State of Wisconsin
Department of Natural Resources

Aquatic Invasive Species (AIS) Control Grant Application

Form 8700-307 (12/11)

Notice: Use of this form is required by the DNR for any application filed pursuant to ch. NR 198, Wis. Adm. Code. Personal information collected on this form, including such data as your name, address, phone number, etc., will be used for management and enforcement of DNR programs, and is not intended to be used for any other purpose. Information may be made accessible to requesters under Wisconsin's Open Records laws (s. 19.32-19.39, Wis. Stats.) and requirements.

Section I: Application Type

Check one:

☐ Education, Prevention & Planning ☐ Early Detection & Response ☒ Established Infestation Control

Legislative District Numbers	
Senate	Assembly
23, 31	68, 93

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 City of Eau Claire	Type of Eligible Applicants
Waterbody Name Half Moon Lake	☐ County ☐ Tribe ☐ Other Gov't Unit ☐ Federal
Project County/Township/Section/Range Eau Claire County	☐ City ☐ Sanitary Dist. ☐ Nonprofit Org. ☐ State ☐ Village ☐ Dist. ☐ College, School, etc. ☐ Other ____ ☐ Town ☐ Assoc.

Authorized Representative Named by Resolution Russell Van Gompel			Project Contact Name Phil Fieber		
Authorized Representative Title City Manager			Project Contact Title Director, Parks, Recreation and Forestry		
Address 203 S. Farwell Street			Address 915 Menomonie Street		
City Eau Claire	State WI	ZIP Code 54701	City Eau Claire	State WI	ZIP Code 54703
Daytime Phone (area code) 715-839-4902	Evening Phone (area code)		Daytime Phone (area code) 715-839-5031	Evening Phone (area code) 715-271-5686	
E-mail Address Russell.VanGompel@eauclairewi.gov			E-Mail Address Phil.Fieber@eauclairewi.gov		

Mail Check to: (if different from applicant)

Name and Title	Address		
Organization	City	State	ZIP Code

For DNR Use Only

Application Type	Date Received 8/1/13	Date Reviewed (AIS/LC/RC)	AIS/Lake /River Coordinator Approval /Date
Waterbody ID#	Adequate Public Access Yes No	Environmental Grants Specialist Approval / Date	
Eligible Project Yes No	Eligible Applicant Yes No	Project Priority Rank	Research / Demo Project Yes No
Prior Grant Award(s) Yes No	Fiscal Year(s)	Amount Received To Date $	Project Awarded Yes No

Aquatic Invasive Species (AIS) Control Grant Application

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Section III: Project Information

Project Title Half Moon Lake	Proposed Ending Date 12/31/15

Other Management Units	Letter of Support	Other Management Units	Letter of Support
1.	☐	4.	☐
2.	☐	5.	☐
3.	☐	6.	☐

Section IV: Public Access

Number of Public Vehicle Trailer Parking Spaces Available at Public Access Sites: 25

Number of Public Access Sites Including Boat Launches and Walk-ins: 3

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	56,220	3,780	
2. Consulting services			
3. Purchased services--printing and mailing			
4. Other purchased services (specify):			
5. Plant material			
6. Supplies (specify)	40,000		
7. Depreciation on equipment			
8. Hourly equipment use charges			
9. State Lab of Hygiene (SLOH) Costs			
10. Non-SLOH Lab Costs			
11. Other (specify)			
12. **Subtotals** (sum each column)			
13. **Total Project Cost Estimate** (sum of **column 1 plus** sum of **column 2**)	100,000		98,780
14. **State Share Requested (up to 75% of total costs may be requested)**	50,000		

Subject to the following maximum grant amounts:

- Education, Prevention and Planning Projects--up to $150,000
- Early Detection and Response Projects--up to $20,000
- Established Infestation Control Projects--up to $200,000

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: ***(Refer to instructions for applicability.)***

- ☒ 1. Authorizing resolution
- ☐ 2. Letters of support
- ☒ 3. Map of project location and boundaries
- ☒ 4. Lake map or river segment with public access sites identified (per Section IV of this application and page 20 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), River Management Organizations (RMOs) or Qualified Non-profit Organizations:

- ☐ 1. For first time applicant LMOs/RMOs only: A completed Form 8700-226 (Lake Association Organizational Application) or 8700-287 (River Management Organization Application)
- ☐ 2. For first time applicant Qualified Nonprofit Organizations 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. Brochures, newsletters, annual reports or other information about your organization

C. Education, Prevention and Planning Projects: ***(No additional attachments required.)***

D. Early Detection and Response Projects:

- ☐ 1. APM Permit application

E. Established Infestation Control Projects:

- ☐ 1. Management Plan
- ☐ 2. APM Permit application

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 Russell Van Gompel	Title of Authorized Representative City Manager
Signature of Authorized Representative Russell V- Gompel	Date Signed 7/29/13

Cost Analysis.

Cost analysis.

