox"/> Lake District	<input type="checkbox"/> School Districts (Planning)
Authorized Representative Title Chair			<input type="checkbox"/> Town	<input type="checkbox"/> Lake Association	
Address 1827 Fescue Circle			Project Contact Name Jeff Larson		
City Shakopee			Project Contact Title Vice President/Treasurer		
State WI			Address 1349 Hwy 46		
ZIP Code 55379			City Balsam Lake		
Daytime Phone (area code) (800) 692-6326			State WI		
Evening Phone (area code) (952) 846-8472			ZIP Code 54810		
E-mail Address mhkrieg@yahoo.com			Daytime Phone (area code) (763) 785-7329		
			Evening Phone (area code) (715) 485-3315		
			E-Mail Address jl Larson004@centurytel.net		

Mail Check to: (if different from applicant)

Name and Title		Address	
Organization		City	State
		ZIP Code	

For DNR Use Only

Application Type	Date Received	Date Reviewed (LC)	Lake Coordinator Approval / Date
Waterbody ID#	Adequate Public Access <input type="checkbox"/> Yes <input type="checkbox"/> No	Environmental Grants Specialist Approval / Date	
Eligible Project <input type="checkbox"/> Yes <input type="checkbox"/> No	Eligible Applicant <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Priority Rank	
Prior Grant Award(s) <input type="checkbox"/> Yes <input type="checkbox"/> No	Fiscal Year(s)	Amount Received To Date \$	Project Awarded <input type="checkbox"/> Yes <input type="checkbox"/> No

Section III: Project Information

Project Title Long Lake Management Plan Implementation		Proposed Ending Date 12/31/15	
Other Management Units Around Lake	Letter of Support	Other Management Units Around Lake	Letter of Support
1. Polk County LWRD	<input checked="" type="checkbox"/>	4.	<input type="checkbox"/>
2.	<input type="checkbox"/>	5.	<input type="checkbox"/>
3.	<input type="checkbox"/>	6.	<input type="checkbox"/>

Section IV: Lake Access

Number of Public Vehicle Trailer Parking Spaces Available at Public Access Sites: 9

Number of Public Access Sites on Lake Including Boat Launches and Walk-ins: 2

Section V: Cost Estimate and Grant Request

Section V must be completed or application will be returned. Details in support of Section V are welcome.	Project Costs		
	Column 1 Cash Costs	Column 2 Donated Value	DNR Use Only
1. Salaries, wages and employee benefits		7,680.00	
2. Consulting services	25,450.00		
3. Purchased services--printing and mailing	1,300.00		
4. Other purchased services (specify):			
5. Plant material			
6. Supplies (specify)	2,870.00		
7. Depreciation on equipment			
8. Hourly equipment use charges			
9. State Lab of Hygiene (SLOH) Costs	0.00	0.00	
10. Non-SLOH Lab Costs	0.00		
11. Land or easement acquisition value			
12. Associated acquisition costs			
13. Other (specify)			
14. Subtotals (sum each column)	29,620.00	7,680.00	
15. Total Project Cost Estimate (sum of column 1 plus sum of column 2)	37,300.00		
16. State Share Requested (calculate based on State share listed below)	24,991.00		

Subject to the following maximum grant amounts:

- Large-scale lake planning projects--up to \$25,000 - 67% State share
- Small-scale lake planning projects--up to \$3,000 - 67% State share
- Lake classification and regulation or ordinance development projects--up to \$50,000 - 75% State share
- Lake protection projects (other than lake classification and regulation or ordinance development projects)--up to \$200,000 - 75% State share

Use of Federal funding as match: (check box below if applicable)

We are using or planning to apply for Federal funds to be used as match.

If known, indicate source of funding:

Section VI: Attachments (check all that are included)

A. For all applicants:

- 1. Authorizing resolution
- 2. Letters of support
- 3. Map of project location and boundaries
- 4. Lake map with public access sites identified (per Section IV of this application and page 33 of the guidelines)
- 5. Itemized breakdown of expenses
- 6. For projects that entail sending samples to the State Laboratory of Hygiene (SLOH) only: a completed SLOH Projected Cost Form
- 7. Project scope/description:
 - a. Description of project area
 - b. Description of problem to be addressed by project
 - c. Discussion of project goals and objectives
 - d. Description of methods and activities
 - e. Description of project products or deliverables
 - f. Description of data to be collected, if applicable
 - g. Description of existing and proposed partnerships
 - h. Discussion of role of project in planning and/or management of lake
 - i. Timetable for implementation of key activities
 - j. Plan for sharing project results
 - k. Other information in support of project not described above

B. For applicants that are Lake Management Organizations (LMOs) or Non-profit Conservation Organizations (NCOs):

- 1. For first time applicant LMOs only: A completed Form 8700-226 (Lake Association Organizational Application)
- 2. For first time applicant NCOs only: Copy of IRS 501(c)(3) determination letter and copies of your Articles of Incorporation and Bylaws
- 3. List of national and/or statewide organizations with which you are affiliated
- 4. List of board members' names, including municipality and county of residence. Designate officers
- 5. Documentation of current financial status
- 6. For land or easement acquisition projects: Detailed description of your organization's land management experience
- 7. Brochures, newsletters, annual reports or other information about your organization

C. Wetland Restoration Projects:

- 1. Deed, easement, or land control agreement
- 2. Preliminary engineering plans
- 3. Water regulatory permits
- 4. Map of project location and boundaries

