Sand Lake

Aquatic Plant Management Plan

June 2013

Sawyer County, WI
WIBC: 2393200

Funded by the Sand Lake Shoreowners Association and a grant from the Wisconsin Department of Natural Resources

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Introduction

This Aquatic Plant Management Plan for Sand Lake presents a strategy for managing aquatic plants by protecting native plant populations and preventing the establishment of any invasive species. The plan includes data about the plant community, watershed and water quality of the lake. Based on this data and public input, goals and strategies for the sound management of the aquatic plants in the lake are presented. This plan will guide the Sand Lake Shoreowners Association (SLSOA), the Lac Courte Oreilles Band of Lake Superior Chippewa (LCO), Sawyer County, and the Wisconsin Department of Natural Resources in aquatic plant management for the lake over the next five years (2013 through 2017).

Public Input for Development

The Sand Lake Shoreowners Association Aquatic Plant Management (APM) Committee provided input for the development of this aquatic plant management plan. The Aquatic Plant Management Committee was comprised of members from the Sand Lake Shoreowners Association with representation from the Lac Courte Oreilles Conservation Department. The Sand Lake Shoreowners Association Aquatic Plant Management Committee members included the following:

- Dave Warner
- Tom Baranick
- Tom Huebner
- Nick Malinowsky
- Mike Morrison
- Pat Morrison
- Bill Snyder

The Aquatic Plant Management Committee met once during April and May and communicated many times through email. At the first meeting the committee reviewed aquatic plant management planning requirements, plant survey results, plant concerns, and a timeline for the completion of the plan. The APM Committee expressed a variety of concerns that are reflected in the goals and objectives for aquatic plant management in this plan.

The Sand Lake Shoreowners Association board announced availability of the draft Aquatic Plant Management plan for review to all lake residents at their annual general membership meeting on May 25, 2013. A copy of the plan was also made available to the public through the SLSOA website. Comments were accepted through June 3, 2013. The SLSOA board also approved the plan at their general membership meeting on May 25, 2013.

Lake Management Concerns

The aquatic plant management committee had several major concerns which this plan addresses. These concerns include:

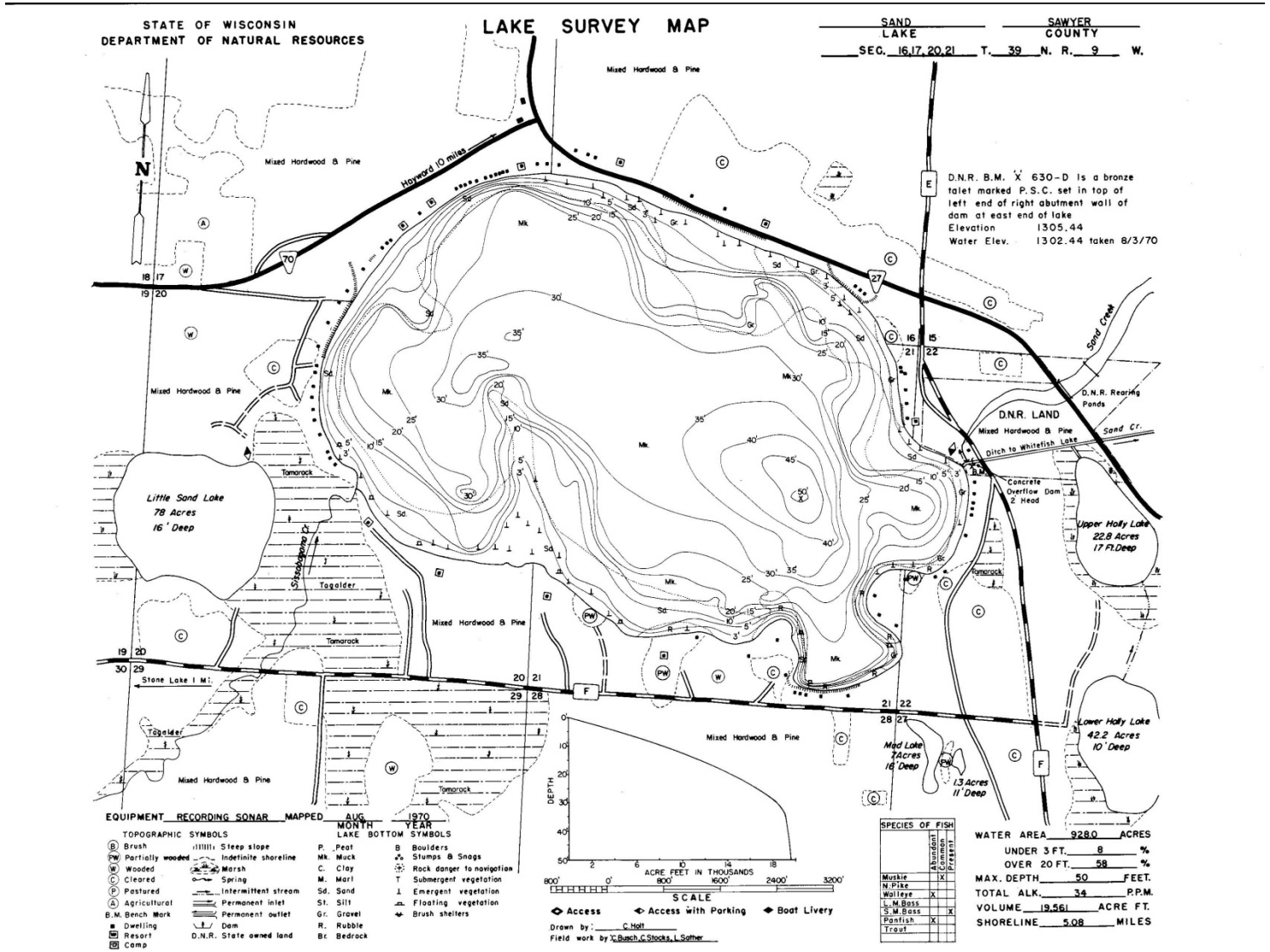
- Preventing the introduction of aquatic invasive species
- Preserving the lakes diverse native plant communities
- Education of lake users about aquatic invasive species and the importance of native plants

Lake Information

Sand Lake located in Sawyer County, Wisconsin, is considered a unique and significant water resource by the Sand Lake Shoreowners Association (SLSOA), the Lac Courte Oreilles Band of Lake Superior Chippewa Indians (LCO), Sawyer County and the Wisconsin Department of Natural Resources (WDNR). A lake map of Sand Lake is shown in Figure 1. Sand Lake is a 950 acre lake and is classified as an Area of Special Natural Resource Interest (ASNRI) by the Wisconsin Department of Natural Resources as both an Outstanding Resource Water (ORW) and a Natural Heritage Inventory Water (NHI). The lake is a soft-water drainage lake located in the Couderay River watershed. Sand Lake has an inlet stream from Big Sissabagama Lake and an outlet consisting of a diversion ditch, which flows into Whitefish Lake. The maximum depth is 50 feet. Approximately 58% of the lake is over 20 feet deep and only 8% is less than 3 feet deep. The total shoreline of the lake spans 5.08 miles.

The lake has a varied fishery which includes walleye, muskellunge, panfish, crappie, and small and largemouth bass. The lake has one state-owned public access located on the east end of the lake near the outlet where there is parking available for approximately 20 car-trailer rigs. One campground is also located on the lake. The lakeshore property owners, LCO tribal members and the general public, via the public accesses, utilize the lake for a wide variety of activities, including fishing, boating, skiing, swimming, snorkeling, SCUBA diving and viewing wildlife.

Figure 1: Sand Lake Map



Water Quality

The LCO Conservation Department has been collecting lake data on a regular basis at several sites throughout the lake since 2000. The Conservation Department has been collecting this data to determine if long-term trends may be occurring in Sand Lake. The LCO Conservation Department also completed a comprehensive water quality study of Sand Lake in 2002 to assess the existing water quality of the lake and provide information for the development of a lake management plan. The study involved collection of data from the lake and its watershed during 2002 and annualized hydrologic and phosphorus budgets were then modeled for existing watershed land use conditions.

Volunteers have also been collecting data on Sand Lake since 1989 for Secchi Disk reading and since 1990 and 1991 for total phosphorus and chlorophyll-a respectively. The historical data was collected at the deep hole by Sand Lake Property Association Volunteers for the Wisconsin Department of Natural Resource's volunteer monitoring program.

The water quality data show that Sand Lake has good water quality that would be consistent with a north temperate mesotrophic lake. Total phosphorus, chlorophyll-a and Secchi disk data are within the mesotrophic category (moderate productivity, accumulated organic matter, occasional algal bloom, minimal recreational use impairments).

General Concepts in Lake Water Quality

There are many concepts and terminology that are necessary to describe and evaluate the water quality of a lake. A brief discussion follows to help better understand the following concepts and terminology:

- Eutrophication
- Trophic states
- Limiting nutrients
- Nutrient recycling and internal loading
- Stratification
- Riparian Zone
- Watershed

Eutrophication

Eutrophication, or lake degradation, is the accumulation of sediments and nutrients in a lake. As a lake naturally ages and becomes more fertile, algae and weed growth increases. The increasing biological production and sediment inflow from the lake's watershed eventually fills in the lake's basin. The process of eutrophication is natural and results from the normal environmental forces that influence a lake. Cultural eutrophication, however, is an acceleration of the natural process caused by human activities. Nutrient and sediment inputs from

agriculture, new construction, houses, septic tanks, lawn fertilizers, and storm water runoff can far exceed the natural inputs to the lake. The accelerated rate of water quality degradation caused by these pollutants results in unpleasant consequences such as profuse and unsightly growths of algae (algal blooms), decreased water clarity and/or the proliferation of rooted aquatic weeds.

The main cause of cultural eutrophication is uncontrolled development within a lake's watershed and/or development without the use of Best Management Practices (BMP's). Creating and implementing a lake management plan prior to the development of the lake's watershed is the best way to try to prevent and minimize the impacts from cultural eutrophication.

Trophic States

Not all lakes are in the same stage of eutrophication because of varying nutrient status. Criteria have been established to evaluate the existing nutrient status of a lake. Trophic state indices (TSI's) are calculated for lakes on the basis of total phosphorus, chlorophyll-a concentrations, and Secchi disk transparencies. A TSI value can be obtained from any one of those parameters. TSI values range upward from zero, designating the condition of the lake in terms of its degree of fertility. The trophic status indicates the severity of a lake's algal growth problems and the degree of change needed to meet its recreational goals. Determining the trophic status of a lake is therefore an important step in diagnosing water quality problems. For a general guideline of TSI, Table 1 can be referred to.

Table 1: Trophic Status and TSI Ranges

Trophic Status	TSI Range	Description
Oligotrophic	TSI 37	Clear, low productivity lakes with total phosphorus concentrations less than or equal 10 ug/L
Mesotrophic	38 TSI 50	Intermediate productivity lakes with total phosphorus concentrations greater than 10 ug/L, but less than 25 ug/L
Eutrophic	51 TSI 63	High productivity lakes generally having 25 to 57 ug/L of total phosphorus

Trophic Status	TSI Range	Description
Hypereutrophic	64 TSI	Extremely productive lakes that are highly eutrophic, disturbed and unstable (i.e., fluctuating in their water quality on a daily and seasonal scale, producing gases, off-flavor, and toxic substances, experiencing periodic anoxia and fish kills, etc.) With total phosphorus concentrations above 57 ug/L

Limiting Nutrients

The quantity of algae in a lake is usually limited by the water's concentration of an essential element or nutrient. This is the limiting nutrient. The limiting nutrient concept is a widely applied principle in ecology and in the study of eutrophication. It is based on the idea that plants require many nutrients to grow, but the nutrient with the lowest availability, relative to the amount needed by the plant or algae, will limit its growth.

Nitrogen (N) and phosphorus (P) are generally the two growth-limiting nutrients for algae in most natural waters. Analysis of the nutrient content in lake water provides ratios of N:P. By comparing the ratio, one can estimate whether a particular nutrient may be limiting. Algal growth is generally phosphorus-limited in waters with a N:P ratio greater than 15. It has been amply demonstrated that phosphorus is usually the nutrient in limited supply in fresh waters. Therefore, reducing phosphorus in the lake is required to reduce algal abundance and improve water transparency. The failure to reduce the phosphorus concentrations entering the lake will allow the process of accelerated eutrophication to continue.

Nutrient Recycling and Internal Loading

Watershed runoff, which includes overland flow and groundwater infiltration, and direct atmospheric deposition are the two ways in which phosphorus can enter a lake. It would therefore seem reasonable that phosphorus in a lake can be decreased by reducing these external loads of phosphorus to the lake. However, all lakes accumulate phosphorus, along with other nutrients, in the sediments from the settling of particles and dead organisms. In some lakes this stored phosphorous can be reintroduced into the lake water and become available again for plant uptake. This reintroduction typically occurs during spring and fall turnover and in many cases is the cause for spring and fall algal blooms. This release of the nutrients from the sediments to the lake water is known as "internal loading". The amount of phosphorus coming from internal and external loads varies with each lake. Internal loading can be estimated from depth profiles of dissolved oxygen and phosphorus concentrations.

Stratification

The process of internal loading is dependent on the amount of organic material in the sediments and the depth-temperature pattern, or "thermal stratification", of a lake. Thermal stratification has a profound influence on a lake's chemistry and biology. As the ice melts and the air temperature warms in the spring, lakes generally progress from being completely mixed to stratified with only an upper warm well-mixed layer of water (epilimnion), and cold temperatures in a bottom layer (hypolimnion). Because of the density differences between the lighter warm water and the heavier cold water, stratification in a lake can become very resistant to mixing. When this occurs, generally in mid to late summer, oxygen from the air cannot reach the bottom lake water and, if the lake sediments have sufficient organic matter, biological activity can deplete the remaining oxygen in the hypolimnion. The epilimnion can remain well-oxygenated, while the water above the sediments in the hypolimnion becomes completely devoid of dissolved oxygen (anoxic). Complete loss of oxygen changes the chemical conditions in the water and allows phosphorus that had remained bound to sediments to reenter the lake water. Phosphorus concentrations in the hypolimnion can continue to rise as the summer progresses until oxygen is once again reintroduced. The dissolved oxygen concentration will increase if the lake sufficiently mixes to disrupt the thermal stratification. Phosphorus in the hypolimnion is generally not available for plant uptake because there is not sufficient light penetration into the hypolimnion to allow for plant growth or the growth of algae. The phosphorus, therefore, remains trapped and unavailable to the plants until the lake is completely mixed again. In shallow lakes mixing can occur frequently throughout the summer with sufficient wind energy. In deeper lakes only extremely high wind energy is sufficient to destratify a lake during the summer and complete mixing only occurs in the spring and fall. The cooling air temperature in the fall reduces the epilimnion water temperature and consequently increases the density of water in the epilimnion. As the epilimnion water density approaches the density of the hypolimnion water, very little energy is needed to cause complete mixing of the lake. When this fall mixing occurs, phosphorus that has built up in the hypolimnion is mixed with the epilimnetic water and some of it becomes available for algal growth. This is typically the cause behind fall algal blooms. The remainder of the phosphorus combines with iron in the water to form an amorphous ferric-hydroxy-phosphate complex that re-precipitates to the lake's bottom sediments.

Riparian Zone

The riparian zone is extremely important to the lake and to the plants living there. Riparian vegetation is that which is growing close to the lake and may be different from the terrestrial or upland vegetation. The width of the riparian zone varies depending on many factors, including soils, vegetation, slopes, soil moisture, depth of the water table, and even by location on the lake. For instance, the north shore vegetation may provide little or no shade, while vegetation on the southern shore may offer shade and cover well into the lake.

The riparian zone is important for the following reasons:

- Acts as a filter from outside impacts;
- Stabilizes the bank with an extensive root system;
- Helps control or filter erosion;
- Provides screening to protect visual quality and hides man's activities and buildings;
- Provides the natural visual backdrop as seen from the lake;
- Provides organic material to the lake's food web;
- Offers cover and shade for fish and other aquatic life;
- Provides valuable wildlife habitat

The riparian zone is the area most often impacted and riparian vegetation is lost when man enters the scene. Cabins, homes, lawns, driveways, or other structures may replace native riparian vegetation. Additional riparian vegetation may be eliminated to provide a larger view from the house or it may be mowed and its value to the lake is lost.

The loss of riparian vegetation results in the deterioration of many lake values besides water quality. Wildlife habitat is lost, the scenic quality suffers, fish habitat is impacted, bank stability may be weakened and the potential for erosion increases. The vegetation in the riparian zone filters phosphorus and sediments from runoff water, which in turn protects the water quality of the lake.

Watershed

The area of land that drains to the lake is called the lake's watershed. This area may be small, as is the case of small seepage lakes. Seepage lakes have no stream inlet or outlet and their watersheds include only the land draining directly to the lake. On the other hand, a lake's watershed may be large, as in drainage lakes such as Sand Lake. Drainage lakes have both a stream inlet and an outlet and therefore their watersheds include the land draining to the streams in addition to the land draining directly to the lake. The water draining to a lake may carry pollutants that affect the lake's water quality. Therefore, water quality conditions of the lake are a direct result of the land use practices within the entire watershed. Poor water quality may reflect poor land use practices or pollution problems within the watershed. Good water quality conditions suggest that proper land uses are occurring in the watershed or there is minimal development within the watershed.

All land use practices within a lake's watershed impact the lake and determine its water quality. Impacts result from the export of sediment and nutrients, primarily phosphorus, to a lake from its watershed. Each land use contributes a different quantity of phosphorus to the lake, thereby, affecting the lake's water quality differently. An understanding of a lake's watershed,

phosphorus exported from the watershed, and the relationship between the lake's water quality and its watershed must be understood.

Sand Lake 2002 Water Quality Study

The water quality data from the 2002 study completed by the LCO Conservation Department showed that Sand Lake has good water quality that would be consistent with a north temperate mesotrophic lake. Total phosphorus, chlorophyll-a and Secchi disk data were within the mesotrophic category (moderate productivity, accumulated organic matter, occasional algal bloom, minimal recreational use impairments). Water clarity was slightly better than expected based upon total phosphorus concentrations. Based upon the chlorophyll-a concentrations, the water clarity was slightly less than what would be expected. Summer Secchi disk readings averaged 9.1 feet, summer total phosphorus readings averaged 19.1 ug/L, and summer chlorophyll-a readings averaged 3.19 ug/L.

The results of the phosphorus budget modeling indicated that the total annual phosphorus loading to Sand Lake was 3672 pounds, based on 2002 data. The results are presented in Figure 2. Agricultural land use contributed the largest amount of phosphorus (1,671 lbs or 46%). The next largest phosphorus source to the lake is from the Sissabagama Lake watershed via the inlet of Sissabagama Creek (927 lbs or 25%). The forested portion of the watershed contributes 309 lbs of phosphorus which is just over 8% of the total loading. Wetlands within the watershed are estimated to contribute 150 lbs (4%). By applying a wet and dry atmospheric deposition rate of 0.26 lbs/acre/yr to the surface of Sand Lake, the atmospheric component of the phosphorus loading is computed to be 240 lbs or 7%. The computations reveal that septic systems and residential use contribute 63 lbs (2%) and 119 lbs (3%) of the annual load respectively. Internal loading also contributes 193 lbs which is just over 5% of the total phosphorus load.

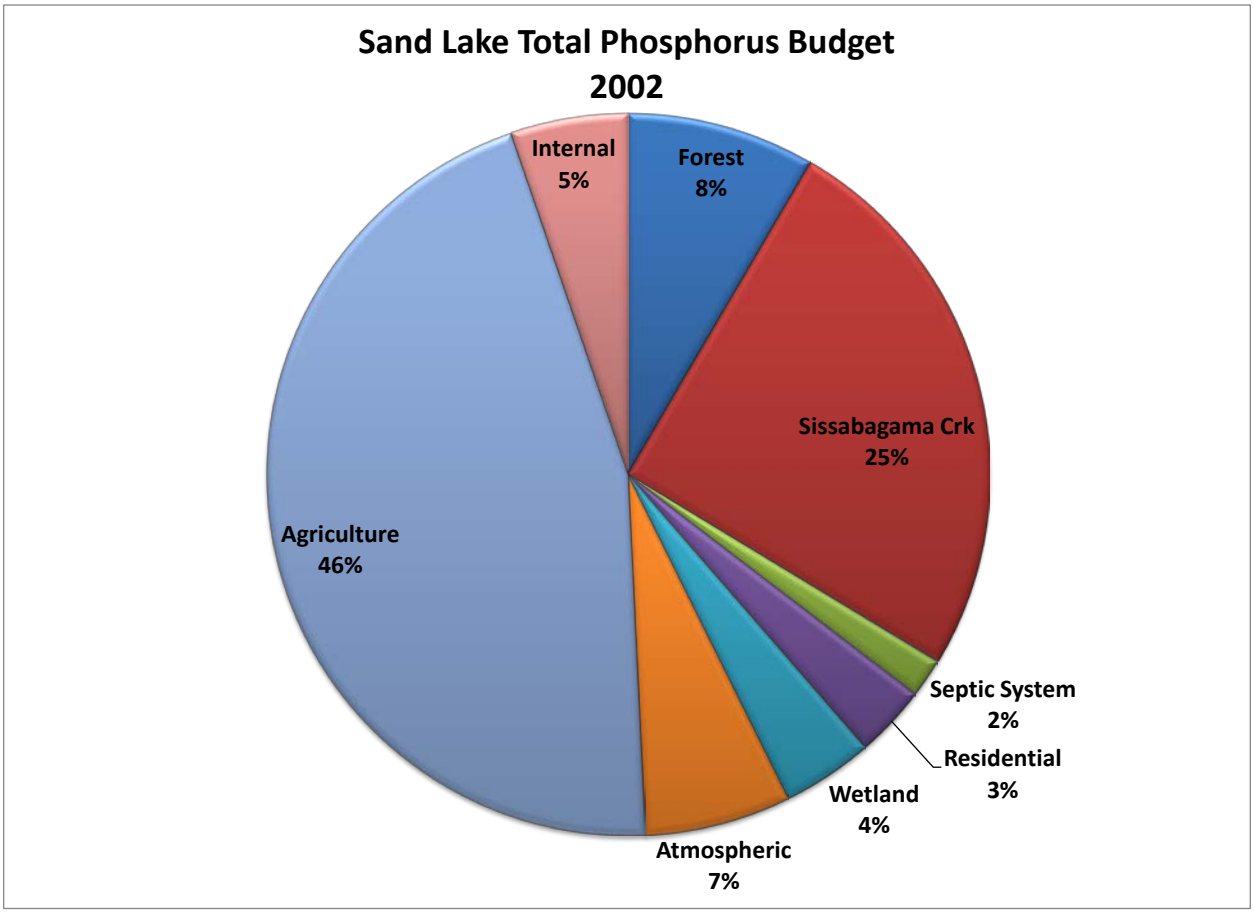
The impacts of cultural eutrophication on Sand Lake were estimated in the study by modeling pre-development in-lake phosphorus concentrations and comparing the estimated pre-development concentrations with current phosphorus concentrations (i.e., post-development conditions). Cultural eutrophication describes the acceleration of the natural eutrophication process caused by human activities. An assessment of the land uses within the Sand Lake watershed indicate that there are two types of land uses that contribute to cultural eutrophication. These land uses are:

1. ***Agriculture***- the phosphorus loading from agricultural land uses includes the row crop and the pasture/grassland land use types. The total loading from agriculture is estimated to be just over 45% of the total loading to Sand Lake.

2. ***Residential*** - residential land use comprises the households within the watershed

and the septic systems located around the lake shore. The total phosphorus loading from residential land use is estimated to be 5% of the total annual phosphorus loading.

Figure 2: Sand Lake Total Phosphorus Budget



Three modeling scenarios were completed to assess the impacts of cultural eutrophication on Sand Lake. The three scenarios consisted of the following:

1. Estimating the in-lake phosphorus concentration assuming forested land use (i.e., pre-development condition) in place of agricultural land use (i.e., current or post-development condition).

2. Estimating the in-lake phosphorus concentration assuming forested land use (i.e., pre-development condition) in place of residential land use (i.e., current or post-development condition).

3. Estimating the in-lake phosphorus concentration assuming forested land use (i.e., pre-development conditions) in place of agricultural and residential land uses (i.e.,

current or post-development conditions).

The model indicates that the assumed conversion of forested land use to agricultural land use results in a 9 ug/L (40%) increase in the total in-lake phosphorus concentration based upon 2002 summer average total phosphorus concentrations. This increase in phosphorus results in a very noticeable water quality change. The estimated 9 ug/L increase in total phosphorus concentrations results in an estimated decrease in the average annual Secchi disc transparency of 7.1 feet. This is based upon the regression relationship between Secchi disk depth and total phosphorus of the 2002 summer data for Sand Lake. The predicted decrease in Secchi disk depth would be an overall reduction in water clarity of 78% based upon the 2002 average summer Secchi disk depth of 9.1 feet.

The model indicates that the assumed conversion of forested land use to residential land use results in a 0.9 ug/L (4%) increase in the total in-lake phosphorus concentration. The estimated 0.9 ug/L increase in total phosphorus concentrations results in an estimated decrease in the average annual Secchi disc transparency of 0.7 feet. This is based upon the regression relationship between Secchi disk depth and total phosphorus of the 2002 summer data for Sand Lake. The 0.7 feet decrease in Secchi disk depth correlates to an 8% decrease in the water clarity based upon the 2002 average summer Secchi disk depth of 9.1 feet.

The model indicates that the assumed conversion of forested land use to agricultural and residential uses results in a 9.9 ug/L (44%) increase in the total in-lake phosphorus concentration. This increase in phosphorus results in a very noticeable water quality change. The estimated 9.9 ug/L increase in total phosphorus concentrations results in an estimated decrease in the average annual Secchi disc transparency of 7.8 feet. This is based upon the regression relationship between Secchi disk depth and total phosphorus of the 2002 summer data for Sand Lake. This predicted decrease in Secchi disk depth would be an overall reduction in water clarity of 86% based upon the 2002 average summer Secchi disk depth of 9.1 feet.

Evaluation of Historical Water Quality Data

A large amount of data is available due to the efforts of the SLSOA volunteer monitors and the LCO Conservation Department. Historical data dating back to 1989 is available for Secchi Disk readings and data is also available dating back to 1990 and 1991 for total phosphorus and chlorophyll-a respectively. The historical data has routinely been collected at the deep hole.

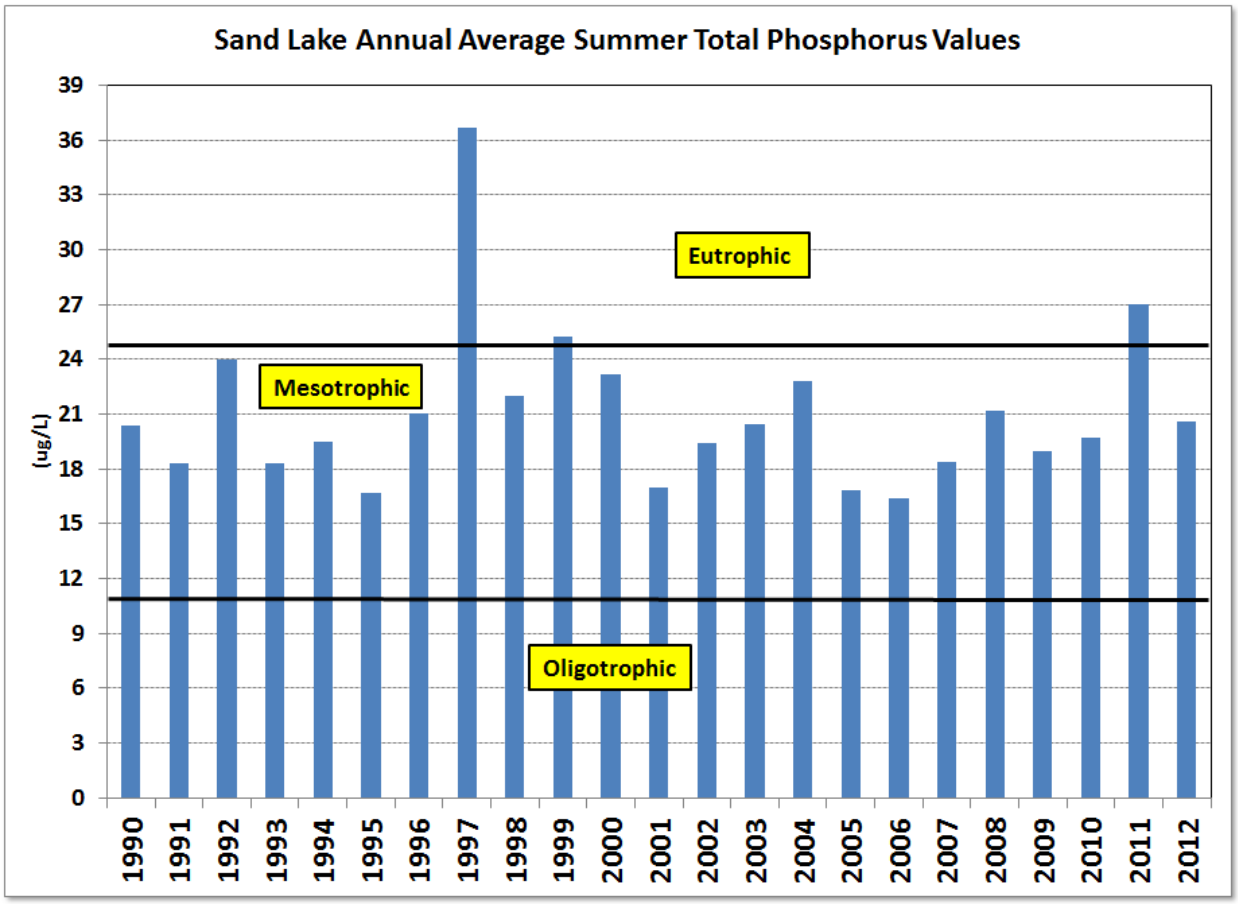
Phosphorus

Phosphorus is the plant nutrient that most often limits the growth of algae. Phosphorus-rich lake water indicates a lake has the potential for abundant algal growth, which can lead to lower water transparency and a decline in hypolimnetic oxygen levels in a lake. While nitrogen can limit algal growth, it can be obtained from the atmosphere by certain algal species. This is

termed nitrogen fixation. Thus, phosphorus is the only essential nutrient that can be effectively managed to limit algal growth. Figure 3 shows the average summer total phosphorus values from 1990 thru 2012.

The long-term monitoring data indicates that no statistically significant trend exists for the total phosphorus data. The differences in total phosphorus values can be attributed to natural variation. All total phosphorus values were within the mesotrophic category except for 1997, 1999 and 2011 when it was within the eutrophic category.

Figure 3: Sand Lake Average Total Phosphorus Values

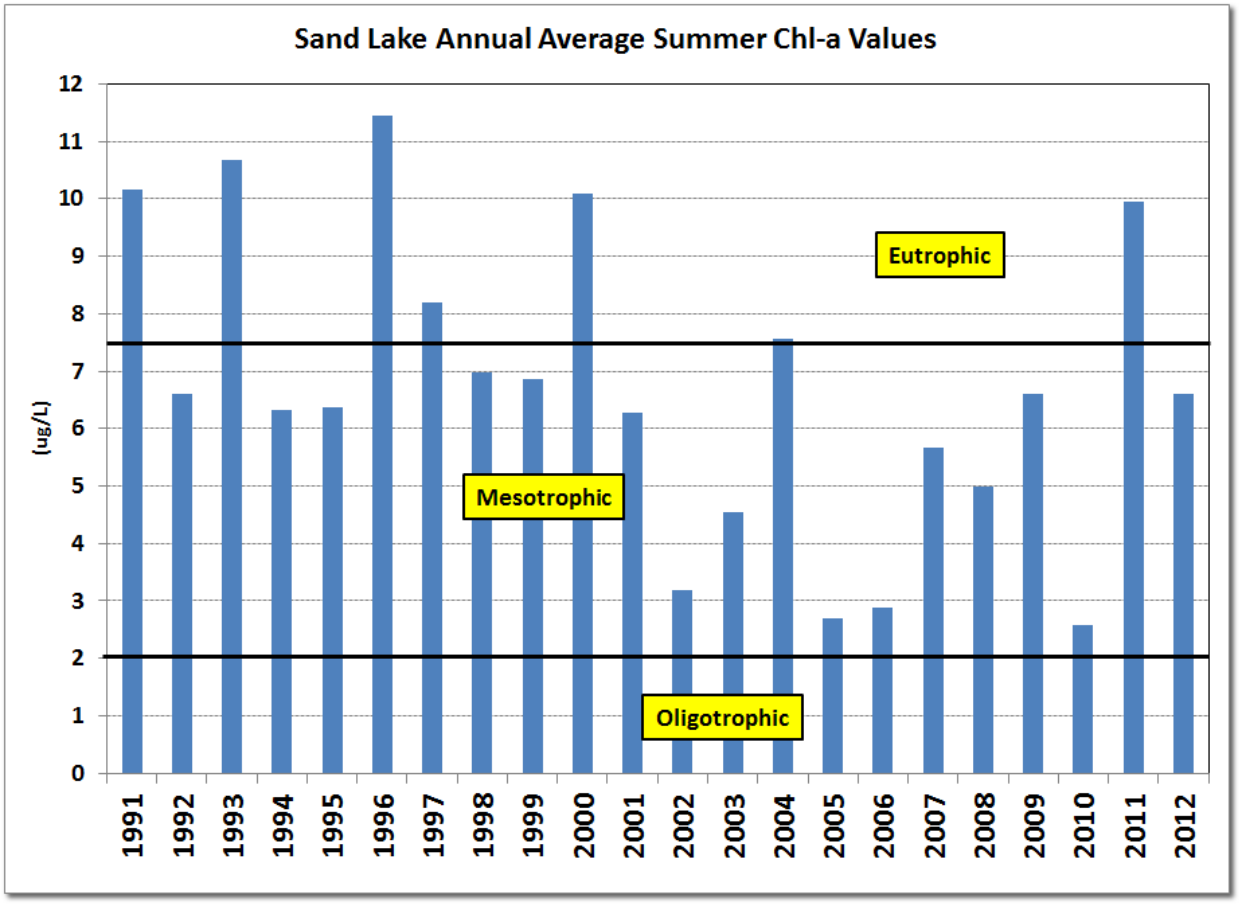


Chlorophyll-a

Chlorophyll-a is a measure of algal abundance within a lake. High chlorophyll-a concentrations indicate excessive algal abundance (i.e. algal blooms), which can lead to recreational use impairment. Figure 4 shows the average summer chlorophyll-a values from 1991 thru 2012.

An evaluation of the historical annual summer chlorophyll-a values reveals that there are some significant variations of the chlorophyll-a- data between some of the years. However a significant long-term trend which either would indicate increasing or decreasing chlorophyll-a-concentrations does not exist. The chlorophyll-a values varied from eutrophic to mesotrophic throughout the period.

Figure 4: Average Chl-a Values



Secchi disk

Secchi disk transparency is a measure of water clarity. Perceptions and expectations of people using a lake are generally correlated with water clarity. The results of a survey completed by the Metropolitan Council (Osgood, 1989) indicated that the following relationships can generally be perceived between a lake's recreational use impairment and Secchi disk transparencies:

- No impairment occurs at Secchi disk transparencies greater than 4 meters (13 feet).[1]
- Minimal impairment occurs at Secchi disk transparencies of 2 to 4 meters (6.5 - 13 feet).
- Moderate impairment occurs at Secchi disk transparencies of 1 to 2 meters (3.3 - 6.5 feet).
- Moderate to severe use-impairment occurs at Secchi disk transparencies less than 1 meter (3.3 feet).

Figure 5 shows the average Secchi disk readings from 1989 thru 2013. An evaluation of the historical annual summer Secchi disk data reveals several short term trends. The data shows that from 1989 through 1992 the clarity of Sand Lake steadily decreased. In 1992 Sand Lake recorded its lowest Secchi value. From 1992 through 1994 the visibility began increasing and then started another trend of decreasing visibility from 1994 through 1996. However the long-term monitoring data from 1989 - 2012 shows that no statistically significant trend exists over this extended time frame for Secchi disk data. The differences in Secchi values can be attributed to natural variation. All Secchi values were within the mesotrophic category except for 1992 when the Secchi disk depth was within the eutrophic category.

Alkalinity

Alkalinity is associated with the carbon system in the lake. Another term used to indicate a lake's alkalinity is hardness. Hard water lakes (greater than 60 mg/L calcium carbonate) tend to be better producers of aquatic life, including both plants and animals. Soft water lakes (less than 60 mg/L calcium carbonate) are not as productive. Extremely low alkalinities (less than 5 mg/L calcium carbonate) are more likely to be impacted by acidification resulting from acid rain. Alkalinities above 5 mg/L calcium carbonate have enough buffering to counteract the effects of acid rain. Alkalinity Data for Sand Lake indicates that it has an alkalinity of 34 mg/L. Sand Lake would therefore be classified as a soft water lake.