Task	Analysis		Unit price	Sampling		Total	2014		2015		Total		
			($)	Events	No.		Grant	In-kind	Grant	In-kind	Grant	In-kind	Combined
1. Herbicide Treatment			$20,000	1	1	1	$20,000		$20,000		$40,000		$40,000
2. Water Quality	Field Sampling	In situ variables, light attenuation, water sampling	$400	13	1	13	$5,200		$5,200		$10,400		$10,400
	Chemistry	Total phosphorus	$25	13	6	78	$1,950		$1,950		$3,900		$3,900
		Soluble reactive phosphorus	$20	13	6	78	$1,560		$1,560		$3,120		$3,120
		Alkalinity	$15	13	6	78	$1,170		$1,170		$2,340		$2,340
		Chlorophyll	$35	13	6	78	$2,730		$2,730		$5,460		$5,460
		Phytoplankton enumeration	$130	6	1	6	$780		$780		$1,560		$1,560
		Subtotal					$13,390		$13,390				
3. Storm Sewers		Flow gaging and Phosphorus	$1,875	1	4	4	$7,500		$7,500		$15,000		$15,000
		Subtotal					$7,500		$7,500				
4. Macropytes	Field Sampling	April (sampling events require 2 days for collection)	$500	6	1	6	$3,000		$3,000		$6,000		$6,000
	Processing	Turion and macrophytes	$500	3	1	3	$1,500		$1,500		$3,000		$3,000
		Subtotal					$4,500		$4,500				
5. Reporting		Data reduction and interpretation (80 hours @ $50/hr)	$4,000				$2,110	$1,890	$2,110	$1,890	$4,220	$3,780	$8,000
Totals							$47,500	$1,890	$47,500	$1,890	$95,000	$3,780	$98,780

Monitoring and Evaluation of Native Macrophyte Community Response to Early Spring Endothall Treatment to Control Curly-leaf Pondweed in Half Moon Lake, Wisconsin
2014-2015

Proposal

16 July, 2013

University of Wisconsin – Stout
Sustainability Sciences Institute – Discovery Center
Menomonie, WI

BACKGROUND AND OBJECTIVES:

Native submersed macrophytes play an important structuring role in biological community dynamics and water quality conditions of aquatic ecosystems (Jeppesen et al., 1998). These communities promote increased light penetration and water clarity by dampening wave shear stress and stabilizing flocculent sediment from resuspension (Barko and James, 1998). They also provide refugia for young fish and habitat for a diversity of invertebrates. These interactions and feedbacks foster a fishery dominated by piscivores, increased grazing pressure on pelagic phytoplankton, and high transparency; features that are desirable both from an ecosystem perspective and for aesthetic and recreational reasons.

Eutrophication can negatively impact submersed macrophyte growth and community diversity by stimulating excessive algal productivity and decreasing light penetration. In addition, invasion by rapidly growing non-native species such as curly-leaf pondweed (*Potamogeton crispus*) and Eurasian watermilfoil (*Myriophyllum spicatum*) can exacerbate declines in native submersed macrophyte populations in north-temperate climates by forming a dense canopy in early summer that attenuates light.

One of the management concerns is specifically targeting curly-leaf pondweed propagation with minimal impact to the native macrophyte community. Its rapid growth cycle in early spring while native species are still dormant provides window for control prior to turion formation. Herbicide application (Diquat and Endothall) during this period can be very effective in reducing both biomass and turion formation (Netherland et al. 2000). Although efficacy declines as water temperatures fall below 25 °C, control via herbicide can still be achieved if exposure time is greater than one day (Poovey et al. 2002).

Half Moon Lake is a small (area = 0.5 km^2; volume = 12.9×10^5 m^3), shallow (mean depth = 1.6 m; maximum depth = 4 m) wind-sheltered urban oxbow lake located in Eau Claire, Wisconsin. Excessive curly-leaf pondweed biomass has impaired recreational and aesthetic uses of the lake for decades and efforts to control it via harvesting have not been successful. In addition, Eurasian watermilfoil pioneer populations were detected in the southwestern portion of the lake in 2007. The lake is classified as eutrophic to hypereutrophic (Carlson Trophic State Index = 74) and exhibits high algal biomass (> 100 mg/m^3 viable chlorophyll) and frequent blooms after senescence of curly-leaf pondweed, resulting in very poor water clarity and Secchi transparency depths of well less than 1 m.

Prior to 2009, the macrophyte community in Half Moon Lake has been dominated by curly-leaf pondweed, with biomass levels of > 100 g dry mass/m^2 occurring in unharvested areas of the lake. In 2008, point-intercept monitoring on the lake indicated that curly-leaf pondweed was found at ~90% of the sites. Senescence of curly-leaf pondweed in early summer and high rates of internal phosphorus (P) loading have accounted for > 60% of the P inputs to the lake and contributed to blooms of undesirable cyanobacterial species. These impacts have resulted in high light attenuation (i.e. low water clarity) and impairment to the native plant community in the lake (James et al. 2002; James 2010b).