D. Ordinance Development Projects:

- 1. Inventory of applicable existing ordinances
- 2. Description of resources each jurisdiction allocates to enforcement
- 3. Preliminary surveys

E. Lake Improvement Projects:

- 1. Engineering and design plans
- 2. Water regulatory permits
- 3. Map of project location and boundaries

Section VI: Attachments, continued

F. Land or easement acquisition projects:

- 1. DNR Form 1800-1 (Environmental Hazards Assessment Form)
- 2. Legal description of the property
- 3. Project location boundary map
- 4. Property or easement appraisal (if not previously submitted to the Department)
- 5. If escrow closing, the title insurance commitment
- 6. Evidence of compliance with Uniform Relocation Act requirements, if applicable
- 7. Agricultural Impact Statement, if applicable
- 8. Status of acquisition negotiations, including expected time frame for closing
- 9. A land management plan
 - a. Full description of property and conditions
 - b. Description of current and proposed uses of property and adjoining properties
 - c. Management requirements for property
 - d. If roads, piers or grading are proposed, a topographic survey with feature locations, and design cross sections

Section VII: Certification

I certify that information in this application and all its attachments are true and correct and in conformity with applicable Wis. Statutes.

Print/Type Name of Authorized Representative Mike Krieg	Title of Authorized Representative Chair
Signature of Authorized Representative 	Date Signed 7/25/13

Long Lake Protection and Rehabilitation District

County of Polk, Wisconsin

WHEREAS Long Lake is an important resource used by the public for recreation and enjoyment of natural beauty; and

WHEREAS a study and examination of the lake will lead to better understanding and will promote the public health, comfort, convenience, necessity and public welfare; and

WHEREAS we recognize the need for responsible and holistic long-range planning to better manage the lake, its watershed, and its use; and

WHEREAS we are qualified to carry out the responsibilities of the planning project.

IT IS THEREFORE, RESOLVED THAT:

The Long Lake Protection and Rehabilitation District requests the funds and assistance available from the Wisconsin Department of Natural Resources under the "Lake Management Planning Grant Program" and

HEREBY AUTHORIZES, the Chair, to act on behalf of the Long Lake Protection and Rehabilitation District to: submit an application to the State of Wisconsin for financial aid for lake planning purposes; sign documents; and take necessary action to undertake, direct, and complete an approved planning grant.

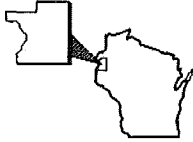
BE IT FURTHER RESOLVED that the Long Lake Protection and Rehabilitation District will meet the obligations of the planning project including timely publication of the results and meet the financial obligations under this grant including the prompt payment of our 33% of lake planning project costs.

We understand the importance of a continuing management program for Long Lake and intend to proceed on that course.

Adopted this 22nd day of June, 2013

By a vote of (3) in favor, (0) against, () abstain.

By: Keith C. Campbell
Keith Campbell, Secretary
Long Lake Protection and Rehabilitation District



POLK COUNTY LAND & WATER RESOURCES DEPARTMENT
100 POLK COUNTY PLAZA—SUITE 120 BALSAM LAKE, WI 54810
PHONE: 715-485-8699 FAX: 715-485-8601
TIM RITTEN, DIRECTOR: 715-485-8631

July 22nd, 2013

Alex Smith
WDNR
810 W. Maple St.
Spooner, WI 54801

Dear Mr. Smith,

The Polk County Land and Water Resources Department fully supports the Long Lake Protection and Rehabilitation District in their application for a small and large scale Lake Planning Grant. The receipt of these grants will allow the Long Lake Protection and Rehabilitation District to minimize nutrients, sediments, and other pollutants that flow to Long Lake from its watershed and to estimate an alum dosage from the sediments of Long Lake.

The support of these grant applications allows LWRD to advance the following goals of the Polk County Land and Water Resource Management Plan, adopted by the County Board and approved by the state:

- Goal 1. Protect the water quality of our groundwater, lakes, streams, rivers, creeks, and associated ecosystems
 - Objective 1B. Limit the amount of non-point phosphorus reaching our waterbodies to prevent degradation from agricultural land uses
 - Objective 1D. Monitor water quality to ascertain condition and alleviate problems before they impact the resource or human health.
- Goal 2. Protect shorelines, undeveloped riparian land, wetlands, grasslands, forests, farmland, and agricultural resources to perpetuate the benefits they provide: habitat and associated native wildlife communities, clean water, clean air, carbon sequestration, aesthetic beauty, and recreational opportunities
- Goal 3. Support and develop the human resources in Polk County that manage our natural resources—both LWRD and volunteer management groups

LWRD will conduct agricultural best management practices investigation and design as part of the large scale grant project.

LWRD has worked with the Long Lake Protection and Rehabilitation District in the past and looks forward to working with them in the future.

Sincerely,


Tim Ritten

January 3, 2012

Judith Jepsen
Village of Centuria
305 Wisconsin Ave PO Box 280
Centuria, WI 54824-0280

Dear Judith,

I represent the Long Lake Protection and Rehabilitation District (LLPRD) of Centuria, WI. Long Lake is a 277 acre lake located in Polk County. Our lake is fully developed and is primarily used for recreation. Over the past several years the water quality on Long Lake has been studied to improve water quality. Throughout the 2000-2007 years we worked with the DNR, Barr Engineering, and the Polk County Extension Office to come up with an Aquatic Plant Management plan to address curlyleaf pondweed (CLP) and other invasive species. The plan was approved and we have worked with the DNR to improve education of our property owners on identifying invasive species. We plan to continue our efforts in 2012; as well as putting a new 5 year plan in place. We have hired Cheryl Clemens of Harmony Environmental to help us with the new plan. Part of our efforts will include a Clean Boat/Clean Water Program with help from the county and DNR.