Trophic State Index

The historical annual summer Trophic State Index (TSI) values indicate that water clarity is typically better than what would be expected based upon the total phosphorus and chlorophyll-a- readings. Even though the TSI values were not the same for all of the parameters, they tended to follow the same general pattern, once again suggesting that the lake is phosphorus limited.

[1] Osgood, R.A.;1989. Assessment of Lake Use - Impairment in the Twin Cities metropolitan Area. Prepared for the Minnesota Pollution Control Agency. Metropolitan Council Publication 590-89-130. 12 pp.

Figure 5: Average Secchi Disk Values

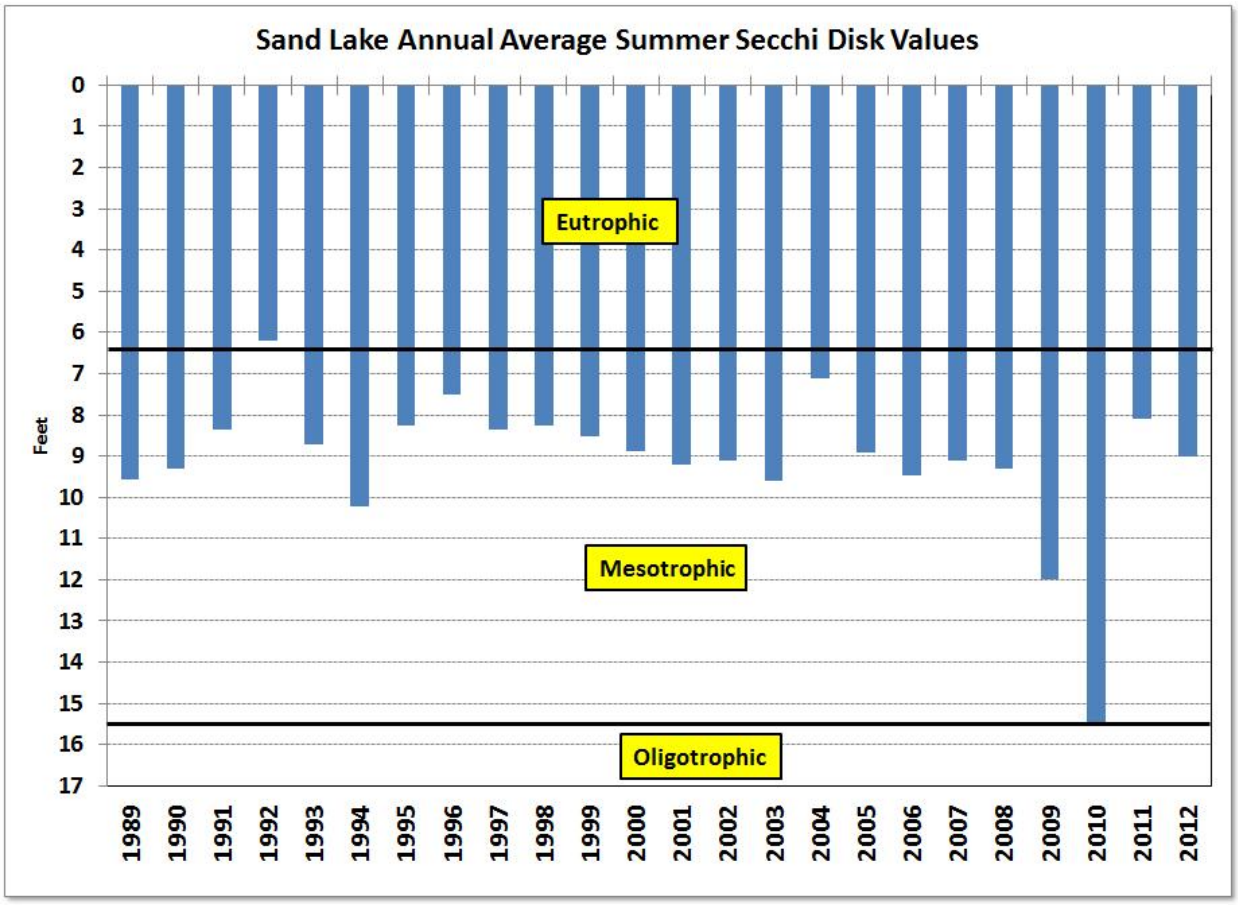


Table 2 indicates the trophic state index (TSI) for Sand Lake for 2012 based on the given parameter. The TSI values correspond to the parameter readings taken between Memorial Day and Labor Day, or the dates closest to these when samples were taken. The span of these dates corresponds with typical summer conditions and peak recreational use of the lake and therefore should most closely correlate with user perceptions of the lake. The TSI values indicate that Sand Lake was mesotrophic (Table 1) during 2012.

Table 2: Sand Lake 2012 Trophic State Indices

Parameter	Value	Trophic State Index
Total Phosphorus	20.6 ug/L	48
Chlorophyll-a-	6.6 ug/L	49
Secchi disk depth	9.0 feet	46

Watershed

The watershed for Sand Lake is part of the Couderay River watershed (Watershed Identification Key UC20) located in the Upper Chippewa River Basin. The watershed is primarily forest with development occurring along the lakeshore. The forested land is a good land cover to have around the lake since it contributes much smaller nutrient and sediment amounts into the lake compared to developed land covers such as residential and agriculture. The total watershed of Sand Lake encompasses 17,078 acres or 26.7 miles^2 (refer to Figure 6). This gives a watershed basin to lake area ratio of 18.4:1. Of the 17,078 acres, 9,110 acres drain directly into Sand Lake. This will be referred to as the direct watershed. The remaining 7,968 acres drain into Big Sissabagama Lake which then drains into Sand Lake from Sissabagama Creek. The various land uses and their corresponding acreage within the direct watershed are indicated in Table 3. Figure 7 is graphical representation of different land use acreage within the direct watershed.

Table 3: Sand Lake Direct Watershed Land Use and Acreage

Land Use	Acres
Row Crop	2,538
Pasture/Grassland	100
Medium Density Residential	155
Rural Residential	307.5
Wetlands	1,684
Forest	4,325.5
Lake Surface Area	928

Direct Watershed

Sub-watershed

Figure 6: Sand Lake Watershed

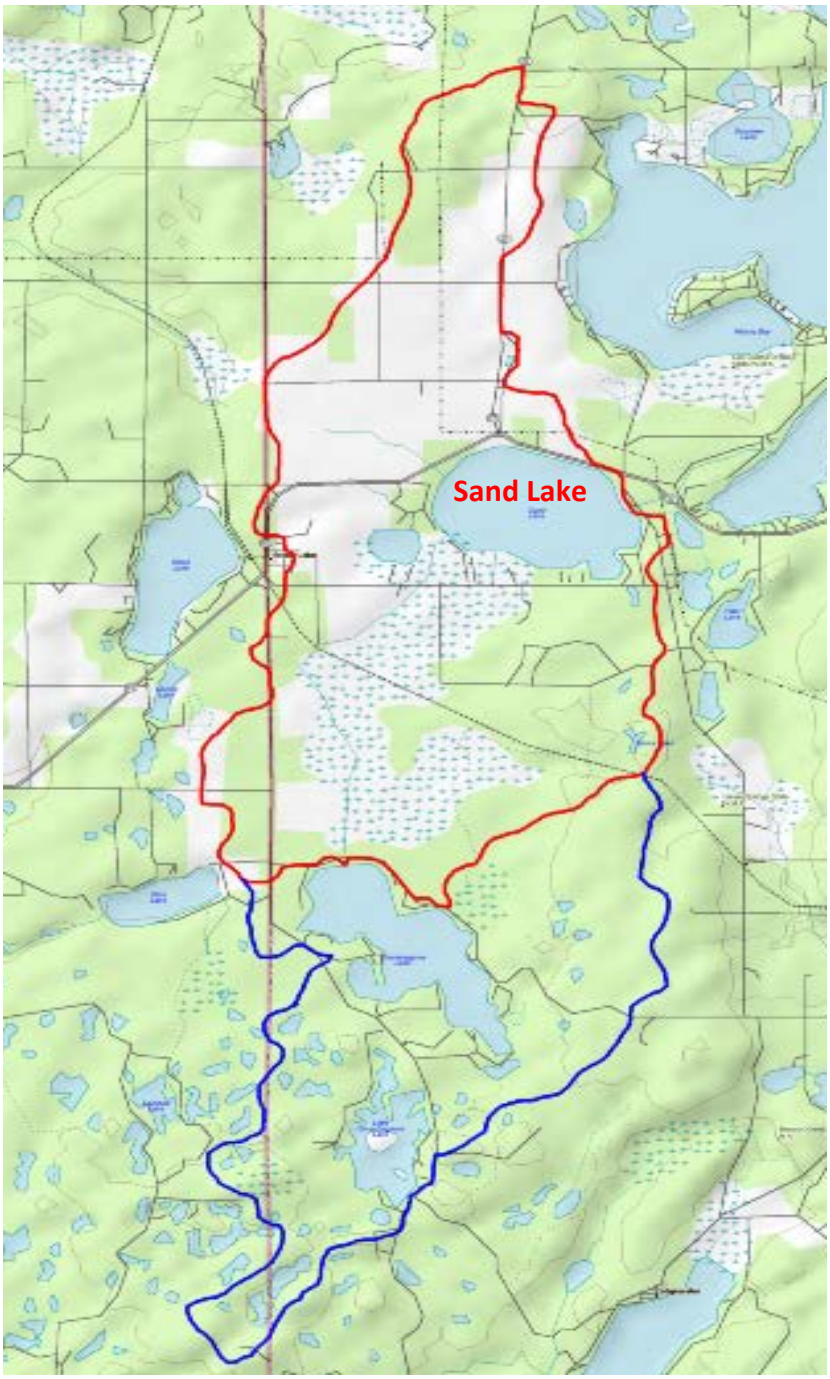
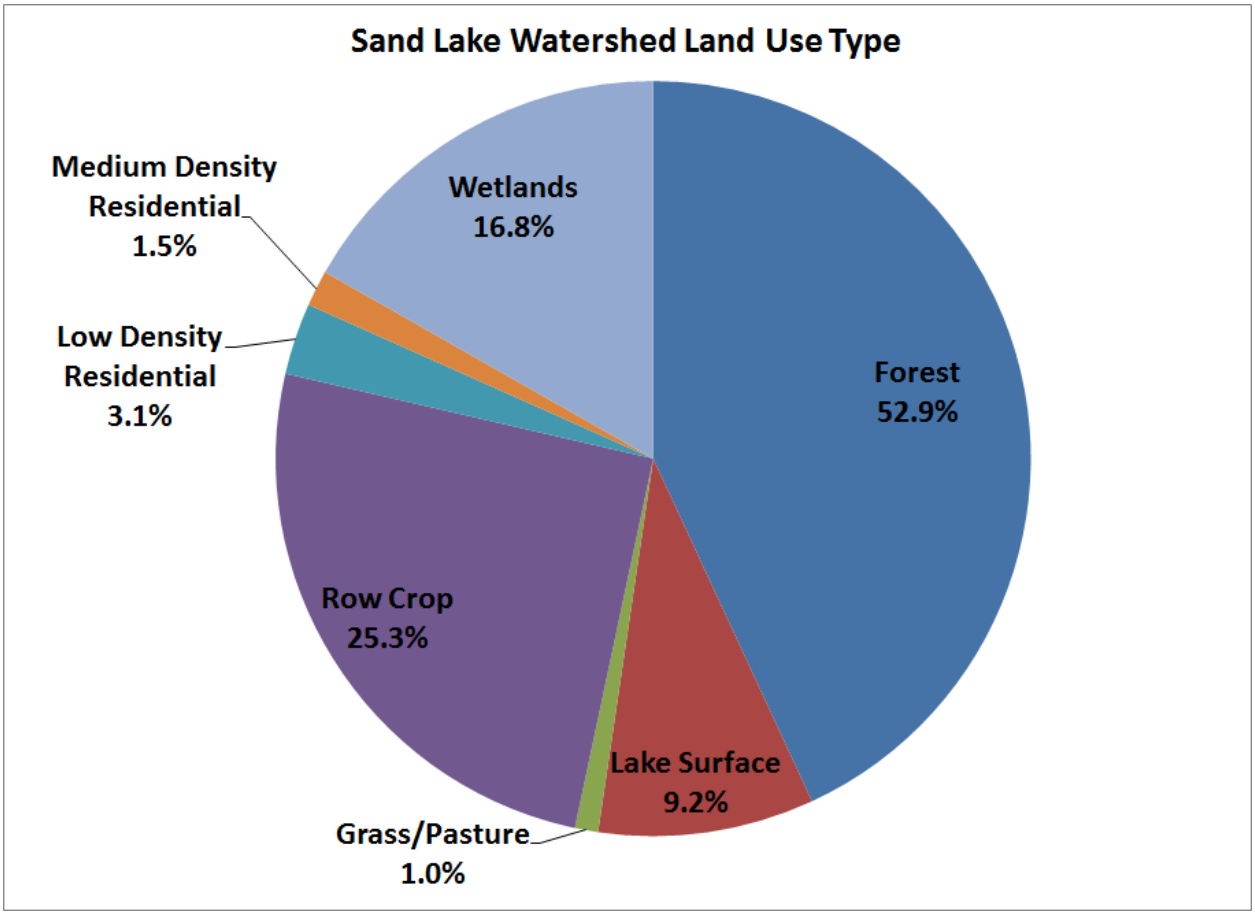


Figure 7: Watershed Land Uses



Hydrologic Budget Calculations

The 2002 water year (October 1, 2001 through September 30, 2002) estimated hydrologic budget for Sand Lake which was completed for the 2002 water quality study is presented in Figures 8 and 9. Figure 8 presents the estimated outflow budget and Figure 9 presents the estimated inflow budget. The inflow budget indicates that runoff, which is comprised of both overland flow and groundwater flow, contributed over half of the estimated water input to the lake. Sissabagama Creek was the next largest contributor with over 35% and direct precipitation on the lake surface, both rain and snow, made up the remainder of the annual water load. The watershed runoff volume, including overland flow and groundwater, represents an annual water yield of approximately 16.05 inches from the Sand Lake watershed.

Water leaving the lake via the outlet was nearly 73% of the outflow budget for the lake. Groundwater seepage was the next largest output at 15% and evaporation from the lake's surface comprised the remainder with 12%.

Figure 8: Sand Lake Outflow

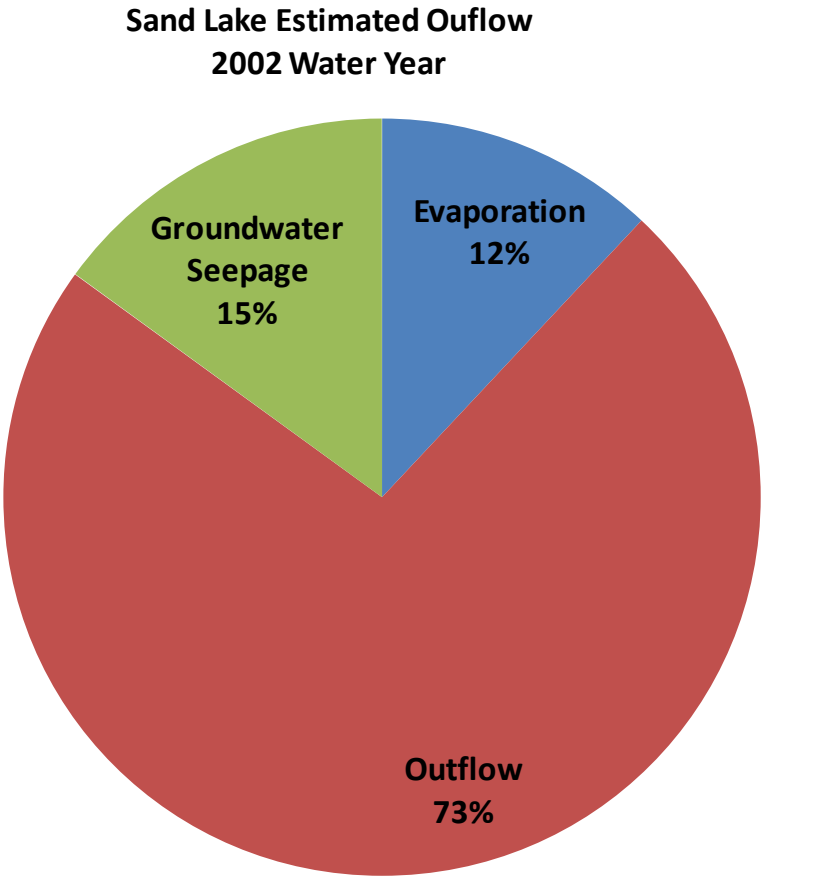
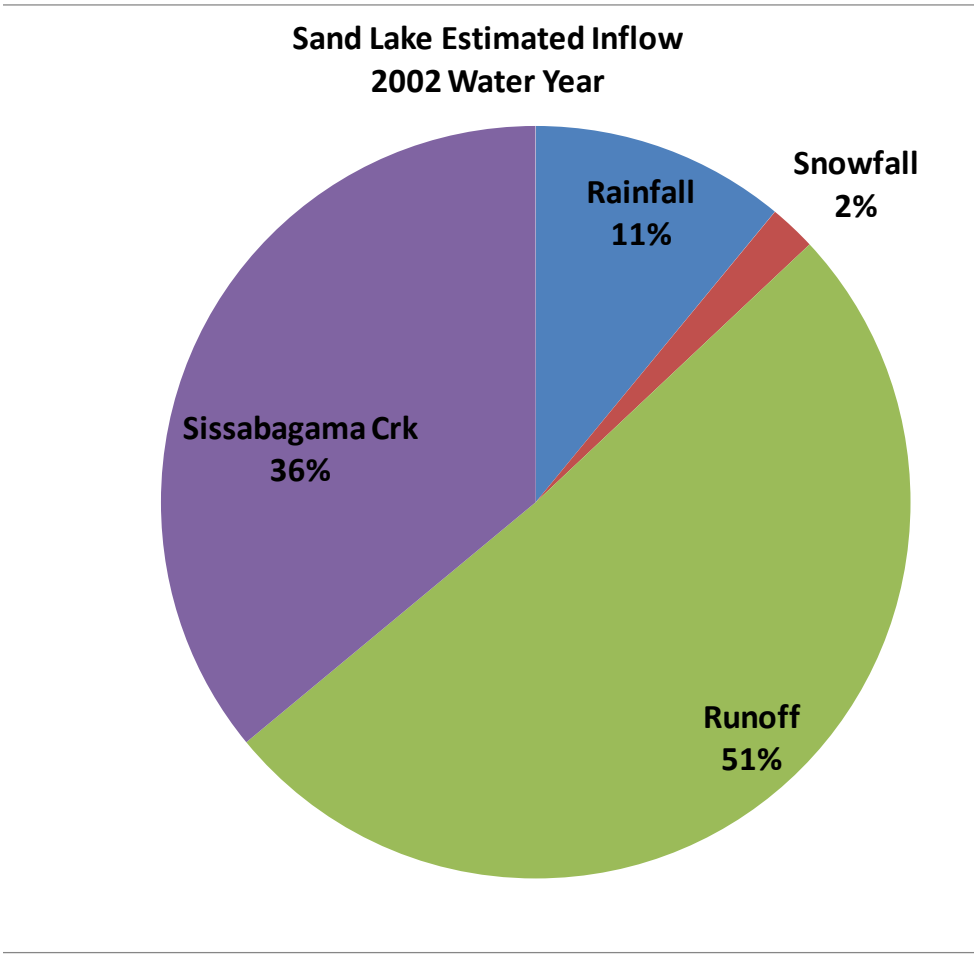


Figure 9: Sand Lake Inflow



Aquatic Habitats

Primary Human Use Areas

The lakeshore property owners, LCO tribal members and the general public, via the public access, utilize the lake for a wide variety of activities, including fishing, boating, skiing, swimming, snorkeling, SCUBA diving and viewing wildlife. Public access to the lake is via the public boat launch which is indicated in Figure 1.

Presently, there are 172 single family dwellings on Sand Lake and 1 campground that has 5 cottages and 50 campsites. This is up from 155 residences on the lake when the 2002 water quality study was completed. All of these residences utilize septic systems. A septic system survey was completed by the WI Department of Natural Resources in the late 1960's or early 1970's and a number of them had to be replaced or repaired. Algal blooms seemed to be

significantly reduced afterwards.[2] Since it has been over forty years since a septic system survey was completed on Sand Lake, it is recommended that a new survey be completed to determine the amount of non-complying systems that exist today.

Fisheries

Sand Lake has a varied fishery. The summary of the fishery right now (2012) would be that it is back to a fully walleye dominated fishery. As such there few panfish and bass as a result of predation. Musky do have some natural reproduction but currently the DNR feels it needs supplemental stocking to keep it a viable recreational fishery. There are numerous reports from anglers saying they are catching lots of fish but few legal ones (>18 inches). This could either be because they are not growing fast enough to get past 18 or if they are they are harvested as soon as they get there.[3]

The stocking history for Sand Lake is included in Table 4. The latest surveys in 2012 revealed that there are approximately 8.46 adult walleye per acre and 0.20 adult muskellunge per acre. The estimate of 0.20 adult muskellunge per acre is below the statewide average which is about 0.33 fish per acre. Lakes with moderate to low densities of muskellunge generally support higher growth rates than high density musky lakes. Copies of the latest WDNR (2012) spring netting survey and spring adult walleye population estimates are included in Appendix A.

Table 4: Sand Lake Stocking Data

Year	Species	Age Class	Number Fish Stocked	Avg Fish Length (IN)
1991	MUSKELLUNGE	FINGERLING	1500	11
1992	MUSKELLUNGE	FINGERLING	928	9.7
1995	MUSKELLUNGE	FINGERLING	942	8.6
1997	MUSKELLUNGE	LARGE FINGERLING	1227	11
1999	MUSKELLUNGE	LARGE FINGERLING	928	11.7
1999	WALLEYE	SMALL FINGERLING	46400	1.3
2001	MUSKELLUNGE	LARGE FINGERLING	928	9.7
2002	WALLEYE	SMALL FINGERLING	46399	1.5
2003	MUSKELLUNGE	LARGE FINGERLING	464	12
2004	WALLEYE	SMALL FINGERLING	46393	1.1
2005	MUSKELLUNGE	LARGE FINGERLING	305	12
2005	MUSKELLUNGE	LARGE FINGERLING	610	11.9
2005	WALLEYE	FRY	250000	
2005	WALLEYE	LARGE FINGERLING	800	7
2005	WALLEYE	LARGE FINGERLING	1000	7

[2] Personal communication, Bill Snyder, Sand Lake Property Owner

[3] Personal communication, Max Wolter, WI DNR Fisheries Biologist Hayward Service Center

Year	Species	Age Class	Number Fish Stocked	Avg Fish Length (IN)
2006	WALLEYE	SMALL FINGERLING	32480	1.5
2007	MUSKELLUNGE	LARGE FINGERLING	308	12.4
2009	MUSKELLUNGE	LARGE FINGERLING	463	10.2
2011	MUSKELLUNGE	LARGE FINGERLING	464	11.6

Rare and Endangered Species Habitat

Sand Lake is located in T39N 9W. Table 5 lists the species that the Wisconsin Natural heritage Inventory has listed for the Town and Range that Sand Lake is located in. The listing does not provide enough detail to know if the species are actually found in Sand Lake.

Table 5: Rare and Endangered Species (T39N R9W)

Scientific Name	Common Name	State Status[4]
Canis lupus	Gray Wolf	SC/FL
Eleocharis robbinsii	Robbins' Spikerush	SC
Haliaeetus leucocephalus	Bald Eagle	SC/P
Lepomis megalotis	Longear Sunfish	THR
Moxostoma valenciennesi	Greater Redhorse	THR
Potamogeton pulcher	Spotted Pondweed	END
Scirpus torreyi	Torrey's Bulrush	SC
Utricularia purpurea	Purple Bladderwort	SC

Freshwater sponges were also found in Sand Lake. The conservation status of freshwater sponges is unknown. Freshwater sponges have only been found in fewer than half of the counties in Wisconsin. More information on freshwater sponges can be found in Appendix B.

Freshwater Sponge - Sand Lake
Photo by: WDNR

[4] THR = Threatened, SC = Special Concern, SC/FL = Special Concern (federally protected as endangered or threatened), SC/P = Special Concern (federally protected), END = endangered

PLANT COMMUNITY

Functions and Values of Aquatic Plants

Native aquatic plants play a key role in the ecology of a lake. They can help to maintain water quality, prevent shoreline erosion and provide habit for a wide diversity of species from fish to amphibians to mammals. Table 6 lists the species of plants that were sampled or observed in Sand Lake and their ecological significance.

Bulrush stand – Sand Lake
Photo by: D. Tyrolt

Table 6: Sand Lake Plants and Their Significance

Scientific Name	Common Name	Ecological Significance[5]
filamentous algae	filamentous algae	
Brasenia schreberi	Watershield	The seeds, leaves, stems and buds are consumed by a wide variety of waterfowl. The Floating leaves offer shade and shelter for fish and invertebrates.
Ceratophyllum demersum	Coontail	The stiff whorls of leaves offer prime habitat for a host of critters, particularly during the winter when many other plants are reduced to roots and rhizomes. Both the foliage and fruit are grazed by waterfowl. Bushy stems of coontail harbor many invertebrates and provide important shelter and foraging opportunities for fish.

[5] Summarized from Through the Looking Glass. Borman etal. 1997.

Scientific Name	Common Name	Ecological Significance[5]
Chara	Muskgrasses	A favorite waterfowl food. Algae and invertebrates found on it provide additional grazing. It is also considered valuable fish habitat. Beds of muskgrass offer cover and are excellent producers of food, especially for young trout, largemouth bass and smallmouth bass. The rhizoids slow the movement and suspension of sediments. Therefore, stands of muskgrass can benefit water quality. It is a good bottom stabilizer.
Elodea canadensis	Common waterweed	The branching stems offer valuable shelter and grazing opportunities for fish, although very dense stands can obstruct fish movement. It also provides food for muskrats and waterfowl.
Equisetum fluviatile	Water horsetail	Provides food for waterfowl (primarily geese). Recent research has shown it is a primary food source for trumpeter swans on their breeding grounds in Alaska. It dominates the post-hatch diet of both adults and young. The continuous development of new shoots offers a reliable and easily accessible source of food for the cygnets.
Eriocaulon aquaticum	Pipewort	Beds of pipewort create shallow water structure for young fish, amphibians and invertebrates. The leaves are sometimes grazed by ducks.
Isoetes sp.	Quillwort	Provide habit in low nutrient lakes that may have very limited plant growth. The foliage is sometimes consumed by waterfowl or game birds including sharp-tailed grouse.
Lemna minor	Small duckweed	It is a nutritious food source that can provide up to 90% of the dietary needs for a variety of ducks and geese. It is also consumed by muskrat, beaver and fish. Rafts of duckweed offer shade and cover for fish and invertebrates. Extensive mats of duckweed can also inhibit mosquito breeding.
Megalodonta beckii	Water marigold	The submersed foliage offers shade, shelter and foraging opportunities for fish. Waterfowl and shorebirds may consume the fruit when the plant produces it. It is considered an "indicator species." It is sensitive to changes in water quality, and may be one of the first submersed plants to disappear from a lake when water quality declines.
Myriophyllum sibiricum	Northern water milfoil	Leaves and fruit are consumed by a variety of waterfowl. The feathery foliage traps detritus and provides invertebrate habitat. Beds offer shade, shelter and foraging opportunities for fish.
Myriophyllum tenellum	Dwarf water milfoil	Provides good spawning habitat for panfish and shelter for small invertebrates. The network of rhizomes helps stabilize sediment.

Scientific Name	Common Name	Ecological Significance[5]
Najas flexilis	Bushy pondweed	It is one of the most important plants for waterfowl. Stems, leaves and seeds are all consumed by a wide variety of ducks. It is also important to a variety of marsh birds as well as muskrats. It is a good producer of food and shelter for fish.
Nitella sp.	Nitella	It is sometimes grazed by waterfowl. The algae and invertebrates on its surface are attractive to ducks and geese. It also offers foraging opportunities for fish.
Nuphar variegata	Spatterdock	It anchors the shallow water community and provide food for many residents. It provides seeds for waterfowl. The leaves, stems and flowers are grazed by deer. Muskrat, beaver and even porcupine have been reported to eat the rhizomes. The leaves offer shade and shelter for fish as well as habitat for invertebrates.
Nymphaea odorata	White water lily	It provides seeds for waterfowl. The leaves, stems and flowers are grazed by deer. Muskrat, beaver and even porcupine have been reported to eat the rhizomes. The leaves offer shade and shelter for fish.
Potamogeton amplifolius	Large-leaf pondweed	The broad leaves offer shade, shelter and foraging opportunities for fish. Abundant production of large nutlets makes this a valuable waterfowl food.
Potamogeton illinoensis	Illinois pondweed	The fruit which are produced are grazed by a variety of waterfowl. The fruit may also be eaten by muskrat, beaver and deer. Offers excellent shade and cover for fish and good surface area for invertebrates.
Potamogeton pusillus	Small pondweed	It can be a locally important food source for a variety of ducks and geese. It may also be grazed by muskrat, deer, beaver and moose. It provides a food source and cover for fish.
Potamogeton richardsonii	Clasping-leaf pondweed	It can be a locally important food source for a variety of ducks and geese. It may also be grazed by muskrat, deer, beaver and moose. It provides a food source and cover for fish.
Potamogeton robbinsii	Fern pondweed	It provides habitat for invertebrates that are grazed by waterfowl. It also offers good cover and foraging opportunities for fish, particularly northern pike.
Potamogeton strictifolius	Stiff pondweed	It can be a locally important food source for a variety of ducks and geese. It may also be grazed by muskrat, deer, beaver and moose. It provides a food source and cover for fish.

Scientific Name	Common Name	Ecological Significance[5]
Potamogeton zosteriformis	Flat-stem pondweed	It can be a locally important food source for a variety of ducks and geese. It may also be grazed by muskrat, deer, beaver and moose. It provides a food source and cover for fish.
Ranunculus aquatilis	Stiff water crowfoot	As flowers give way to fruit, the water crowfoot bed becomes a choice spot dabbling ducks. Both fruit and foliage are consumed by variety of waterfowl. When it is growing in shallow zones, it is sometimes consumed by upland game birds including ruffed grouse. Stems and leaves provide valuable invertebrate habitat and it is considered a fair producer of food for trout.
Schoenoplectus acutus	Hardstem bulrush	It offers habitat for invertebrates and shelter for young fish, especially northern pike. The nutlets are consumed by a wide variety of waterfowl, marsh birds (including bitterns, herons, rails) and upland birds. Stems and rhizomes are eaten by geese and muskrats. Bulrushes also provide nesting material and cover for waterfowl, marsh birds and muskrats.
Schoenoplectus pungens	Three-square rush	A wide variety of ducks rely upon it as a food source. Snow geese also feed on it. It is heavily grazed by muskrat and provides cover for waterfowl and other shallow marsh wildlife.
Vallisneria americana	Wild celery	It is a premier source of food for waterfowl. All portions of the plant are consumed including foliage, rhizomes, tubers and fruit. Wild celery is a prime destination for canvasback ducks. It is also important to marsh birds and shore birds including rail, plover, sand piper and snipe. Muskrats are also known to graze on it. Beds are considered good fish habitat providing shade, shelter and feeding opportunities.

Aquatic Plant Survey Results

The Wisconsin Department of Natural Resources generated the sampling point grid for Sand Lake which consisted of 830 points. Only points shallower than 20 feet were initially sampled until the maximum depth of plants could be established. This was determined to be 11 feet and is considered the littoral zone. A total of 250 points were at depths of 11 feet or less and out of those points, 208 of them contained vegetation. See Table 7 for a summary of the survey statistics. Appendix C contains a more detailed discussion of the aquatic plant survey and also depicts maps of all the species sampled or observed.

Table 7: Sand Lake Aquatic Plant Survey Statistics

SUMMARY STATS:	
Total number of points sampled	279
Total number of sites with vegetation	208
Total number of sites shallower than maximum depth of plants	250
Frequency of occurrence at sites shallower than maximum depth of plants	83.20
Simpson Diversity Index	0.91
Maximum depth of plants (ft)	11.00
Number of sites sampled using rake on Rope (R)	111
Number of sites sampled using rake on Pole (P)	167
Average number of all species per site (shallower than max depth)	2.54
Average number of all species per site (veg. sites only)	3.06
Average number of native species per site (shallower than max depth)	2.32
Average number of native species per site (veg. sites only)	3.06
Species Richness	27
Species Richness (including visuals)	27

Figure 10 shows the points that were sampled at depths of 11 feet or less and can be considered a map of the littoral zone. It also indicates the type of substrate that was present at each of the littoral zone sampling points. Sand was the most dominant substrate type (91%) followed by rock (7%) and then muck (2%).

Species Richness

Twenty-seven species of aquatic macrophytes were directly sampled and observed in Sand Lake during the August whole lake point-intercept survey. Table 8 lists all of the species that were sampled or observed along with their frequency and average rake density.

Plant Diversity

Sand Lake has a very diverse plant community consisting of 27 native species. The Simpson's diversity index is also very high at 0.91 indicating a healthy ecosystem and a high degree of diversity. No single plant dominates within the lake. The plant species abundance is balanced between many different types.