The overall management goal for Half Moon Lake has to improve water clarity and light penetration to promote the re-establishment of healthy native aquatic plant communities. Strategies to accomplish this goal are twofold: 1) reduce infestations of canopy-forming curly-leaf pondweed and Eurasian watermilfoil and 2) control internal phosphorus loading from sediment to limit algal productivity and improve light condition for native plant growth. First, motor boat activity has been restricted on the lake to reduce phosphorus resuspension and internal loading. Second, as part of a previous Aquatic Invasive Species Control Grant (AIS), shading and phosphorus recycling caused by curly-leaf pondweed decomposition has been addressed by annual early spring herbicide (Endothall) treatments during the years 2009-2013 to selectively target this species with minimal impact to native plants. Similar selective control of Eurasian watermilfoil was also accomplished in 2009 under the grant. Finally, phosphorus release from sediments was managed in June, 2011, via application of buffered alum-aluminate to drive algal productivity toward phosphorus-limited growth and increase light penetration for native macrophyte communities.

To assess and evaluate native macrophyte community response to these management measures, extensive limnological monitoring was conducted between 2008 and 2013. Macrophyte species abundance and frequency of occurrence were monitored in June and August of each year using point-intercept sampling techniques to evaluate the effectiveness of the herbicide treatments in controlling curly-leaf pondweed and Eurasian watermilfoil and to quantify native macrophyte community response to changes in water quality and management of the targeted invasive species. These surveys were also part of an early detection monitoring program that found a pioneer population of Eurasian watermilfoil in the southwestern embayment of the lake. Germinated turion frequency of occurrence and stems/m^2 were quantified in early April of each year (i.e., shortly after iceout) to determine areas in the lake that need further herbicide treatment and to evaluate the viable turion seedbank in the sediment. Biomass sampling was conducted in June and late August in 2008-2013 to assess native macrophyte response to management. In addition, in situ (i.e., temperature, dissolved oxygen, pH, conductivity) measurements, light penetration, phosphorus, chlorophyll, and algal abundance were monitored at six stations in the lake between 2008 and 2013 to assess improvement in underwater light habitat for comparison with the native macrophyte community response. Results of these monitoring efforts can be found in James (2012).

The occurrence of germinated curly-leaf pondweed turions shortly after ice-out (and immediately before herbicide treatment) has decreased tremendously after 4 years of treatment (Figure 1). For instance, the mean germinated turion coverage has declined from ~ 40-43 turions/m^2 in 2009-10 to only 5 turions/m^2 in 2013. This pattern suggests that the turion seed bank in the sediment is becoming depleted as a result of targeting curly-leaf pondweed in the early spring before it has begun producing turions for next years cohort. As of 2012 (after 4 early spring treatments), curly-leaf pondweed was found at only 5% of the biomass point-intercept sites in August and the lakewide mean biomass of 1.0 g/m^2 represented < 2% of the total macrophyte community biomass. In addition, Eurasian watermilfoil was not detected during point-intercept and biomass surveys in 2012, four years after initial control in 2009, indicating effective control of this species as a result of the initial treatment in 2009. Native plant frequency of occurrence and biomass has begun to respond positively, with mean lakewide biomass levels at > 100 g/m^2 in 2012, suggesting that this community is beginning to rebound after reduction in curly-leaf pondweed and Eurasian watermilfoil (Figure 2). The native plant community is overwhelmingly dominated by elodea, however other native species (i.e., water celery) have begun to rebound as well. Declines in elodea biomass in August, 2012, were related to a severe wind storm that uprooted a significant portion of the biomass. This material had to be harvested from the lake and wind storm clearly had a negative impact on both occurrence and biomass.

The rebound in native meadow-forming plant species after early spring endothall treatments and the alum treatment in 20011 has coincided with decreased total phosphorus and chlorophyll concentrations in the lake (Figure 3). These water quality improvements have resulted in nearly a doubling of Secchi transparency, and tremendously improved underwater light habitat for native submersed macrophyte growth. As a result of increased underwater light penetration, the estimated maximum depth of submersed macrophyte colonizaed has nearly doubled (Figure 4).

Combining selective endothall control of invasive curly-leaf pondweed with an alum treatment to improve underwater light habitat for native macrophyte growth represents a unique and innovative management approach to shallow lake restoration. A comprehensive and extensive program to monitor macrophyte and lake water quality response has provided important information that can be used to develop management plans for lakes with similar problems throughout the State of Wisconsin. However, more information is needed to assess the longevity of this multifaceted management program on the suppression of targeted curly-leaf pondweed and Eurasian watermilfoil and health of the native macrophyte community. Specifically,

1. Has the curly-leaf pondweed turion bank been depleted sufficiently after 5 years of selective control to suppress curly-leaf pondweed dominance?
2. What is the longevity of the alum treatment in reducing algal dominance and improving underwater light habitat for native submersed macrophytes?
3. What is the longer-term response of the native macrophyte community to management?

The objectives of this proposal are several-fold.

1. Continue the early spring herbicide application for up to 2 more years (2014-2015) to further reduce the turion seedbank in Half Moon Lake. Although turion germination has been reduced substantially (> 80%), additional herbicide treatments are needed to further reduce germination of curly-leaf pondweed and negative impacts to native plant growth.