In October of 2011 the LLPRD board members voted to move forward with the new five year plan and we are requesting grant money from the DNR to defray costs of developing the plan and continuing with our current efforts. We are now soliciting your support in our application for a grant for Long Lake. As I previously mentioned; county staff will be available to assist us with training for Clean Boats, Clean Waters and training of volunteers so they can identify potential aquatic invasive species at our boat landings.

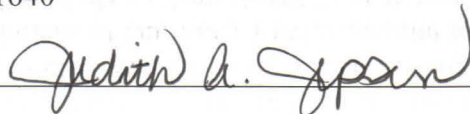
If you support our efforts please sign below and return this letter in the enclosed stamped envelope on or before January 15, 2012. You may also prepare your own letter of support and address it to me and return in the enclosed stamped envelope. Your support is appreciated and if you have any questions you may contact me at 651-681-1640.

Thank you for your support,
Sincerely,



Monica Brengman
President Long Lake Protection and Rehabilitation District
909 Adeline Ct
Mendota Heights, MN 55118
651-681-1640

SIGN: _____



Long Lake P&R District

Large Scale Lake Planning Grant 10/01/13 - 12/31/15

Calendar Year	Consulting (2014)	Consulting (2015)	Volunteer (2014)	Volunteer (2015)	Supplies (14)	Supplies (15)	Print/Mail (14)	Print/Mail (15)
Agricultural Watershed								
Farmer outreach program			40	40	\$ 300.00	\$ 300.00		
Crop field inventory	\$ 5,000.00							
Share crop field inventory results			20	20				\$ 100.00
Crop field soil tests	\$ 2,350.00							
Design/owner contacts for holding ponds	\$ 2,000.00							
Waterfront Watershed								
Material on best management practices	\$ 500.00	\$ 500.00	20	20			\$ 200.00	\$ 200.00
Workshops on best practice	\$ 500.00	\$ 500.00	40	40	\$ 200.00	\$ 200.00		
Demonstrations and tours		\$ 500.00				\$ 200.00		
Assemble/train volunteers for project installation	\$ 500.00	\$ 500.00	80	80	\$ 200.00	\$ 200.00		
Recognition program	\$ 500.00	\$ 500.00	40	40	\$ 635.00	\$ 635.00		
Evaluation and tracking	\$ 500.00	\$ 500.00	20	20				
Consultant coordination	\$ 2,000.00	\$ 2,000.00						
In Lake Process								
Ongong consulting (James)	\$ 1,500.00	\$ 1,500.00						
Education								
Handouts/brochures							\$ 400.00	\$ 400.00
Presentations	\$ 500.00	\$ 500.00						
Website updates	\$ 300.00	\$ 300.00	20	20				
Email list			20	20				
Articles			20	20				
Consultant coordination	\$ 1,000.00	\$ 1,000.00						
Total			320	320				
2014	\$ 17,150.00		\$ 3,840.00		\$ 1,335.00		\$ 600.00	
2015	\$ -	\$ 8,300.00		\$ 3,840.00		\$ 1,535.00		\$ 700.00
Harmony	\$ 5,500.00	\$ 6,000					Total project	\$ 37,300.00
							DNR Grant	\$ 24,991.00
							Volunteer Labor	\$ 7,680
							LLPRD Match (14)	\$ 2,314.50
							LLPRD Match (15)	\$ 2,314.50
Small Scale Lake Planning Grant 10/01/13 - 6/30/14								
Conduct alum dosage study	\$ 6,000.00							
TOTAL PROJECT COST	\$ 6,000.00							
DNR GRANT	\$ 3,000.00							
LLPRD MATCH (2014)	\$ 3,000.00							

Long Lake Polk County

Lake Management Plan Implementation

Large Scale Planning Grant Application
August 1, 2013

Project Scope/Description

a. Project area

The Lake

Long Lake is a 272-acre lake located in Polk County, Wisconsin in the Town of Balsam Lake (S6, S7, and S8, T34N, R17W). Its Water Body Identification Code is 2478200. The maximum depth of the lake is 17 feet and the mean depth is 11 feet. Its direct watershed is about 1,279 acres.¹ The lake is a seepage lake with no streams entering or leaving the lake. A ditch on the north end and another on the south end, flow to the lake during and after storm events.

Long Lake is a eutrophic to hypereutrophic lake with 2011 summer secchi depths averaging 4.6 feet. The 2011 littoral zone (the depth to which plants grow) ranged from 10 to 12 feet. The bottom substrate is composed of muck (75%), rock (13%) or sand (11%).² A lake map is found on the following page.

The main landing on the northwest side of the lake includes nine parking spaces for boats and trailers. It also has a public fishing pier with handicapped access. A second public access is located on the northeast side of the lake along Sunnyvale Lane. **(Point F1 and F2)**

Table 1. Long Lake Information

Size (acres)	272
Mean depth (feet)	11
Maximum depth (feet)	17
Littoral zone depth (feet)	11
Average summer secchi depth (feet) 1992-2011	4.9

¹ Barr. 2003.

² Berg. 2011.