Figure 10: Sand Lake Littoral Zone and Substrate Type

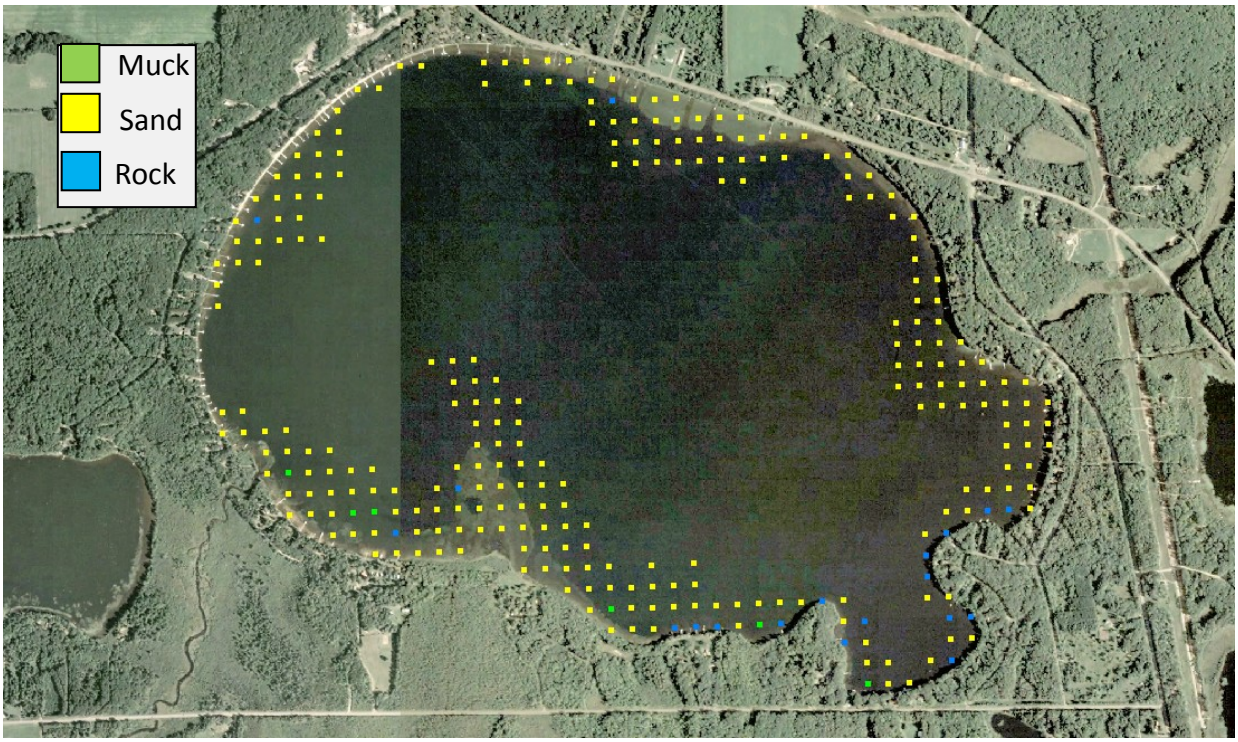


Table 8: Sand Lake Aquatic Plant Frequency and Distribution

Species Name	Common Name	Freq w/in vegetated areas	Freq at sites shallower than max depth of plants	Relative Freq.	Rake Density
Vallisneria americana	Wild celery	65.87	54.8	21.5	1
Potamogeton pusillus	Small pondweed	27.4	22.8	9	1
filamentous algae	filamentous algae	26.44	22	8.6	1
Najas flexilis	Bushy pondweed	26.44	22	8.6	1
Potamogeton richardsonii	Clasping-leaf pondweed	22.12	18.4	7.2	1
Potamogeton amplifolius	Large-leaf pondweed	21.63	18	7.1	1
Isoetes sp.	quillwort	13.94	11.6	4.6	1

Species Name	Common Name	Freq w/in vegetated areas	Freq at sites shallower than max depth of plants	Relative Freq.	Rake Density
Schoenoplectus acutus	Hardstem bulrush	13.46	11.2	4.4	1
Elodea canadensis	Common waterweed	11.06	9.2	3.6	1
Myriophyllum tenellum	Dwarf water milfoil	11.06	9.2	3.6	1
Potamogeton illinoensis	Illinois pondweed	10.58	8.8	3.5	1
Potamogeton robbinsii	Fern Leaf pondweed	8.17	6.8	2.7	1
Chara	Muskgrasses	7.21	6	2.4	1
Potamogeton zosteriformis	Flat-stem pondweed	6.73	5.6	2.2	1
Ceratophyllum demersum	Coontail	6.25	5.2	2	1
Schoenoplectus pungens	Three-square rush	6.25	5.2	2	1
Nitella sp.	Nitella	5.77	4.8	1.9	2
Nuphar variegata	Spatterdock	3.37	2.8	1.1	1
Megalodonta beckii	Water marigold	2.4	2	0.8	1
Myriophyllum sibiricum	Northern water milfoil	1.92	1.6	0.6	1
Ranunculus aquatilis	Stiff water crowfoot	1.44	1.2	0.5	1
Brasenia schreberi	Watershield	1.44	1.2	0.5	1
Lemna minor	Small duckweed	1.44	1.2	0.5	1
Equisetum fluviatile	water horsetail	0.96	0.8	0.3	1
Eriocaulon aquaticum	Pipewort	0.96	0.8	0.3	1
Nymphaea odorata	White water lily	0.96	0.8	0.3	1
Potamogeton strictifolius	Stiff pondweed	0.48	0.4	0.2	1

Frequency of occurrence within vegetated areas (%): *Number of times a species was seen in a vegetated area divided by the total number of vegetated sites.*

Frequency of occurrence at sites shallower than maximum depth of plants: *Number of times a species was seen divided by the total number of sites shallower than maximum depth of plants (whole lake value-how often it occurs within the entire littoral zone)*

Floristic Quality Index

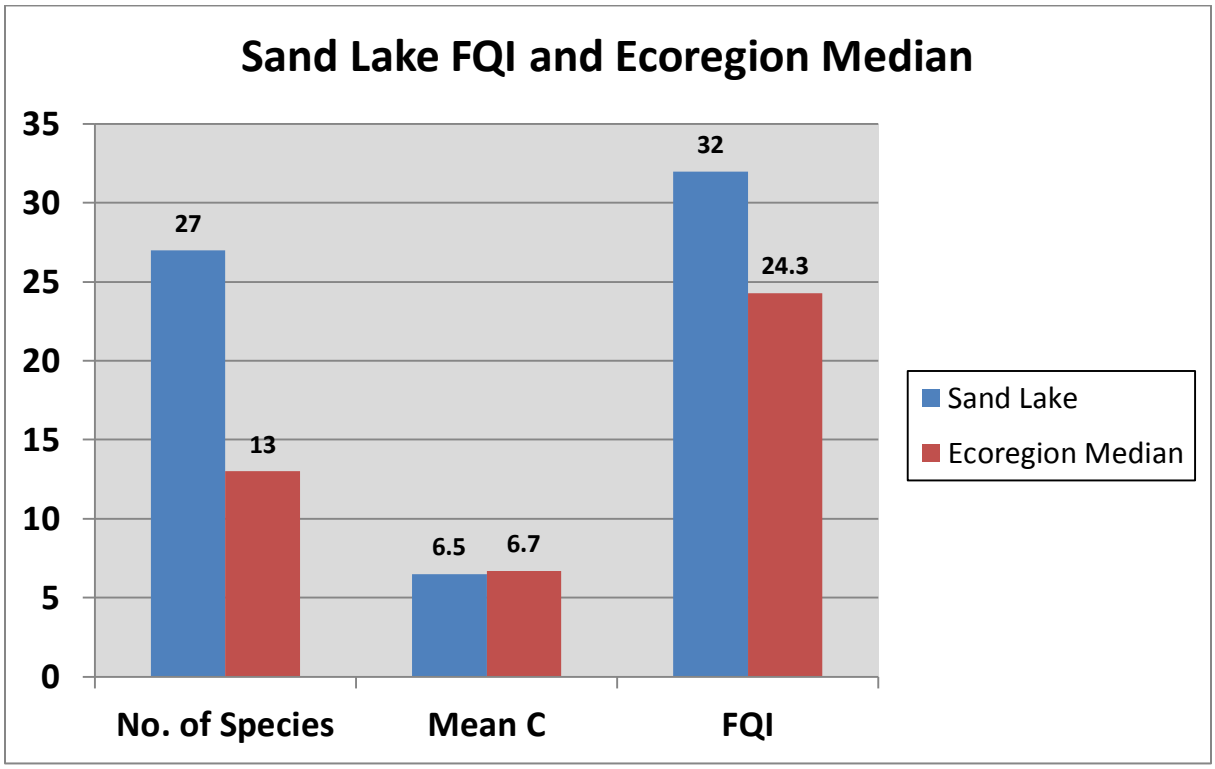
Sand Lake has a very high FQI (32.0). There were 24 species used to calculate the FQI. The species used and their conservatism values are indicated in Table 9. The mean conservatism value was 6.54. The number of species and FQI are greater than the median values for lakes in the same eco-region (Northern Lakes and Forests). The mean conservatism value is slightly lower however. Figure 11 compares these values. The high FQI is indicative of a plant community that is intolerant to development and other human disturbances in the watershed. It indicates that the plant community is healthy and has changed little in response to human impact on water quality and habit (sediment) changes.

Table 9: Plant Conservatism Values

Species Name	Common Name	Conservatism Value
Elodea canadensis	Common waterweed	3
Vallisneria americana	Wild celery	6
Ceratophyllum demersum	Coontail	3
Potamogeton zosteriformis	Flat-stem pondweed	6
Chara	Muskgrasses	7
Potamogeton strictifolius	Stiff pondweed	8
Potamogeton robbinsii	Fern Leaf pondweed	8
filamentous algae	filamentous algae	
Najas flexilis	Bushy pondweed	6
Potamogeton pusillus	Small pondweed	7
Nitella sp.	Nitella	
Potamogeton richardsonii	Clasping-leaf pondweed	5
Myriophyllum tenellum	Dwarf water milfoil	10
Megalodonta beckii	Water marigold	8
Myriophyllum sibiricum	Northern water milfoil	7
Ranunculus aquatilis	Stiff water crowfoot	7
Isoetes sp.	quillwort	8
Equisetum fluviatile	water horsetail	7
Eriocaulon aquaticum	Pipewort	9
Potamogeton amplifolius	Large-leaf pondweed	7
Potamogeton illinoensis	Illinois pondweed	6
Schoenoplectus acutus	Hardstem bulrush	5
Brasenia schreberi	Watershield	7

Species Name	Common Name	Conservatism Value
Nymphaea odorata	White water lily	6
Schoenoplectus pungens	Three-square rush	
Nuphar variegata	Spatterdock	6
Lemna minor	Small duckweed	5

Figure 11: Sand Lake FQI Comparison to Eco region Median



Invasive Species

In mid-June of 2012, the entire littoral zone of Sand Lake was visually surveyed. The primary reason for this survey was to locate any invasive species, particularly Eurasian water milfoil (EWM) and curly leaf pondweed (CLP) (*Potamogeton crispus*). CLP is most robust during spring and early summer which is the optimum time to search for it. No non-native invasive plants, i.e. Eurasian water milfoil, curly leaf pondweed or purple loosestrife, were discovered during the early season visual littoral survey or during the entire lake point-intercept survey which took place at the end of August.

Additional information about EWM, CLP, purple loosestrife and other aquatic invasive species of concern can found in Appendix D. Appendix E contains a discussion of the potential management methods to control the growth and distribution of invasive aquatic plants, including Eurasian Water Milfoil and curly-leaf pondweed.

Plan Goals and Strategies

The ultimate long-term goal of this proposal is to insure an environmentally sustainable quality environment that will result in a high value recreation experience for users and residents of Sand Lake. This is particularly important because unpredictable change resulting from extreme events related to climate change require approaches adapted to mitigating unexpected events. For effective long-term management, a strategic plan that includes a documented base-line of native plant populations as well as measures for preservation and restoration of the native community is required. Consequently, the Sand Lake aquatic plant committee proposed several goals which outline a strategy to effectively guide activities which will efficiently reach the long-term goal of this project in a cost efficient manner. The goals include the following:

Goal 1) Prevent the introduction and spread of other aquatic invasive species.

Goal 2) Preserve the lakes' diverse native plant communities.

Goal 3) Lake residents and users are made aware of the importance of native aquatic plants, the means to protect them, and the threat of aquatic invasive species.

Goal 4) Restore native shoreline vegetation

Goal 5) Waterfront residents will protect lake water quality and plant communities by minimizing runoff of pollutants from their lake property.

Goal 1) Prevent the introduction and spread of aquatic invasive species.

Sand Lake is used heavily by anglers and other recreational users. This significantly increases the risk of invasive plant introduction. It is very important that lake residents become educated about the identification of the various invasive plant species that could become established in the Lake. This will provide greater awareness of these species and, if one is discovered, it is more likely that it would be found before it has spread to a large area and thus be easier to

manage. In order to catch a new invasive species while it is still small and therefore easier to manage, it is especially crucial that the Adopt-a-Shoreline volunteers become familiar with the various aquatic invasive species that are of concern to Sand Lake.

It is also important for the Sand Lake Association to continue its Clean Boats/Clean Waters Program. This program is provided through the University of Wisconsin Extension in cooperation with the Wisconsin DNR. The Association should continue the public landing inspections either through volunteer or hire.

Objective 1: Lake residents can identify potential invasive species and/or know who to contact for identification.

Objective 2: Monitor for the presence of aquatic invasive species.

Objective 3: Control aquatic invasive species if identified on the lake.

Action Items

- Continue and expand the volunteer adopt-a-shoreline program to recruit as many property owners as possible.
- Gather and distribute information regarding common invasive species and who to contact if these species are suspected. Provide this information to the Adopt-A-Shoreline Volunteers so they can be on the watch for these during their shoreline surveys.
- Provide Information to the lake residents at the annual meetings, through special mailings, and through the Sand Lake web site.
- Continue the clean Boats/Clean Waters program.
- Ensure that adequate and updated information is available at all boat landings (private and public) educating users about AIS. Installation of a kiosk for information at the public boat landing will assist in this effort.
- If curly leaf pondweed or Eurasian water milfoil are discovered, control them with the following standards and procedures for treatment:

Standard	Method
Bed of EWM or CLP > 0.25 acre Average rake density of 1.5 or greater	Herbicide treatment appropriate for the species

Standard	Method
Bed of EWM or CLP > 0.25 acres Average rake density <1.5	Diver pulling Monitor density in this bed each Spring and Late Summer
Sporadic growth	Hand pull (residents) Diver pulling Monitor density in identified areas each Spring and Late Summer

General procedure for AIS control

Volunteer monitoring

- Volunteers are assigned to monitor specific stretches of the shoreline by an Adopt-A-Shoreline Coordinator. The public boat landing is a key area that needs close monitoring since other lakes in the area have AIS and boaters and fishermen frequently visit multiple lakes.
- The stretches of shoreline will be monitored on a monthly basis from June – August. Monitoring will occur during the first week of each month and the volunteers will report their observations (EWM present or not present) to the Adopt-A-Shoreline Coordinator. The Adopt-A-Shoreline Coordinator will send out monthly (June, July, August) post-card or email reminder notices to the volunteer monitors. *Note that more frequent monitoring is encouraged if possible. The chances to discover an AIS increase the more an observer is on the water. Once a month monitoring is the minimum suggested.*
- Any areas of suspected AIS are confirmed by appropriate personnel. This may include the WDNR, Sawyer County AIS coordinator or the Lac Courte Oreilles Conservation Department.
- Map confirmed locations of AIS as they are found. The size and density of the beds are recorded.
- Annual maps will be prepared to gauge success in controlling the AIS infestations. Maps will include acreage and density of AIS beds.

Herbicide Treatment Procedure

- The SLSOA board appoints a lead person to coordinate herbicide treatment activities in coordination with the Sawyer County AIS Coordinator.

- The SLSOA Herbicide Treatment Coordinator communicates with the county AIS Coordinator regarding availability for pre and post treatment monitoring.
- Herbicide Treatment Coordinator hires an aquatic plant management plan (APM) consultant if the county AIS Coordinator is not available to complete the pre and post treatment monitoring according to the DNR methods (May and July/August). (See Appendix F for the DNR pre and post monitoring protocol). Areas of special concern for the survey will be provided to the consultant by the county AIS Coordinator based upon past growth patterns and confirmed locations of AIS. Pre and post monitoring will result in maps of locations, including size of bed and rake density, to be provided to the Herbicide Treatment Supervisor and the county AIS Coordinator.
- County AIS Coordinator or APM consultant provides recommended treatment areas from maps of confirmed locations of EWM along with size and measured density to the Herbicide Treatment Coordinator in late August and confirms these areas the following spring in late May.
- Herbicide Treatment Coordinator ensures that DNR permit applications are completed in a timely manner in consultation with the county AIS Coordinator or APM consultant (February or March).
- Herbicide Treatment Coordinator contracts for the treatment of areas that meet plan standards in consultation with the county AIS Coordinator/APM consultant and the SLSOA board.
- Contractor treats AIS beds early in the season to minimize impacts to native species.

<u>Diver Procedure</u>

- The SLSOA board appoints or hires a Diver Coordinator to coordinate diver activities in coordination with the Sawyer County AIS Coordinator.
- Diver Coordinator obtains a list of potential divers.
- Diver Coordinator contacts divers to assess interest.
- Diver Coordinator arranges training for divers to identify AIS if there is enough interest around the lake.
- If there is not enough interest among volunteer divers, the Diver Coordinator investigates and pursues options for hiring divers to pull the AIS of concern.

- Diver Coordinator receives low density and sporadic AIS area list from county AIS Coordinator each spring in late May (following pre-treatment survey) and on a monthly basis from June - August.
- Diver Coordinator informs volunteer divers of the AIS locations to pull or contracts with diver service in cooperation with SLSOA board.
- Treatment locations and results are recorded by divers, reported to the Diver Coordinator and provided to the Sawyer County AIS Coordinator and SLSOA board.

Hand-pulling

SLSOA board instructs residents in proper hand-pulling techniques. This would include:

- pull complete plant and root;
- Either net or have a second person assisting to collect;
- Remove all plant fragments away from the water (composting is fine).
- Instruction may occur at annual meetings or workshops or be distributed in newsletter or special mailings.

Adaptive Management Approach

The AIS treatment areas, standards, and methods will be reviewed each year to see if they are effective and cost efficient. Changes may be made to the treatment approach based upon project results. Significant changes will be documented as brief addendums to the aquatic plant management plan to be reviewed by the SLSOA Board and the Department of Natural Resources.

Goal 2) Preserve the lakes' diverse native plant communities.

The plant community in Sand Lake is very diverse. It is important to preserve the diversity and quantity of the native plants that are present. This diverse plant community provides key habitat for a diverse fish population, helps to prevent the spread of invasive plants, and helps to provide protection from shoreline erosion. It is important to understand that these plants play a very important role in the ecosystem of Sand Lake.

Waterfront residences can negatively affect native plant communities by causing disturbance of existing plant beds and altering sediment characteristics. Regular waterfront use like boating,

swimming, and clearing removes native aquatic plants. Erosion and runoff from waterfront property may alter sediment characteristics encouraging spread of invasive plants if they become present.

Objective 1: Minimize removal of native plants from waterfront corridors.

Action Items

- Allow hand removal only of native plants (no herbicides) if needed to maintain access for swimming and navigation. Limit this hand clearing to a thirty foot access corridor or less. Note that invasive species may be removed along the entire shoreline by hand. It will be stressed to homeowners that removing native vegetation opens up new areas for colonization by invasive plants.
- Provide residents with educational materials and present information regarding aquatic plant values and methods at annual meetings, in newsletters, and on the Sand Lake web site to limit impacts to native aquatic plants.
- Assess the need of establishing no-wake zones in areas where plants may be negatively affected by wave action. Post such areas if believed necessary.
- Discourage boating disturbance within 200 feet of the shoreline. Although this is a no-wake zone according to state regulation, many boaters still travel close to the shoreline. This activity is strongly discouraged through educational activities for the following reasons:
    - Boats may uproot native plants and break aquatic plants into fragments
    - Bare substrate is more likely to be colonized by non-native species
    - Plant fragments contribute phosphorus to the water as they decay
    - Water quality impacts from sediment re-suspension.

Goal 3) Lake residents and users are made aware of the importance of native aquatic plants, the means to protect them, and the threat of aquatic invasive species.

Objective 1: The Sand Lake Association will implement an aggressive AIS education effort.

Action Items

- Implement the education plan detailed below.

Target audience

- Lake residents
- Boat landing visitors
- Campground visitors
- Rental properties

Messages

- Explain the plan activities to increase support for APM plan implementation (volunteer and monetary resources).
- It is likely not possible to eradicate an AIS once it is established in the lake. The plan is geared to first prevent and then minimize the growth and spread of any invasive plant if it does become present in the lake. All environmentally acceptable efforts will be employed to try and eradicate it if it does become present in the lake however.
- Describe the importance of native plants to the lakes.
- Describe how lake residents and users can best preserve native plants – no wake near shore, effects of activity and parking boats on shallow reefs/sandbars, only limited clearing/raking for dock access and swimming, preventing introduction of invasive species, etc.
- Provide plant identification information.
- Provide information on how to protect native plants while controlling invasive species.
- DNR permits are required for any aquatic herbicide application – including herbicides available on-line and shown in magazine advertisements. Fines may result if herbicides are applied without the appropriate permit.
- Describe suitable habitat for invasive species.
- Identify who to contact for suspected Eurasian water milfoil and Curly leaf pondweed (and other aquatic invasive species) locations.
- Property owners can hand pull or rake aquatic plants (or hire someone else to do this) in an area up to 30 feet wide along the shoreline that they own. This activity should be minimized to prevent the introduction and spread of invasive (weedy) aquatic plants in the cleared areas.
- Explain the common methods on how AIS can be spread.

- Educate property owners about other lakes in the area which contain AIS so that they can take extra precautions if visiting that lake.
- Describe the latest rules and regulations pertaining to the transport of AIS on boats and trailers.

Methods

- Website;
- Newsletter;
- Annual meetings;
- Special mailings (including packets of info to new property owners);
- Workshops and training;
- UWEX/DNR informational materials and staff resources will be used whenever possible.
- Sawyer County AIS Coordinator can provide training on plant identification.

Goal 4) Restoration and preservation of native shoreline vegetation

Shoreline vegetation is very important to the ecosystem of Sand Lake. It provides key habitat for amphibians, reptiles, insects, birds and aquatic mammals. Furthermore, it buffers the lake from non-point source pollution and reduces erosion into the lake. As development occurs, the native vegetation that was present around the lake shore gets replaced by lawns and/or non-native, ornamental plants. Many times the tree and shrub layers are reduced or eliminated resulting in heavier runoff containing more sediment and nutrients. It is vital that the shoreline buffer be preserved and areas that have been adversely affected are restored. Due to the importance of the shoreline buffers and vegetation, lakeshore property owners should be highly encouraged to consider shoreline restoration projects. Sawyer County does have a program in place for helping with buffer restoration project.

Objective 1: The Sand Lake Association will implement an aggressive, effective education effort about the importance of native shoreline vegetation.

Objective 2: Designate several successful buffer zone restoration projects so lake residents can better understand what a buffer restoration looks like and track its progression.

Action Items

- Organize and provide education about the importance of native shoreline vegetation and encourage restoration.
- Encourage shoreline restoration projects and facilitate shoreline restoration projects through incentives and/or cost share programs with Sawyer County or other grants.
- Conduct a shoreline assessment to document the current status of the shoreline of Sand Lake. This assessment will include photographing from the lake each individual parcel of property and determining the characteristics of the shoreline. A similar survey was conducted on a nearby lake (Grindstone Lake)[6]. An assessment protocol adapted from the Grindstone Lake shoreline survey can be used to guide the assessment for Sand Lake. (See Appendix G)

Goal 5) Protect lake water quality and plant communities by minimizing runoff of pollutants from waterfront property.

The Sand Lake Association is encouraged to work with property owners, the Lac Courte Oreilles Tribe, the Sawyer County Zoning and Conservation Department, the Department of Natural Resources, and other partners to further assess pollutant loading concerns and options for management.

Watershed protection measures should concentrate on areas where phosphorus loading potential is the highest and runoff to the lake is most direct. Residential and agricultural areas along the lakeshore provide the highest potential for phosphorus loading to the lake.

The SLSOA should encourage residents to protect water quality by installing infiltration practices such as rain gardens and rain barrels. These practices capture water from roofs and paved areas allowing water to soak into the ground rather than flowing to the lake.

Buffers of natural vegetation along the shoreline also help to slow runoff water and allow infiltration and should be encouraged. Sand Lake still appears to have a well-preserved shoreline buffer zone for much its shoreline. However, runoff may still channelize to the lake from homes, driveways and other impervious surfaces through cleared areas to the lake. Therefore, limiting cutting in a pathway even narrower than the allowed 30 foot view corridor is highly recommended in order to preserve lake water quality and habitat.

[6] Personal communication with Bruce Paulsen, Grindstone Lake Homeowners Association. September 2009.

The use of any fertilizers should also be discouraged. Phosphorus free fertilizer still contains nitrogen which will accelerate plant growth in the lake if there is any runoff. This could encourage the spread and increase the density of AIS stands if any are present. It can also fuel nuisance growth of native plants. Property owners should be encouraged to follow the practices mentioned below through education and incentive programs.

Objective 1: Establish an effective education program to help reduce runoff from waterfront property.

Objective 2: Ensure that proper agricultural best management plans (BMP's) are being implemented within the Sand Lake watershed.

Action Items

- Work with the Sawyer County Zoning and Conservation Department to ensure that BMP's are being implemented for the agricultural lands within the watershed.
- Implement the education plan detailed below.

  Target audience

  - Lake residents

  Messages

  - Waterfront development impacts lake water quality and aquatic plant growth.
  - Provide information on lawn care practices that can help a lake and why they help the lake.
  - Provide information regarding waterfront practices to protect the lake.
  - Provide information on how natural wetlands provide critical pollutant filters.
  - Use zero phosphorus fertilizer, or better yet, don't use any fertilizer (nitrogen affects growth of plants in the water).
  - Encourage property owners to set up rain barrels or establish rain gardens to collect and filter runoff from impervious surfaces on their property. Provide information on how this is done.
  - Provide information on how buffer installations can help the lake and how to install them.

Methods

- SLSOA Website
- Demonstration sites
- Newsletter
- Annual meetings
- Special mailings (including packets of info to new property owners)
- Workshops and training
- One-on-one technical assistance visits
- Use UWEX/DNR informational materials and staff resources whenever possible

Implementation Plan[7]

Action Items[8]	Timeline	Cost 2014	Cost 2015	Cost 2016	Responsible Parties	Grant Funding Assistance[9,10]
AIS Prevention						
Improve and update signage at boat landings	May	$500			SLSOA Board	AIS-EPP
Shoreline monitoring	May – Aug.	50 hours	50 hours	50 hours	Adopt-a-Shoreline volunteers	AIS-EPP
Adopt-a-Shoreline coordination	May – Aug.	10 hours	10 hours	10 hours	SLSOA (Adopt-a-Shoreline coordinator)	AIS-EPP
Gather and distribute AIS info	Ongoing	15 hours	15 hours	15 hours	APM Consultant SLSOA Board	AIS-EPP
Clean Boats/Clean Waters	June - August	$4000	$4000	$4000	CBCW Staff	CBCW
Preserve Plant Communities						
Provide educational materials and info at meetings and for newsletter	Ongoing	6 hours	6 hours	6 hours	APM Consultant SLSOA Board	AIS-EPP
Assess establishment of no-wake zones	Summer	8 hours			SLSOA Board	

[7] Costs are an estimate and may vary considerably depending on consultant

[8] Refer to action items under plan goals

[9] AIS-EPP= WI DNR Aquatic Invasives Species Education, Planning and Prevention Grant; CBCW=WI DNR Clean Boats Clean Water Grant; SSLPG=WI DNR Small-Scale Lake Planning Grant; AIS-EDR=WI DNR Aquatic Invasive Species Early Detection and Response Grant; AIS-EPC=WI DNR Aquatic Invasive Species Established Population Control Grant

[10] See Appendix H for the Guidelines and Application Instructions for the WI DNR Aquatic Invasive Species and Lake Grant programs. Or visit the WI DNR website for the most up to date info on these grant programs: http://dnr.wi.gov/lakes/grants/#AISGrants

Action Items[8]	Timeline	Cost 2014	Cost 2015	Cost 2016	Responsible Parties	Grant Funding Assistance[9,10]
Plant Education						
Provide updates on website	Ongoing	10 hours	10 hours	10 hours	SLSOA Board	AIS-EPP
Newsletter articles, presentations, meetings, workshops	Ongoing	20 hours	20 hours	20 hours	SLSOA Board APM Consultant	AIS-EPP
Restoration and Preservation of Shoreline						
Organize and distribute educational material	Ongoing	8 hours	8 hours	8 hours	SLSOA Board APM Consultant	SSLPG
Encourage and facilitate shoreline restoration projects	Ongoing	8 hours	8 hours	8 hours	SLSOA Board	SSLPG
Shoreline Assessment	Summer	60 hours			APM Consultant SLSOA volunteers	SSLPG
Water Quality Protection						
Implement education program	Ongoing	20 hours	20 hours	20 hours	SLSOA Board APM Consultant	SSLPG

If any AIS are found to be present in the lake, the following additional implementation items should be added:

Action Items	Timeline	Cost 2014	Cost 2015	Cost 2016	Responsible Parties	Grant Funding Assistance
Confirm and map AIS locations submitted by Adopt-a-shoreline coordinator	May – Aug.	10 hours	10 hours	10 hours	APM Consultant/County AIS Coordinator	AIS-EPP AIS-EDR AIS-EPC

Action Items	Timeline	Cost 2014	Cost 2015	Cost 2016	Responsible Parties	Grant Funding Assistance
Prepare & apply for herbicide treatment permit if needed	February (Each year treatment is needed)	$200	$200	$200	APM Consultant/County AIS Coordinator	AIS-EDR AIS-EPC
Conduct pre and post treatment monitoring	May (pre) visually confirm presence & determine optimal treatment date Late June (post)	8 hours (Pre) $3500 (Post)	8 hours (Pre) $3500 (Post)	8 hours (Pre) $3500 (Post)	SLSOA (Pre) APM Consultant/County AIS coordinator (Post)	AIS-EDR AIS-EPC
Treat AIS per plan protocol (chemical, Hand pulling)	Early May	Variable depending on herbicide used	Variable depending on herbicide used	Variable depending on herbicide used	Certified Herbicide Applicator	AIS-EDR AIS-EPC
SLSOA appoints or hires Diver Coordinator	May				SLSOA Board	
Obtain list of Divers and coordinate diver activities	May - August	30 hours	30 hours	30 hours	Diver Coordinator	AIS-EDR AIS-EPC

Monitoring and Assessment

Aquatic Plants

Aquatic plant surveys are the primary means to track achievement towards the goals stated in this plan. Every 10 years whole lake point-intercept plant surveys should be done to update the knowledge of the aquatic plant ecosystem and to further determine if management strategies were effective. Additionally, this will lead to a further understanding of how aquatic plant communities change over time. The plant surveys should be conducted in accordance with the guidelines established by the WI DNR. A copy of these guidelines are included in Appendix I.

If an AIS is found and chemical treatment is to take place annual point-intercept surveys should be completed to better track the effectiveness of the treatments and to determine if native plants are being impacted. The surveys need not be the whole lake, the shoreline or bay the treatment occurred in would suffice. It is also recommended that the surveys use a finer grid than the WDNR generated grid used for the whole lake. Doubling the number of points for the grid, within the predetermined treatment area would allow for more detailed coverage and evaluation.

Education

To evaluate the effectiveness of the education and prevention actions identified in this plan a survey of boaters and property owners should be done by 2016. The Clean Boats, Clean Waters Volunteer Boat Landing Monitoring Program includes a questionnaire for boaters using the landing that the volunteer asks and records. This would be one simple way to evaluate the effectiveness of education and prevention actions taken. Also, additional surveys can be utilized to gauge target areas for future education.

Water Quality

The Lac Courte Oreilles Conservation Department annually monitors the lake during the summer months for total phosphorus, Chl-a and records Secchi disk values. Profiling with a multi-parameter water quality meter also is conducted. If for some reason the LCO Conservation Department was not able to continue their monitoring of the lake, SLSOA should be prepared to continue their volunteer monitoring of water quality through the WI DNR self-help monitoring program to help with water quality trend evaluations.

It is recommended that an updated hydrologic and phosphorus budget survey be completed every ten to fifteen years in order to examine the changing relationships between watershed land use activities and lake water quality. The last detailed water quality study of this nature was completed in 2002, which would call for an updated study to be completed as soon as funding allows.

Contingency Plan for Newly-found Populations of an AIS

A contingency fund should be set aside to deal specifically with a new AIS infestation. SLSOA should expect to pay all the cost for control up-front since the AIS rapid response grant operates on a reimbursement basis. If a new non-native, invasive species introduction should occur, the following plan should be followed once a potential identification has occurred.

1. For positive identification of the invasive species contact a designated local plant identification expert, (i.e. Sawyer County AIS coordinator, LCO Conservation Department and the WI DNR).

2. Notify WI DNR aquatic plant management specialists of positive identification. Collect plant for a voucher specimen.

3. Carry out response plan using one or more of the following methods:

    a) Hand pulling;
    b) Herbicide use (permits required);
    c) Mapping spatial coverage and density

4. If warranted, apply for an invasive species rapid response grant from the WI Department of Natural Resources. It is recommended to check the WI DNR website to be sure that the latest version is being used.

5. Notify residents of positive invasive species identification and location.

6. Carefully monitor infested area and nearby areas for effectiveness of control methods.

7. Repeat controls as needed.

References

Borman, Susan, Robert Korth and Jo Tempte. *Through the Looking Glass*. University of Wisconsin-Extension. Stevens Point, Wisconsin. 1997.

Osgood, R.A.;1989. Assessment of Lake Use - Impairment in the Twin Cities metropolitan Area. Prepared for the Minnesota Pollution Control Agency. Metropolitan Council Publication 590-89-130. 12 pp.

University of Wisconsin – Madison. Wisconsin State Herbarium. WISFLORA: Wisconsin Vascular Plant Species. www.botany.wisc.edu/wisflora/

Appendices

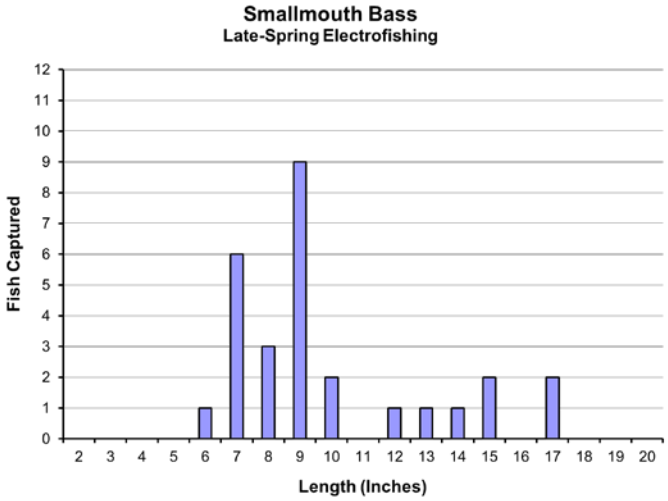
Appendix A: WDNR 2012 Spring Netting Survey and Walleye Population Estimates

Late-Spring Electrofishing Survey Summary
Sand Lake, Sawyer County, 2012

The Hayward DNR Fisheries Management Team conducted an electrofishing survey on Sand Lake on June 5 as part of our baseline monitoring program. A total of 4 miles of shoreline was sampled (1 mile sub-sampled for panfish). Primary target species were smallmouth bass, largemouth bass, and bluegill. We also obtained useful data on the status of juvenile walleye. Quality, preferred, and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society.

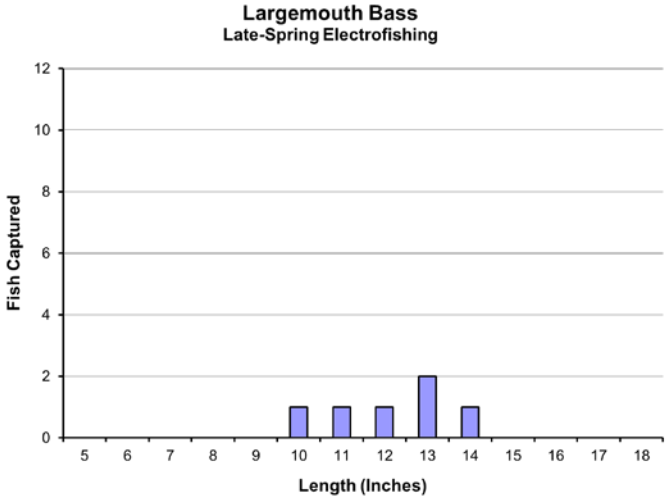
Smallmouth Bass

Captured 7 per mile ≥ 7”	
Quality Size ≥ 11”	26%
Preferred Size ≥ 14”	19%
Memorable Size ≥ 17”	7%



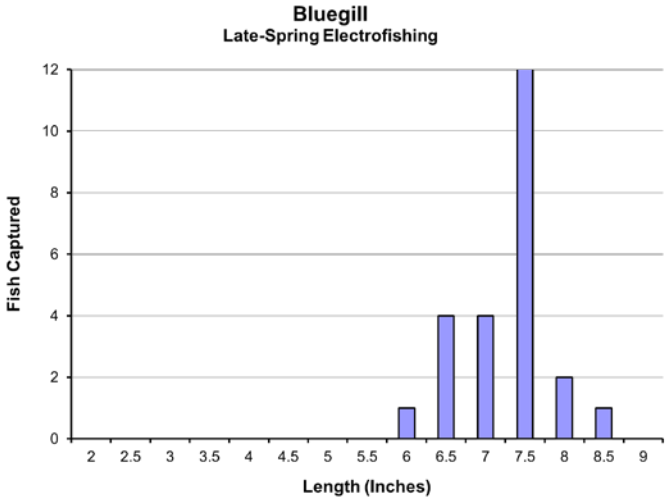
Largemouth Bass

Captured 2 per mile ≥ 8”	
Quality Size ≥ 12”	67%
Preferred Size ≥ 15”	0%



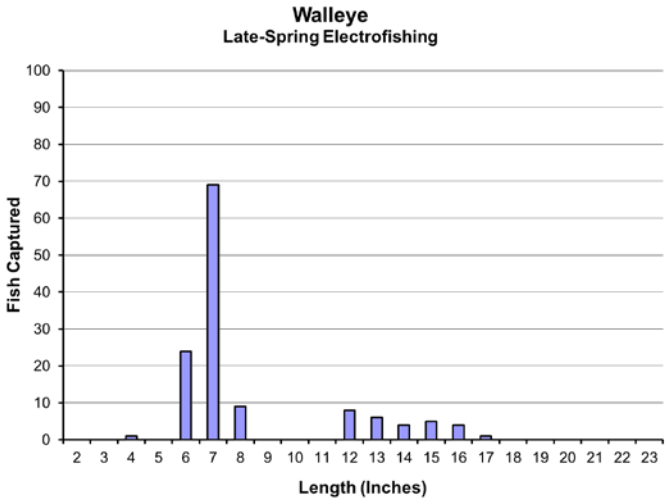
Bluegill

Captured 25 per mile ≥ 3”	
“Keeper” Size ≥ 7”	80%
Preferred Size ≥ 8”	12%



Walleye

Captured 26 per mile <10 ”



Summary of Results

Water temperature at the time of this survey was 66°F, appropriate for sampling spawning bass and pre-spawn bluegill. Electrofishing effort was spread throughout the lake and covered a variety of habitat types. The north side of the lake had predominantly sandy substrate with little woody or vegetative cover; considerably fewer fish were sampled there than on the south side of the lake, which had more stumps and aquatic vegetation.

Smallmouth bass were found in relatively low numbers, possibly because predation by abundant walleye is very efficient in lakes with few areas of rock cobble where young smallmouth bass prefer to hide. The smallmouth population was dominated by smaller individuals. Growth rate and maximum size of smallmouth in Sand Lake are likely limited by the prey base. Smallmouth bass prefer to eat crayfish, which do not seem abundant in Sand Lake due to a scarcity of rocky substrate.