2. Monitor curly-leaf pondweed turion germination in April of 2014 and 2015 to evaluate prior endothall treatment impacts,

3. Monitor native macrophyte biomass response in June and August of 2014 and 2015

4. Monitor the water quality and light penetration in 2014 and 2015.

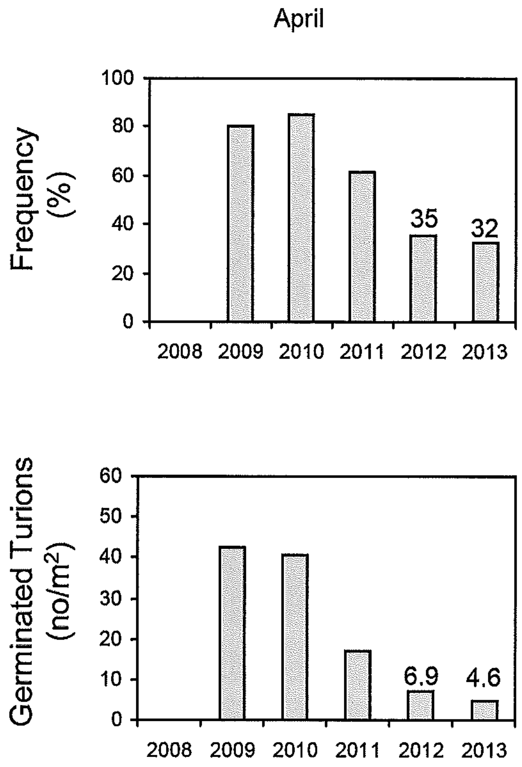

Figure 1. *Percent occurrence (n ~ 140-150; upper panel) and numbers (lower panel) of germinated curly-leaf pondweed tuions in April of various years.*

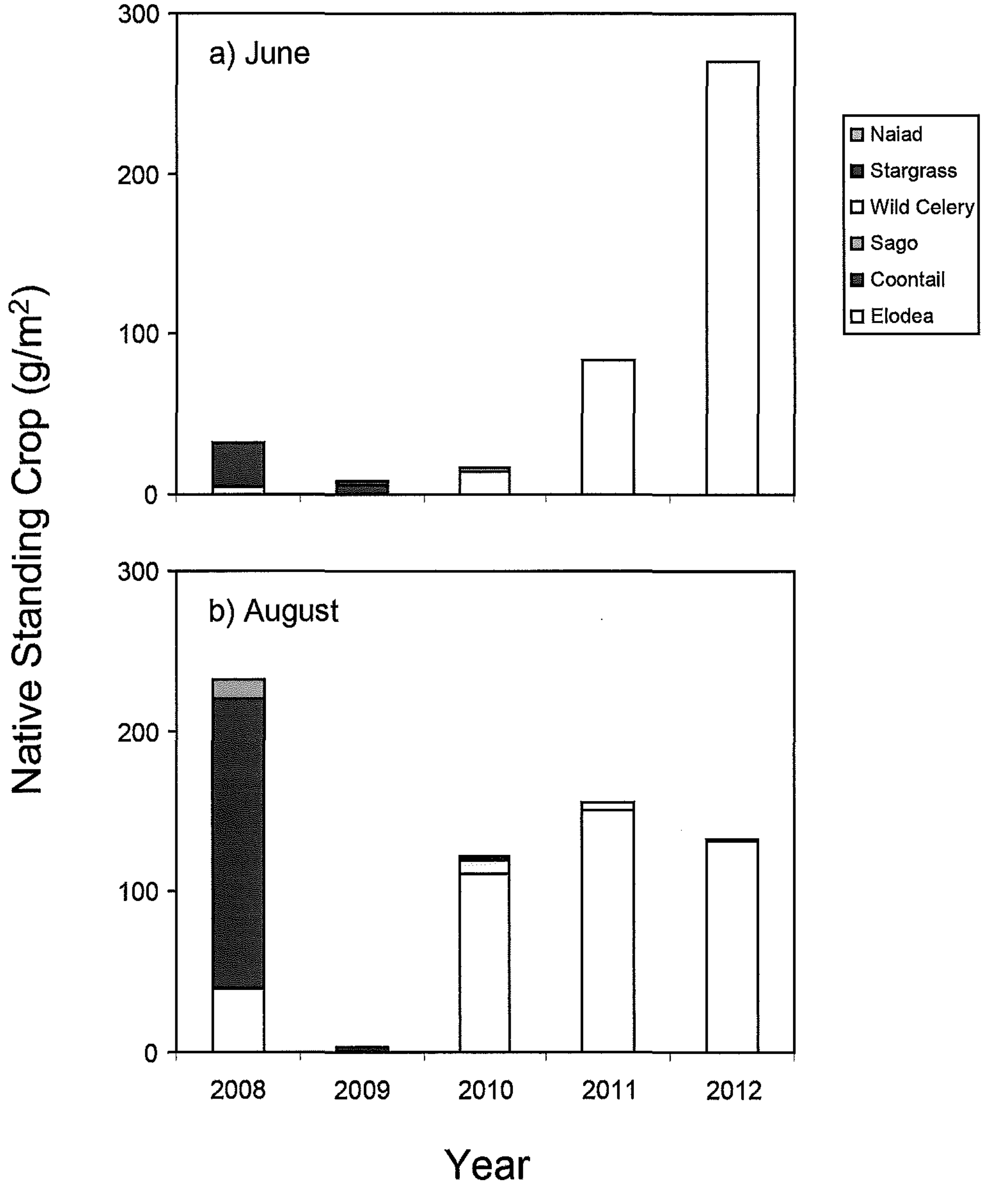

Figure 2. *Native submersed macrophyte lake-wide mean biomass (n ~ 140-150) in June and August of various years. 2008 was the pretreatment year.*