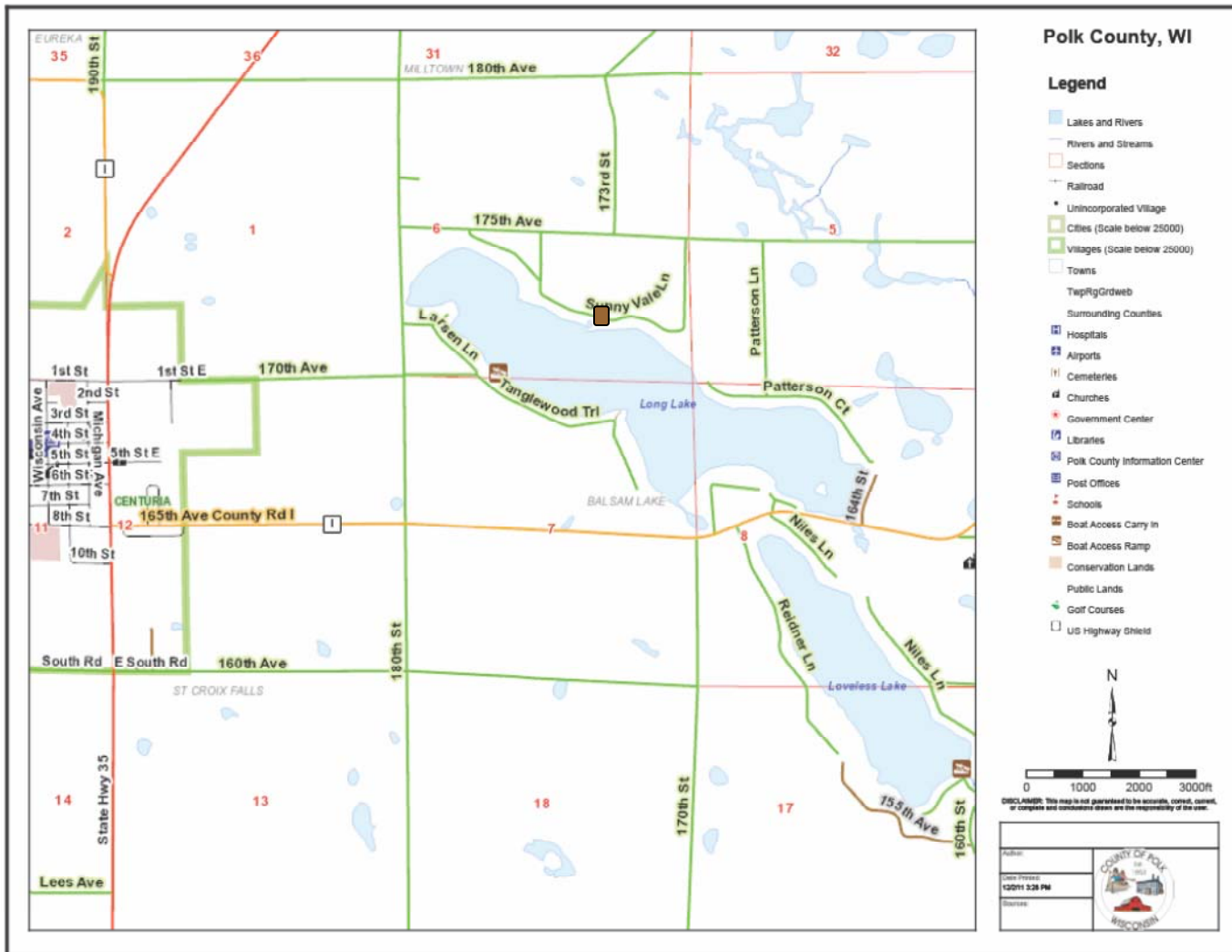


Figure 1. Long Lake Boating Access

Citizen lake monitoring volunteers have collected data from the lake annually at the deep hole of Long Lake since 1992. The lake was sampled 9 times during 2011 with an average reported secchi depth of 4.63. The TSI for this level is 55 – a eutrophic value. Figure 3 illustrates the Secchi depth averages for the lake. Figure 3 graphs the Trophic State Index for Long Lake, based upon Secchi depth, chlorophyll, dissolved oxygen, and total phosphorus results.