Largemouth bass were found in trace numbers. While many other lakes in the area have experienced a decrease in walleye abundance concurrent with an increase in largemouth bass abundance, Sand Lake has remained a walleye-dominant system. Because of their abundance and effectiveness as predators, walleye are likely limiting natural recruitment of both bass species as well as panfish – a pattern that has been observed in other area lakes with deep, clear water and few aquatic plants.

Bluegills were found in low numbers with a relatively high proportion of keeper-size fish. The fast growth that appears to be present in the population is likely made possible by the presence of a dense walleye population that continually thins the number of small bluegill, preventing "stunting" from occurring. The relatively low population of keeper-size fish renders this population vulnerable to angler over-harvest under a liberal daily bag limit of 25 panfish.

We also sampled many young walleyes 6 to 8 inches long. These fish were just over one year old, providing evidence of strong natural reproduction of walleye in 2011 at Sand Lake, which has not been stocked since the restoration project was completed.

Report by Max Wolter – Fisheries Biologist, Sawyer County
Data compiled by Scott Braden – LTE Fisheries Technician
Reviewed by Approved by Dave Neuswanger – Fisheries Supervisor, Hayward Field Unit

2012 Spring Netting Summary- Sand Lake, Sawyer County

Fisheries Research, Spooner

Background: Sound management of muskellunge fisheries requires clear understanding of growth rates and mortality, factors that determine population size structure. Of particular interest to managers and anglers is the relation between harvest regulations and growth potential. Size limits for trophy muskellunge fisheries should be set at levels that allow harvest of trophy fish but limit exploitation and mortality at smaller sizes, allowing fish to achieve their full growth potential. Traditional methods of aging fish include reading patterns of annuli from scales or cleithra (bones located in the pectoral girdle). Scales allow reasonable age estimation in younger fish but accuracy diminishes with increasing age. Aging based on cleithra relies on lethal sampling, which restricts samples to voluntary returns from harvested fish, or fish sampled for purposes such as contaminant sampling. Because age and growth records of muskellunge are generally characterized by small sample sizes and are variable among lakes, population modeling often relies on assumptions about growth and mortality that cannot be validated with reliable empirical data. Therefore, we are evaluating alternative methods for determining lake-specific growth rates of muskellunge in a set of study lakes, including Sand Lake.

The study is being conducted within lakes that are stocked by WDNR, and currently assumed to have negligible natural reproduction. Stocked fingerlings will be given passive integrated transponder, or PIT tags. These are small tags that produce a unique signal that can identify individual fish throughout their lives. These tags will allow the tracking of known-age fish throughout their lives, so that future sampling efforts will produce accurate records of age and growth. As the fish grow and mature, we can produce larger samples of accurately aged fish, and improve estimates of longevity and growth potential. We can also produce better estimates of survival rates of stocked fish, and infer the contribution of natural reproduction. This information improves understanding of muskellunge biology and management.

The study will also track adult muskellunge density by conducting population estimates with spring netting surveys. Population estimates require two consecutive years of fyke net surveys. Fish netted during the first year are usually marked with a fin clip, although the marking technique used in this study is tagging with a passive integrated transponder (PIT tag). The ratio of marked to unmarked fish during sampling conducted the second year is used to estimate the total adult population. PIT tags will allow us to identify individual fish and track growth from the

time of capture. However, the primary objective of adult sampling is to estimate density, a factor known to be important to growth rates.

The current study plans call for stocking 5 year classes of PIT tagged fingerlings in alternate years, and two mark-recapture adult population estimates. Sand Lake was stocked with PIT tagged fingerlings during 2009 and 2011. The project will be evaluated for cost-effectiveness based on survival rates of stocked fish after 10 years, and will be continued if survival rates are sufficiently high and funding and staffing are available.

Methods: Adult muskellunge were sampled with fyke nets. Nets were fished overnight and checked daily throughout the sample period. Muskellunge were measured (total length, inches) and tagged with a PIT tag, which provides a unique code to identify the fish. Muskellunge were released after handling. Walleye were measured and released. Walleye length data were provided to GLIFWC to supplement their walleye population estimate, but are not reported here. Baseline monitoring data were also collected for two days and provided to Upper Chippewa Basin biologists, but are not reported here.

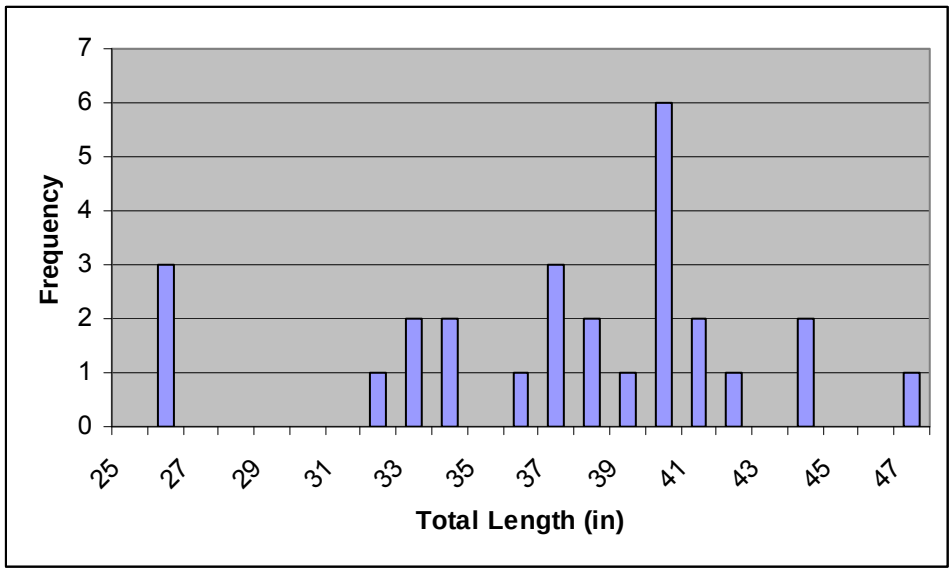
Sample locations were based on habitat and records from previous WDNR surveys. Nets were set after ice-out, beginning 3/23. Nets were moved or removed based on observed trends in catch rates and water temperature, with the last nets removed on 4/4.

Results and discussion: Twenty-seven muskellunge with total length >20" were handled during 72 net lifts, for an average of 0.37 fish/net lift, which is nearly identical to the catch rate of 0.35/net lift observed during 2011. Overall, the average length of adult muskellunge sampled was 36.8 inches total length, which is not significantly different than the mean of 36.9 observed during 2011. Size distribution is shown in Figure 1. Seven fish 40 inches or larger were sampled.

An early ice out followed by cool weather made for another unusual spring netting season during 2012 Catch rates were lower than expected, with a small number of fish marked during 2011 recaptured during 2012. The estimated population using a modified Peterson estimate was 185 ± 137. The wide 95% confidence limits are the result of the small recapture sample. The estimate of 0.20 adult muskellunge per acre (185 fish/928 acres) is below the statewide average, which is about 0.33 fish per acre, but is not unusually low. Lakes with moderate to low densities of muskellunge generally support higher growth rates than high density musky lakes.

Several juvenile muskellunge were observed in fyke nets during 2012. Most of the juvenile muskellunge contained PIT tags, which allowed calculation of growth from the time they were stocked (September, 2011) until spring. The mean growth increment was 1.54" total length. Most of the growth probably occurred during fall 2011. The growth of the fish indicates that they were in good condition at the time of stocking. Four untagged individuals were examined for evidence of tag loss. The tagged fish ranged in size from 12.1" TL to 14.0" TL. One untagged individual was slightly larger than the tagged individuals (15.1), had no evidence of scarring from a tag, and was likely the product of natural reproduction during 2010. Another untagged fish was smaller (10.5" TL), also lacked evidence of tagging, and was likely the product of natural recruitment during 2011. These fish provide evidence that limited natural recruitment is occurring in Sand Lake.

Figure 1. Length (total length, inches) frequency distribution of muskellunge >20" TL sampled in Sand Lake, Sawyer County WI during spring 2012.



SPRING ADULT WALLEYE POPULATION ESTIMATE

LAKE: SAND L
COUNTY: SAWYER
YEAR: 2012

AREA: 928
RECRUITMENT CODE: C-ST
AGENCY: GLIFWC

POPULATION ESTIMATE SUMMARIES

COMBINED SEXES AND UNKNOWNS 15 INCHES AND GREATER

LENGTH INTERVAL (INCHES)	TOTAL GIVEN MARK	MARKED FISH SPEARED BEFORE RECAPTURE SURVEY	ADJUSTED NUMBER MARKED (M)	TOTAL CAUGHT IN RECAPTURE SURVEY (C)	UNMARKED FISH CAUGHT IN RECAPTURE SURVEY	MARKED FISH CAUGHT IN RECAPTURE SURVEY (R)	POPULATION ESTIMATE BEFORE SPEARING ADJUSTMENT	TOTAL FISH SPEARED BEFORE RECAPTURE SURVEY	POPULATION ESTIMATE (N)	STANDARD DEVIATION
0 - 11.9	120	0	120	12	6	6	225	0	225	54
12 - 14.9	1,931	2	1,929	222	145	77	5,518	39	5,557	501
15 - 19.9	617	3	614	52	37	15	2,037	17	2,054	413
20 +	12	0	12	0	0	0	13	1	14	0
TOTAL:	2,680	5	2,675	286	188	98	7,793	57	7,850	651

POPULATION ESTIMATE: 7,850
WALLEYE/ACRE: 8.46
STANDARD DEVIATION: 651
COEFF. OF VARIATION: 8.29%

MALES

LENGTH INTERVAL (INCHES)	TOTAL GIVEN MARK	MARKED FISH SPEARED BEFORE RECAPTURE SURVEY	ADJUSTED NUMBER MARKED (M)	TOTAL CAUGHT IN RECAPTURE SURVEY (C)	UNMARKED FISH CAUGHT IN RECAPTURE SURVEY	MARKED FISH CAUGHT IN RECAPTURE SURVEY (R)	POPULATION ESTIMATE BEFORE SPEARING ADJUSTMENT	TOTAL FISH SPEARED BEFORE RECAPTURE SURVEY	POPULATION ESTIMATE (N)	STANDARD DEVIATION
0 - 11.9	120	0	120	12	6	6	225	0	225	54
12 - 14.9	1893	2	1891	220	144	76	5,430	39	5,469	496
15 - 19.9	397	3	394	38	27	11	1,284	14	1,298	296
20 +	0	0	0	0	0	0	1	0	1	0
TOTAL:	2,410	5	2,405	270	177	93	6,940	53	6,993	581

POPULATION ESTIMATE: 6,993
WALLEYE/ACRE: 7.54
STANDARD DEVIATION: 581
COEFF. OF VARIATION: 8.30%

FEMALES

LENGTH INTERVAL (INCHES)	TOTAL GIVEN MARK	MARKED FISH SPEARED BEFORE RECAPTURE SURVEY	ADJUSTED NUMBER MARKED (M)	TOTAL CAUGHT IN RECAPTURE SURVEY (C)	UNMARKED FISH CAUGHT IN RECAPTURE SURVEY	MARKED FISH CAUGHT IN RECAPTURE SURVEY (R)	POPULATION ESTIMATE BEFORE SPEARING ADJUSTMENT	TOTAL FISH SPEARED BEFORE RECAPTURE SURVEY	POPULATION ESTIMATE (N)	STANDARD DEVIATION
0 - 11.9	0	0	0	0	0	0	1	0	1	0
12 - 14.9	38	0	38	2	1	1	59	0	59	20
15 - 19.9	175	0	175	14	10	4	528	3	531	176
20 +	9	0	9	0	0	0	10	1	11	0
TOTAL:	222	0	222	16	11	5	598	4	602	177

POPULATION ESTIMATE: 602
WALLEYE/ACRE: 0.65
STANDARD DEVIATION: 177
COEFF. OF VARIATION: 29.44%

UNKNOWNS

LENGTH INTERVAL (INCHES)	TOTAL GIVEN MARK	MARKED FISH SPEARED BEFORE RECAPTURE SURVEY	ADJUSTED NUMBER MARKED (M)	TOTAL CAUGHT IN RECAPTURE SURVEY (C)	UNMARKED FISH CAUGHT IN RECAPTURE SURVEY	MARKED FISH CAUGHT IN RECAPTURE SURVEY (R)	TOTAL FISH SPEARED BEFORE RECAPTURE SURVEY
0 - 11.9	10	0	10	0	0	0	0
12 - 14.9	62	1	61	0	0	0	2
15 - 19.9	45	0	45	0	0	0	0
20 +	3	0	3	0	0	0	0
TOTAL:	120	1	119	0	0	0	2

SAMPLING SUMMARY

	MARKING SURVEYS	RECAPTURE SURVEY
DATES:	3/23-4/1/2012	4/2/2012
GEAR USED:	E/F	E
FIN CLIP:	TC	TC
TAGS:		

REPORT PRINT DATE: 7/16/2012

LAKE: SAND L
COUNTY: SAWYER
YEAR: 2012

AREA: 928
RECRUITMENT CODE: C-ST
AGENCY: GLIFWC

WALLEYE LENGTH FREQUENCY

LENGTH INTERVAL (INCHES)	MARKING PERIOD: MARKED			RECAP PERIOD: UNMARKED			RECAP PERIOD: RECAPS		
	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN
5.0 - 5.49	0	0	0	0	0	0	0	0	0
5.5 - 5.99	0	0	0	0	0	0	0	0	0
6.0 - 6.49	0	0	0	0	0	0	0	0	0
6.5 - 6.99	0	0	0	0	0	0	0	0	0
7.0 - 7.49	0	0	0	0	0	0	0	0	0
7.5 - 7.99	0	0	0	0	0	0	0	0	0
8.0 - 8.49	0	0	0	0	0	0	0	0	0
8.5 - 8.99	0	0	0	0	0	0	0	0	0
9.0 - 9.49	0	0	0	0	0	0	0	0	0
9.5 - 9.99	0	0	0	0	0	0	0	0	0
10.0 - 10.49	3	0	0	0	0	0	0	0	0
10.5 - 10.99	3	0	0	2	0	0	0	0	0
11.0 - 11.49	24	0	1	0	0	0	0	0	0
11.5 - 11.99	90	0	9	4	0	0	6	0	0
12.0 - 12.49	279	0	9	15	0	0	6	0	0
12.5 - 12.99	389	1	13	42	0	0	22	0	0
13.0 - 13.49	418	1	16	34	0	0	14	0	0
13.5 - 13.99	297	5	5	19	0	0	13	0	0
14.0 - 14.49	271	10	5	19	0	0	12	0	0
14.5 - 14.99	239	21	14	15	1	0	9	1	0
15.0 - 15.49	199	33	13	12	0	0	10	1	0
15.5 - 15.99	106	32	14	10	4	0	1	0	0
16.0 - 16.49	57	41	10	2	3	0	0	0	0
16.5 - 16.99	18	23	4	2	0	0	0	0	0
17.0 - 17.49	10	21	2	1	1	0	0	2	0
17.5 - 17.99	5	15	0	0	1	0	0	0	0
18.0 - 18.49	2	6	0	0	0	0	0	1	0
18.5 - 18.99	0	3	1	0	0	0	0	0	0
19.0 - 19.49	0	1	0	0	1	0	0	0	0
19.5 - 19.99	0	0	1	0	0	0	0	0	0
20.0 - 20.49	0	0	0	0	0	0	0	0	0
20.5 - 20.99	0	1	0	0	0	0	0	0	0
21.0 - 21.49	0	3	0	0	0	0	0	0	0
21.5 - 21.99	0	1	0	0	0	0	0	0	0
22.0 - 22.49	0	0	0	0	0	0	0	0	0
22.5 - 22.99	0	0	0	0	0	0	0	0	0
23.0 - 23.49	0	1	0	0	0	0	0	0	0
23.5 - 23.99	0	1	0	0	0	0	0	0	0
24.0 - 24.49	0	0	1	0	0	0	0	0	0
24.5 - 24.99	0	0	0	0	0	0	0	0	0
25.0 - 25.49	0	0	1	0	0	0	0	0	0
25.5 - 25.99	0	0	0	0	0	0	0	0	0
26.0 - 26.49	0	0	1	0	0	0	0	0	0
26.5 - 26.99	0	1	0	0	0	0	0	0	0
27.0 - 27.49	0	0	0	0	0	0	0	0	0
27.5 - 27.99	0	0	0	0	0	0	0	0	0
28.0 - 28.49	0	1	0	0	0	0	0	0	0
28.5 - 28.99	0	0	0	0	0	0	0	0	0
29.0 - 29.49	0	0	0	0	0	0	0	0	0
29.5 - 29.99	0	0	0	0	0	0	0	0	0
30.0 - 30.49	0	0	0	0	0	0	0	0	0
30.5 - 30.99	0	0	0	0	0	0	0	0	0
31.0 - 31.49	0	0	0	0	0	0	0	0	0
31.5 - 31.99	0	0	0	0	0	0	0	0	0
TOTAL:	2410	222	120	177	11	0	93	5	0

LAKE: SAND L
COUNTY: SAWYER
YEAR: 2012

AREA: 928
RECRUITMENT CODE: C-ST
AGENCY: GLIFWC

LENGTH FREQUENCY OF SPEARED WALLEYE

BEFORE RECAPTURE SURVEY — SPEARING DATES: 3/29/2012 — SPEARING ADJUSTMENT USED? YES

LENGTH INTERVAL (INCHES)	UNMARKED			MARKED			TOTAL			
	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN	TOTAL
5.0 - 5.99	0	0	0	0	0	0	0	0	0	0
6.0 - 6.99	0	0	0	0	0	0	0	0	0	0
7.0 - 7.99	0	0	0	0	0	0	0	0	0	0
8.0 - 8.99	0	0	0	0	0	0	0	0	0	0
9.0 - 9.99	0	0	0	0	0	0	0	0	0	0
10.0 - 10.99	0	0	0	0	0	0	0	0	0	0
11.0 - 11.99	0	0	0	0	0	0	0	0	0	0
12.0 - 12.99	11	0	0	0	0	0	11	0	0	11
13.0 - 13.99	8	0	0	2	0	0	10	0	0	10
14.0 - 14.99	18	0	1	0	0	1	18	0	2	20
15.0 - 15.99	10	1	0	2	0	0	12	1	0	13
16.0 - 16.99	1	2	0	1	0	0	2	2	0	4
17.0 - 17.99	0	0	0	0	0	0	0	0	0	0
18.0 - 18.99	0	0	0	0	0	0	0	0	0	0
19.0 - 19.99	0	0	0	0	0	0	0	0	0	0
20.0 - 20.99	0	0	0	0	0	0	0	0	0	0
21.0 - 21.99	0	0	0	0	0	0	0	0	0	0
22.0 - 22.99	0	0	0	0	0	0	0	0	0	0
23.0 - 23.99	0	1	0	0	0	0	0	1	0	1
24.0 - 24.99	0	0	0	0	0	0	0	0	0	0
25.0 - 25.99	0	0	0	0	0	0	0	0	0	0
26.0 - 26.99	0	0	0	0	0	0	0	0	0	0
27.0 - 27.99	0	0	0	0	0	0	0	0	0	0
28.0 - 28.99	0	0	0	0	0	0	0	0	0	0
29.0 - 29.99	0	0	0	0	0	0	0	0	0	0
30.0 - 30.99	0	0	0	0	0	0	0	0	0	0
31.0 - 31.99	0	0	0	0	0	0	0	0	0	0
TOTAL:	48	4	1	5	0	1	53	4	2	59

AFTER RECAPTURE SURVEY — SPEARING DATES:

LENGTH INTERVAL (INCHES)	UNMARKED			MARKED			TOTAL			
	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN	MALE	FEMALE	UNKNOWN	TOTAL
5.0 - 5.99	0	0	0	0	0	0	0	0	0	0
6.0 - 6.99	0	0	0	0	0	0	0	0	0	0
7.0 - 7.99	0	0	0	0	0	0	0	0	0	0
8.0 - 8.99	0	0	0	0	0	0	0	0	0	0
9.0 - 9.99	0	0	0	0	0	0	0	0	0	0
10.0 - 10.99	0	0	0	0	0	0	0	0	0	0
11.0 - 11.99	0	0	0	0	0	0	0	0	0	0
12.0 - 12.99	0	0	0	0	0	0	0	0	0	0
13.0 - 13.99	0	0	0	0	0	0	0	0	0	0
14.0 - 14.99	0	0	0	0	0	0	0	0	0	0
15.0 - 15.99	0	0	0	0	0	0	0	0	0	0
16.0 - 16.99	0	0	0	0	0	0	0	0	0	0
17.0 - 17.99	0	0	0	0	0	0	0	0	0	0
18.0 - 18.99	0	0	0	0	0	0	0	0	0	0
19.0 - 19.99	0	0	0	0	0	0	0	0	0	0
20.0 - 20.99	0	0	0	0	0	0	0	0	0	0
21.0 - 21.99	0	0	0	0	0	0	0	0	0	0
22.0 - 22.99	0	0	0	0	0	0	0	0	0	0
23.0 - 23.99	0	0	0	0	0	0	0	0	0	0
24.0 - 24.99	0	0	0	0	0	0	0	0	0	0
25.0 - 25.99	0	0	0	0	0	0	0	0	0	0
26.0 - 26.99	0	0	0	0	0	0	0	0	0	0
27.0 - 27.99	0	0	0	0	0	0	0	0	0	0
28.0 - 28.99	0	0	0	0	0	0	0	0	0	0
29.0 - 29.99	0	0	0	0	0	0	0	0	0	0
30.0 - 30.99	0	0	0	0	0	0	0	0	0	0
31.0 - 31.99	0	0	0	0	0	0	0	0	0	0
TOTAL:	0	0	0	0	0	0	0	0	0	0

LAKE: SAND L	AREA: 928
COUNTY: SAWYER	RECRUITMENT CODE: C-ST
YEAR: 2012	AGENCY: GLIFWC

SPAWNING POPULATION SIZE DISTRIBUTION

SIZE CLASS	INCH GROUP	NUMBER SAMPLED	SAMPLE PROPORTION	POPULATION ESTIMATE	ESTIMATED NUMBER	NUMBER SPEARED	PERCENT OF EST. NUMBER
	5	0	0.000		0	0	N/A
	6	0	0.000		0	0	N/A
	7	0	0.000		0	0	N/A
0-11.9	8	0	0.000	225	0	0	N/A
	9	0	0.000		0	0	N/A
	10	8	0.063		14	0	0.00%
	11	118	0.937		210	0	0.00%
	SUB-TOTAL:	126				0	0.00%
	12	726	0.350		1,943	11	0.57%
12-14.9	13	774	0.373	5,557	2,072	10	0.48%
	14	576	0.277		1,542	18	1.17%
	SUB-TOTAL:	2,076				39	0.70%
	15	423	0.647		1,329	13	0.98%
	16	160	0.245		503	4	0.80%
15-19.9	17	56	0.086	2,054	176	0	0.00%
	18	12	0.018		38	0	0.00%
	19	3	0.005		9	0	0.00%
	SUB-TOTAL:	654				17	0.83%
	20	1	0.083		1	0	0.00%
	21	4	0.333		5	0	0.00%
	22	0	0.000		0	0	N/A
	23	2	0.167		2	1	42.86%
	24	1	0.083		1	0	0.00%
	25	1	0.083		1	0	0.00%
20 +	26	2	0.167	14	2	0	0.00%
	27	0	0.000		0	0	N/A
	28	1	0.083		1	0	0.00%
	29	0	0.000		0	0	N/A
	30	0	0.000		0	0	N/A
	31	0	0.000		0	0	N/A
	SUB-TOTAL:	12				1	7.14%
	SPAWNING TOTAL:	2,868		7,850	7,850	57	0.73%
	UNKNOWNS < 15":	72				2	
	GRAND TOTAL:	2,940				59	

LAKE: SAND L
COUNTY: SAWYER
YEAR: 2012

AREA: 928
RECRUITMENT CODE: C-ST
AGENCY: GLIFWC

DAILY SUMMARY AND COMMENTS

DATE: 3/24-4/2/2012 WATER TEMPERATURE:

COMMENTS: WDNR Fyke Netting.

	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	56			
FEMALES	47			
UNKNOWN	70			
TOTAL	173			

DATE: 3/23-24/2012 WATER TEMPERATURE: 42-46

COMMENTS: Fish were scattered along shoreline.

	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	412	0	100	0
FEMALES	115	100	0	0
UNKNOWN	24			
TOTAL	551			

DATE: 3/25,28/2012 WATER TEMPERATURE: 43/44

COMMENTS: Most walleye were found in 3-5' of water. Bluegill, sucker, and yellow perch were abundant.

	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	576	0	100	0
FEMALES	17	100	0	0
UNKNOWN	1			
TOTAL	594			

DATE: 3/29-30/2012 WATER TEMPERATURE: 44

COMMENTS: Most walleye were in 2-4' of water.

	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	487	0	100	0
FEMALES	24	100	0	0
UNKNOWN	19			
TOTAL	530			

DATE: 3/31-4/1/2012 WATER TEMPERATURE: 44/47

COMMENTS: Some walleye were tight to the shoreline, others were still in 2-4' of water.

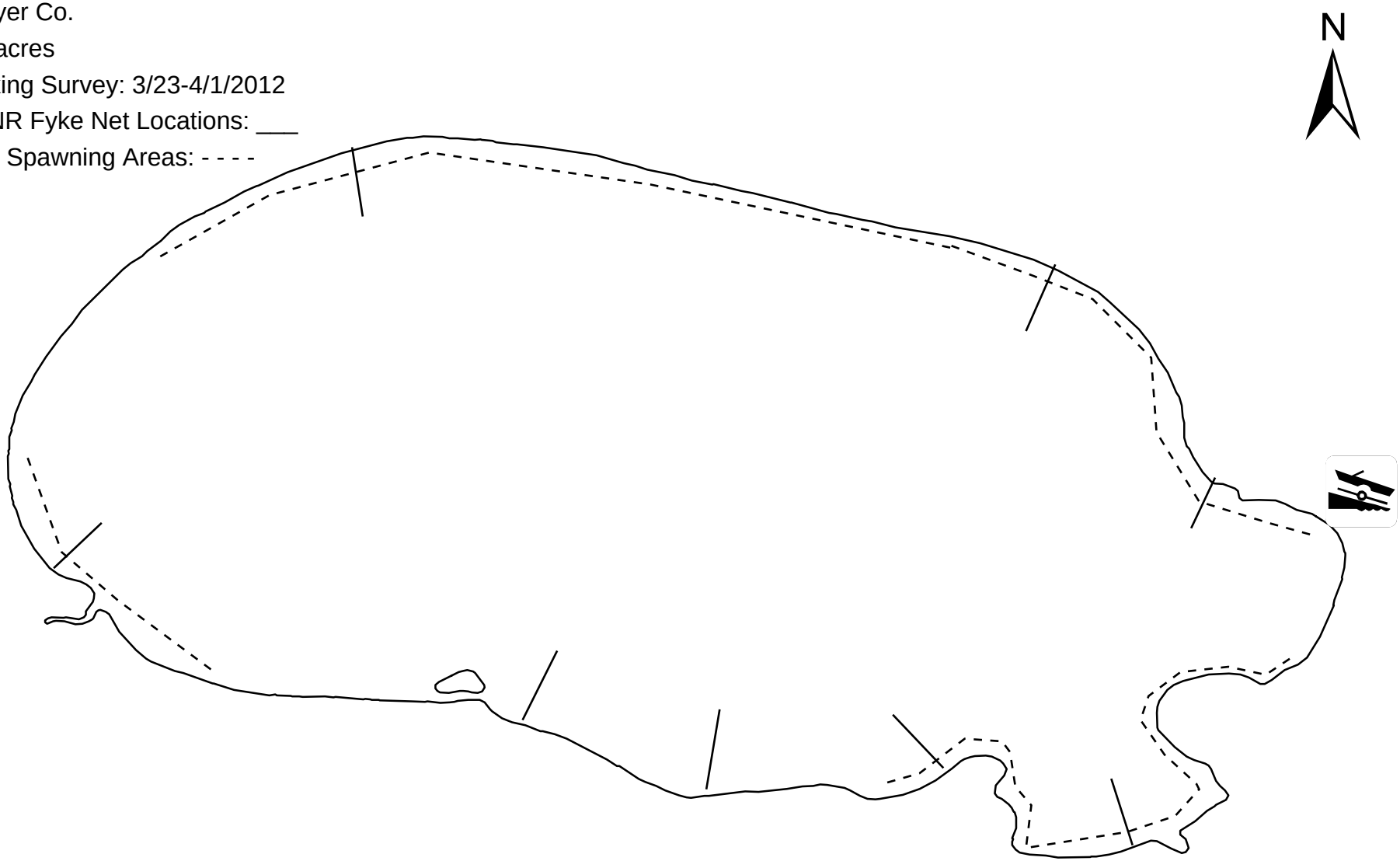
	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	879	0	95	5
FEMALES	19	50	50	0
UNKNOWN	6			
TOTAL	904			

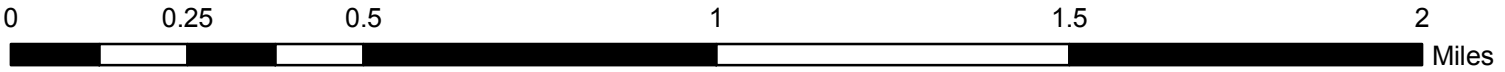
DATE: 4/2/2012 WATER TEMPERATURE: 45

COMMENTS: Recapture run, shocked entire shoreline.

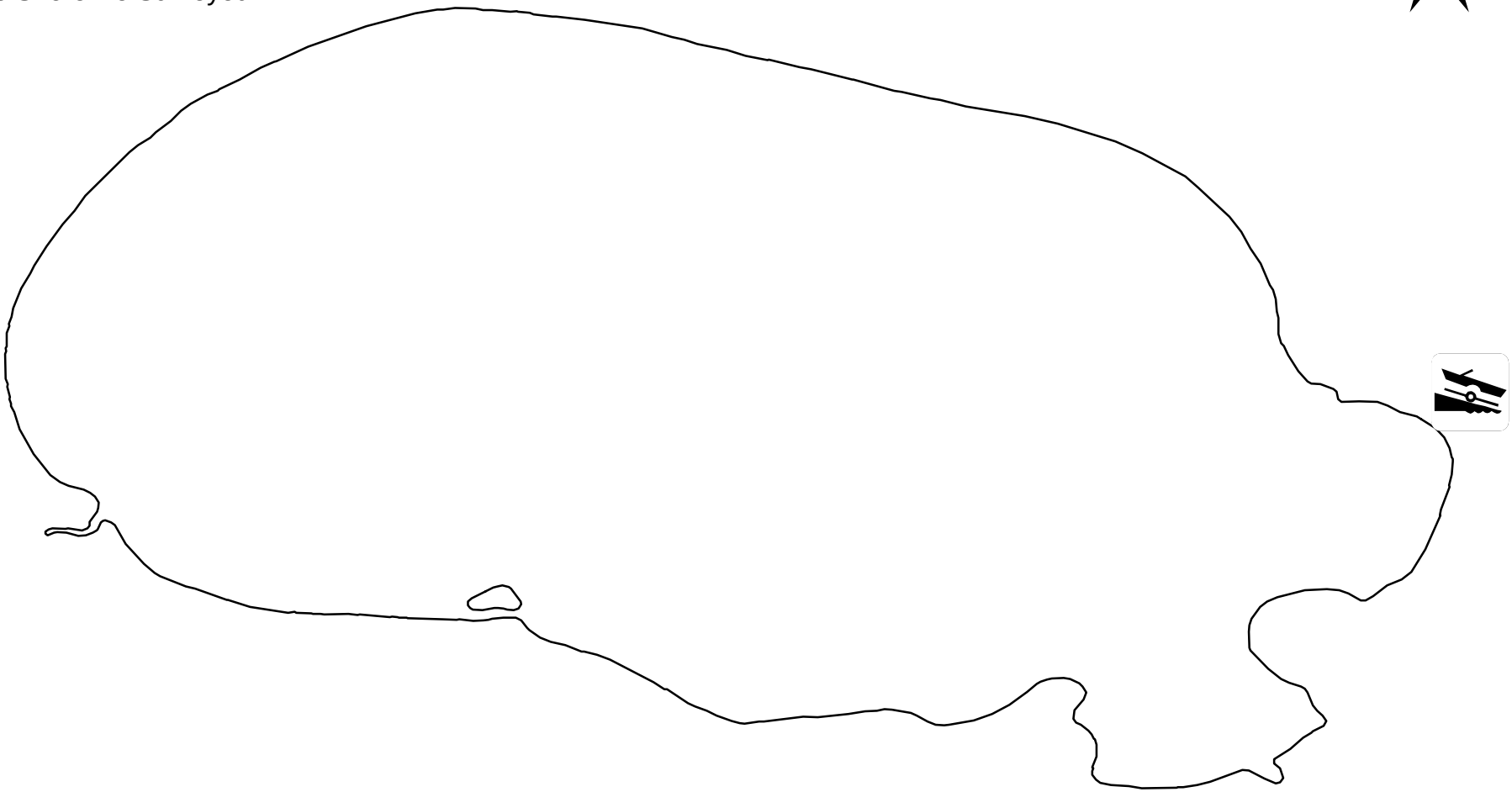
	NUMBER NEWLY MARKED	SPAWNING CONDITION (APPROX. PERCENTAGE) HARD	RIPE	SPENT
MALES	177	0	100	0
FEMALES	11	50	50	0
UNKNOWN	0			
TOTAL	188			

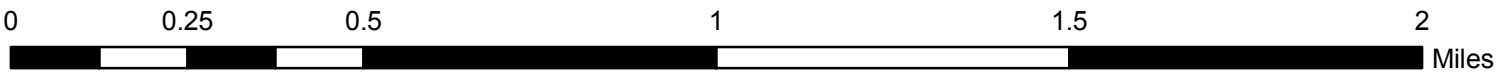
Sand Lake
Sawyer Co.
928 acres
Marking Survey: 3/23-4/1/2012
WDNR Fyke Net Locations: ___
Main Spawning Areas: - - - -





Sand Lake
Sawyer Co.
928 acres
Recapture Survey: 4/2/2012
Entire Shoreline Surveyed





Appendix B: Freshwater Sponge Information

Citizen Monitoring Guide to Wisconsin's Freshwater Sponges

Dreux J. Watermolen
Wisconsin Department of Natural Resources

Project Overview

Freshwater sponges are aquatic animals that grow in lakes, rivers, bogs, and streams attached to submerged rocks, sticks, logs, or aquatic vegetation. They feed by filtering small particles from the water, and so are thought to be sensitive indicators of pollution. Wisconsin's freshwater sponges were studied extensively in the 1930s and found to be growing in many lakes and major river systems. Since then, extensive studies have not been done, though some limited research seems to indicate that the range of some species is more restricted than in the 1930s. This Citizen-based Monitoring study will try to shed more light on how abundant and widely distributed Wisconsin's sponges are today. Through this project, we are engaging volunteer monitors and creating a database of probable sponge occurrences that can be further investigated.

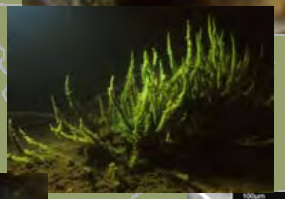
Study Area

The Citizen Monitoring of Wisconsin's Freshwater Sponges project is a statewide inventory program. Citizens throughout the state are now able to collect and report data on sponge occurrence in their local lakes and waterways.

What Do Freshwater Sponges Look Like?

Freshwater sponges vary from marble-sized to elongated masses and can grow to be thin or thick encrusting layers. Their surfaces may be smooth, textured or wavy, or have finger-like projections (photos at right). Their structure is supported by spicules, tiny needle-like structures made of silicon that are distributed throughout the sponge body. You can use a magnifying glass to see at least a hint of the needle-like spicules.

Unfortunately, color and shape are not particularly helpful in identifying sponges to the species level. Instead, biologists rely on the spicules, which are quite diverse in their size, shape, and number of prongs (photo, lower right). Some have hooks or are dumbbell-shaped. They can be smooth or spined. Much of this variability is species-specific (i.e. each species has its own sizes and shapes).



Can We Find Freshwater Sponges in Our Lake or Nearby River?

Sponges grow in relatively shallow water and so can be found by wading and observing the surfaces where they might grow. You might find a rake useful for turning over debris. The sponges may be colored green by algae that live inside their cells or they may be beige to brown or pinkish in color. Sponges can be delicate to very firm feeling but are not slimy or filmy. Some sponges prefer the underside of logs and sticks; these are usually not green in color.

Wisconsin's sponges exhibit an annual life history in which they grow through the summer, die back in the winter, and begin a new growth cycle in spring. So, it's best to look for them in late summer and early fall. In late summer, sponges form gemmules, small spherical protective structures that contain cells from which new sponges will grow in spring. The gemmules will appear about the size of poppy seeds, but are tan in color (arrows in photo, below right). They can be clustered or scattered in the sponge.