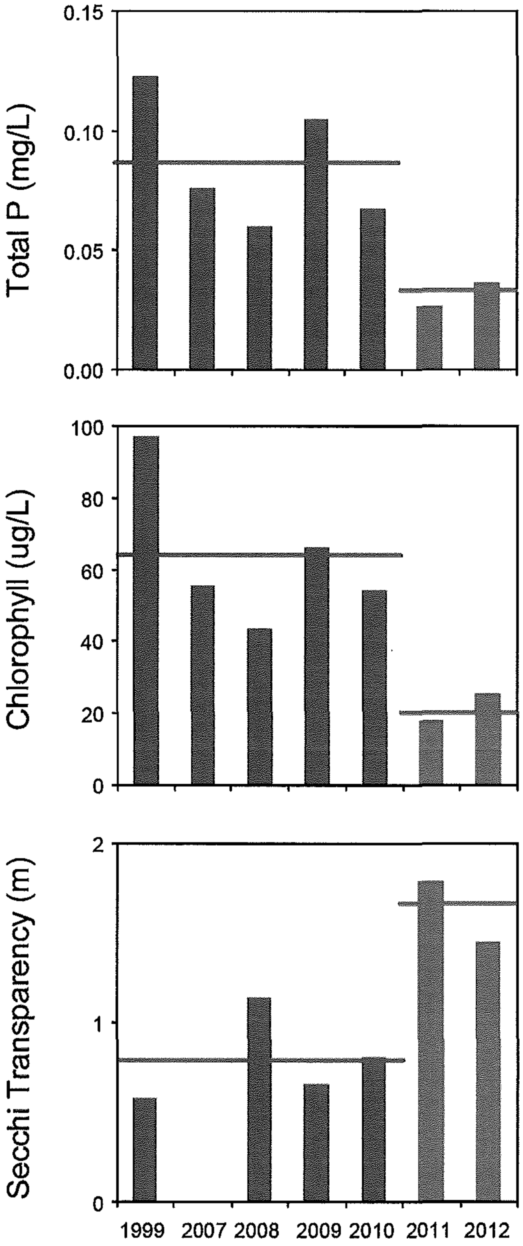

Figure 3. *Summer (JUL-SEP) mean total phosphorus (P), chlorophyll, and Secchi transparency before (blue bars) and after (red bars) alum treatment (June, 2011). Horizontal lines represent overall pre- and post-treatment means.*

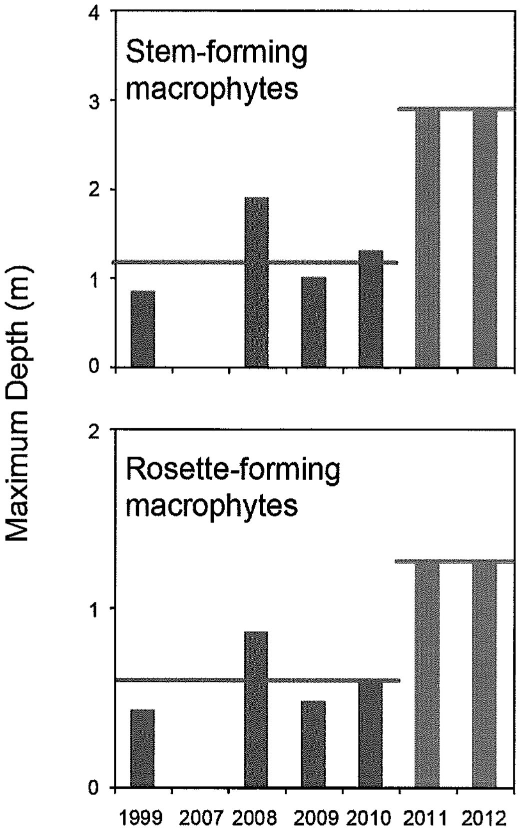

Figure 4. *Summer (JUL-SEP) mean maximum inhabitable depth for stem- and rosette-forming submersed aquatic macrophytes based on Middelboe and Markager (1997) before (blue bars) and after (red bars) alum treatment (June, 2011). Horizontal lines represent overall pre- and post-treatment means.*

Approach:

Task 1. Estimation of treatment areas, time of treatment, herbicide requirements, dosage, and cost for 2014 and 2015

Endothall applied as Aquathol K will be applied in early spring to the entire lake (including Braun's Bay) at a rate of 0.8 mg/L active ingredient (ai) to control curly-leaf pondweed. The application should be conducted when water temperatures are > 12 °C with a maximum temperature of 17 °C. Existing data is unclear on endothall efficacy at temperatures lower than 12. Existing small scale data has indicated that long term efficacy on curly-leaf pondweed may be reduced as water temperatures exceed 20 °C, and susceptible natives may begin to grow at these warmer water temperatures.