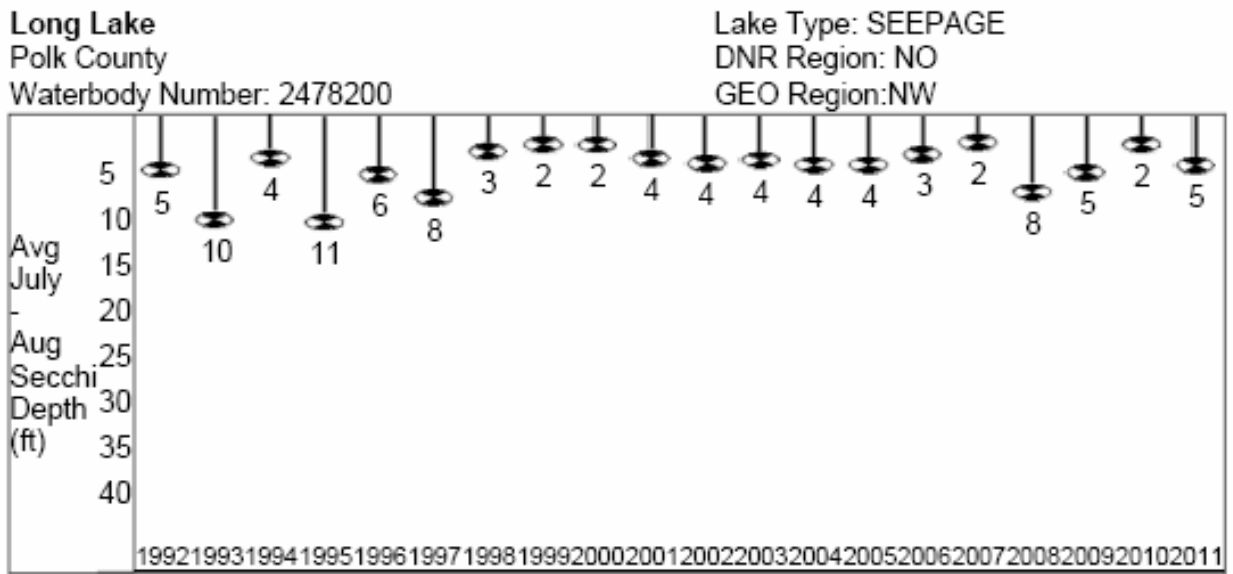


Figure 2. Long Lake Secchi Depths 1992-2011.

Algae Study

The Polk County Land and Water Resources Department measured cyanobacteria (blue-green algae), the toxins they produce, and water quality parameters in 2010 and 2011. This study was prompted by the death of a dog in 2009, and other incidents suspected to be caused by cyanobacteria toxins. Cyanobacterial concentration was highest in late July. This spike in growth included a high concentration of *Aphanizomenon issatschenkoi*. This species produces anatoxin-A which was measured at high levels during this time period. Anatoxin-A affects nerve synapses. As shown in Figure 5, a spike in microcystin liver toxins occurred in late September 2010. This spike corresponded with fall lake mixing.³ The World Health Organization established a level of 1ug/L microcystin-LR for long term consumption of drinking water. The level of microcystin-LR in Long Lake in September of 2010 was 79, with other microcystin toxins at even higher levels.

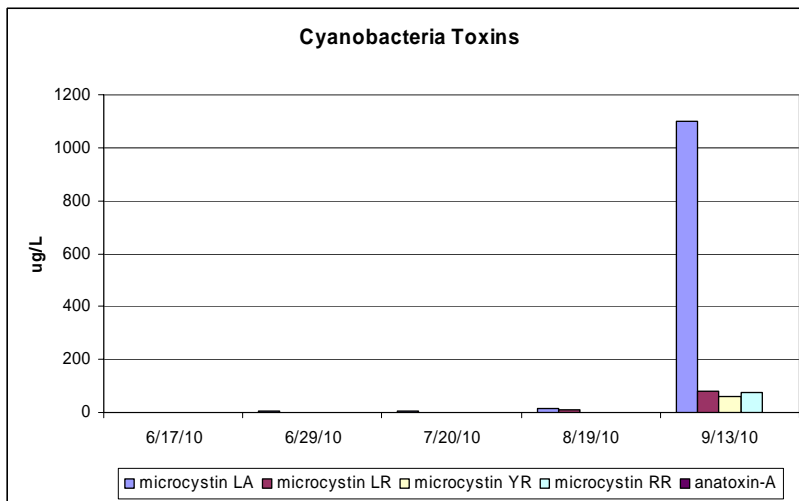


Figure 5. Cyanobacteria Toxins 2010

Lake Management Plan (Points A 1-6)

The LLPRD completed a comprehensive lake management plan with assistance from a DNR Large Scale Lake Management Planning Grant. The Polk County Land and Water Resources Department completed the lake study with assistance from lake volunteers in 2012. Polk County and Harmony Environmental developed the lake management plan with assistance from an advisory committee.

The lake management plan

- identifies and prioritizes lake management needs and sets goals
- provides specific lake water quality management objectives
- provides specific objectives for watershed and land use management
- provides specific management objectives for fish and wildlife habitat
- provides educational objectives.

³ Williamson. 2010.

Project results will advance the implementation of the lake management plan. **(Point E3)**. Implementation phases are identified in the lake management plan **(Point G4)**.

Rare, Endangered, or Protected Species Habitat

Long Lake is located in the Town of Balsam Lake (T34N, R17W) in sections 6 and 7.⁴

Species listed in the Town of Balsam Lake (T34N, R17W):

Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern
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b. Problem to be addressed by project

Long Lake water quality is poor in late summer, and cyanobacteria and the toxins they produce reduce recreational enjoyment and health and safety on the lake.

Additional investigation and education are needed to begin implementation of the management plan.

c. Project goals and objectives

d. Methods and activities

Goals, objectives and activities are taken from the lake management plan. Activities proposed for funding under this lake planning grant application are highlighted.

Water quality goal. *Achieve and maintain a growing season mean total phosphorus concentration of .065 mg/L (65 ug/L.)*

Phosphorus leads to algae blooms in Long Lake. Total phosphorus concentration at this level will mean that the lake will stay clear longer and there will be less risk from algae toxins. This goal is achievable only if both the internal load from lake sediments and the external load from the watershed are controlled. In 2012 the total phosphorus was .146 mg/L

Water clarity goal. *Extend the number of weeks that secchi depths exceed 4 feet and 2 ½ feet by 2 weeks.*

Secchi depth is a measure of water clarity. It records the depth at which a black and white disk is no longer visible as it is lowered into the lake. A secchi depth of 4 feet is the threshold where algae growth increases greatly. The Chla level (a measure of algae growth) increases above .03 mg/L at this point. This transition occurred early in July in 2012. A secchi depth of 2 ½ feet corresponds to a Chla level

⁴ Natural Heritage data for Wisconsin is found at <http://dnr.wi.gov/org/land/er/nhi>. (data current as of 11/04/11)

of about .05 – the threshold from moderate to high risk for algae toxin production. This transition occurred in early August in 2012.