How Common Are Freshwater Sponges?

We don't know. Since little modern survey research has been conducted, their conservation status remains unknown. Biologists have found sponges in fewer than half of Wisconsin's counties. So there are many gaps in our knowledge.

We created a reporting mechanism by which citizens can help us prioritize waterbodies for future survey efforts.

Please take one of our brochures and share your observations.

What Information Is Being Collected?

Citizen volunteers are asked to answer the following questions:

Where did you observe sponges?
- County: _____
- Waterbody: _____

Substrate where you observed sponges:
- _ sand
- _ gravel
- _ logs
- _ other: _____

When did you observe sponges?
- Date: _____

How many kinds of sponges did you observe?
- _ All sponges appeared to be the same kind
- _ Sponges appeared to be more than one kind

How can we contact you?
- Name: _____
- Address: _____
- _____
- Telephone: _____
- E-mail: _____

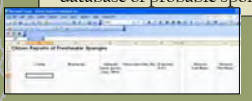
Where Do Volunteers Send Their Reports?

Volunteers can mail their completed questionnaires to:

Dreux Watermolen, SS/7
Wisconsin Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

Or they can send all of the requested information by e-mail to dreux.watermolen@wisconsin.gov.

Submitted information will be compiled in a database of probable sponge occurrences.



Acknowledgments

Photographs: Robert Korth and Milwaukee Public Museum

Thanks to Joan Jass, Janis Annesley, and the Milwaukee Public Museum for assistance in developing this sponge monitoring program and the introductory brochure. This project is supported by the Wisconsin Department of Natural Resources' Citizen-Based Monitoring Partnership Program. For more information on the Citizen-Based Monitoring Partnership Program, see http://cbm.wiatri.net/.

Appendix C: Sand Lake Aquatic Plant Survey Report

Sand Lake Aquatic Plant Survey

Introduction

This report is a summary and analysis of the data which was collected in a baseline macrophyte survey of Sand Lake, Sawyer County WI. The macrophyte survey was completed the last week of August 2012 and followed WI DNR protocol for a point-intercept survey. The entire littoral zone was also visually surveyed in mid June for the presence of invasive species, of which none were found.

Field Methods

A point intercept method for the macrophyte sampling was used. The Wisconsin Department of Natural Resources (WDNR) generated the sampling point grid. This grid consisted of 830 points (Figure 1). Only points shallower than 20 feet were initially sampled until the maximum depth of plants could be established. It was determined that the maximum depth of plants was 11 feet. A total of 279 points were sampled. From those 279 points, 250 points were at depths of 11 feet or less and 208 of them contained vegetation.

If no plants were sampled at a specific depth, one sample point beyond that depth was sampled for plants. In addition, any plant within six feet of the boat was recorded. The visually surveyed plant data is not used in the statistical analysis nor is the density recorded. Only results from the predetermined sample points were used in the statistical analysis. A handheld Global Positioning System (GPS) located the sampling points in the field. The Wisconsin DNR guidelines for point location accuracy were followed with an 80-foot resolution and the location arrow touching the point.

At each sample location, a double-sided fourteen-tine rake was used to rake a 1 meter tow from off the bow of the boat. All plants contained on the rake and those that fell off of the rake were identified and rated as to rake fullness. The rake fullness value was used based on the criteria contained in the diagram below. Those plants that were within six feet were recorded as "viewed," but no rake fullness rating was given.

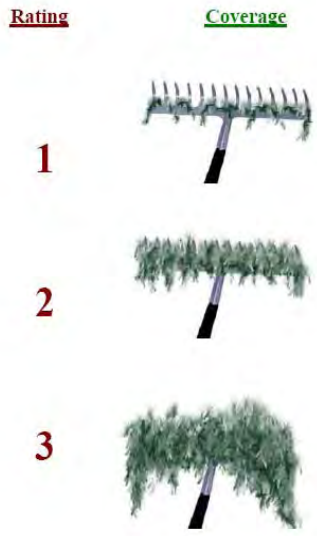
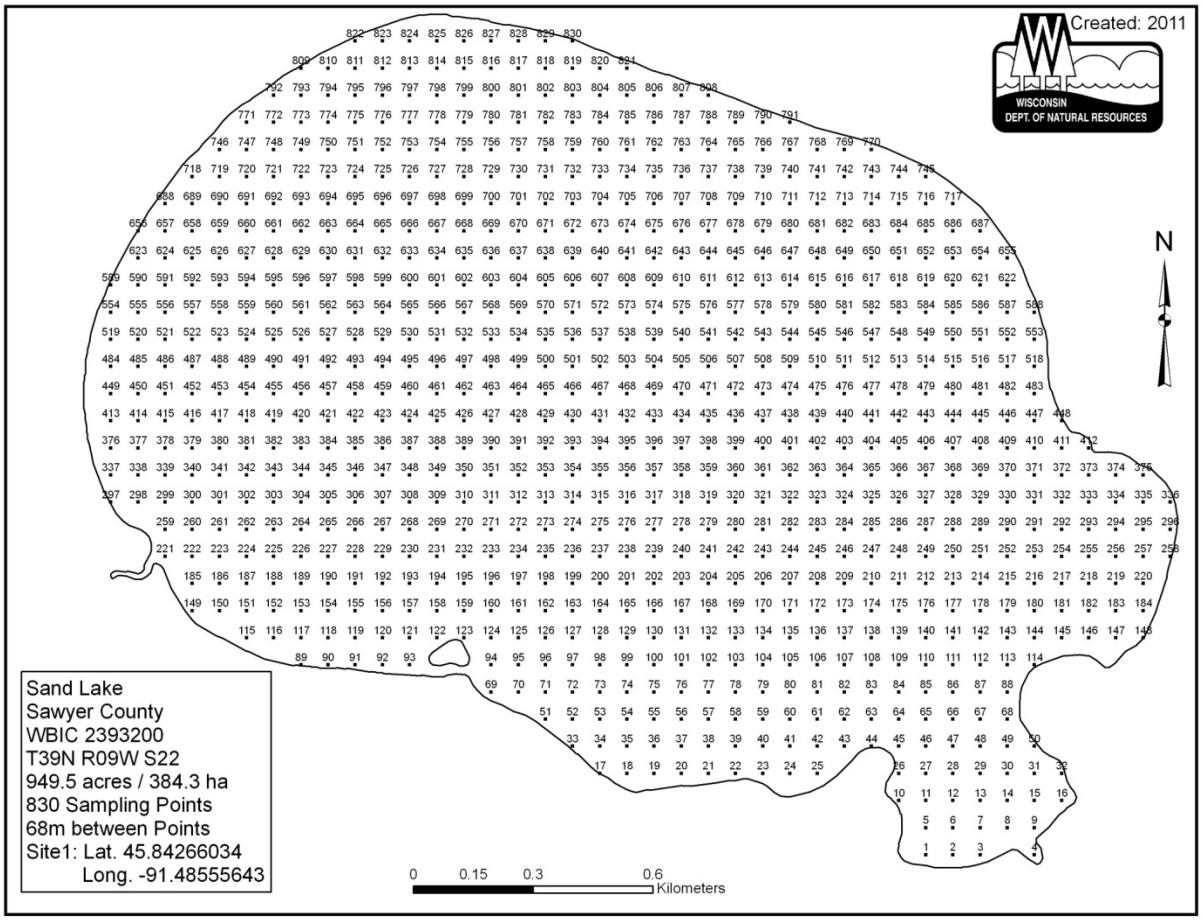


Figure 1: Sand Lake Sampling Point Grid



The depth and predominant bottom type was also recorded for each sample point. All plants needing verification were bagged and cooled for later examination.

Data Analysis Methods

The data collected was entered into a spreadsheet for analysis. The following statistics were generated from the spreadsheet:

- Frequency of occurrence in sample points with vegetation (littoral zone)
- Relative frequency
- Total sample points
- Sample points with vegetation
- Simpson's diversity index
- Maximum plant depth
- Species richness
- Floristic Quality Index

An explanation of each of these data is provided below.

Frequency of occurrence for each species
Frequency is expressed as a percentage by dividing the number of sites the plant is sampled by the number of total sites. There are two frequency values calculated. The first is the percentage of all sample points that a plant was sampled at depths less than the maximum depth plants were found (littoral zone), regardless if vegetation was present. The second is the percentage of sample points that the plant was sampled out of only points containing vegetation. The first value shows how often the plant would be encountered in the defined littoral zone, while the second value considers only points that contain plants. In either case, the greater this value, the more frequently the plant occurs in the lake. If one wants to compare plants within the littoral zone, we look at the frequency of all points below maximum depth with plants. This frequency value allows the analysis of how common plants are in areas where they could grow. If one wants to focus only on where plants are actually present, then one would look at frequency at points in which plants were found. Frequency of occurrence is usually reported using sample points where vegetation was present.

Relative frequency
This value shows, as a percentage, the frequency of a particular plant relative to other plants. This is not dependent on the number of points sampled. The relative frequency of all plants will add to 100%. This means that if plant A had a relative frequency of 30%, it occurred 30% of the time compared to all plants sampled or makes up 30% of all plants sampled. This value allows us to see which plants are the dominant species in the lake. The higher the relative frequency, the more common the plant is compared to the other plants.

Total Sample Points
This is the total number of points created for sampling on the lake. This may not be the same as the actual points sampled. When doing a survey, samples aren't taken at depths outside of the littoral zone (the area where plants can grow). Once the maximum depth of plants is established, many of the points deeper than this are eliminated to save time and effort.

Sample points with vegetation
This is the number of sites where plants were actually sampled. It gives a good idea of the plant coverage of the lake. If 20% of all grid sample points had vegetation, it implies about 20% coverage of plants in the whole lake. We also look at the number of sample sites with vegetation in the littoral zone. If 20% of the littoral zone had sample points with vegetation, then the plant coverage in the littoral zone would be estimated at 20%.

Simpson's diversity index
Simpson's diversity index is calculated to measure how diverse the plant community is. This value can run from 0 to 1.0. The greater the value, the more diverse the plant community is in a particular lake. In theory, the value is the chance that two species sampled are different. An index of "1" means that the two will always be different (very diverse) and a "0" would indicate that they will never be different (only one species found). The more diverse the plant community, the better the lake ecosystem.

Maximum depth of plants
This depth indicates the deepest that plants were sampled. Generally lakes with higher water clarity have a greater depth of plants while lower water clarity limits light penetration and reduces the depth at which plants are found.

Species richness
The number of different individual species found in the lake. Results include a number for the species richness of plants sampled, and another number that takes into account plants viewed but not actually sampled during the survey.

Floristic Quality Index
The Floristic Quality Index (FQI) is an index developed by Dr. Stanley Nichols of the University of Wisconsin-Extension. This index is a measure of the plant community in response to development (and human influence) on the lake. It takes into account the species of aquatic plants found and their tolerance for changing water quality and habitat quality. The index uses a conservatism value assigned to various plants ranging from 1 to 10. Not all plants have a conservatism value. A high conservatism value indicates that a plant is intolerant to disturbance while a lower value indicates tolerance. Those plants with higher values are more apt to respond adversely to water quality and habitat changes, largely due to human influence.

The FQI is calculated using the number of species and the average conservatism value of all species used in the index.

The formula is:

$$FQI = \text{Mean } C \cdot \sqrt{N}$$

Where C is the conservatism value and N is the number of species.

A higher FQI, indicates a healthier aquatic plant community. This value can then be compared to the mean for other lakes in the assigned eco-region. There are four eco-regions used throughout Wisconsin. These are Northern Lakes and Forests, Northern Central Hardwood Forests, Driftless Area, and Southeastern Wisconsin Till Plain. Sand Lake is located in the Northern Lakes and Forest eco-region. Below is a summary of the FQI median values for the Northern Lakes and Forest eco-region:

Mean species richness = 13
Mean conservatism = 6.7
Mean Floristic Quality = 24.3[1]

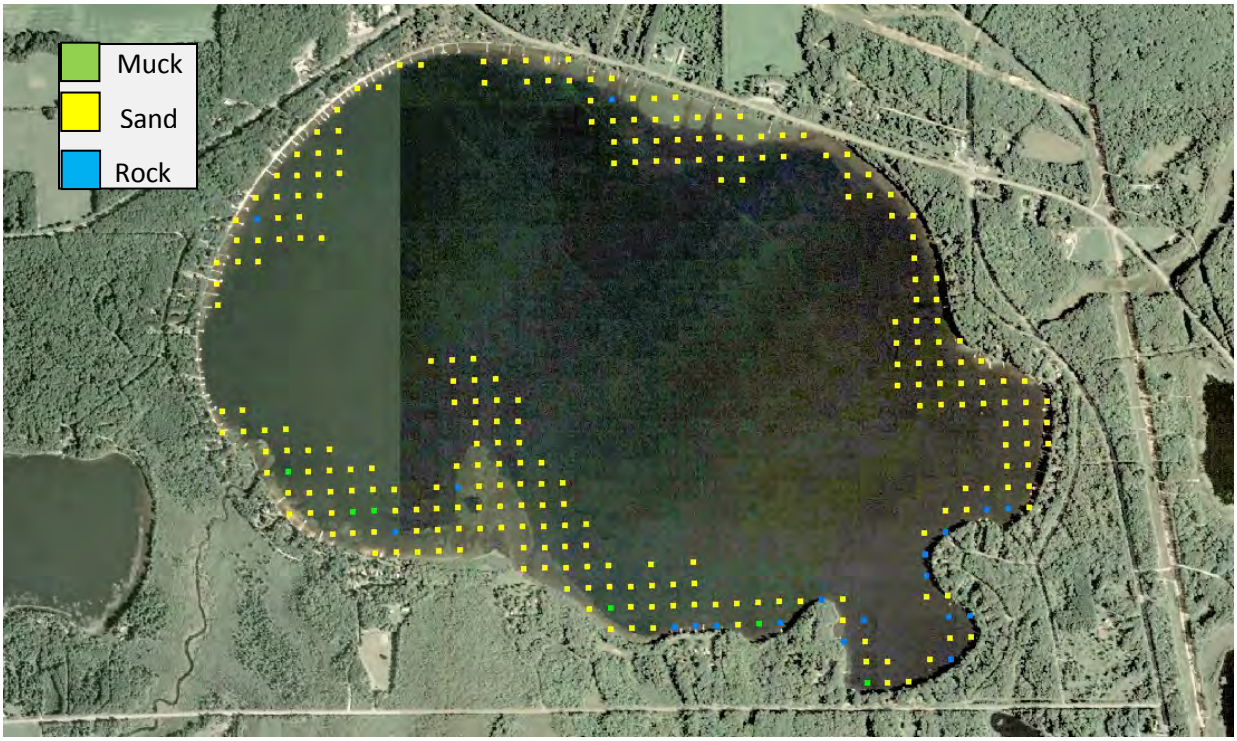
[1] Floristic Quality Assessment of Wisconsin Lake Plant Communities with Example Applications. Journal of Lake and Reservoir Management 15 (2): 133-144. 1999.

Results

The Wisconsin Department of Natural Resources generated the sampling point grid for Sand Lake which consisted of 830 points. Only points shallower than 20 feet were initially sampled until the maximum depth of plants could be established. This was determined to be 11 feet and is considered the littoral zone. A total of 250 points were at depths of 11 feet or less and out of those points, 208 of them contained vegetation. See Table 1 for a summary of the survey statistics.

Figure 2 shows the points that were sampled at depths of 11 feet or less and can be considered a map of the littoral zone. It also indicates the type of substrate that was present at each of the littoral zone sampling points. Sand was the most dominant substrate type (91%) followed by rock (7%) and then muck (2%).

Figure 2: Sand Lake Littoral Zone and Substrate Type



Species Richness

Twenty-seven species of aquatic macrophytes were directly sampled and observed in Sand Lake during the August whole lake survey. Table 2 lists all of the species that were sampled or observed along with their frequency and average rake density.

Table 1: Sand Lake Aquatic Plant Survey Statistics

SUMMARY STATS:	
Total number of points sampled	279
Total number of sites with vegetation	208
Total number of sites shallower than maximum depth of plants	250
Frequency of occurrence at sites shallower than maximum depth of plants	83.20
Simpson Diversity Index	0.91
Maximum depth of plants (ft)	11.00
Number of sites sampled using rake on Rope (R)	111
Number of sites sampled using rake on Pole (P)	167
Average number of all species per site (shallower than max depth)	2.54
Average number of all species per site (veg. sites only)	3.06
Average number of native species per site (shallower than max depth)	2.32
Average number of native species per site (veg. sites only)	3.06
Species Richness	27
Species Richness (including visuals)	27

Table 2: Sand Lake Aquatic Macrophytes

Species Name	Common Name	Freq w/in vegetated areas	Freq at sites shallower than max depth of plants	Relative Freq.	Rake Density
Vallisneria americana	Wild celery	65.87	54.8	21.5	1
Potamogeton pusillus	Small pondweed	27.4	22.8	9	1
filamentous algae	filamentous algae	26.44	22	8.6	1
Najas flexilis	Bushy pondweed	26.44	22	8.6	1
Potamogeton richardsonii	Clasping-leaf pondweed	22.12	18.4	7.2	1
Potamogeton amplifolius	Large-leaf pondweed	21.63	18	7.1	1
isoetes sp.	quillwort	13.94	11.6	4.6	1
Schoenoplectus acutus	Hardstem bulrush	13.46	11.2	4.4	1
Elodea canadensis	Common waterweed	11.06	9.2	3.6	1
Myriophyllum tenellum	Dwarf water milfoil	11.06	9.2	3.6	1

Species Name	Common Name	Freq w/in vegetated areas	Freq at sites shallower than max depth of plants	Relative Freq.	Rake Density
Potamogeton illinoensis	Illinois pondweed	10.58	8.8	3.5	1
Potamogeton robbinsii	Fern Leaf pondweed	8.17	6.8	2.7	1
Chara	Muskgrasses	7.21	6	2.4	1
Potamogeton zosteriformis	Flat-stem pondweed	6.73	5.6	2.2	1
Ceratophyllum demersum	Coontail	6.25	5.2	2	1
Schoenoplectus pungens	Three-square rush	6.25	5.2	2	1
Nitella sp.	Nitella	5.77	4.8	1.9	2
Nuphar variegata	Spatterdock	3.37	2.8	1.1	1
Megalodonta beckii	Water marigold	2.4	2	0.8	1
Myriophyllum sibiricum	Northern water milfoil	1.92	1.6	0.6	1
Ranunculus aquatilis	Stiff water crowfoot	1.44	1.2	0.5	1
Brasenia schreberi	Watershield	1.44	1.2	0.5	1
Lemna minor	Small duckweed	1.44	1.2	0.5	1
Equisetum fluviatile	water horsetail	0.96	0.8	0.3	1
Eriocaulon aquaticum	Pipewort	0.96	0.8	0.3	1
Nymphaea odorata	White water lily	0.96	0.8	0.3	1
Potamogeton strictifolius	Stiff pondweed	0.48	0.4	0.2	1

Frequency of occurrence within vegetated areas (%): *Number of times a species was seen in a vegetated area divided by the total number of vegetated sites.*

Frequency of occurrence at sites shallower than maximum depth of plants: *Number of times a species was seen divided by the total number of sites shallower than maximum depth of plants (whole lake value-how often it occurs within the entire littoral zone)*

Plant Diversity

Sand Lake has a very diverse plant community consisting of 27 native species. The Simpson's diversity index is also very high at 0.91 indicating a healthy ecosystem and a high degree of diversity. No single plant dominates within the lake. The plant species abundance is balanced between many different types.

Floristic Quality Index

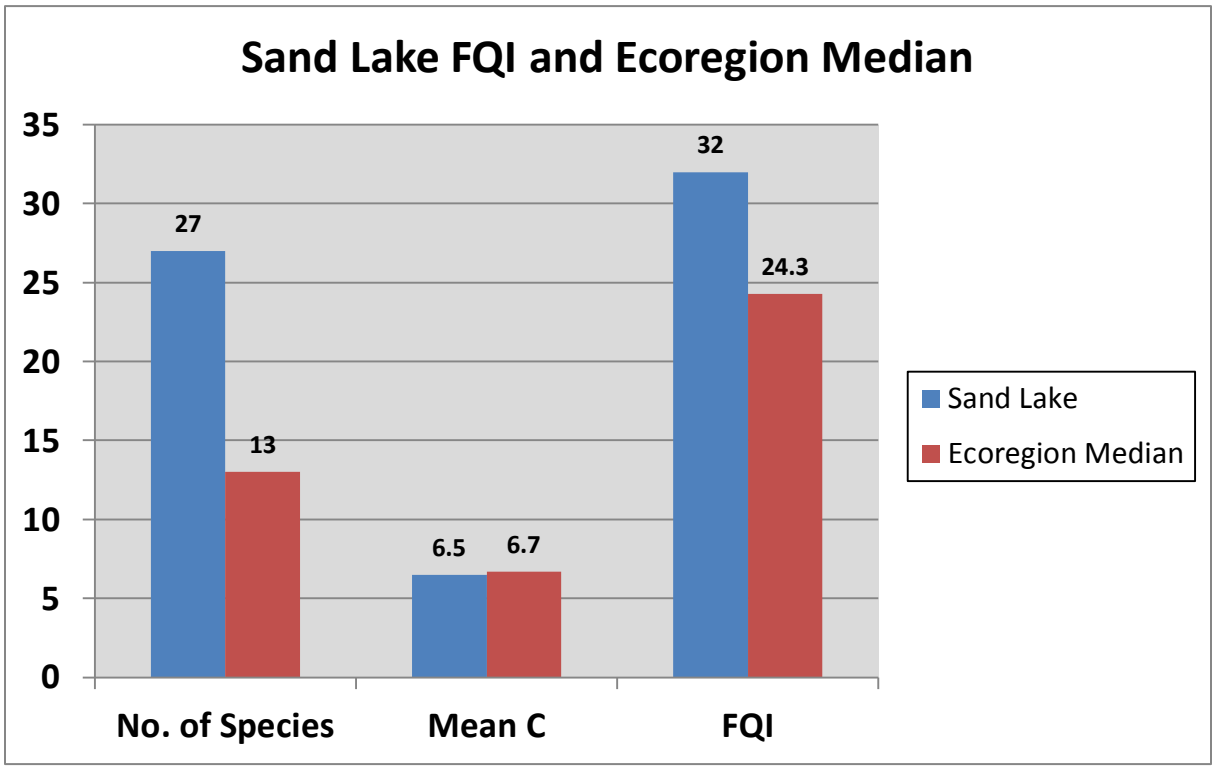
Sand Lake has a very high FQI (32.0). There were 24 species used to calculate the FQI. The species and their conservatism values are included in Table 3. The mean conservatism value was 6.54. The number of species and FQI are greater than the median values for lakes in the same eco-region (Northern Lakes and Forests). The mean conservatism value is slightly lower however. Figure 3 compares these values. The high FQI is indicative of a plant community that is intolerant to development and other human disturbances in the watershed. It indicates that the plant community is healthy and has changed little in response to human impact on water quality and habit (sediment) changes.

Table 3: Plant Conservatism Values

Species Name	Common Name	Conservatism Value
Elodea canadensis	Common waterweed	3
Vallisneria americana	Wild celery	6
Ceratophyllum demersum	Coontail	3
Potamogeton zosteriformis	Flat-stem pondweed	6
Chara	Muskgrasses	7
Potamogeton strictifolius	Stiff pondweed	8
Potamogeton robbinsii	Fern Leaf pondweed	8
filamentous algae	filamentous algae	
Najas flexilis	Bushy pondweed	6
Potamogeton pusillus	Small pondweed	7
Nitella sp.	Nitella	
Potamogeton richardsonii	Clasping-leaf pondweed	5
Myriophyllum tenellum	Dwarf water milfoil	10
Megalodonta beckii	Water marigold	8
Myriophyllum sibiricum	Northern water milfoil	7
Ranunculus aquatilis	Stiff water crowfoot	7
isoetes sp.	quillwort	8
Equisetum fluviatile	water horsetail	7
Eriocaulon aquaticum	Pipewort	9
Potamogeton amplifolius	Large-leaf pondweed	7
Potamogeton illinoensis	Illinois pondweed	6
Schoenoplectus acutus	Hardstem bulrush	5
Brasenia schreberi	Watershield	7
Nymphaea odorata	White water lily	6

Species Name	Common Name	Conservatism Value
Schoenoplectus pungens	Three-square rush	
Nuphar variegata	Spatterdock	6
Lemna minor	Small duckweed	5

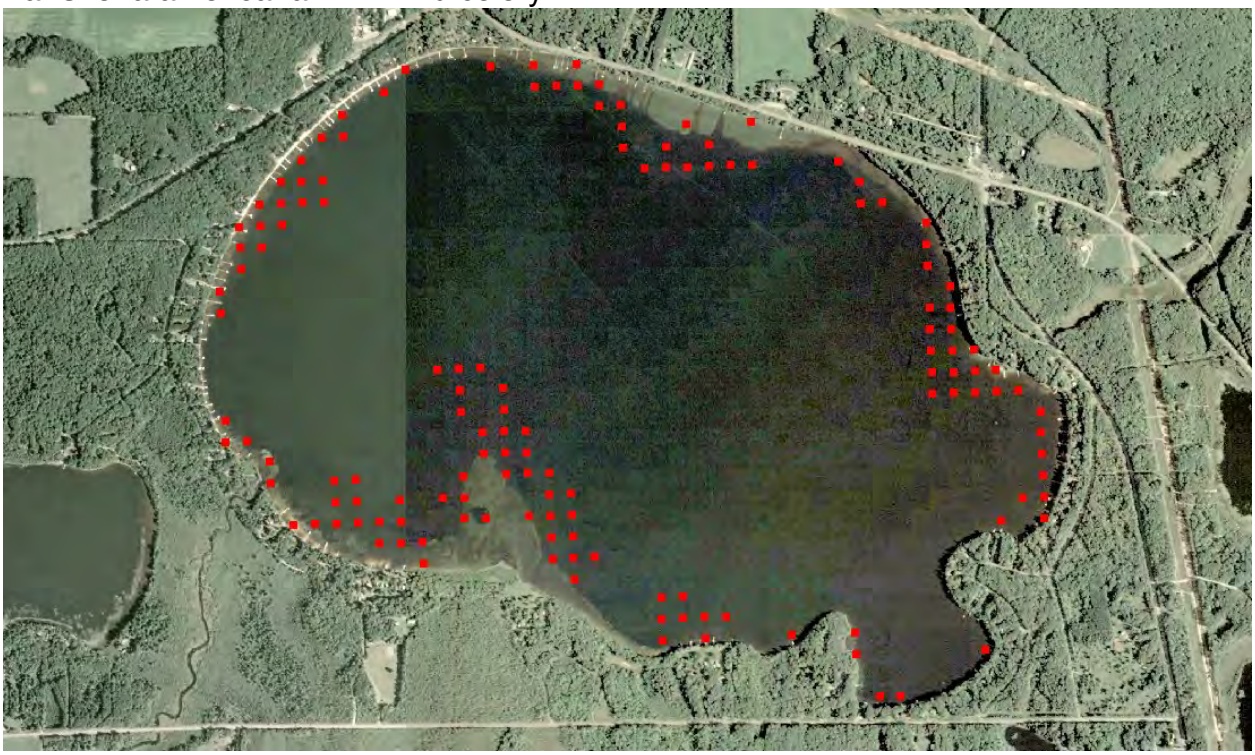
Figure 3: FQI Comparison to Ecoregion Median



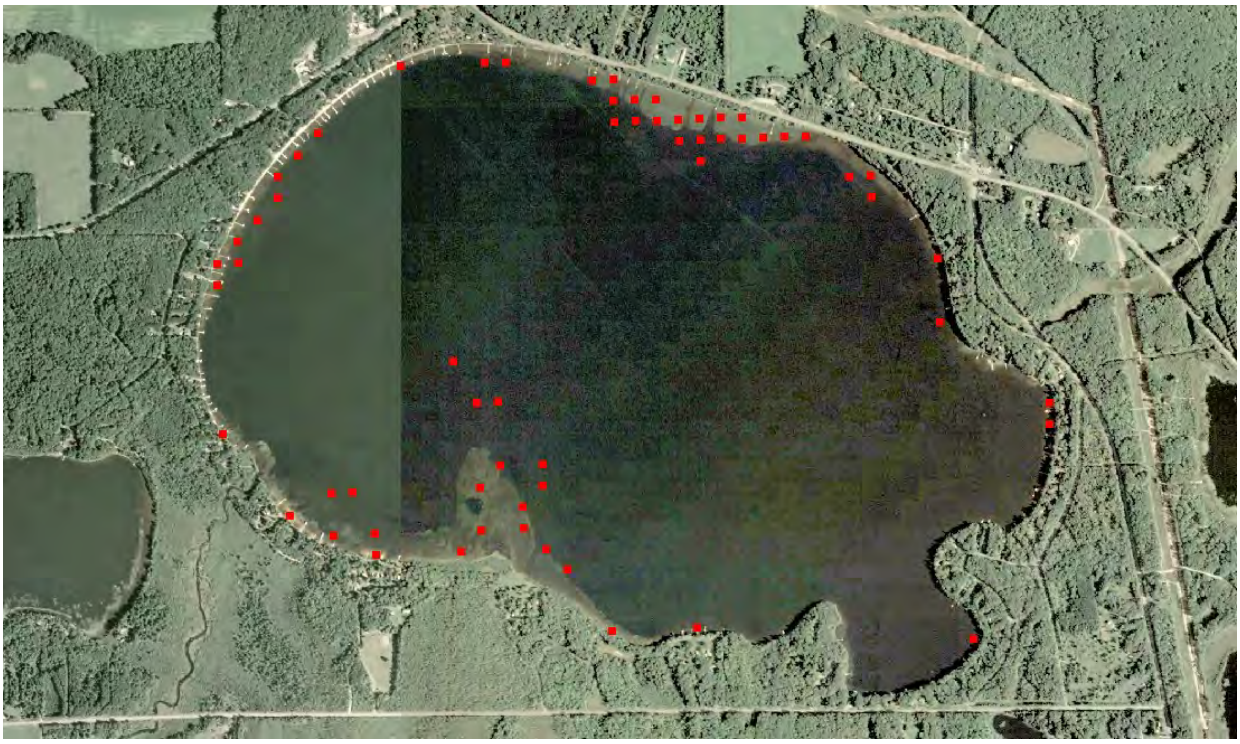
Species Distribution Maps

The following maps indicate the locations that the specified plant was surveyed or visually seen during the August whole lake point-intercept survey.

Vallisneria americana Wild celery



Potamogeton pusillus Small pondweed



filamentous algae

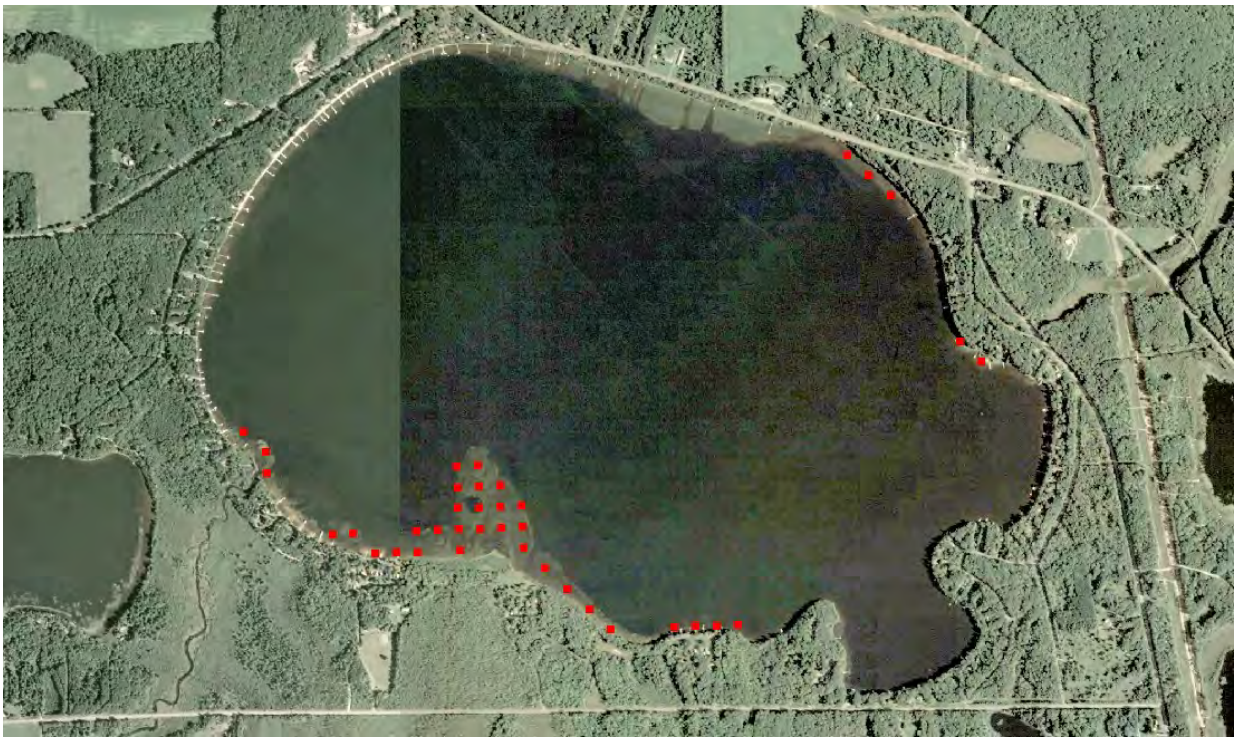
Najas flexilis Bushy pondweed

Potamogeton richardsonii Clasping-leaf pondweed

Potamogeton amplifolius Large-leaf pondweed

isoetes sp. quillwort

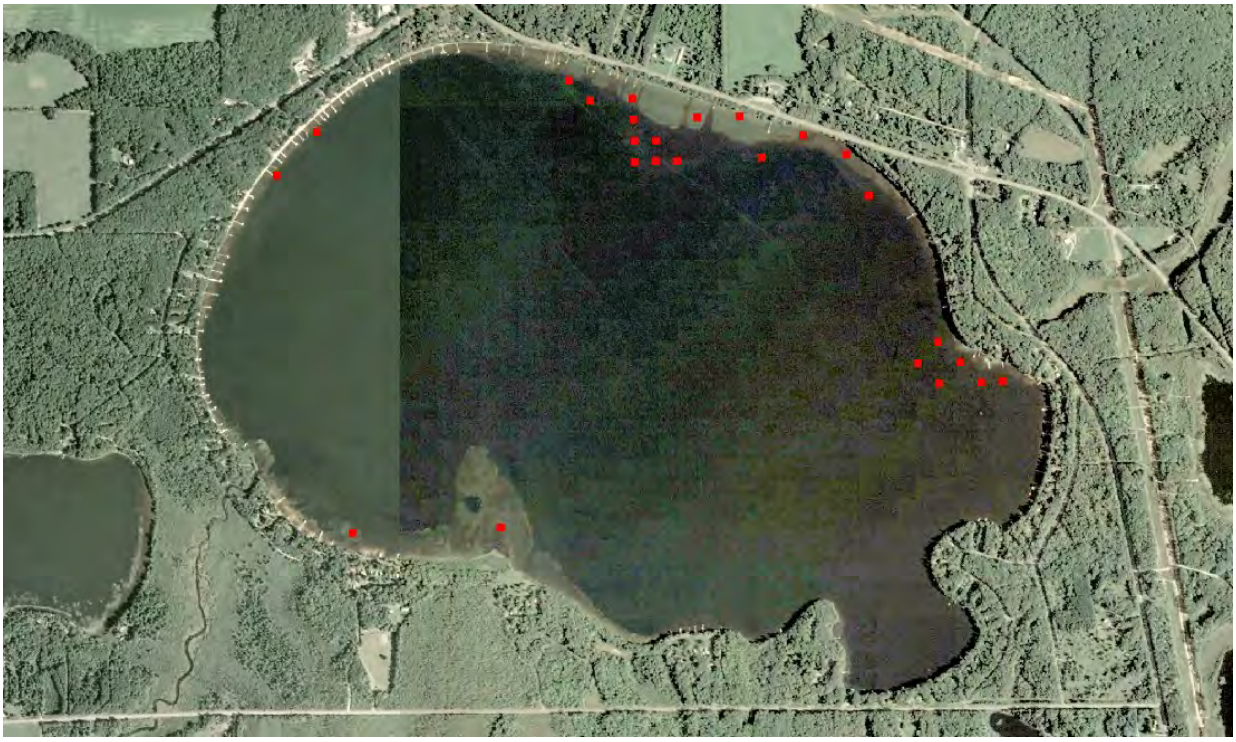
Schoenoplectus acutus Hardstem bulrush



Elodea canadensis Common waterweed

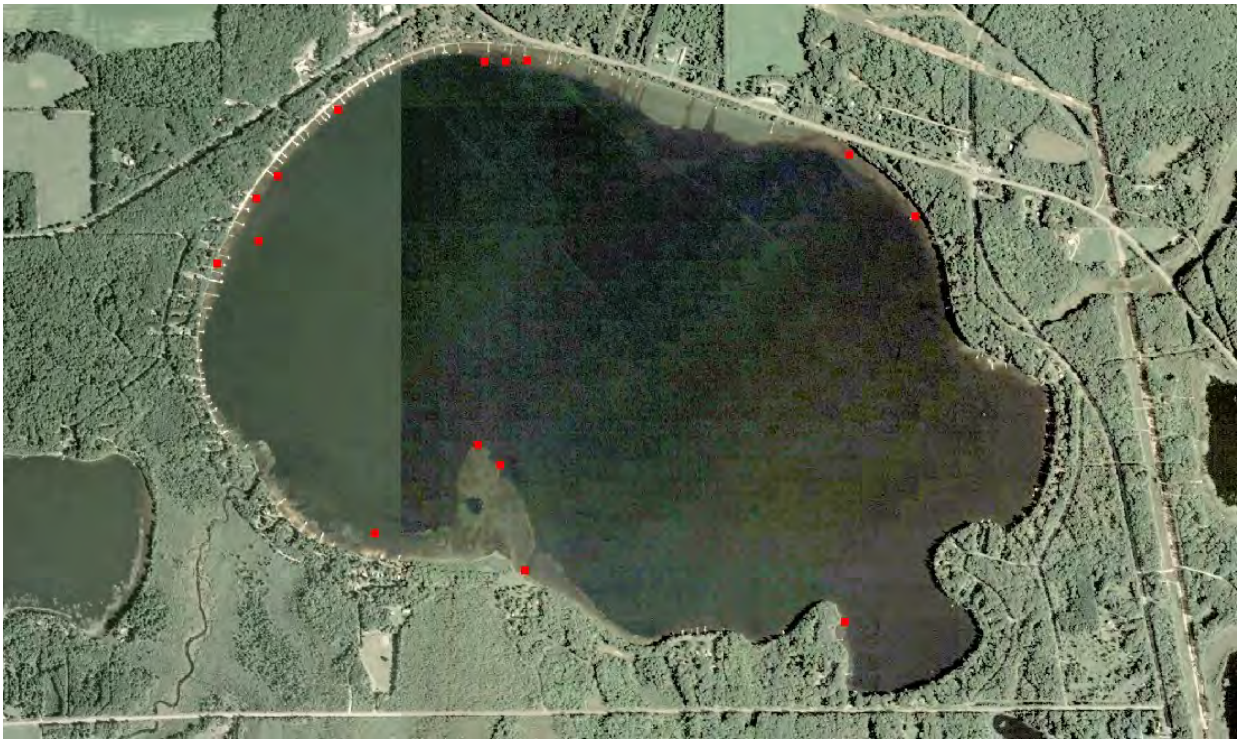
Myriophyllum tenellum Dwarf water milfoil

Potamogeton illinoensis Illinois pondweed



Potamogeton robbinsii Fern Leaf pondweed

Chara Muskgrasses



Potamogeton zosteriformis Flat-stem pondweed

Ceratophyllum demersum Coontail

Schoenoplectus pungens Three-square rush

Nitella sp. Nitella

Nuphar variegata Spatterdock

Megalodonta beckii Water marigold

Myriophyllum sibiricum Northern water milfoil

Ranunculus aquatilis Stiff water crowfoot

Brasenia schreberi Watershield

Lemna minor Small duckweed

Equisetum fluviatile water horsetail

Eriocaulon aquaticum Pipewort

Nymphaea odorata White water lily

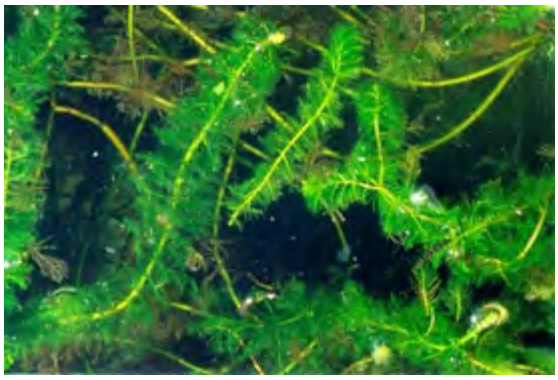
Potamogeton strictifolius Stiff pondweed

Appendix D. Aquatic Invasive Species Information[1]

Eurasian Water Milfoil

DESCRIPTION: Eurasian water milfoil is a submersed aquatic plant native to Europe, Asia, and northern Africa. It is the only non-native milfoil in Wisconsin. Like the native milfoils, the Eurasian variety has slender stems whorled by submersed feathery leaves and tiny flowers produced above the water surface. The flowers are located in the axils of the floral bracts, and are either four-petaled or without petals. The leaves are threadlike, typically uniform in diameter, and aggregated into a submersed terminal spike. The stem thickens below the inflorescence and doubles its width further down, often curving to lie parallel with the water surface. The fruits are four-jointed nut-like bodies. Without flowers or fruits, Eurasian water milfoil is nearly impossible to distinguish from Northern water milfoil. Eurasian water milfoil has 9-21 pairs of leaflets per leaf, while Northern milfoil typically has 7-11 pairs of leaflets. Coontail is often mistaken for the milfoils, but does not have individual leaflets.