Pretreatment curly-leaf pondweed abundance surveys will be conducted to determine areas in the lake that require treatment for control of curly-leaf pondweed. Time of treatment will be based on water temperature in the spring to ensure selectivity for target plants with minimal impact to native species. Herbicide dosage and cost will be estimated for each year of treatment based on curly-leaf pondweed abundance surveys so annual dosage adjustments can be made to treat only areas that are infested. Actual herbicide applications will be contracted through the grant applicant or WI Department of Natural Resources (Table 1). The treatment cost is projected to be $20,000 per year (~$40,000 for 2014 and 2015)

Table 1. Treatment area and projected herbicide requirements.

Application Specifications:

Herbicide calculations

curly-leaf pondweed, 0.8 mg/L ai

Area (acres)	Depth (ft)	Volume (acre-ft)	Herbicide (gal/acre ft)	Total herbicide, gal
134	7.64	1024.00	0.6	614.4

Task 2. Water Quality Monitoring (2014-2015)

Six stations will be established in the lake for water quality monitoring purposes (Figure 5; Table 2). Monitoring will be conducted biweekly at each station between late April and September. Water temperature, dissolved oxygen, conductivity, and pH will be measured in situ at 0.5-m intervals using a sonde unit (Hydrolab Quanta, Hach Inc., Loveland, CO) that is precalibrated against known standards and Winkler titrations. Secchi disk transparency will be measured at each station by lowering a 10-cm diameter alternating black and white disk into the water column until it could not be seen, then slowly pulling it back up until visible, and recording the depth of visibility. Underwater photosynthetically-active radiation will be measured at 10- to 25-cm intervals using a cosine quantum radiometer (Model LI1000, Li-Cor, Inc., Lincoln, NE). The light attenuation coefficient is calculated as,

$$k_d = \frac{\ln(I_o) - \ln(I_z)}{z}$$

where I_o is the surface radiation ($\mu E \cdot s^2$) and I_z is the radiation at depth z (m). In general, k_d is inversely related to Secchi disk transparency. Thus, higher k_d reflects lower light penetration into the water column and a lower Secchi disk transparency.

Water samples will be collected biweekly for total phosphorus, soluble reactive phosphorus, viable chlorophyll, and total alkalinity. An integrated water sample over the upper 2-3 m water column depth will be collected at each station. Total phosphorus samples will be predigested with potassium persulfate according to Ameel et al. (1993) before colorimetric analysis. Soluble reactive phosphorus (i.e., phosphorus available for uptake by algae) will be analyzed colorimetrically using the ascorbic acid method (APHA 2005). Samples for viable chlorophyll (i.e., a surrogate measure of algal biomass) will be filtered onto glass fiber filters (Gelman A/E; 2.0 μ nominal pore size) and extracted in 50:50 dimethyl sulfoxide:acetone before fluorometric determination (Welchmeyer 1994). Total alkalinity will be determined via titration of unfiltered water samples with 0.02 N sulfuric acid according to APHA (2005). Algal enumeration will be conducted on integrated water samples collected at station 10.

Table 2. Water Quality Variable List

In Situ Variables	Temperature
	Dissolved Oxygen
	pH
	Conductivity
	Secchi transparency
	PAR light penetration
Water Chemistry	Viable chlorophyll
	Total P
	Soluble reactive P
	Total Alkalinity
	Algal biomass and species composition (integrated at station 10 only)

- Historical WQ stations (black dots)
- Station 60 was added in 2010

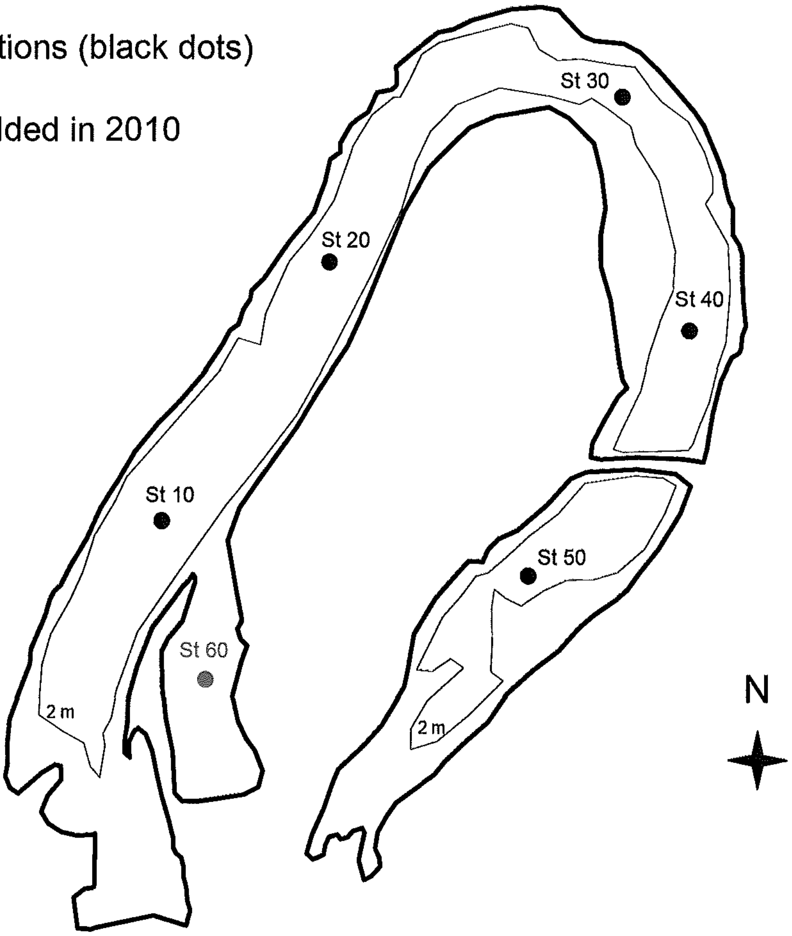

Figure 5. *Water quality station locations.*

Task 3. Evaluation of Phosphorus Loading from Selected Storm Sewers (2014-2015)