Evaluation:

1. Participate in DNR Expanded Self-Help Monitoring measuring total phosphorus, chlorophyll a, temperature and oxygen profiles in addition to secchi depth. This is a newly added task for the lake district. Polk County LWRD no longer has support from the DNR or CDC to complete this task. **(Point D1)**
2. Continue algal toxin measurements and algae assessment.
3. Consider conducting a sediment core study to establish a baseline of lake conditions, magnitude of changes, and progress with plan implementation.

Goal 1. Minimize nutrients, sediment, and other pollutants that flow to the lake from its watershed.

Objective A. Engage and support agricultural producers in reducing runoff to Long Lake.

Actions

1. Invite agricultural producers to special lake meetings and develop other means to reach out to farmers in a positive manner.
2. Inventory crop fields and other agricultural land uses to identify positive practices and where priority improvements could be made. Polk County LWRD will complete this task. This will include delineation of surface runoff patterns and environmentally sensitive areas that are currently row-cropped. **(Point C2)** It will also develop a management strategy for addressing the identified sensitive areas including best management practices. **(Point C4)**
3. Share information about positive agricultural and residential practices with lake owners and agricultural producers.
4. Pay for soil tests to measure phosphorus levels in crop fields. Polk County LWRD will complete this task. **(Point D2)**
5. Consider financially supporting the installation of priority best management practices including sediment basins.

Develop sediment basin designs for locations identified in the lake management plan Polk County LWRD will complete this task. **(Point E2)**

6. Consider purchasing land or easements to allow installation of priority best management practices including sediment basins.
7. Evaluate to track improvements made and determine next steps.

Objective B. At least 50 percent of Long Lake owners carry out best management practices to reduce runoff to the lake.

Actions

1. Provide information about residential best management practices in meetings, personal visits, newsletters, and emails.
2. Teach residents about residential best management practices at workshops, demonstrations, and tours.
3. Provide free design assistance for water quality landscaping and habitat improvements to lake residents if funds are available from the LLPRD, grants, and other sources.
4. Assemble and train volunteers and provide volunteer support for project installation.
5. Share in the cost of project installation if funds are available from the LLPRD, grants, and other sources.
6. Provide recognition in the form of a sign or dock marker to raise interest, and/or consider a special listing in the homeowner's directory with permission from the landowner.
7. Evaluate to track best management practices implemented and determine next steps. *Next steps will include a shoreland restoration and protection program for the lake. (Point B2)*

Goal 2. Encourage lake processes which minimize the release of nutrients from within the lake.

Objective A. Investigate/pursue in-lake management techniques including alum treatment and aeration.

Actions

1. Conduct an alum dosage study to determine appropriate alum application rates and cost. (small scale lake planning grant or lake protection grant)
2. Measure soluble and total iron in the hypolimnion (near lake bottom) to assess potential efficacy of an aeration system.

Objective B. Reduce internal loading from lake sediments by 90 percent.

Actions

1. Develop financing and install the recommended in- management technique(s).
2. Repeat selected treatment as needed.

Objective C. Reduce phosphorus loading from curly leaf pondweed by reducing beds to less than 20 acres and preventing CLP spread (from Aquatic Plant Management Plan).

Objective D. Increase native aquatic plant rooting depth (from Aquatic Plant Management Plan).

Actions for Objectives C and D are described in the Long Lake Aquatic Plant Management Plan.

Goal 3. *Preserve and enhance lake and shoreline fish and wildlife habitat.*

Objective A. Encourage installation of residential best management practices, such as native plantings and woody habitat, which improve habitat.

Actions are described under Goal 1, Objective B.

Survey potential locations on the lake appropriate for woody habitat installation (Point B1) and develop a strategy for woody habitat installation. (Point E1)

Goal 4. *Lake residents and visitors understand the components of and the means to support a healthy lake.*

Objective A. Lake residents understand the rationale behind the plan actions and have enough information to make sound decisions.

Objective B. Lake residents take action to improve lake water quality and habitat.

Messages to convey:

- Messages should be simple, and they should be repeated. Recipients can be directed to more in-depth information if interested.
- Celebrate the progress made with aquatic plant and lake management so far.
- Explain plan goals and actions.
- There is an urgency to lake water quality improvements. Algae toxins are a threat to the safety and well-being our families, visitors, and pets and wildlife.
- Describe conditions when algae toxins are a likely concern.

Educational methods:

- LLPRD and Long Lake Association newsletters
- Handouts/brochures (alum handout is one example)
- Presentations (annual meeting, seminars) – encourage new owners to attend, bring in credible experts such as Bill James, use testimonials from owners, include food
- Website: <http://longlakepolk.ning.com/>
- Email list
- Lake Association welcome packets for new lake residents – add water quality and plan information
- Articles for the Lake News edition of the Ledger Newspaper
- Letter from the LLPRD president, include on web site
- Additional educational methods are described under Plan Goal 1.

e. Project products or deliverables

Crop field soil test results
Crop field phosphorus delivery
Crop field bmp priorities
Sediment basin design
Workshops and demonstrations
Trained volunteers
Residential recognition program

f. Data to be collected

Lake secchi, TP and Chla
Crop field soil phosphorus

g. Existing and proposed partnerships

Staff from the Polk County Land and Water Resources Department will conduct agricultural best management practice investigation and design. Polk County LWRD staff completed the lake quality study and have assessed algae and toxins for multiple years.