DISTRIBUTION AND HABITAT: Eurasian milfoil first arrived in Wisconsin in the 1960's. During the 1980's, it began to move from several counties in southern Wisconsin to lakes and waterways in the northern half of the state. As of 1993, Eurasian milfoil was common in 39 Wisconsin counties (54%) and at least 75 of its lakes, including shallow bays in Lakes Michigan and Superior and Mississippi River pools.



Eurasian Water Milfoil
(c) Barry A. Rice/The Nature Conservancy

Eurasian water milfoil grows best in fertile, fine-textured, inorganic sediments. In less productive lakes, it is restricted to areas of nutrient-rich sediments. It has a history of becoming dominant in eutrophic, nutrient-rich lakes, although this pattern is not universal. It is an opportunistic species that prefers highly disturbed lake beds, lakes receiving nitrogen and phosphorous-laden runoff, and heavily used lakes. Optimal growth occurs in alkaline systems with a high concentration of dissolved inorganic carbon. High water temperatures promote multiple periods of flowering and fragmentation.

LIFE HISTORY AND EFFECTS OF INVASION: Unlike many other plants, Eurasian water milfoil does not rely on seed for reproduction. Its seeds germinate poorly under natural conditions. It reproduces vegetatively by fragmentation, allowing it to disperse over long distances. The plant produces fragments after fruiting once or twice during the summer. These

[1] WI DNR Aquatic Invasive Species Fact Sheets

shoots may then be carried downstream by water currents or inadvertently picked up by boaters. Milfoil is readily dispersed by boats, motors, trailers, bilges, live wells, or bait buckets, and can stay alive for weeks if kept moist.

Once established in an aquatic community, milfoil reproduces from shoot fragments and stolons (runners that creep along the lake bed). As an opportunistic species, Eurasian water milfoil is adapted for rapid growth early in spring. Stolons, lower stems, and roots persist over winter and store the carbohydrates that help milfoil claim the water column early in spring, photosynthesize, divide, and form a dense leaf canopy that shades out native aquatic plants. Its ability to spread rapidly by fragmentation and effectively block out sunlight needed for native plant growth often results in monotypic stands. Monotypic stands of Eurasian milfoil provide only a single habitat, and threaten the integrity of aquatic communities in a number of ways; for example, dense stands disrupt predator-prey relationships by fencing out larger fish, and reducing the number of nutrient-rich native plants available for waterfowl.

Dense stands of Eurasian water milfoil also inhibit recreational uses like swimming, boating, and fishing. Some stands have been dense enough to obstruct industrial and power generation water intakes. The visual impact that greets the lake user on milfoil-dominated lakes is the flat yellow-green of matted vegetation, often prompting the perception that the lake is "infested" or "dead". Cycling of nutrients from sediments to the water column by Eurasian water milfoil may lead to deteriorating water quality and algae blooms of infested lakes.

CONTROLLING EURASIAN WATER MILFOIL: Preventing a milfoil invasion involves various efforts. Public awareness of the necessity to remove weed fragments at boat landings, a commitment to protect native plant beds from speed boaters and indiscriminate plant control that disturbs these beds, and a watershed management program to keep nutrients from reaching lakes and stimulating milfoil colonies--all are necessary to prevent the spread of milfoil.

Monitoring and prevention are the most important steps for keeping Eurasian water milfoil under control. A sound precautionary measure is to check all equipment used in infested waters and remove all aquatic vegetation upon leaving the lake or river. All equipment, including boats, motors, trailers, and fishing/diving equipment, should be free of aquatic plants.

Lake managers and lakeshore owners should check for new colonies and control them before they spread. The plants can be hand pulled or raked. It is imperative that all fragments be removed from the water and the shore. Plant fragments can be used in upland areas as a garden mulch.

Mechanical Control: Mechanical cutters and harvesters are the most common method for controlling Eurasian water milfoil in Wisconsin. While harvesting may clear out beaches and boat landing by breaking up the milfoil canopy, the method is not selective, removing beneficial

aquatic vegetation as well. These machines also create shoot fragments, which contributes to milfoil dispersal. Harvesting should be used only after colonies have become widespread, and harvesters should be used offshore where they have room to turn around. Hand cutters work best inshore, where they complement hand pulling and bottom screening. Bottom screening can be used for severe infestations, but will kill native vegetation as well. A diver-operated suction dredge can be used to vacuum up weeds, but the technique can destroy nearby native plants and temporarily raise water turbidity.

Hand pulling is the preferred control method for colonies of under 0.75 acres or fewer than 100 plants. The process is both thorough and selective (not to mention time-consuming); special care must be taken to collect all roots and plant fragments during removal. Sites remote from boat traffic can be covered with bottom screens that are anchored firmly against the lake bed to kill grown shoots and prevent new sproutings, but screens must be removed each fall to clean off sediment that encourages rooting. Buoys can mark identified colonies and warn boaters to stay away.

Whenever possible, milfoil control sites should become customized management zones. For example, colony removal by harvesting can be followed by planting native plants to stabilize sediments against wave action, build nurseries for fry, attract waterfowl, and compete against new milfoil invasions.

DNR permits are required for chemical treatments, bottom screening, and buoy/barrier placement.

Chemical Control: Herbicide treatment is not recommended because it is typically disruptive to aquatic ecosystems and not selective in the vegetation it affects, thus threatening native plants.

Biological Control: *Eurhychiopsis lecontei*, an herbivorous weevil native to North America, has been found to feed on Eurasian water milfoil. Adult weevils feed on the stems and leaves, and females lay their eggs on the apical meristem (top-growing tip); larvae bore into stems and cause extensive damage to plant tissue before pupating and emerging from the stem. Three generations of weevils hatch each summer, with females laying up to two eggs per day. It is believed that these insects are causing substantial decline in some milfoil populations. Because this weevil prefers Eurasian water milfoil, other native aquatic plant species, including northern watermilfoil, are not at risk from the weevil's introduction. Twelve Wisconsin lakes are currently part of a two-year DNR project studying the weevil's effectiveness in curbing Eurasian water milfoil populations. The fungi *Mycoleptidiscus terrestris* is also under extensive research.

Curly Leaf Pondweed

Photo by Elizabeth J Czarapata

DESCRIPTION: Curly-leaf pondweed is an invasive aquatic perennial that is native to Eurasia, Africa, and Australia. It was accidentally introduced to United States waters in the mid-1880s by hobbyists who used it as an aquarium plant. The leaves are reddish-green, oblong, and about 3 inches long, with distinct wavy edges that are finely toothed. The stem of the plant is flat, reddish-brown and grows from 1 to 3 feet long. The plant usually drops to the lake bottom by early July

DISTRIBUTION AND HABITAT: Curly-leaf pondweed is commonly found in alkaline and high nutrient waters, preferring soft substrate and shallow water depths. It tolerates low light and low water temperatures. It has been reported in all states but Maine

LIFE HISTORY AND EFFECTS OF INVASION: Curly-leaf pondweed spreads through burr-like winter buds (turions), which are moved among waterways. These plants can also reproduce by seed, but this plays a relatively small role compared to the vegetative reproduction through turions. New plants form under the ice in winter, making curly-leaf pondweed one of the first nuisance aquatic plants to emerge in the spring.

It becomes invasive in some areas because of its tolerance for low light and low water temperatures. These tolerances allow it to get a head start on and outcompete native plants in the spring. In mid-summer, when most aquatic plants are growing, curly-leaf pondweed plants are dying off. Plant die-offs may result in a critical loss of dissolved oxygen. Furthermore, the decaying plants can increase nutrients which contribute to algal blooms, as well as create unpleasant stinking messes on beaches. Curly-leaf pondweed forms surface mats that interfere with aquatic recreation.

CONTROL METHODS: Turions and plant fragments can be carried on boats, trailers, motors and fishing gear from one water body to another, thus proper prevention techniques are essential to curb the spread of this aquatic invasive. An effective prevention and remediation program also addresses the overall health of a water body: Maintaining a healthy ecosystem with diverse native aquatic plants and animals as well as minimizing nutrient and pollutant inputs will deter invasions. Once introduced, curly-leaf pondweed spreads rapidly. Long-term management requires the reduction or elimination of turions to interrupt the lifecycle.

DNR permits are required for chemical treatments, mechanical treatments, some manual treatments, biological control, bottom screening, and buoy/barrier placement.

Manual/Mechanical Control: To have the maximum benefit, manual/mechanical control efforts should be undertaken in the spring or early summer. Mechanical control includes raking, hand-cutting or harvesting vegetation. Raking and hand cutting remove plants at the sediment surface, and there is some evidence that early season cutting of pondweed can prevent turion production. Harvesting generally removes the top 5 feet of the plant. Curly-leaf pondweed can spread from plant fragments, so it is important to clean all vegetation off boats and equipment before leaving water access.

Chemical Control: There are a small number of aquatic herbicides that can be used to control curly-leaf pondweed. In Minnesota, good to excellent control was obtained using formulations of diquat (Reward) and endothall (Aquathall K). These chemicals can be used in small areas and will usually knock down curly-leaf pondweed within 2 weeks. The best time for treatment is in spring or early summer when natives are still dormant and temperatures are low enough for endothall be effective. In early experiments with fluridone (Sonar), production of turions was completely inhibited following early season treatments. Fluridone usually has to be applied to an entire lake and requires 30 days to knock down curly-leaf pondweed.

Habitat manipulation: Habitat manipulation such as drawdowns and dredging can also be used to manage curly-leaf pondweed. Fall drawdown can kill the plants by exposing them to freezing temperatures and desiccation. Dredging can be used as a control by increasing the water depth. In deep water, the plants do not receive enough light to survive. This method can be detrimental to desired plants, as all macrophytes would be prevented from growing for many years. This high level of disturbance may also create favorable conditions for the invasion of other invasive species.

Purple Loosestrife

Description

Purple loosestrife is a perennial herb 3-7 feet tall with a dense bushy growth of 1-50 stems. The stems, which range from green to purple, die back each year. Showy flowers vary from purple to magenta, possess 5-6 petals aggregated into numerous long spikes, and bloom from July to September. Leaves are opposite, nearly linear, and attached to four-sided stems without stalks. It has a large, woody taproot with fibrous rhizomes that form a dense mat.

Photo by Kenneth J. Sytsma Courtesy of Wisconsin Vascular Plants Website

By law, purple loosestrife is a nuisance species in Wisconsin. It is illegal to sell, distribute, or cultivate the plants or seeds, including any of its cultivars.

Distribution and Habitat

Purple loosestrife is a wetland herb that was introduced as a garden perennial from Europe during the 1800's. It is still promoted by some horticulturists for its beauty as a landscape plant, and by beekeepers for its nectar-producing capability. Currently, about 24 states have laws prohibiting its importation or distribution because of its aggressively invasive characteristics. It has since extended its range to include most temperate parts of the United States and Canada. The plant's reproductive success across North America can be attributed to its wide tolerance of physical and chemical conditions characteristic of disturbed habitats, and its ability to reproduce prolifically by both seed dispersal and vegetative propagation. The absence of natural predators, like European species of herbivorous beetles that feed on the plant's roots and leaves, also contributes to its proliferation in North America.

Purple loosestrife was first detected in Wisconsin in the early 1930's, but remained uncommon until the 1970's. It is now widely dispersed in the state, and has been recorded in 70 of Wisconsin's 72 counties. Low densities in most areas of the state suggest that the plant is still in the pioneering stage of establishment. Areas of heaviest infestation are sections of the Wisconsin River, the extreme southeastern part of the state, and the Wolf and Fox River drainage systems.

This plant's optimal habitat includes marshes, stream margins, alluvial flood plains, sedge meadows, and wet prairies. It is tolerant of moist soil and shallow water sites such as pastures and meadows, although established plants can tolerate drier conditions. Purple loosestrife has also been planted in lawns and gardens, which is often how it has been introduced to many of our wetlands, lakes, and rivers.

Life History and Effects of Invasion

Purple loosestrife can germinate successfully on substrates with a wide range of pH. Optimum substrates for growth are moist soils of neutral to slightly acidic pH, but it can exist in a wide range of soil types. Most seedling establishment occurs in late spring and early summer when temperatures are high.

Purple loosestrife spreads mainly by seed, but it can also spread vegetatively from root or stem segments. A single stalk can produce from 100,000 to 300,000 seeds per year. Seed survival is up to 60-70%, resulting in an extensive seed bank. Mature plants with up to 50 shoots grow over 2 meters high and produce more than two million seeds a year. Germination is restricted to open, wet soils and requires high temperatures, but seeds remain viable in the soil for many years. Even seeds submerged in water can live for approximately 20 months. Most of the seeds fall near the parent plant, but water, animals, boats, and humans can transport the seeds long distances. Vegetative spread through local perturbation is also characteristic of loosestrife; clipped, trampled, or buried stems of established plants may produce shoots and roots. Plants may be quite large and several years old before they begin flowering. It is often very difficult to locate non-flowering plants, so monitoring for new invasions should be done at the beginning of the flowering period in mid-summer.

Any sunny or partly shaded wetland is susceptible to purple loosestrife invasion. Vegetative disturbances such as water drawdown or exposed soil accelerate the process by providing ideal conditions for seed germination. Invasion usually begins with a few pioneering plants that build up a large seed bank in the soil for several years. When the right disturbance occurs, loosestrife can spread rapidly, eventually taking over the entire wetland. The plant can also make morphological adjustments to accommodate changes in the immediate environment; for example, a decrease in light level will trigger a change in leaf morphology. The plant's ability to adjust to a wide range of environmental conditions gives it a competitive advantage; coupled with its reproductive strategy, purple loosestrife tends to create monotypic stands that reduce biotic diversity.

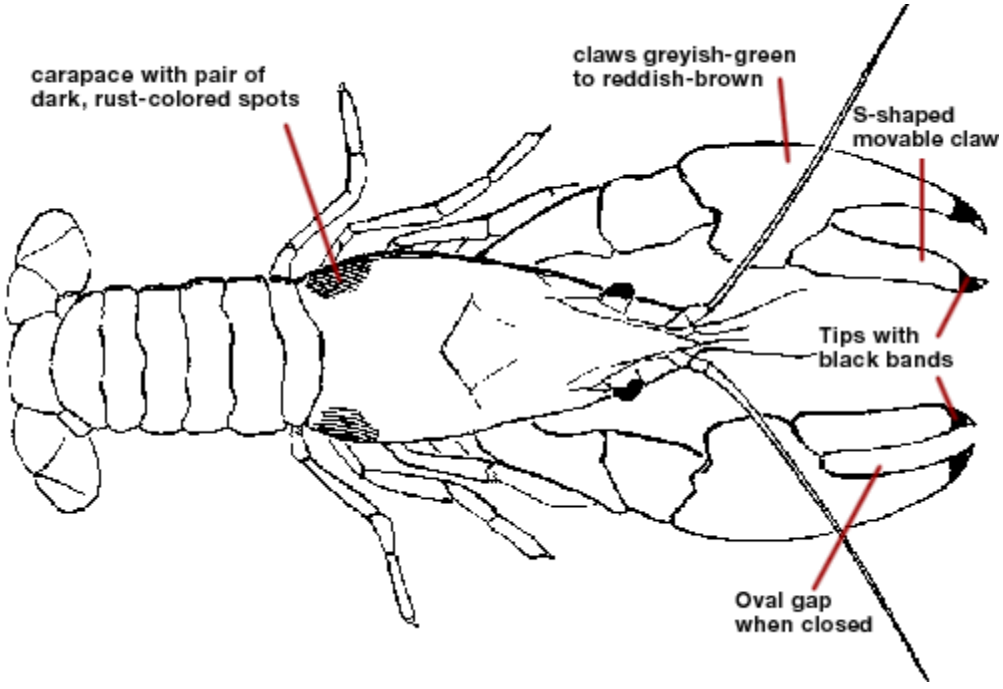
Purple loosestrife displaces native wetland vegetation and degrades wildlife habitat. As native vegetation is displaced, rare plants are often the first species to disappear. Eventually, purple loosestrife can overrun wetlands thousands of acres in size, and almost entirely eliminate the open water habitat. The plant can also be detrimental to recreation by choking waterways.

Rusty Crayfish (*Orconectes rusticus*)

Rusty crayfish are invasive crustaceans spreading to lakes, rivers, and streams in several areas of North America. They are more aggressive than other native crayfish, better able to avoid fish predation, and can harm native fish populations by eating their eggs and young. They can displace native crayfish, hybridize with them, and graze on and eliminate aquatic plants.

Native to the Ohio River drainage, rusty crayfish have spread to several U.S. states and Ontario. They have likely spread through bait bucket release by anglers, aquarium release by hobbyists, activities of commercial harvesters, and live study specimen release by teachers and students who buy them from biological supply houses. Females can carry fertilized eggs or a male's sperm so even the release of a single female could establish a new population. Eradicating established infestations is impossible. Your help detecting and reporting new infestations is vital to preventing their spread.

Identify Rusty Crayfish



General Characteristics

- Adults generally are 3-5 inches (7-13 cm) long
- Claws larger and smoother than many other crayfish; usually without wart-like white bumps
- Claws with oval gap when closed; no distinct thin slit or notch present

What You Can Do

- Learn to identify rusty crayfish
- Inspect and remove aquatic plants and animals from boat, motor, and trailer
- Drain lake or river water from live well and bilge before leaving access
- Dispose of unwanted live bait and study specimens in the trash
- Never dump live fish or crayfish from one body of water into another
- Report new sightings - record exact location; store specimens in rubbing alcohol; if in Minnesota, call the MN Department of Natural Resources Invasive Species Program in St. Paul, 1-888-MINNDNR, or Doug Jensen of Minnesota Sea Grant.

Know the rules!

Specimens are needed to confirm sightings, but some jurisdictions prohibit or discourage possession and transport of rusty crayfish and other invasive aquatic plants and animals. Contact your local natural resource management agency for instructions. Unauthorized introduction of plants or fish into the wild is illegal. Protect your property and our waters.

Spiny Waterflea and Fishhook Waterflea(*Bythotrephes cederstroemi* and *Cercopagis pengoi*)

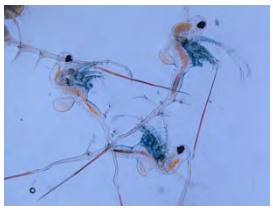


Photo by Pieter Johnson, UW Center for Limnology

Both waterfleas entered the Great Lakes in ship ballast water from Europe – the spiny waterflea arrived in the 1980's, followed in the 1990's by the fishhook water flea. Only about ¼ to ½ inches in length, individual waterfleas may go unnoticed. However, both species tend to gather in masses on fishing lines and downrigger cables, so anglers may be the first to discover a new infestation.

Spiny and fishhook waterfleas are predators - they eat smaller zooplankton (planktonic animals), including Daphnia. This puts them in direct competition with juvenile fish for food. Young fish have trouble eating these waterfleas due to their long, spiny tails. The spiny and fishhook water fleas produce rapidly through parthenogenesis, commonly known as asexual reproduction, which means that no males are required and populations can explode in number.

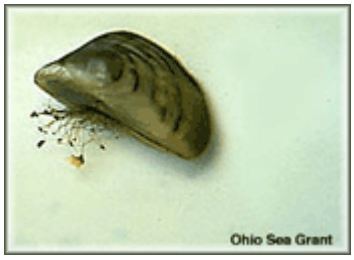
Fishing, boating, and other water recreational equipment can transport spiny waterfleas and their eggs to new water bodies. Their resting eggs can survive long after the adults are dead, even under extreme environmental conditions. So care must be taken not to transport water between water bodies and to remove all waterfleas and eggs from equipment.

Spiny water fleas were found in the Gile Flowage (Iron County) in 2003 and Stormy Lake (Vilas County) in 2007. These are the only inland Wisconsin lakes known to contain invasive water fleas. Unfortunately, at this time no effective strategy is available to control the spiny water fleas once they are introduced to lakes.

Anyone who thinks they may have spotted spiny water fleas in other inland Wisconsin lakes is asked to contact their local DNR office or call (608) 266-9270

Zebra Mussels (*Dreissena polymorpha*)

DESCRIPTION: The zebra mussel (*Dreissena polymorpha*) is a tiny (1/8-inch to 2-inch) bottom-dwelling clam native to Europe and Asia. Zebra mussels were introduced into the Great Lakes in 1985 or 1986, and have been spreading throughout them since that time. They were most likely brought to North America as larvae in ballast water of ships that traveled from fresh-water Eurasian ports to the Great Lakes. Zebra mussels look like small clams with a yellowish or brownish D-shaped shell, usually with alternating dark- and light-colored stripes. They can be up to two inches long, but most are under an inch. Zebra mussels usually grow in clusters containing numerous individuals.



DISTRIBUTION AND HABITAT: Zebra mussels were first found in Wisconsin waters of Lake Michigan in 1990. They are now found in a number of inland Wisconsin waters (see current infestation list and maps). By 1991, the mussels had made their way into Pool 8 of the Mississippi River, most likely originating in the Illinois River (currents may have carried them to the confluence with the Mississippi, from which barges could carry them upriver). Populations of zebra mussels are steadily increasing to over several thousand per square meter in some portions of the Mississippi river. As of 2003, their distribution included the entire Wisconsin portion of the Mississippi and extended up to Stillwater in the St Croix River.

Zebra mussels are the only freshwater mollusks that can firmly attach themselves to solid objects. They are generally found in shallow (6-30 feet deep), algae-rich water.

LIFE HISTORY AND EFFECTS OF INVASION: Zebra mussels usually reach reproductive maturity by the end of their first year. Reproduction occurs through spawning when sperm and eggs are released into the water. Spawning peaks at water temperatures of about 68 degrees F. A fertilized egg results in a free-swimming, planktonic larva called a 'veliger.' This veliger remains suspended in the water column for one to five weeks, and then begins to sink, eventually attaching to a stable surface (e.g., rocks, dock pilings, aquatic weeds, water intakes, boat hulls) on which to live, grow and reproduce. They attach to these surfaces using adhesive structures called byssal threads.

Zebra mussels feed by drawing water into their bodies and filtering out most of the suspended microscopic plants, animals and debris for food. This process can lead to increased water clarity and a depleted food supply for other aquatic organisms, including fish. The higher light penetration fosters growth of rooted aquatic plants which, although creating more habitat for small fish, may inhibit the larger, predatory fish from finding their food. This thicker plant growth can also interfere with boaters, anglers and swimmers. Zebra mussel infestations may

also promote the growth of blue-green algae, since they avoid consuming this type of algae but not others.

Zebra mussels attach to the shells of native mussels in great masses, effectively smothering them. A survey by the Corps in the East Channel of the Mississippi River at Prairie du Chien revealed a substantial reduction in the diversity and density of native mussels due to Zebra Mussel infestations. The East Channel provides habitat for one of the best mussel beds in the Upper Mississippi River. Future efforts are being considered to relocate such native mussel beds to waters that are less likely to be impacted by zebra mussels.

Financial impacts have been significant to Wisconsin's water utilities and to power plants, where these animals congregate on and clog intake and distribution pipes. In 2001, for example, Wisconsin Electric Power Company reported that they were spending $1.2 million per year in the control of zebra mussels on their Lake Michigan power plants. Lock and dam operators on the Mississippi River and raw water users have also incurred costs. The estimated annual cost of controlling zebra mussels in the Great Lakes now range from $100 to $400 million, according to NOAA Great Lakes Environmental Research Laboratory Director Dr. Stephen Brandt.

CONTROLLING ZEBRA MUSSELS: Once zebra mussels are established in a water body, very little can be done to control them. **It is therefore crucial to take all possible measures to prevent their introduction in the first place.** Be sure to follow the four-step procedure in preventing the spread of aquatic hitchhikers. In addition to these measures, boaters can take specific precautions in protecting their motors from zebra mussels.

Infestation of raw water intake pipes and structures can seriously limit water flow into hatcheries, drinking water treatment plants, industrial facilities, and cooling systems of power plants. Virtually all control initiatives have stemmed from such utility or industrial infestations, thus cost-effectiveness and mechanical functioning are the primary goals. Control measures can include physical removal, industrial vacuums, backflushing, chemical applications (chlorine, bromine, potassium permanganate), and even oxygen deprivation. An ozonation process is under investigation (patented by Bollyky Associates Inc.) which involves the pumping of high concentrations of dissolved ozone into the intake of raw water pipes. This method only works in controlling veligers, and supposedly has little negative impacts on the ecosystem. Further research on effective industrial control measures that minimize negative impacts on ecosystem health is needed.

No selective method has been developed that succeeds in controlling zebra mussels in the wild without also harming other aquatic organisms. To a certain extent, ducks and fish will eat small zebra mussels, but not to the point of effectively controlling their populations. Water draw-downs may yield positive results in some situations, as the mussels are killed by deep freezing during winter. They are also susceptible to the scouring and freezing of winter ice along the

shores of the Great Lakes. As of yet, no practical and effective controls are known, again emphasizing the need for research and prevention.

Appendix E: Discussion of Aquatic Plant Management Options/Control Techniques

The following discussion involves techniques used to control the growth and distribution of aquatic plants, particularly Eurasian Water Milfoil. It should be thoroughly understood the application, location, timing and combination of treatment methods must be carefully considered to effectively manage aquatic plants. A summary table from the WI DNR for management options of aquatic plants is also included in this appendix.

Introduction

Taking inventory of the present situation in order to predict possible outcomes will prove vital in the decision making process of what control option(s) would be the most successful for Whitefish Lake. Also, it is in some instances preferable to choose a no action option for a short period of time to provide more time for further exploration and discussion of other control options.

Control of Eurasian watermilfoil is just that, “control.” It is unlikely that Eurasian watermilfoil can ever be eradicated from a lake once it is established. The Eurasian water milfoil in Whitefish lake is very limited at this time. Considering combinations of the following management options will likely increase the success of any Eurasian watermilfoil control.

Chemical Control

Chemical control uses herbicides to treat EWM infestations. Depending upon the application technique and management decisions, chemical control can be used as either a partial or whole lake treatment. However, given the size and morphology of Whitefish Lake whole lake treatments using chemicals is not a realistic option. There are two major types of herbicide commonly used to treat EWM infestations, systemic and contact herbicides.

Two forms of contact herbicides have been used to control Eurasian watermilfoil; Diquat and Endothall. Contact herbicides kill the plant tissue that it comes in contact with. This makes contact herbicides nonselective, and if too much plant material is killed it can cause anoxic conditions which can have negative impacts on the aquatic ecosystem. Diquat typically shows results within 6-10 days and is not as effective in silty or muddy waters. Also, certain water uses can be restricted from 24 hours to 14 days (i.e. fishing, swimming, water intake, etc).

Systemic herbicides, like 2,4-D or Fluridone, translocate throughout the entire plant and under ideal conditions can provide complete control of target weed. 2,4-D is somewhat

species specific and has been used to successfully control watermilfoil in our region, though no long term control has been shown. Soon after application 2,4-D is absorbed by the plants leaf and stem tissues and moves to the actively growing apical regions in the shoots and roots, killing the entire plant.

Fluridone is typically used on areas larger than 5 acres or full lake treatments. Species selectivity can be achieved by varying dosage amounts. It typically takes 30-40 days before results are seen. Fluridone also prevents anoxic conditions that are often associated with herbicide treatments. However, flow rates within the lake system must be known or the herbicide could be flushed out of the lake. Given Whitefish Lake's morphology it may not be appropriate to use Fluridone. It is also unclear whether or not long term control using Fluridone is successful.

The high cost of herbicides that is associated with continued re-application should be taken into consideration. Also, herbicide application techniques, time of application, and lake morphology play key roles in determining overall cost and success. Permits are required in Wisconsin to apply herbicides over water. Chemical spot treatments with 2,4-D has been done on EWM within Whitefish Lake in 2007 and on other area lakes with varied results. Most lakes have shown adequate control though eradication has not been possible using any chemical control.

Physical Control

Hand pulling

Pros	Cons
Very selective	Difficult work
Good for small infestations	Time & Labor Intensive
	Can cause fragmentation

Drawdown is a control option that has been used in Wisconsin and many other states to control Eurasian watermilfoil with moderate success. In order for a drawdown to be plausible a structure such as an impoundment or a dam needs to already be in place in order to drawdown the water level. For Northern Wisconsin the best time to do a drawdown for aquatic plant control would be during the winter so that the plant and its roots are exposed to extreme temperatures usually killing it. In some cases an overwinter drawdown can have long term effects or effects that can be seen for up to 2

years or more. If a structure is already in place it is relatively inexpensive to lower the water level. Also, it requires very little labor and time.

Some drawbacks to a drawdown are:

- Could have negative ecological impacts (i.e. fish and wildlife, non target aquatic plants)
- Not selective
- Weather factors play a key role in the success or failure
- Inconsistency of plant (Eurasian watermilfoil) response.
- Could have negative socioeconomic impacts. (i.e. people could dislike the low ice/water levels for recreation and/or aesthetic reasons.)
- If draw down does not occur semi-regularly recolonization will occur.
- Algal blooms have been reported to occur in response to drawdowns.

Benthic Barrier

Pros	Cons
Creates limited environmental disturbance	Can inhibit native plant growth for 1-2 years following removal.
Allow for selectivity of area	EWM can recolonize up to 50% of area in 1 month.
WDNR approval is required	Deep water infestations require scuba gear.
Good for small areas near docks.	Non-specific
	Not feasible for large areas.

Conventional Mechanical Harvesting Systems

Pros	Cons
Can select areas to open up (fishing & boating lanes).	Must be deeper than three feet with few stumps.
Can remove a lot of plant biomass in short amount of time.	Fragmentation
	Possible damage to shoreline and/or structures.
	If not properly maintained they can discharge oils and gases into lake..
	Not species specific.
	Costly ($125/hr and 40 hr min) $500-2500 / hectare.
	Could cause disturbance of historical artifacts.
	Cut stems sometimes grow back thicker.
	Needs to be done repeatedly.

Biological

Biological control is the use of parasitoid, predator, pathogen, antagonist, or competitor populations to suppress a pest population, making it less abundant and thus less damaging than it would otherwise be. The most commonly used biological control of Eurasian watermilfoil is the indigenous weevil, *Euhrychiopsis lecontei*

The milfoil weevil is native to our region and is hosted by native watermilfoils, especially northern watermilfoil, *Myriophyllum sibiricum*. The weevil spends its summers on watermilfoil plants where it completes the various stages of its life cycle, and overwinters in dry leaf litter along the shore.

The milfoil weevil is highly specific to watermilfoils, and research has shown that weevils that have been exposed to Eurasian watermilfoil prefer it over the native milfoils. The milfoil weevil has been shown to prevent growth of watermilfoil in laboratory and field settings and is often associated with numerous milfoil declines. It is, however, completely unpredictable as to the success of the milfoil weevil in a certain lake, but if milfoil weevil populations are successful at controlling Eurasian watermilfoil the weevil-milfoil relations will most likely become cyclic. Also, the weevils do not prefer deep areas, yet they do not need to be in close proximity to shore. It is difficult to maintain milfoil weevil populations, and the native plants must be competitive enough to push out the impacted Eurasian watermilfoil.

Pros	**Cons**
If successful, weevil-milfoil relations will become cyclic.	No clear picture of weevils presence in the Flowage.
Is compatible with other controls (chemical).	Does not like deep areas.
Yet does not need to be next to shore.	Difficult to maintain weevil populations
	Native plants must be competitive enough to replace EWM after weevils.
	Completely unpredictable as to success.
	Cost is around $1000 /1000 weevils and if no suitable population already exists.
	Life cycle differences.

Another form of biological control is introducing native aquatic plant species into the infested area to compete with the Eurasian watermilfoil. This option will most likely not work by itself and should be used in combination with other control options. Also special care should be taken when introducing even a native aquatic plant into an ecosystem.