The objectives of this task are to re-evaluate phosphorus inputs to the system from selected storm sewers after management of internal phosphorus sources from curly-leaf pondweed, sediment diffusive flux, and motor boat phosphorus resuspension. In particular, phosphorus loading information from various storm water culverts draining into the lake will be needed to evaluate the effectiveness of watershed best management practices implemented by the City of Eau Claire on lake water quality and the phosphorus budget.

Changes in pool elevation will be monitored using a continuously logging pressure transducer (ISCO model 4120). Flow will be measured at up to 4 storm sewers (Figure 6) between April and September using area-velocity and stage height sensors (ISCO model 4120 or 4150 loggers). Water samples will be collected at storm sewer inputs during periods of rainfall runoff using automated sampling techniques (ISCO model 6700). All samples will be analyzed for total and soluble reactive phosphorus. Samples for total phosphorus will be digested with potassium persulfate (Ameel et al. 1993) and analyzed colorimetrically using the ascorbic acid method (APHA 2005). Samples for soluble reactive phosphorus will be filtered through a 0.45 µm filter prior to colorimetric analysis (APHA 2005).

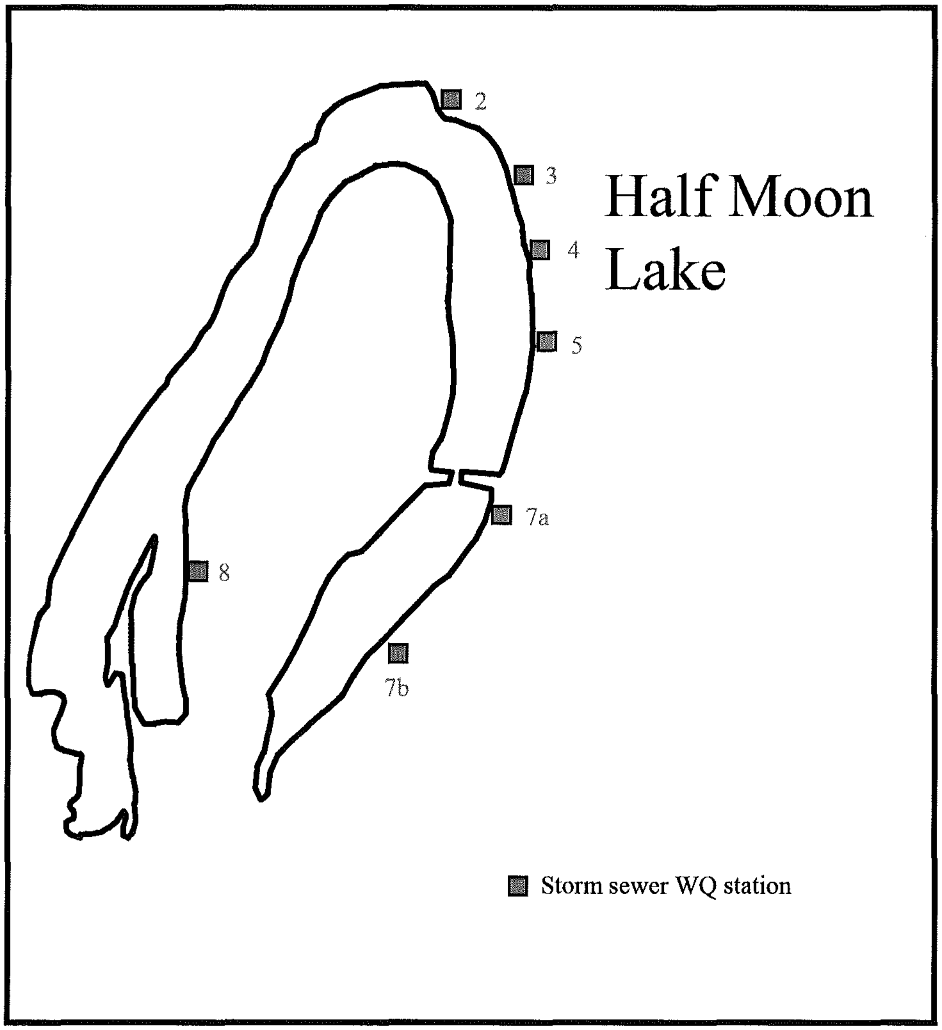

Figure 6. Location of current and historical storm sewer loading stations. Storm sewer monitoring will occur at stations 2, 3, 7b, and 8 in 2012-2014.