The Long Lake Association will assist with delivering educational messages to lake residents.

h. Role of project in planning and/or management of lake

The Long Lake Aquatic Plant Management Plan has been approved by the DNR. The Lake Management Plan will be submitted for review.

The project is consistent with the ***Polk County Land and Water Management Plan***. 2009. Some overlapping goals and objectives are outlined below. **(Point H2)**

Goal 1. Protect the water quality of our groundwater, lakes, streams, rivers, creeks, and associated ecosystems.

Objective 1B. Limit the amount of non-point phosphorus reaching our water bodies to prevent degradation from agricultural land uses.

Objective 1D. Monitor water quality to ascertain condition and alleviate problems before they impact the resource or human health.

Goal 2. Protect shorelines, undeveloped riparian land, wetlands and aquatic plant communities, grasslands, forests, upland plant communities, farmland, and agricultural resources to perpetuate the benefits they provide: habitat and associated native wildlife communities, clean water, clean air, carbon sequestration, aesthetic beauty, and recreational opportunities.

The Department of Natural Resources updated the *St. Croix Basin Plan* in 2002 for the Wisconsin portion of the watershed. Goals include maintaining and **improving water and air quality; maintaining diverse, rich shoreland habitat;** preserving large contiguous blocks of forestland, grassland, prairie, and wetlands; **working with the agricultural community to minimize nonpoint runoff;** working with cities, villages, towns and counties to help stem urban sprawl; and **providing education and technical assistance to enhance voluntary conservation.**

i. Timetable for implementation

See implementation charts.

j. Plan for sharing project results

Draft and final documents will be made available to the public and other resource agencies.

Educational materials will be posted on the Long Lake web site, included in newsletter articles, and presented at the LLPRD annual meeting.

k. Other information not described above

<i>Water quality goal. Achieve a growing season mean total phosphorus concentration of 0.65 mg/L.</i>					
Actions¹	Timeline	\$ Estimate (annually)	Vol. Hours (annually)	Responsible Parties²	Funding Sources
Participate in Expanded Self-Help Monitoring measuring total phosphorus, chlorophyll a, temperature and oxygen profiles in addition to secchi depth.	Ongoing	\$0	120	LLPRD	WDNR
Continue algal toxin measurements and algae assessment.	2016	\$4,100	0	LWRD	WDNR Lakes Planning Grant
Consider conducting a sediment core study to establish a baseline of lake conditions, magnitude of changes, and progress with implementation.	TBD	\$15,000 to \$30,000 (1X)	0	LWRD	WDNR Lakes Planning Grant
SUBTOTAL WQ EVALUATION		\$4,100 (+)			

¹ See previous pages for action item detail. Estimates are for annual budgets once implementation begins.

²LLPRD = Long Lake Protection and Rehabilitation District

LWRD = Land and Water Resources Department

WDNR = Wisconsin Department of Natural Resources

<i>Goal 1. Minimize nutrients, sediment, and other pollutants that flow to the lake from its watershed.</i>					
Objective A. Engage and support agricultural producers in reducing runoff to Long Lake.					
Actions³	Timeline	\$ Estimate	Vol. Hours	Responsible Parties⁴	Funding Sources
1. Reach out to farmers through special meetings and other activities	2014-2018	\$300	40	LLPRD	Lakes Planning Grant (08/01/13)
2. Inventory crop fields to ID positive practices and potential improvements	2014	\$5,000	0	LWRD (contract)	Lakes Planning Grant (08/01/13)
3. Share information from inventory above	2015	\$100	20	LLPRD LWRD	Lakes Planning Grant (08/01/13)
4. Pay for crop field soil tests	2014	\$2,350	0	LWRD (contract)	Lakes Planning Grant (08/01/13)
5. Consider supporting recommended Best Management Practices	2015	TBD	0		
5a. further investigate sediment basin options: contact landowners, preliminary engineering	2014	\$2,000		LWRD (contract)	Lakes Planning Grant (08/01/13)
6. Consider purchasing land or easements to allow installation	2015	TBD		LLPRD	Lake Protection Grant
7. Evaluate to track improvements	2018	TBD		LLPRD LWRD	Lakes Planning Grant LLPRD
Grant writing	2013 – 2015	\$1,200		LLPRD	LLPRD

³ See previous pages for action item detail. Estimates are for annual budgets once implementation begins.

⁴LLPRD = Long Lake Protection and Rehabilitation District

LWRD = Land and Water Resources Department

WDNR = Wisconsin Department of Natural Resources

<i>Goal 1. Minimize nutrients, sediment, and other pollutants that flow to the lake from its watershed.</i>					
<i>Objective A. Engage and support agricultural producers in reducing runoff to Long Lake.</i>					
Actions³	Timeline	\$ Estimate	Vol. Hours	Responsible Parties⁴	Funding Sources
				Consultant	
SUBTOTAL GOAL 1A		\$10,950	60		

Goal 1. Minimize nutrients, sediment, and other pollutants that flow to the lake from its watershed.
Objective B. At least 50 percent of Long Lake owners carry out best management practices to reduce runoff to the lake.

Goal 3. Preserve and enhance lake and shoreline fish and wildlife habitat.
Objective A. Encourage installation of residential best management practices, such as native plantings and woody habitat, which improve habitat.