Management Options for Aquatic Plants

Draft updated Oct 2006

Option	Permit Needed?	How it Works	PROS	CONS
No Management	N	Do not actively manage plants	Minimizing disturbance can protect native species that provide habitat for aquatic fauna; protecting natives may limit spread of invasive species; aquatic plants reduce shoreline erosion and may improve water clarity	May allow small population of invasive plants to become larger, more difficult to control later
			No immediate financial cost	Excessive plant growth can hamper navigation and recreational lake use
			No system disturbance	May require modification of lake users' behavior and perception
			No unintended effects of chemicals	
			Permit not required	
Mechanical Control	May be required under NR 109	Plants reduced by mechanical means	Flexible control	Must be repeated, often more than once per season
		Wide range of techniques, from manual to highly mechanized	Can balance habitat and recreational needs	Can suspend sediments and increase turbidity and nutrient release
a. Handpulling/Manual raking	Y/N	SCUBA divers or snorkelers remove plants by hand or plants are removed with a rake	Little to no damage done to lake or to native plant species	Very labor intensive
		Works best in soft sediments	Can be highly selective	Needs to be carefully monitored
			Can be done by shoreline property owners without permits within an area <30 ft wide OR where selectively removing exotics	Roots, runners, and even fragments of some species, particularly Eurasian watermilfoil (EWM) will start new plants, so all of plant must be removed
			Can be very effective at removing problem plants, particularly following early detection of an invasive exotic species	Small-scale control only

Management Options for Aquatic Plants

Draft updated Oct 2006

Option	Permit Needed?	How it Works	PROS	CONS
b. Harvesting	Y	Plants are "mowed" at depths of 2-5 ft, collected with a conveyor and off-loaded onto shore	Immediate results	Not selective in species removed
		Harvest invasives only if invasive is already present throughout the lake	EWM removed before it has the opportunity to autofragment, which may create more fragments than created by harvesting	Fragments of vegetation can re-root
			Minimal impact to lake ecology	Can remove some small fish and reptiles from lake
			Harvested lanes through dense weed beds can increase growth and survival of some fish	Initial cost of harvester expensive
			Can remove some nutrients from lake	
Biological Control	Y	Living organisms (e.g. insects or fungi) eat or infect plants	Self-sustaining; organism will over-winter, resume eating its host the next year	Effectiveness will vary as control agent's population fluctates
			Lowers density of problem plant to allow growth of natives	Provides moderate control - complete control unlikely
				Control response may be slow
				Must have enough control agent to be effective
a. Weevils on EWM	Y	Native weevil prefers EWM to other native water-milfoil	Native to Wisconsin: weevil cannot "escape" and become a problem	Need to stock large numbers, even if some already present
			Selective control of target species	Need good habitat for overwintering on shore (leaf litter) associated with undeveloped shorelines
			Longer-term control with limited management	Bluegill populations decrease densities through predation

Management Options for Aquatic Plants

Draft updated Oct 2006

	Option	Permit Needed?	How it Works	PROS	CONS
b.	Pathogens	Y	Fungal/bacterial/viral pathogen introduced to target species to induce mortalitiy	May be species specific	Largely experimental; effectiveness and longevity unknown
				May provide long-term control	Possible side effects not understood
				Few dangers to humans or animals	
c.	Allelopathy	Y	Aquatic plants release chemical compounds that inhibit other plants from growing	May provide long-term, maintenance-free control	Initial transplanting slow and labor-intensive
				Spikerushes (*Eleocharis* spp.) appear to inhibit Eurasian watermilfoil growth	Spikerushes native to WI, and have not effectively limited EWM growth
					Wave action along shore makes it difficult to establish plants; plants will not grow in deep or turbid water
d.	Planting native plants	Y	Diverse native plant community established to repel invasive species	Native plants provide food and habitat for aquatic fauna	Initial transplanting slow and labor-intensive
				Diverse native community may be "resistant" to invasive species	Nuisance invasive plants may outcompete plantings
				Supplements removal techniques	Largely experimental; few well-documented cases
					If transplants from external sources (another lake or nursury), may include additional invasive species or "hitchhikers"

Management Options for Aquatic Plants

Draft updated Oct 2006

Option	Permit Needed?	How it Works	PROS	CONS
Physical Control	Required under Ch. 30 / NR 107	Plants are reduced by altering variables that affect growth, such as water depth or light levels		
a. Fabrics/ Bottom Barriers	Y	Prevents light from getting to lake bottom	Reduces turbidity in soft-substrate areas	Eliminates all plants, including native plants important for a healthy lake ecosystem
			Useful for small areas	May inhibit spawning by some fish
				Need maintenance or will become covered in sediment and ineffective
				Gas accumulation under blankets can cause them to dislodge from the bottom
				Affects benthic invertebrates
				Anaerobic environment forms that can release excessive nutrients from sediment
b. Drawdown	Y, May require Environmental Assessment	Lake water lowered with siphon or water level control device; plants killed when sediment dries, compacts or freezes	Winter drawdown can be effective at restoration, provided drying and freezing occur. Sediment compaction is possible over winter	Plants with large seed bank or propagules that survive drawdown may become more abundant upon refilling
		Season or duration of drawdown can change effects	Summer drawdown can restore large portions of shoreline and shallow areas as well as provide sediment compaction	May impact attached wetlands and shallow wells near shore
			Emergent plant species often rebound near shore providing fish and wildlife habitat, sediment stabilization, and increased water quality	Species growing in deep water (e.g. EWM) that survive may increase, particularly if desirable native species are reduced
			Success demonstrated for reducing EWM, variable success for curly-leaf pondweed (CLP)	Can affect fish, particularly in shallow lakes if oxygen levels drop or if water levels are not restored before spring spawning
			Restores natural water fluctuation important for all aquatic ecosystems	Winter drawdawn must start in early fall or will kill hibernating reptiles and amphibians
				Navigation and use of lake is limited during drawdown

Management Options for Aquatic Plants

Draft updated Oct 2006

	Option	Permit Needed?	How it Works	PROS	CONS
c.	Dredging	Y	Plants are removed along with sediment	Increases water depth	Severe impact on lake ecosystem
			Most effective when soft sediments overlay harder substrate	Removes nutrient rich sediments	Increases turbidity and releases nutrients
			For extremely impacted systems	Removes soft bottom sediments that may have high oxygen demand	Exposed sediments may be recolonized by invasive species
			Extensive planning required		Sediment testing may be necessary
					Removes benthic organisms
					Dredged materials must be disposed of
d.	Dyes	Y	Colors water, reducing light and reducing plant and algal growth	Impairs plant growth without increasing turbidity	Appropriate for very small water bodies
				Usually non-toxic, degrades naturally over a few weeks	Should not be used in pond or lake with outflow
					Impairs aesthetics
					Effects to microscopic organisms unknown
e.	Non-point source nutrient control	N	Runoff of nutrients from the watershed are reduced (e.g. by controlling construction erosion or reducing fertilizer use) thereby providing fewer nutrients available for plant growth	Attempts to correct source of problem, not treat symptoms	Results can take years to be evident due to internal recycling of already-present lake nutrients
				Could improve water clarity and reduce occurrences of algal blooms	Requires landowner cooperation and regulation
				Native plants may be able to better compete with invasive species in low-nutrient conditions	Improved water clarity may increase plant growth

Management Options for Aquatic Plants

Draft updated Oct 2006

Option	Permit Needed?	How it Works	PROS	CONS
Chemical Control	Y, Required under NR 107	Granules or liquid chemicals kill plants or cease plant growth; some chemicals used primarily for algae	Some flexibility for different situations	Possible toxicity to aquatic animals or humans, especially applicators
		Results usually within 10 days of treatment, but repeat treatments usually needed	Some can be selective if applied correctly	May kill desirable plant species, e.g. native water-milfoil or native pondweeds; maintaining healthy native plants important for lake ecology and minimizing spread of invasives
		Chemicals must be used in accordance with label guidelines and restrictions	Can be used for restoration activities	Treatment set-back requirements from potable water sources and/or drinking water use restrictions after application, usually based on concentration
				May cause severe drop in dissolved oxygen causing fish kill, depends on plant biomass killed, temperatures and lake size and shape
				Often controversial
a. 2,4-D	Y	Systemic[1] herbicide selective to broadleaf[2] plants that inhibits cell division in new tissue	Moderately to highly effective, especially on EWM	May cause oxygen depletion after plants die and decompose
		Applied as liquid or granules during early growth phase	Monocots, such as pondweeds (e.g. CLP) and many other native species not affected	May kill native dicots such as pond lilies and other submerged species (e.g. coontail)
			Can be selective depending on concentration and seasonal timing	Cannot be used in combination with copper herbicides (used for algae)
			Can be used in synergy with endotholl for early season CLP and EWM treatments	Toxic to fish
			Widely used aquatic herbicide	

Management Options for Aquatic Plants

Draft updated Oct 2006

	Option	Permit Needed?	How it Works	PROS	CONS
b.	Endothall	Y	Broad-spectrum[3], contact[4] herbicide that inhibits protein synthesis	Especially effective on CLP and also effective on EWM	Kills many native pondweeds
			Applied as liquid or granules	May be effective in reducing reestablishment of CLP if reapplied several years in a row in early spring	Not as effective in dense plant beds; heavy vegetation requires multiple treatments
				Can be selective depending on concentration and seasonal timing	Not to be used in water supplies; post-treatment restriction on irrigation
				Can be combined with 2,4-D for early season CLP and EWM treatments, or with copper compounds	Toxic to aquatic fauna (to varying degrees)
				Limited off-site drift	
c.	Diquat	Y	Broad-spectrum, contact herbicide that disrupts cellular functioning	Mostly used for water-milfoil and duckweed	May impact non-target plants, especially native pondweeds, coontail, elodea, naiads
			Applied as liquid, can be combined with copper treatment	Rapid action	Toxic to aquatic invertebrates
				Limited direct toxicity on fish and other animals	Must be reapplied several years in a row
					Ineffective in muddy or cold water (<50°F)
d.	Fluridone	Y; special permit and Environmental Assessment may be required	Broad-spectrum, systemic herbicide that inhibits photosynthesis	Effective on EWM for 1 to 4 years with aggressive follow-up treatments	Affects non-target plants, particularly native milfoils, coontails, elodea, and naiads, even at low concentrations
			Must be applied during early growth stage	Some reduction in non-target effects can be achieved by lowering dosage	Requires long contact time at low doses: 60-90 days
			Available with a special permit only; chemical applications beyond 150 ft from shore not allowed under NR 107	Slow decomposition of plants may limit decreases in dissolved oxygen	Demonstrated herbicide resistance in hydrilla subjected to repeat treatments
			Applied at very low concentration at whole lake scale	Low toxicity to aquatic animals	In shallow eutrophic systems, may result in decreased water clarity
					Unknown effect of repeat whole-lake treatments on lake ecology

Management Options for Aquatic Plants

Draft updated Oct 2006

	Option	Permit Needed?	How it Works	PROS	CONS
e.	Glyphosate	Y	Broad-spectrum, systemic herbicide that disrupts enzyme formation and function	Effective on floating and emergent plants such as purple loosestrife	RoundUp is often incorrectly substituted for Rodeo - Associated surfactants of RoundUp believed to be toxic to reptiles and amphibians
			Usually used for purple loosestrife stems or cattails	Selective if carefully applied to individual plants	Cannot be used near potable water intakes
			Applied as liquid spray or painted on loosetrife stems	Non-toxic to most aquatic animals at recommended dosages	Ineffective in muddy water
				Effective control for 1-5 years	No control of submerged plants
f.	Triclopyr	Y	Systemic herbicide selective to broadleaf plants that disrupts enzyme function	Effective on many emergent and floating plants	Impacts may occur to some native plants at higher doses (e.g. coontail)
			Applied as liquid spray or liquid	More effective on dicots, such as purple loosestrife; may be more effective than glyphosate	May be toxic to sensitive invertebrates at higher concentrations
				Control of target plants occurs in 3-5 weeks	Retreatment opportunities may be limited due to maximum seasonal rate (2.5 ppm)
				Low toxicity to aquatic animals	Sensitive to UV light; sunlight can break herbicide down prematurely
				No recreational use restrictions following treatment	Relatively new management option for aquatic plants (since 2003)
g.	Copper compounds	Y	Broad-spectrum, systemic herbicide that prevents photosynthesis	Reduces algal growth and increases water clarity	Elemental copper accumulates and persists in sediments
			Used to control planktonic and filamentous algae	No recreational or agricultural restrictions on water use following treatment	Short-term results
			Wisconsin allows small-scale control only	Herbicidal action on hydrilla, an invasive plant not yet present in Wisconsin	Long-term effects of repeat treatments to benthic organisms unknown
					Toxic to invertebrates, trout and other fish, depending on the hardness of the water
					Clear water may increase plant growth

[1]Systemic herbicide - Must be absorbed by the plant and moved to the site of action. Often slower-acting than contact herbicides.
[2]Broadleaf herbicide - Affects only dicots, one of two groups of plants. Aquatic dicots include waterlilies, bladderworts, watermilfoils, and coontails.
[3]Broad-spectrum herbicide - Affects both monocots and dicots.
[4]Contact herbicide - Unable to move within the plant; kills only plant tissue it contacts directly.
Specific effects of herbicide treatments dependent on timing, dosage, duration of treatment, and location.
References to registered products are for your convenience and not intended as an endorsement or criticism of that product versus other similar products.
This document is intended to be a guide to available aquatic plant control techniques, and is not necessarily an exhaustive list.
Please contact your local Aquatic Plant Management Specialist when considering a permit.

Appendix F: WI DNR Pre and Post Treatment MonitoringProtocol

Pre and Post AIS Chemical Herbicide Treatment Monitoring

(May 2007)

Purpose

This protocol is used to determine the need for, and evaluate the results of herbicide application to reduce aquatic invasive plant species. The following protocol is applicable for introducing new treatments to lakes where the treatment size is greater than 10 acres or greater than 10% of the lake littoral area and more than 150 feet from shore as well as any AIS grant funded treatments or where performance results are needed where restoration is a goal i.e. for science or for financial accountability. This protocol is written for Eurasian water-milfoil (EWM) but can be adapted for Curly-leaf Pondweed and other AIS. This protocol may be appropriately adapted to evaluate non-herbicide controls. The adaptation will retain the goal of science and financial accountability of AIS grant funded projects.

Proposed treatment surveys. To determine:

- Target areas where EWM is found and within which treatment is proposed for a conditional APM permit
- Target and native species presence/absence and abundance.

Pre-treatment surveys. To determine:

- The extent of the AIS both in distribution and density – refinement of proposed treatment areas.
- The need for an herbicide treatment or whether another method of control is more appropriate at this time.
- Cost of treatment both in product and labor.
- Proper acreage for permit conditions and public notice.
- Adjustments in application rates based on proximity to native plants.

Post-treatment surveys: To determine:

- The effectiveness of the herbicide application, both in density and distribution.
- If herbicide is the desired control method.
- The response of native plants.
- If adjustments need to be made to application rates.
- Future direction of plant management activities

Protocol for Established Infestations

Base YR

Recent (within 5 years) summer point/intercept (P/I) survey to characterize entire plant community and identify potential treatment areas.

YR 1 Season before treatment (may be base year)

1. *Proposed treatment survey.*
    a. During the summer growing season map areas as polygons using GPS to outline beds and pinpoint individual target plants.
        i. The initial Point/Intercept survey is unlikely to identify every stand of EWM. The sponsor or applicant must use additional, less formal strategies to find stands of this invasive such as:
            1. Define beds by sub-sampling with a rake at greater frequencies (to determine presence only around the points where target plants were found).

2. If clarity is good (to the depth of rooted plants) and bed is topped out, identification can be visual but thoroughly augmented with rake tosses to verify species.
3. For lower clarity waters, sub sample with a rake on a series of denser points. Augmenting with scuba and underwater video is highly recommended.
4. Boat or walk around the shoreline looking for the invasive in the shallow water areas. EWM is less likely to be found on hard sediments, but may occur anywhere.
5. Look for plant fragments wind-rowed on shore as indication plants floated in from further off shore.
6. When trying to see into the water, use brown polarized sun glasses or use an Aqua-View Scope.

b. Confirm EWM with vouchers, 1 per large (> 5 acres) treatment area or polygon or site visit by DNR personnel (who should also voucher).
c. In order to assess the effect of chemical treatment on natives, there must be a survey of <u>all</u> plant species before treatment. However, since natives will be largely absent at the time of the spring pre-treatment survey, the natives must be assessed the summer before treatment. Therefore, after defining the proposed treatment polygons (1a), perform a presence/absence and rake fullness assessment of all plants at a sub sample of points within and near the polygons determined by:
    i. A reference table. Sample polygons greater than 5 acres unless the proposed treatment areas are smaller than 5 acres

Acres of Polygon	# of Sampling Points
0.50	1
1.00	4
2.00	8
3.00	12
4.00	16
5.00	20
7.00	28
10.00	40
15.00	60
20.00	80
30.00	120
40.00	160
50.00	200

<u>YR 2 First treatment</u>

2. *Pre-treatment Survey*
    a. Using the established *proposed treatment* polygons from YR 1, repeat the methods in proposed treatment survey as needed sampling only for EWM to confirm the appropriateness of the treatment area. Plants will be small, and may be very sparse this time of year. Underwater visual/video of the middle and edges of the proposed polygon is highly recommended.

3. CONDUCT TREATMENT after the target specie is actively growing but before native species are active. Generally, this will be prior to water temp of 60 degrees F. Best results are generally obtained when biomass is still low, thus earlier treatment within the treatment time window is better than later.

4. *Post-treatment Survey*. Conducted at least four weeks after treatment For CLP, post treatment survey needs to be completed before CLP seasonal growth ends. For EWM, post treatment should be delayed until native plants are well established, generally during mid-July-mid-August. For the summer post-treatment survey, repeat steps 1.c. This will be used to identify effectiveness on target plants, determine if there was any harm or benefits to native plants and identify next year's potential treatment areas for target plants.
    a. Compare summer surveys. If there are chemical treatments in subsequent years, compare summer surveys for treatment effects on natives and long-term effects on target species.

5. Conduct visual survey to look for new colonies.

YR3 and Yr 4

6. Repeat YR 2 procedure. Be sure to resample all areas treated in all years even if treatment area declines in size over time so that an accurate record of control ***and results*** can be established.

YR 5

7. Repeat YR 2 procedure if necessary.
8. Conduct a lake wide P/I survey (repeat base year) to gauge overall lake community response.

Notes :

Summer to summer post treatment comparison is for assessing native and target species response. Conversely spring to spring is for assessing target AIS response. Comparing spring to fall in the same year is not a valid assessment of native response. A fall survey may be added, however, to locate potential new EWM spring treatment areas.

Once established and repeated monitoring indicates that the beds of target species stay in the same location year to year and only density varies, pre-treatment surveys on repeated nuisance control treatments may be less rigorous.

During initial P/I survey of lake, assess weevil damage, northern water milfoil abundance and shoreland habitat and consider need for treatment or scale of treatment given bio-control potential. Use CLMN (Herman) guidance on weevil monitoring.

The plant surveys should be conducted by an independent party not directly affiliated with the herbicide applicator to prevent bias or appearance of bias.

Measuring success or the need to change course.

- Chose a percent decrease in the target plant area coverage or frequency of occurrence for an annual goal of at least 50% for restoration projects.
- For an overall long term goal, a reduction to less than large scale treatment (less than 10 acres or 10% of lake littoral area) where annual spot treatments can sustain low

level occurrences is reasonable. Alternatively, a goal of reducing dense beds to scattered plants using a density measurement might be appropriate.

- Acceptable native response is no net loss and ideally some gain. However, some loss may be purely sampling variance or inter-annual variation.

Appendix G: Shoreline Assessment Protocol

Sand Lake Shoreline Asssessment Survey Protocol

Goal: Determine the composition of the shoreline and the 35 foot buffer

Uses

1. Correlate if possible the conditions of buffer and water quality
2. Targeted property owner education about advantages of buffers
3. Identify egregious conditions on the lake shore
4. Support for grant applications if appropriate
5. Reference if a landowner takes future action adverse to local regulations

Procedure

Tour the shoreline in a boat taking pictures of the lake shore parcels, determining the composition of the shoreline and buffer. A buffer with native plants is the most positive for water quality. The objective is to determine within the 35 foot buffer the square footage of impervious surfaces, cleared areas, natural areas and the like.

Communicate

Communicate to the property owners that the survey will be taken and reasons for it. There may be some anxiety that the survey will be used sole for enforcement. Deal with this fear in the communications.

Steps

1. Get from the county mapping a map of the lake shore by section showing parcel #'s
2. If possible get from the county mapping an aerial map by section with parcel boundaries drawn in.
3. Get from the county mapping the parcel numbers if not already on the maps.
4. Get from the county the names of the property owners. Note the property owners will change over time. The parcel numbers do not change. However, to help identify the parcel from the boat, it helps to know the current property owner.
5. Using Excel or similar program, construct spread sheet for each map section. Log into the spread sheet the parcel numbers and owner names.
6. Using a ruler and scale on maps estimate the shoreline length, record this on spread sheet. As an accuracy check contact a number of property owners to verify their lake frontage. Adjust lake shore estimation process as needed.

7. Round up several people to do the survey. Skills at estimating distances and dimensions are important. For consistency, it is better to have a limited number of people to do the survey.
8. Select several properties that contain structures and cleared areas in the buffer. From the boat estimate the dimensions and distances. On land, measure areas and distances estimated. Repeat this process until the ability to estimate gets reasonably accurate.
9. It may be possible to borrow from the County Land and Water a laser tool that measures distances.
10. Tour the lake with someone who knows the properties and owners for that section of the lake. It is important to have people in the boat who can associate the owner name with parcel as seen from the lake. Take pictures of the parcel and note picture numbers, shoreline composition and what is in the buffer on the spreadsheet that was developed in step 5. You can refer to the pictures later to verify what was noted. Take your time. It can get a little frustrating. It works best to have one person driving the boat, one person taking the pictures and calling out the picture number and one person to record the data.
11. Log data into the computer Excel spread sheet by section.
12. Not all will go as planned. If there are problems with matching parcels, pictures and names or determining the shoreline and buffer composition. It may be necessary to visit the property. Look up the owner in the phone book or get the fire number of the parcel from the county. Call before visiting the property.
13. Produce an Excel summary of the lake by section. Review the result of the work with the County Land and Water Conservation Department.
14. It goes without saying this is a lot of work. Back up your data and pictures frequently.
15. Create a CD or DVD of the pictures and spread sheets. Keep one in a safe place. Distribute copies to those that need them.

Spreadsheet Data Elements

General	Shoreline in feet	Buffer in square feet	Other data
Parcel number	Total	Total	Elevation of buffer
Property owner	Natural vegetation	Natural	Non conforming structures
Picture number	Natural Sand	Impervious surfaces	Log in the water
	Natural Rock	Cleared	Comments

	RipRap Structures Lawn Sand hauled in Other as needed	Lawn Sand Other as needed	

Spreadsheet Data Element Descriptions

Shoreline

This is the condition of the shoreline where the water meets the land at the ordinary water level.

Natural	At the water's edge there is natural vegetation. If there is a small strip of sand say less than one foot, before the vegetation, call it natural vegetation
Sand	Either natural or man-made beach
Rock	A natural rock shoreline
RipRap	Rock put there by man
Structures	Man made impervious surfaces such as boat launches or boat houses. Column heading "Struct"
Lawn	Obviously planted or natural that is routinely mowed

Note it may not be necessary to use all the specific categories for the shoreline. Get advice from the users the DNR and others. Check with the DNR Lakes management person.

Buffer

This is the area from the shoreline to 35 feet into the property

Natural	Just that trees, brush and other vegetation that is natural

Hard Surfaces	Can be boat houses, boat launches, house roofs, decks and the like. Anything that prevents rain water from soaking into the soil. Open stairs are considered cleared. Column heading "Hard Surf"
Cleared	An area that is primarily cleared but not mowed. It could contain a few trees or shrubs. Include open stairs here.
Lawn	Grass or vegetation that is obviously mowed.
Sand	Natural sand or a sand hauled in

Other Data

Elevation	Three categories should be enough; s=steep, m=moderate, f= mostly flat. Column heading "Elv"
Non Conform	Structures such as storage sheds, boat houses and residences that are within the 75 foot set back. Column heading " Non Stru"
Comments	Any comments of interest such as erosion, junk and the like.

Appendix H: WI DNR Aquatic Invasive Species and Lake Grant Guidelines and Application Instructions

Aquatic Invasive Species
Control Grant Program

Guidelines and Application

WISCONSIN
DEPT. OF NATURAL RESOURCES

Application Deadlines

Education, Prevention and Planning Projects: Feb. 1, Aug. 1

Established Population Control Projects: Feb. 1, Aug. 1

Early Detection and Response Projects: As approved

Wisconsin Lakes Partnership

Available on the web: dnr.wi.gov

PUB-CF-020 2013

Table of Contents

Keys to a Successful Project

Plan!
Communicate!

- **Take your time and review the *Guidelines* booklet as many sections have undergone changes to reflect recent revisions made to s. NR 198, Wis. Admin. Code.**

- AIS prevention and control grants are available for projects on eligible waters including: inland lakes, great lakes, rivers and wetlands.

- Start ***planning*** your project early and communicate with your DNR regional lake/river coordinator or aquatic invasive species (AIS) coordinator often about your project goals.

  Before rushing out and applying for an AIS prevention and control grant, spend some time discussing needs, goals and expectations with the whole lake community. Invite the regional AIS/Lake/River Coordinator, a University of Wisconsin-Extension lake specialist, a county resource agent, or a representative of the Wisconsin Association of Lakes to come talk to you, facilitate a goal-setting session, or provide other technical assistance. A little pre-planning will pay dividends down the road. The DNR has preferred methods and examples for many projects. Don't reinvent the wheel or design a project that won't be accepted by your DNR AIS/Lake/River Coordinator!

  Check to be sure your organization is eligible to apply for AIS Prevention and Control grants. Lake Associations, River Associations, School Districts, and Non-profit Organizations need to be qualified before submitting an application. Review the eligibility requirements described in this guide. If you have not already done so, submit an Organizational Application at least six months before submitting your grant application.

- If you are planning to use ***consultants***, "shop" for the firm most qualified for your project. A list of private consultants, without endorsement, can be found in The Lake List at this web site:
  http://www.uwsp.edu/cnr/uwexlakes/lakelist/default.asp

  Refer to this web page when selecting a contractor:
  http://www.wisconsinlakes.org/index.php/lakeshore-living/38-choosing-a-consultant-for-your-lake-project

  If your consultant fills out your application, be sure to check the completeness and accuracy of the information before it is submitted. Remember, as the grant applicant, you are responsible for the accuracy of the information provided on your application and fulfilling necessary requirements. Before signing your grant award agreement, make sure your consultant agrees with the project scope and conditions as described in the document.

- The ***financial responsibility*** for a grant cannot be passed to another organization sponsor by a resolution. All payments eligible for reimbursement through the grant can only be made by the sponsor indicated on the grant agreement. As costs are incurred, save all invoices, receipts, and other proof of expenses and how they were paid. Make sure to document volunteer hours with sign up sheets, as the hours are worked. This eliminates frantically searching for documents and trying to remember number of hours worked and who worked them, all at the last minute.

- Once a grant agreement is issued, your regional AIS/Lake/River coordinator must approve all changes in project scope and other amendments. Your regional coordinator also needs to be notified if there is a change in the person listed as the contact or the authorized representative for the grant.

- When considering your **public education needs**, keep in mind that DNR and UW-Extension have numerous fact sheets, brochures and guides already developed on many lake-related topics. Before developing your own publication, check with your regional coordinator to see if a publication already exists that can be used or modified.

- **AND MOST IMPORTANTLY, ask questions if you don't know how to proceed or need clarification on such topics as eligible costs or grant administration procedures.**

DNR Contacts:

Aquatic Invasive Species Control Grant Contacts:

Your first and primary contact for AIS Control projects contact is the lakes/AIS/river coordinator. Additional information on AIS Control grants and DNR lake programs can be found at: http://dnr.wi.gov/Aid/Grants.html

NER Northeast Region including the following counties: Door, Brown, Calumet (East ½), Fond du Lac, Kewaunee, Manitowoc, Outagamie	
Mary Gansberg, Lake Coordinator 2984 Shawano Ave., Green Bay, WI 54313 920-662-5489 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 2984 Shawano Ave., Green Bay, WI 5413 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Calumet (West ½), Green Lake, Marquette, Waupaca, Waushara, Winnebago	
Ted Johnson, Lake Coordinator 427 E. Tower Dr., Suite 100, Wautoma, WI 54982-6927 920-787-3048 (ph) 920-787-2477 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Brown, Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Waupaca, Waushara, Winnebago	
Brenda Nordin, AIS Coordinator 2984 Shawano Ave., Green Bay WI 54313-6727 920-662-5141 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NOR Northern Region (Rhinelander) including the following counties: Iron, Oneida, Vilas	
Kevin Gauthier, Sr., Lake Coordinator 107 Sutliff Ave., Rhinelander WI 54501 715-365-8937 (ph) 715-365-8932 (fax)	Jane Malischke, Environmental Grants Specialist 810 W. Maple St., Spooner, WI 54801 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Rhinelander) including the following counties: Forest, Florence, Langlade, Lincoln, Price, Taylor	
Jim Kreitlow, Lake Coordinator 107 Sutliff Ave., Rhinelander WI 54501 715-365-8947 (ph) 715-365-8932 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Ashland, Bayfield, Burnett, Douglas, Washburn	
Pam Toshner, Lake Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4073 (ph) 715-392-7993 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Barron, Polk, Rusk, Sawyer	
Alex Smith, AIS Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4124 (ph) 715-635-4015 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

SCR South Central Region including the following counties: Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, Sauk	
Susan Graham, Lake Coordinator 3911 Fish Hatchery Rd., Fitchburg WI 53711 608-275-3329 (ph) 608-275-3338 (fax)	Sandy Chancellor, Environmental Grants Specialist 3911 Fish Hatchery Rd., Fitchburg, WI 53711 608-275-7760 (ph) 608-275-3338 (fax)

SER Southeast Region including the following counties: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha	
Heidi Bunk, Lake Coordinator 141 NW Barstow St., Rm. 180, Waukesha, WI 53188 262-574-2130 (ph) 262-574-2128 (fax)	Walt Ebersohl, Environmental Grants Specialist 2300 N. Martin Luther King, Jr. Dr., Milwaukee, WI 53212 414-263-8569 (ph) 414-263-8483 (fax)

WCR West Central Region including the following counties: Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, Juneau, La Crosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood	
Buzz Sorge, Lake Coordinator 1300 W. Clairemont Ave., Eau Claire WI 54701 715-839-3794 (ph) 715-839-6076 (fax)	Bruce Neeb, Environmental Grants Specialist 1300 W. Clairemont Ave. Eau Claire, WI 54701 715-839-3713 (ph) 715-839-6076 (fax)

River Planning and Management Grant Contacts:

For assistance with specific or science-related aspects of your project, contact the River Coordinator in your area. For assistance with financial aspects of your project, contact the Environmental Grant Specialist in your area. Additional information on River Planning and Management grants can be found at: http://dnr.wi.gov/Aid/Rivers.html

NER Northeast Region including the following counties: Door, Calumet (East ½), Kewaunee, Manitowoc	
Mary Gansberg, River Coordinator 2984 Shawano Ave., Green Bay, WI 54313 920-662-5489 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 2984 Shawano Ave., Green Bay, WI 5413 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Brown, Marinette, Menominee, Outagamie, Shawano	
Andy Hudak, River Coordinator 2984 Shawano Ave., Green Bay, WI 54313 920-662-5117 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Calumet (West ½), Fond du Lac, Green Lake, Marquette, Waupaca, Waushara, Winnebago	
Dave Bolha, River Coordinator 625 E. County Rd. Y, Ste 700, Oshkosh, WI 54901 920-424-7892 (ph) 920-424-4404 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NOR Northern Region (Rhinelander) including the following counties: Florence, Forest, Iron, Langlade, Lincoln, Oneida, Price, Taylor, Vilas	
Jim Kreitlow, River Coordinator 107 Sutliff Ave., Rhinelander WI 54501 715-365-8947 (ph) 715-365-8932 (fax)	Jane Malischke, Environmental Grants Specialist 810 W. Maple St., Spooner, WI 54801 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Ashland, Bayfield, Burnett, Douglas, Washburn	
Pam Toshner, River Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4073 (ph) 715-392-7993 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Barron, Polk, Rusk, Sawyer	
Alex Smith, River Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4124 (ph) 715-635-4015 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

SCR South Central Region including the following counties: Grant, Green, Iowa, Lafayette	
Jim Amrhein, River Coordinator 3911 Fish Hatchery Rd., Fitchburg, WI 53711 608-275-3280 (ph) 608-275-3338 (fax)	Sandy Chancellor, Environmental Grants Specialist 3911 Fish Hatchery Rd., Fitchburg, WI 53711 608-275-7760 (ph) 608-275-3338 (fax)

SCR South Central Region including the following counties: Columbia, Dodge, Jefferson	
Dan Heim, River Coordinator N7725 Hwy 28, Horicon, WI 53032 920-387-7865 (ph) 920-387-7888 (fax)	Sandy Chancellor, Environmental Grants Specialist 608-275-7760 (ph) 608-275-3338 (fax)

SCR South Central Region including the following counties: Dane, Rock	
Mike Sorge, River Coordinator 3911 Fish Hatchery Rd., Fitchburg, WI 53711 608-275-3247 (ph) 608-275-3338 (fax)	Sandy Chancellor, Environmental Grants Specialist 608-275-7760 (ph) 608-275-3338 (fax)

SCR South Central Region including the following counties: Crawford, Richland, Sauk	
Jean Unmuth, River Coordinator 1500 N. Johns St., Dodgeville, WI 53533 608-935-1926 (ph) 608-935-9652 (fax)	Sandy Chancellor, Environmental Grants Specialist 608-275-7760 (ph) 608-275-3338 (fax)

SER Southeast Region including the following counties: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan	
Craig Helker, River Coordinator 9531 Rayne Rd., Ste. 4, Sturtevant, WI 53177 262-884-2357 (ph) 262-884-2306 (fax)	Walt Ebersohl, Environmental Grants Specialist 2300 N. Dr. Martin Luther King Jr Dr, Milwaukee, WI 53212 608-263-8569 (ph) 414-263-8483 (fax)

SER Southeast Region including the following counties: Walworth, Washington, Waukesha	
Rachel Sabre, River Coordinator 141 NW Barstow St., Rm. 180, Waukesha, WI 53188 262-574-2133 (ph) 262-574-2128 (fax)	Walt Ebersohl, Environmental Grants Specialist 608-263-8569 (ph) 414-263-8483 (fax)

WCR West Central Region including the following counties: Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, Juneau, La Crosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood	
Mark Hazuga, River Coordinator 1300 W. Clairemont Ave., Eau Claire, WI 54701 715-839-1603 (ph) 715-839-6076 (fax)	Bruce Neeb, Environmental Grants Specialist 1300 W. Clairemont Ave., Eau Claire, WI 54701 715-839-3713 (ph) 715-839-6076 (fax)

WCR South Central Region including the following counties: Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, Juneau, La Crosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood	
Kurt Rasmussen, River Coordinator 3550 Mormon Coulee Rd., La Crosse, WI 54601 608-785-9910 (ph) 608-785-9990 (fax)	Bruce Neeb, Environmental Grants Specialist 715-839-3713 (ph) 715-839-6076 (fax)

Lake Partnerships:

Wisconsin Lakes This is a statewide organization of lake groups, set up to promote public policy, advance education and strengthen local leadership.

Karen von Huene, Executive Director
4513 Vernon Blvd., Suite 101
Madison, WI 53705 Fax 608-661-4314
608-661-4313
800-542-5253 (in WI only) email kvonhuene@wisconsinlakes.org

U.W. – Lakes Extension This office provides lake education and organization assistance .

Eric Olson, Lake Specialist
College of Natural Resources, UW-SP
Stevens Point, WI 54481-3897
Phone: 715-346-2192 email Eric.Olson@uwsp.edu
Fax: 715-346-4038

River Alliance of Wisconsin – For help with project ideas and grant proposals, please contact Allison Werner.

awerner@wisconsinrivers.org

Phone: 608-257-2424

Web: www.wisconsinrivers.org

Introduction

Aquatic invasive species (AIS) or aquatic nuisance species (ANS) have been hitchhiking their way into Wisconsin for decades. By water, boat and by land, non-native organisms have been moving into inland waters. Aquatic invasive species can threaten the diversity and abundance of native species, alter ecosystems and affect our economy and recreational activities. In response to the increasing threat to our priceless lakes and rivers, Wisconsin has increased its support of local efforts to present the spread of introduced aquatic invasives by creating the Aquatic Invasive Species Prevention and Control Grants. **Eligible waters to receive AIS prevention and control grants include: inland lakes, great lakes, rivers and wetlands.**

Before you start filling out an application you should talk with a DNR AIS/Lake/River Coordinator. Be sure to read "Keys to a Successful Project" located on the inside of the front cover of this guide, as well as the information that follows below.