Task 4. Curly-leaf pondweed biomass and turion seed bank in sediment (2014-2015)

In June and August, submersed aquatic macrophyte biomass will be quantified at ~140 stations in the lake using the point-intercept method (Madsen, 1993). In late April, numbers of germinated curly-leaf pondweed turions per square meter will be quantified at each station. A rake-pull method will be used to collect samples. The rake is lowered to the sediment and raised to the lake surface at a constant, slow rate while twisting the handle to snag macrophyte stems within a ~ 0.13 m^2 area. The samples will be sorted by species and dried to a constant mass at 65 °C in a forced-air drying oven. Biomass ($g \cdot m^{-2}$) at each station is estimated as dry mass divided by the circular area covered by a 360 degree twist of the rake. The rake-pull method provides a reasonably accurate biomass estimate for species such as curly-leaf pondweed and Eurasian watermilfoil that is comparable to diver quadrat sampling (Johnson 2010). However, it overestimates biomass in areas dominated by coontail, elodea, and flat-stemmed pondweed because these species tend to inter-tangle with plants outside the quadrat area, resulting in unintended sampling from an area wider than that of the rake diameter (Johnson 2010). Thus, caution needs to be used when interpreting biomass data dominated by these species.

Task 5. Reporting

An annual report that describes the results of Tasks 2 and 3 will be provided by 31 December of each year. The reports will describe trends and responses in water quality and plant biomass to the alum and herbicide treatments.

Cost Analysis.

Cost analysis.

Task	Analysis		Unit price	Sampling		Total	2014		2015		Total		
			($)	Events	No.		Grant	In-kind	Grant	In-kind	Grant	In-kind	Combined
1. Herbicide Treatment			$20,000	1	1	1	$20,000		$20,000		$40,000		$40,000
2. Water Quality	Field Sampling	In situ variables, light attenuation, water sampling	$400	13	1	13	$5,200		$5,200		$10,400		$10,400
	Chemistry	Total phosphorus	$25	13	6	78	$1,950		$1,950		$3,900		$3,900
		Soluble reactive phosphorus	$20	13	6	78	$1,560		$1,560		$3,120		$3,120
		Alkalinity	$15	13	6	78	$1,170		$1,170		$2,340		$2,340
		Chlorophyll	$35	13	6	78	$2,730		$2,730		$5,460		$5,460
		Phytoplankton enumeration	$130	6	1	6	$780		$780		$1,560		$1,560
		Subtotal					$13,390		$13,390				
3. Storm Sewers		Flow gaging and Phosphorus	$1,875	1	4	4	$7,500		$7,500		$15,000		$15,000
		Subtotal					$7,500		$7,500				
4. Macropytes	Field Sampling	April (sampling events require 2 days for collection)	$500	6	1	6	$3,000		$3,000		$6,000		$6,000
	Processing	Turion and macrophytes	$500	3	1	3	$1,500		$1,500		$3,000		$3,000
		Subtotal					$4,500		$4,500				
5. Reporting		Data reduction and interpretation (80 hours @ $50/hr)	$4,000				$2,110	$1,890	$2,110	$1,890	$4,220	$3,780	$8,000
Totals							$47,500	$1,890	$47,500	$1,890	$95,000	$3,780	$98,780

References

Ameel JJ, Axler RP, Owen, CJ. 1993. Persulfate digestion for determination of total nitrogen and phosphorus in low nutrient water. American Environmental Laboratory (October, 1993):8-10.

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RESOLUTION

RESOLUTION AUTHORIZING THE SUBMISSION OF AN APPLICATION TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES FOR AN AQUATIC INVASIVE SPECIES GRANT FOR FUNDING FOR HALF MOON LAKE RESEARCH AND TREATMENTS IN 2014 AND 2015.

WHEREAS, the City of Eau Claire desires to improve the water quality of Half Moon Lake for its residents; and

WHEREAS, the estimated cost of research and treatments is $50,000 in 2014 and $50,000 in 2015 and the WI DNR Aquatic Invasive Species Grant will cover half of that cost. The City anticipates funding in the 2014 and 2015 Parks Department Capital Improvement Program for the estimated match of $25,000 in each year, subject to City Council appropriation; and

WHEREAS, the City of Eau Claire is qualified, willing and able to carry out all activities described in the state grant application; and

WHEREAS, in this action the City Council of the City of Eau Claire has declared its intent to conduct all project activities described in the application; and

WHEREAS, the City of Eau Claire will maintain records documenting all expenditures made during the grant project; and

WHEREAS the City will submit a final report to the Department of Natural Resources that describes all grant project activities, achievements and data collected, and documentation of the project costs; and

THEREFORE BE IT RESOLVED by the City Council of the City of Eau Claire, that the City Manager and City Clerk are hereby authorized to act on behalf of the City of Eau Claire to submit an Aquatic Invasive Species Grant application to the WI DNR for a Half Moon Lake research and treatments.

Adopted,

Buzz
I'll send
you the
signed resolution
after the Aug 13
City Council
meeting. Thx

(SEAL) ______________________________
President Kerry J. S. Kincaid

) ______________________________
City Manager Russell Van Gompel

TESTED) ______________________________
City Clerk Donna A. Austad