Actions⁵	Timeline	\$ Estimate (annually)	Vol. Hours	Responsible Parties⁶	Funding Sources
1. Provide information about residential best management practices	2013-2018	\$700	20	LLPRD LWRD	Lakes Planning Grant (08/01/13)
2. Teach residents about best management practices			40-80	LLPRD LWRD	Lakes Planning Grant (08/01/13)
2a. workshops	2014 – 2018	\$700			
2b. demonstrations and tours	2015-2018	\$700			
3. Provide free design assistance to residents	2013 (5 properties) TBD	TBD		LWRD Consultant	Lakes Planning Grant (08/01/13)
4. Assemble and train volunteers for project installation	2014	\$700	80	LLPRD LWRD	Lakes Planning Grant (08/01/13)
5. Cost share project installation	2014- 2018	TBD		LWRD LLPRD Landowners Landscapers	Lake Protection Grant (05/01/14)

⁵ See previous pages for action item detail.
⁶LLPRD = Long Lake Protection and Rehabilitation District
LWRD = Land and Water Resources Department
WDNR = Wisconsin Department of Natural Resources

Goal 1. Minimize nutrients, sediment, and other pollutants that flow to the lake from its watershed.
Objective B. At least 50 percent of Long Lake owners carry out best management practices to reduce runoff to the lake.

Goal 3. Preserve and enhance lake and shoreline fish and wildlife habitat.
Objective A. Encourage installation of residential best management practices, such as native plantings and woody habitat, which improve habitat.

Actions⁵	Timeline	\$ Estimate (annually)	Vol. Hours	Responsible Parties⁶	Funding Sources
6. Provide recognition for installation 6a. develop program 6b. Implement recognition	2013 – 2018	\$1,135	40	LLPRD Volunteer	Lakes Planning Grant (08/01/13)
7. Evaluate to track BMPs and determine next steps	Ongoing		20	LLPRD LWRD	Lakes Planning Grant (08/01/13)
Grant writing	Ongoing	\$1,200	10	LLPRD Consultant	LLPRD
Consultant coordination	Ongoing	\$2,000		LLPRD	Lakes Planning Grant (08/01/13)
SUBTOTAL GOAL 1B/3		\$7,135	210-250		

<i>Goal 2. Encourage lake processes which minimize the release of nutrients from within the lake.</i>					
Objective A. Investigate/pursue in-lake management techniques including alum treatment and aeration.					
Actions⁷	Timeline	\$ Estimate	Vol. Hours	Responsible Parties⁸	Funding Sources
Conduct an alum dosage study	2013	\$6,000	10	LLPRD James	LLPRD Small Scale Lakes Planning Grant (08/01/13)
Measure iron etc.	2013	\$200	0	LWRD	LWRD LLPRD
Ongoing consulting	Ongoing	\$1,500	0	James	Lakes Planning Grant (08/01/13)
SUBTOTAL GOAL 2A		\$7,700	10		

⁷ See previous pages for action item detail.
⁸LLPRD = Long Lake Protection and Rehabilitation District
LWRD = Land and Water Resources Department
WDNR = Wisconsin Department of Natural Resources

<i>Goal 2. Encourage lake processes which minimize the release of nutrients from within the lake.</i>					
Objective B. Reduce internal loading from lake sediments by 90 percent.					
Actions⁹	Timeline	\$ Estimate	Vol. Hours	Responsible Parties¹⁰	Funding Sources
Provide detailed implementation plans	2014	\$2,000	40	LLPRD Consultant	Small Scale Lakes Planning Grant (04 OR 08/01/14)
Develop financing	2014	\$2,000	40	LLPRD Consultant (grants)	Small Scale Lakes Planning Grant (04 OR 08/01/14)
In-lake treatments	TBD	TBD	40	LLPRD WDNR	DNR Lake Protection Grant
Write grants	TBD	\$2,000 - \$2,500	10	LLPRD Consultant	LLPRD
SUBTOTAL GOAL 2B		\$6,000 - \$6,500	130		

⁹ See previous pages for action item detail.
¹⁰LLPRD = Long Lake Protection and Rehabilitation District
LWRD = Land and Water Resources Department
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Goal 4. Lake residents and visitors understand the components of and the means to support a healthy lake.

Objective A. Lake users are aware of the potential threats from algae toxins and are notified when threats are likely present.

Objective B. Lake residents understand the rationale behind the plan actions and have enough information to make sound decisions.

Actions¹¹	Timeline	\$ Estimate (annually)	Vol. Hours (annually)	Responsible Parties¹²	Funding Sources
Newsletters/letter from President	May each year	\$600	10	LLPRD LLA	LLPRD
Handout/brochures: (Plan contents, Alum, etc.) e.g., In LLA Welcome Packets	2013 2014	\$400	20	LLPRD LWRD Consultant LLA	Lakes Planning Grant (08/01/13)
Presentations: Plan seminars	2013	\$500		LLPRD TOPIC EXPERTS	Lakes Planning Grant (08/01/13)
Website upgrades	Ongoing	\$300	20	LLA LLPRD	Lakes Planning Grant (08/01/13)
Email list	Ongoing	\$0	20	LLA LLPRD	Lakes Planning Grant (08/01/13)
Articles for other publications	Ongoing	\$0	20	LLPRD LWRD Consultant	Lakes Planning Grant (08/01/13)
Consultant coordination	2014-2015	\$1,000			
SUBTOTAL GOAL 4		\$2,800			

¹¹ See previous pages for action item detail.

¹²LLA = Long Lake Association, LLPRD = Long Lake Protection and Rehabilitation District, LWRD = Land and Water Resources Department, WDNR = Wisconsin Department of Natural Resources