Grant awards may fund up to 75% of the cost of a project for all subcategories of grants except for Maintenance and Containment projects which are based on permits fees. Eligible projects include:

- Education, prevention and planning projects
- Established population control projects
- Early detection and response projects
- Maintenance and Containment projects
- Research and Demonstration projects

Maximum grant amounts are capped in each category as follows: Education, prevention and planning are divided into two subcategories (projects requesting less than $50,000, and projects requesting $50,000 or greater with a maximum request of $150,000); Established Population Control Projects capped at $200,000; Early Detection and Response projects capped at $20,000; Research and Demonstration projects capped at $200,000; and Maintenance and Containment projects shall not exceed the cost of permit fees.

What's New !!

Clean Boats Clean Waters Grants Just Got Easier!

- If you are an eligible grant sponsor looking for grant funding to help finance a basic Clean Boats Clean Water landing inspection program, we have developed a simplified process for you.
- Look for the Clean Boats Clean Water Request for Funding under How to Apply and find our new fact sheet on the simplified grant process under Resources on the AIS web page at: http://dnr.wi.gov/Aid/AIS.html
- If you have questions you will find contacts listed on page 2 of the fact sheet at: http://dnr.wi.gov/Aid/documents/AIS/CBCW_Fact_Sheet.pdf

General Information

Source of Program Funds Come From

The source of funds for these programs is a portion of the state excise tax on gasoline consumed by motor boats.

Funding Possibilities

The State will reimburse **75%** of project costs for up to the maximums stated on the pages describing each project type (called the state share). The grant applicant must provide "local share" of 25% of total project costs. The local share can be in the form of cash or donated labor, services, some equipment, or materials. The State will reimburse up to the cost of permit fees for Maintenance and Containment projects.

Eligible Sponsors

- Counties, towns, villages and cities
- Qualified lake associations (see description below)
- Qualified river management organization (see description below)
- Town sanitary districts
- Public Inland Lake Protection & Rehabilitation Districts
- Other local governmental units as defined in S. 66.299, Wis. Stats.
- Tribal governments
- Qualified school districts
- Qualified nonprofit organizations (see description below and web page under "Before Applying" tab)
  http://dnr.wi.gov/topic/Stewardship/Grants/ApplyNCO.html
- Private and public colleges, universities and technical schools
- State and Federal natural resource agencies
- FERC licensed hydroelectric corporations

Applications from organizations not eligible for funding at the time of application deadline will not be considered for funding

Qualified Lake Associations: To be eligible, a lake association must have been in existence for at least one year prior to applying for a grant and meet certain qualifications explained on Form 8700-226, "Lake Association Organizational Application." The form must be submitted with a copy of the association's by-laws and articles of incorporation to the regional AIS/Lake/River Coordinator before or accompanying your grant application. A copy of the form is included in the appendix of this document.

Qualified River Management Organizations: To be eligible, a river organization must meet certain qualifications explained on Form 8700-287, "River Management Organizational Application." The form must be submitted with a copy of the organization's by-laws and articles of incorporation to the regional AIS/Lake/River Coordinator before or accompanying your grant application. A copy of the form is included in the appendix of this document.

Qualified School Districts: To be eligible, the board of a school district must adopt a resolution to conduct a lake management planning project that will provide information or education on the use of lakes or natural lake ecosystems, on the quality of water in lakes, or on the quality of natural lake ecosystems and allow another eligible lake grant recipient (like a lake association) to cooperate with the school district in the project.

Qualified Nonprofit Organizations: To be eligible, a nonprofit group must be tax exempt under Section 501(c)(3) of the Internal Revenue Service code and show that it has as one of its purposes the prevention and control of aquatic invasive species. Qualified nonprofit organizations include qualified nonprofit conservation organizations (NCO) as defined in s. 23.0955(1), Wis. Stats.

Official Project Resolution

Every AIS prevention and control grant application must include a resolution adopted by the applicant's governing body. This resolution must:

- Formally request financial assistance by the applicant
- Authorize one representative by one name or preferably by "title" rather than by name so the newly elected/appointed official would already be authorized to act on behalf of the applicant's organization to sign all documents and take necessary action to complete the proposed project
- Resolve that the applicant will meet the financial obligations of a grant
- Name another cooperating eligible sponsor (for school districts only)

Please see the sample resolutions in the appendix for AIS prevention and control grants.

Sponsor Responsibility

The financial responsibility for a grant cannot be passed to another entity by a resolution or any other means. All eligible payments for project costs must be made by the sponsor named on the grant agreement.

Caution: If your consultant fills out your application, be sure to check the completeness and accuracy of the information. **Remember, as the grant applicant, you are responsible for the accuracy of the information provided on your application and fulfilling necessary requirements.** Before signing your grant agreement, make sure your consultant agrees with the project scope and conditions as described in the document. Your consultant cannot sign your grant agreement.

Sponsor Financial Capability

Upon application the applicant must be able to demonstrate financial stability and the ability to raise matching funds.

"Local Share" Responsibility

"Local share" means that portion of the cost of the project other than state grant funds provided by the Department of Natural Resources. Your local share can consist of cash, funds from a third party (other than the DNR), donated labor, services, materials, or the value of some equipment used.

1. All sources of the local share donation must be indicated in the grant application.
2. The maximum hourly value of donated labor is $12.00 per hour. Counties may use the donated labor rate established for their county by the Farm Service Agency if the project requires compliance with NRCS technical standards.
3. The value of donated equipment will be based on the Wisconsin Department of Transportation (DOT) county highway rates for similar equipment. (County highway rates for equipment can be obtained from your county highway and transportation office.)
4. The value of donated materials and professional services shall conform to market rates and be established by invoice.

Application Review

Regional staff will review your application for completeness and may return the application for more detailed information. The application is considered complete and the project eligible for funding only when the additional information requested is received and all questions or comments have been resolved.

Rating and ranking: Regional staff then review and rate eligible projects according to how well they meet the program criteria established by law and administrative code. (See the rating and ranking questions for each project type in the Appendix.) Projects and their ratings are then combined in a statewide priority-ranking list where projects of the same type compete against each other. Projects that rank the highest are funded to the extent that funds are available.

Regional AIS/Lake/River Coordinators and/or environmental grant specialists will notify applicants as to whether their application will be funded. There can be no firm commitment from the Department on a grant until the statewide priority-ranking list of projects has been finalized.

Project Grant Awards

Upon selection of your project, you will receive a signed agreement from the department outlining the approved project scope, time period, and budget. **Read your agreement carefully and share it with your consultant if you are working with one. It contains conditions that govern your project.** Make sure your consultant agrees with the project scope and conditions described in the grant agreement. The project sponsor must sign both copies of the agreement and return one to your regional environmental grant coordinator within 30 days.

Important: Costs incurred prior to the beginning date of the grant agreement will not be eligible for reimbursement. Exception: Costs incurred up to 12 months prior to the application deadline are eligible for reimbursement if they are necessary to complete an application and comply with a permit required to implement a project.

Reimbursement Grant Program

This means reimbursement is only possible after the grantee can show evidence of having first paid 100% of project costs for the time period covered by the payment request. However, depending upon the type of grant you receive, you may be able to request a grant advance equal to a certain **percentage** of your grant amount. Even with a grant advance, you still have some "out of pocket" expenses while you await the reimbursement.

Financial Administration For Your Project

At the time you receive your grant agreement, you will also receive information on financial administration during your project, what to do if your project requires changes, how to request advance payments (if applicable for your project type) and reimbursement of project expenditures.

Final Report Requirements

A final report that describes the project's results and is useable by the public must be prepared and submitted for all projects in paper and electronic form (see Data Standards, below). The DNR regional AIS/Lake/River Coordinator must approve final reports before you may receive your final reimbursement payment. **If a consultant writes the final report, be sure the report has been approved by the regional AIS/Lake/River Coordinator before making the final payment to the consultant.** Periodic progress reports may be required for multi-year projects.

See the guidance section for your particular project type for specific requirements for the final report.

Water Quality Lab Work

All water quality laboratory work must be performed by a facility that has received approval from the department. Generally, lake water quality monitoring samples are processed by the State Laboratory of Hygiene. This arrangement allows for ease in administration as well as data consistency and quality control.

If your project includes water analyses by the State Laboratory of Hygiene (SLOH), your consultant will receive a summary of the analyses to be performed with a set of unique lab slip labels, lab slips, and instructions from your regional AIS/Lake/River Coordinator. Requiring unique labels on water sample lab slips enables the SLOH to assist the DNR in tracking water samples by project to assure we pay for only the number of samples specified in a project's grant agreement. Your consultant must use the slips provided and only those. If more samples are done above what was originally planned, the cost of those samples will be subtracted from any final payment due you.

Data Standards

All data gathered during the project and the final report is required to be provided to the DNR in electronic format, on a CD or DVD. Word format is preferred, but PDFs are also acceptable. Photos should be submitted in their original format (.JPG,.PNG or .TIFF). Water quality, aquatic invasive monitoring and Clean Boats, Clean Waters data should be entered into the SWIMS database. Other data could be submitted in Excel format or GIS files. This must be submitted to your DNR Lake Coordinator as part of your final report. This will assure that the information you collect is archived and can be shared with others in the future. Data may be submitted in alternate formats. Check with your Lake Coordinator to discuss your specific project needs.

Aquatic Invasive Species Control Grants

Ch. 23.22 (2)(c)
Wis. Statutes
NR 198, Wis. Admin. Code

NR 198 Aquatic Invasive Species (AIS) Prevention and Control Grants implements WI state statutes Chapter 23.22 Invasive Species, sub (2)(c) which directs the department to establish a procedure to award cost-sharing grants to public and private entities for up to 75% of the costs of projects to control invasive species.

AIS grants will assist local efforts to provide information and education on the types of existing and potential aquatic invasive species in Wisconsin, the threats they pose for the state's aquatic resources and the techniques available for their control. These grants will also assist in planning and conducting projects that will prevent the introduction of aquatic invasive species into waters where they currently are not present, controlling and reducing the risk of spread from waters where they are present and restoring native aquatic communities. Grant funds are also available to control established populations of aquatic invasive species, provide for research and demonstration projects, and provide for reimbursement of permit fees for the ongoing control of a suppressed established aquatic invasive species population. Grants are available to conduct projects on all waters of the state, including lakes, rivers, streams, wetlands and the Great Lakes.

Important

For AIS grant applications with a postmark deadline of February 1st and August 1st, the DNR needs to award grants by the next application date (for example; grant applications on the priority list for the February 1st cycle must be awarded prior to August 1st). Project sponsors may apply again in the next grant cycle.

Eligible Sponsors

Any entity that is eligible for a State Lake or River grant is also eligible for an AIS grant. This includes units of local government, tribes, lake protection and rehabilitation districts, qualified lake associations, qualified river management organizations and qualified school districts. Also eligible are: qualified nonprofit organizations, private and public colleges, universities and technical schools, state and federal natural resource agencies, and FERC licensed hydroelectric corporations.

Financial Administration

For the most part, the policies regarding financial administration, eligible costs, reporting, use of State Lab, etc. are the same as for Lake Planning and Protection Grants, and River Protection Grants.

In summary: Grants operate on a reimbursement basis. Sponsors must incur costs and seek reimbursement from the state. Reasonable direct costs required to conduct a project are eligible for reimbursement including labor, contracts, laboratory analysis, printing etc. Volunteer labor ($12/hour) and donated services, equipment and other "in-kind" items can be used to meet the sponsor's **required 25% match**. **All projects require a final report in electronic format before final payment is approved.** Sponsors should not make a final payment to consultants until the Department has approved a final report.

Notable differences: Permit fees are eligible costs as well as expenses required to obtain a permit retroactive up to 12 months prior to application. These will be NR 107 and 109 permits. Chap. 30 permit fees are waived for grant projects under statute and would not likely be sought for an AIS control grant project. Projects requesting less than 75% state cost share may gain extra point(s) in the project ranking process. Other specific inconsistencies or special conditions are highlighted below in the discussion of each grant type.

Funding Priorities

The order of priority of funding projects is:

- Control pioneer populations of aquatic invasive species
- Prevent the spread of aquatic invasive species to unpopulated waters
- Control established populations of aquatic invasive species and restore native aquatic species communities
- Provide research and demonstration that advances the state's knowledge and understanding of aquatic invasive species control
- Ongoing maintenance to contain aquatic invasive populations within a waterbody.

The Department will use the following factors to competitively evaluate projects including the degree to which the project:

- Includes a prevention and control strategy.
- Prevents the spread of aquatic invasive species.
- Protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses.
- Likelihood in successful long-term control.
- Complements other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization.

As well as:

- The extent of the infestation in the water body.
- Public access to, and public use of, the waterbody.
- Community support and commitment, including past efforts to control aquatic invasive species.
- Whether the sponsor has previously received a grant for a similar project for the same water body.

Education, Prevention and Planning Projects

Note: The Department and the University of Wisconsin Extension have developed a guidance document to aid sponsors in their outreach efforts. The document includes the following:

- a list of free aquatic invasive species publications available to sponsors,
- information on how to order AIS boat landing signs,
- resources on how to begin a bait dealer outreach campaign,
- examples of existing outreach publications developed by local partners,
- information on how to access DNR AIS media campaign materials, and
- information on how to take part in the statewide Landing Blitz.

To avoid unnecessary costs, duplication of effort and assure that consistent and accurate information is provided statewide, sponsors should review this document http://dnr.wi.gov/Aid/documents/AIS/AEPPGrantGuidanceOutreach.pdf prior to beginning any outreach/education efforts funded by an AIS grant.

Eligible Projects

- Educational programs including conducting workshops, training or coordinating volunteer monitors. Projects will be reviewed for consistency with the department's statewide education strategy for controlling invasive species including the use of existing publications and outreach materials.
- Development of prevention and control plans for AIS
- Monitoring, mapping, and assessing waterbodies for the presence of AIS or other studies that will aid in the prevention and control of AIS. DNR has established AIS monitoring protocols. These can be found at: http://www.uwsp.edu/cnr/uwexlakes/CLMN/publications.asp
- Watercraft inspection and education projects following the guidelines of the Department's Clean Boats, Clean Waters (PUB-WT-780) program. Specifically, projects involving watercraft inspectors are required to

attend a Clean Boats, Clean Waters training workshop, conduct inspections, collectand report data on statewide database. Inspectors will staff boat launch facilities a minimum of 200 hours between May 1 and October 30.

- For project sponsors wishing to implement only a Clean Boats Clean Waters program, you can use the new streamlined Clean Boats Clean Waters Request Funding and Agreement process: http://dnr.wi.gov/files/PDF/forms/8700/8700-337.pdf For more information on the simplified process, read the fact sheet on Clean Boats Clean Waters at: http://dnr.wi.gov/Aid/documents/AIS/CBCW_Fact_Sheet.pdf Additional guidance on alternatives to a standard CBCW program can be found in the Word document titled *Alternative Equivalent CBCW Activities for Grant Projects for Lakes* on the web at: http://dnr.wi.gov/Aid/documents/AIS/CBCWActivities.pdf

Detailed Project Description

Applications need to include:

- Goals and objectives including a description of the waters on which the project will take place and how the results of the project will lead to the control of aquatic invasive species.
- A complete description of the project methods
- An itemized budget for the full costs of the project broken down by department's share and local share
- A time line for project completion.
- A signed and dated resolution from the sponsor authorizing the application and identifying a representative to act on its behalf.
- A description of the public access to, and public use of, the waterbody.
- A description of how the project is consistent with existing plans or management efforts for the water body.

Application Deadline

February 1st or August 1st of each year.

Funding Possibilities

Maximum amount of the state share is 75% of the total project costs up to $150,000. Applications shall be separated into two classes. The two classes consist of those requesting less than $50,000 in state share and those requesting $50,000 to $150,000 in state share. Watercraft inspection projects are limited to $4,000 per public boat launch facility but, can be a component of a larger project.

Payment Options

Sponsors may request an advance payment of 25%. With the exception of the simplified Clean Boats Clean Waters grant process which includes an automatic advance payment of 25% of the state share. Quarterly reimbursement requests may be submitted during the project and must be accompanied by progress reports detailing activities completed during the quarter covered by the request as well as documentation for costs being claimed. All project expenses must be paid by the sponsor before the last 10% of the state cost share is paid.

Early Detection and Response Projects

Eligible Projects

Identification and removal by approved methods, of small pioneer populations of aquatic invasive species in the early stages of colonization, or re-colonization. For rooted aquatic plants like Eurasian Watermilfoil, a pioneer infestation is defined as a localized bed that has been present less than 5 years, and is less than 5 acres in size or less than 5% of lake area whichever is greater. Control of a re-colonization following the completion of an established population control project is also eligible.

Procedures All projects must follow the same procedures. Project sponsors report a new infestation to the regional DNR staff by:

1. Collecting an entire intact adult specimen. If possible, collect the roots, stems, flowers and fruit of the invasive plants.
2. Icing or refrigerating the specimen immediately.
3. Making a label that includes the date collected, the person who collected the specimen, the township, range and section, county, and waterbody name of where the specimen was collected. Include topographic map or plat map if possible.
4. Submitting the specimen to the department within 3 days.

The Department will confirm the species and determine the appropriate method of control. The sponsor will be authorized in writing to conduct the project that will include a permit, if needed and notification of eligibility for an AIS grant. The sponsor will then need to complete a grant application to receive 75% reimbursement. Pre and post treatment monitoring will be required and is an eligible cost.

Application Deadline Offered continuously on a first-come first-serve basis and funded in order of approval.

Funding Possibilities Maximum amount of the State share is 75% of the project costs of up to $20,000.

Payment Options Eligible expenses can be incurred after receiving project approval from a AIS/Lake/River Coordinator. Sponsors may request an advance payment of 25%. Quarterly reimbursement requests may be submitted during the project and must be accompanied by progress reports detailing activities completed during the quarter covered by the request as well as documentation for the costs being claimed. All project expenses must be paid by the sponsor before the last 10% of the state cost share is paid.

Established Population Control Projects

Eligible Project Activities Intended to provide for the eradication or substantial reduction and long term control of AIS with the goal to restore native species communities. Eligible projects include:

- Department approved control activities recommended in a control plan.
- Experimental or demonstration projects following a DNR approved plan.
- Purple Loosestrife bio-control projects (no plan approval required)

Activities **not** eligible for funding include:

- Dredging
- Chemical treatments or mechanical harvesting of aquatic plants to provide single season nuisance relief.
- Maintenance and operation of aeration systems and mechanical structures used to suppress aquatic plant growth.
- Structural facilities for providing boat washing stations. **Note:** Equipment associated with boat washing facilities is eligible if included in a management plan.

Note: For projects on lakes, adequate public boating access, as defined in s. NR 1.91(4) or (6), is required

Plan Approval Plans must be developed and approved prior to the application deadline. They should be submitted to the Region a minimum of 60 days prior to the application period along with an explanation of the specific recommendations to be funded with grant funds.

Plans shall include:

1. An identification of the problems or threat to the aquatic ecosystem presented by the aquatic invasive species including recreational uses and other beneficial functions up to the time of application, and how these uses and functions may have changed because of the presence of aquatic invasive species.
2. A description of the historical control actions taken or that is in progress.
2. A thorough characterization of the waterbody's aquatic ecosystem's historical and current condition, including at least one year of current base line data quantifying the extent of the infestation.
4. An assessment of the fishery, wildlife and aquatic plant community.
5. An identification of the need for the protection and enhancement of fish and wildlife habitat, endangered resources, and other local natural resource concerns.
6. Identification of the management objectives needed to maintain or restore the beneficial uses of the aquatic ecosystem.
7. Identification of target levels of control needed to meet the objectives.
8. Identification and discussion of the alternative management actions considered for aquatic invasive species control including the expected results.
9. An analysis of the need for and a list of the proposed control actions that will be implemented to achieve the target level of control.
10. A discussion of the potential adverse impacts the project may have on non targeted species, drinking water or other beneficial waterbody uses.
11. A prevention strategy to reasonably assure that new introduction of aquatic invasive species will not re-infest the waterbody.
12. A contingency strategy for effectively monitoring and preventing the re-introduction of aquatic invasive species following initial control.
13. Sufficient information for determining the feasibility of alternative control measures, including: costs; the relative permanence of the control; the potential for long-term control of the causes of infestation as well as the baseline data required to measure subsequent change.

Detailed Project Description

Once the DNR approves the plan, an application may be submitted. A completed application will contain:

1. A clear description of the project's goals and objectives including the problems or threats the species pose to the waterbody and how the results of the project will lead to its control. If the targeted species is a plant or plants, a site map clearly depicting the locations of all existing vegetation types and the area proposed for control.
2. Complete descriptions of the project methods including follow up activities necessary to maximize and extend the effectiveness of the project.
3. Identification of the threat the infestation poses to adjacent waters.
3. An itemized budget for the full costs of the project broken down by department's share and local share and a statement of the sponsor's capacity for financing its completion.
5. A general time line for project completion.
6. A signed and dated resolution from the sponsor authorizing the application and identifying a representative to act on its behalf.
7. Copies of all permits or pending permit applications needed for the project.
8. A description of the public access to, and public use of, the waterbody.
9. A description of how the project is consistent with existing plans or management efforts for the waterbody.

Application Deadline

February 1st and August 1st of each year

Funding Possibilities Maximum amount of the state share is 75% of the total project costs up to $200,000.

Payment Options Quarterly reimbursement requests may be submitted during the project and must be accompanied by progress reports detailing activities completed during the quarter covered by the request as well as documentation for the costs being claimed. All project expenses must be paid by the sponsor before the last 10% of the state cost share is paid.

Research and Demonstration Projects

Eligible Projects Grants awarded under this subchapter are intended as a cooperative research or demonstration activity between sponsors and the DNR. Eligible projects shall be designed to increase scientific understanding of the ecological and economic implications of aquatic invasive species and their management. Projects will assess experimental and innovative techniques for their prevention, containment and control.

Procedures Proposals for research or demonstration projects may be submitted to the department at anytime and shall include the goals and objectives of the project, a brief description of the methods, estimated costs and a time line for completion. The Department will work with the Governor's Invasive Species Council and others to develop a list of AIS research priorities each biennium. The priority list will be the basis for soliciting sponsorship of a complete grant application. It may also issue a Request for Proposal.

Application Deadline Available funding is dependant upon AIS funding priorities established by NR 198.15, and are awarded with all other grants in either the Aug. 1 or Feb 1 funding cycle.

Funding Possibilities Maximum amount of the state share is 75% of the total project costs. Maximum amount funded will be $500,000 per year.

Payment Options Quarterly reimbursement requests may be submitted during the project and must be accompanied by progress reports detailing activities completed during the quarter covered by the request as well as documentation for the costs being claimed. All project expenses must be paid by the sponsor before the last 10% of the state cost share is paid.

Maintenance and Containment Projects

Eligible Projects Grants awarded under this subchapter are intended for waters that are being managed under a Department-approved plan where management activity has achieved a desired level of aquatic invasive species control but complete eradication is not achievable. Ongoing maintenance is needed to contain these populations so they do not re-establish throughout the waterbody, spread to other waters, and impair navigation or other beneficial uses of the waterbody. **Reimbursement is limited to the full costs of an aquatic plant management permit, provided compliance activities such as monitoring and reporting are sufficient to meet the required 25% match.**

Procedures Reimbursement claim form 8700-323 will be provided to eligible sponsors with DNR-approved ch. NR 107 or 109 permit. Reimbursement claims may be submitted any time to the DNR after the permitted activities are completed and all necessary compliance reports are submitted and reviewed by the DNR.

Application Deadline Offered continuously on a first-come first-serve basis. Available funding is dependent upon AIS funding priorities established by s. NR 198.15.

Funding Possibilities Maximum amount of the State share will be determined by DNR based on the sponsor's permit application fee and specified monitoring and reporting requirements in the permit or DNR-approved management plan. The maximum state share awarded shall not exceed the cost of the permit application fee.

Payment Options All activities must be completed and approved by the DNR prior to reimbursement request, not to exceed the cost of permit application fees.

Appendix

Aquatic Invasive Species Control Grant Application – Form 8700-307

Click here for form: http://dnr.wi.gov/files/PDF/forms/8700/8700-307.pdf

Application Instructions-Aquatic Invasive Species (AIS) Control Grants

BEFORE YOU START

How to Prepare

Before completing your application, please thoroughly review the application guidelines, read the ranking criteria for your proposed project type (located in the appendix of the guidance booklet), and talk with your regional DNR AIS/Lake/River Coordinator and/or Environmental Grant Specialist for your area.

Is your Organization Eligible for a Grant?

Counties, towns, cities, villages, tribes, sanitary districts, protection and rehabilitation districts, and school districts working with another eligible sponsor are automatically eligible. If your organization is other than those listed above and you are a first-time applicant, you must complete and submit an *Organizational Application form (#8700-226 for Lake Management Organizations or #8700-287 for River Management Organizations*), preferably well ahead of the grant application deadline. Applications from organizations not eligible for funding at the time of application deadline will not be considered for funding.

Postmark Deadlines

No Deadline --	• Early Detection and Response Projects • Research and Demonstration Projects • Maintenance and Containment Projects
February 1 and August 1 –	• Education, Prevention and Planning Projects • Established Population Control Projects

Send completed application to your regional DNR AIS/Lake/River Coordinator

The complete application includes the AIS application form and all attachments required for the type of project for which you are applying. Contact your regional DNR AIS/Lake/River Coordinator or Environmental Grant Specialist at any time if you have questions or need clarification of any requirement.

INSTRUCTIONS BY SECTION

Section I: Application Type

Check the box next to the project type that most closely describes the project you are proposing.

Section II: Applicant Information

Applicant: The applicant must be a county, town, city, village, town sanitary district, public inland lake protection and rehabilitation district, school districts, other local governmental unit as defined in s. 66.299, Wis. Stats., tribal unit of government, qualified lake association, or qualified nonprofit conservation organization. Name the applicant and check the box that describes the applicant.

Authorized Representative Named by Resolution: The Authorized Representative must be the person whose name or position appears on an authorizing resolution approved by the applicant's governing body. Governing bodies are encouraged to designate a position, such as “County Conservationist”, “Mayor”, or “Treasurer” as opposed to naming a specific individual since this eliminates the need to approve and submit a new resolution should staff within the designated position change. The Authorized Representative typically performs the following duties on behalf of the applicant:

- signs the application and all grant-related documents
- receive grant payments on behalf of the applicant
- takes necessary action to complete the proposed project.

The Authorized Representative must be a member, employee, commissioner or board member for the sponsoring governmental unit or organization. A consultant hired by the applicant may not be named as authorized representative for the project.

Project Contact Name: The contact person is the person the applicant designates to perform day-to-day management and coordination of the project. The contact person may or may not be the same person as the authorized representative. The applicant may choose to designate a consultant as the contact person.

Section III: Project information

Project Title: Give a descriptive title for the project that includes the name of the waterbody and/or project area.

Proposed Ending Date: The project ending date must be either June 30 or December 31 of the year you plan to complete your project. All expenditures must be completed by the project ending date. Final reports and payment requests with supporting documentation must be submitted within six months of the project ending date.

Other Management Units around Waterbody: List other management units, including municipalities and organizations that are in or adjacent to the project area. Check the corresponding box for each management unit from which you have included a letter of support for your project.

Section IV: Public Access:

AIS Grants are available only for waterbodies that have public access per NR l.91, Wis. Admin. Code.
Provide a map with updated public access information in your application. This is grant eligible.

How to Generate a Map Showing Currently Known Public Access to Your Project Waterway(s):
(1) Go to the Boat and Shorefishing Access web site at http://dnr.wi.gov/topic/lands/boataccess/ and click on "Launch" to open the mapping application. (2) Use the roller button on your computer mouse or the Zoom scale on the left-hand side of the map to zoom in on your project waters. (3) You may want to click on the "Satellite" tab to access a satellite image. Then print a copy of the map. (4) Use the "Identify" function under the Tools tab to get information regarding access sites that appear. Assuming we have accurate information, this function should identify the roads providing access to these sites. If the information is not accurate, please make notes on your printed copy so that we can update the information on the web site.

Information Needed:

Do a good faith effort to update the map with:

- Names and approximate locations of all boat landings available for public use. Identify the roads on which they are located and best estimate of the number of Vehicle-Trailer (VT) parking spaces at each (note VT # under Section IV of grant application).
- Add new markings and information for other public access points including public parks, public roadways extending to the water's edge, and public access dedicated through subdivision platting.

Note: Platted public access sites are identified on original subdivision plat maps kept at town halls and can be found on tax parcel maps available from your county Lands Record Office. If you are unable to obtain access to these maps, please explain your good faith efforts to obtain them, and the problems you encountered.

Town or County-wide Grant Applications: Make a good faith effort at providing comprehensive access information, starting with access on waters most likely to be the subject of future Lake Protection, River Planning or Management, or Aquatic Invasive Species Control grants. Consider adding an access inventory element to the scope of your project to help meet this requirement for future applications.

Section V: Cost Estimate and Grant Request

The cost estimate is divided into two columns for each cost category, Cash Costs and Donated Value. This section must be completed or the application will be returned. Details in support of Section V are welcome.

> Column 1, Cash Costs, are those costs the applicant expects to incur specifically for the project and will pay in cash, either out-of-pocket or with grant funds.
>
> Column 2, Donated Value, includes the value of donated labor, services, and goods that contribute directly to the progress of the project and the value of which will be documented by invoice or other reliable means.

Enter your projected costs for each applicable cost category 1 through 11 listed in Section V, indicating for each category the portion of the cost that is a Cash Cost and the portion that is Donated Value. Most projects won't have costs in all categories. Refer to the instructions below for descriptive notes for certain cost categories that may not be self-explanatory or which have special requirements.

1. Salaries, Wages and Employee Benefits: Column 1, Cash Costs, includes salaries, wages and employee benefits paid by the applicant to its own employees for work directly allocable to the grant project and documented by Force Account Worksheets and Summaries. Column 2, Donated Value, includes the value of labor donated to the project. The value of such labor is limited to a maximum value of $12.00 per hour and must be documented on Donated Labor and Services Worksheets and Summaries provided with the grant agreement.

2. Consulting Services: Column 1, Cash Costs, include the full cost of the consulting contract(s) for the project. Column 2, Donated Value, includes the value of donated professional consulting services valued at the rate the professional person actually receives for similar work performed for pay.

3. Purchased Services -- Printing and Mailing:

4. Other Purchased Services (specify):

5. Plant Material: Plant, seed, mulch and erosion control materials. Rock riprap for erosion control shall have prior approval from the DNR.

6. Supplies (specify): Supplies are consumable items.

7. Depreciation on Equipment: If you are purchasing equipment for the project, using equipment owned by the applicant, or accepting donations of equipment use, please consult with your regional DNR Environmental Grant Specialist for information on the waterbodies grant equipment depreciation and hourly use policy.

8. ***HOURLY EQUIPMENT USE CHARGES: YOU CAN FIND THE DOT HIGHWAY RATES FOR EQUIPMENT RENTAL BY GOING TO:***
   HTTPS://TRUST.DOT.STATE.WI.US/EXTNTGTWY/DTID_BHO/EXTRANET
   BEFORE YOU CAN GAIN ACCESS TO THIS SITE, YOU MUST CREATE AN ACCOUNT AND PASSWORD, THEN REGISTER ON-LINE.

9. State Lab of Hygiene (SLOH) Costs: If your project includes the collection of water chemistry samples and analysis at the State Lab of Hygiene, you must get a completed projected SLOH costs spreadsheet from your regional DNR AIS/Lake/River Coordinator and submit it with your application. Enter the total cost for testing from that form on Line 9 in Column 1. Do not enter anything in Column 2 of Line 9.

10. Non-SLOH Laboratory Costs: Enter on this line the costs of laboratory work at non-SLOH laboratories. You must have prior approval from the DNR to use a lab other than the State Lab of Hygiene. If you put costs on this line, include in your project description information on which lab you plan to use and how many samples you plan to submit.

11. Other: List costs that are needed to implement the project but are not captured in Lines 1 through 12, above, and enter the sum of these costs.

12. Subtotals: Sum the values in Column 1, Cash Costs, and enter the total in Column 1 on Line 12. Add the values in Column 2, Donated Value, and enter the total in Column 2 on Line 12.

13. Total Project Cost Estimate: Add Column 1, Line 12, and Column 2, Line 12. Enter the sum in the box for Line 13. This is your total project cost estimate, including costs the applicant will pay with cash and the value of donated labor, services and goods.

14. State Share Requested: The state share requested is 75% of the total project cost estimate from Line 13 up to the maximum grant amount for your project type, and not exceeding the total cash costs from Line 12, Column 1. You may use the worksheet below to calculate the state share requested.

    a) Total project cost estimate from Line 13 _____

    b) Figure on a) times .75 _____

    c) Maximum grant amount for project type _____

    d) The lesser of b) or c), above _____

    e) Cash costs from Line 12, Column 1 _____

    f) The lesser of or d) or e), above _____

    Enter the amount from f), above, in the box for Line 14. This is the maximum state share you may request.

Section VI: Attachments

To complete your application, you must submit all attachments indicated on the checklist as required for your project type. As applicable, submit the attachments listed in Section A. Please review the headings for Sections B through E to identify those sections that apply to your organization and/or project type. Check the box next to each listed attachment that you are including with your application.

Refer to the instructions below for descriptive notes for certain attachments that may not be self-explanatory.

A. For all applicants:

A.1. Authorizing resolution: A sample authorizing resolution for AIS Control Projects (as well as a separate sample resolution for school districts) are located in the guidance in the Appendix. Select the sample resolution that matches your project type and use it as a model for your own. The resolution must be passed by the applicant's governing body, and properly signed and dated. (Remember that you may not designate a contracted consultant as your authorized representative.) Early Detection and Response projects need a resolution before grant award but not for the application.

A.2 Letters of support: The DNR's objective in requesting these letters is to ensure that other management units that may be affected by the project are aware that it will be carried out, and have the opportunity to indicate whether or not they support the project. Early Detection and Response projects do not need letters of support.

A.3: Map of project location and water access sites: Please provide a photocopy of a plat map or portion of a county or state highway map to show the location of the lake or river segment involved in your project. The department now requires that you also submit a map showing all sites at which the public may access the waterbody including public and private boat landings, parks, beaches, platted access sites, road ends and other places in which

the water's edge falls within a public road right-of-way. See page 20 of the AIS Grant Guidelines and Instructions booklet for details on how to print a map and identify these sites.

A.4: Itemized expenses: For each cost category for which you estimated costs in Section V, provide a brief explanation of what the cost will cover and how you calculated the amounts you entered on Lines 1 through 13 in Schedule V.

A.5: State Lab of Hygiene (SLOH) Projected Cost Form: This is required only for those applicants who will send samples to the SLOH for testing. This form is not included in this application packet and must be obtained from the AIS/Lake/River Coordinator.

A.6: Project scope/description: This is the heart of your grant application, and should provide the grant reviewer with a narrative that gives a full picture of your project. Write your project description commensurate with the size and complexity of your project. Be sure to thoroughly address every element on the checklist for project description, a. through k.

B. First-time applicants that are Lake Management Organizations (LMOs), River Management Organizations (RMOs) or Non-profit Conservation Organizations (NCOs), and Qualified Non-profit Conservation Organizations.

B.1 For LMOs/RMOs only: Include a completed Form #8700-226 (Lake Association Organizational application) or #8700-287 (River Management Organization). This form is available in the appendix of the lake or river grant application guidance package. See the table of contents for page number.

B.2. Non-profit Conservation Organizations (NCO) and Qualified Non-profit Conservation Organizations (ONCO): contact the regional Environmental Grants Specialist to complete form 8700-290 (NCO).

B.3. Documentation of Financial Status: Either a copy of the most recent audited financial statement or the most recent IRS 990 filing will usually suffice. You may also include additional information that evidences your organization's financial capability to provide the "local share" and complete the proposed project.

Attachments C. through E: Please refer to the section in the guidance booklet that pertains to your project type for more detailed descriptions of the required attachments.

Section VII: Certification: Be sure that the person named on the authorizing resolution is the one who signs and dates the application!

Lake Management Organization Application - Form 8700-226

Click on the link to go to the Lake Management Organization Application on the web:

http://dnr.wi.gov/files/PDF/forms/8700/8700-226.pdf

River Management Organization Application - Form 8700-287

Click on the link to go to the River Management Organization Application on the web:

http://dnr.wi.gov/files/PDF/forms/8700/8700-287.pdf

Aquatic Invasive Species Control Grants
Sample Resolution

Resolution # _____

RESOLUTION OF _____ *(insert management unit name)* _____

County of _____

WHEREAS, __*(insert water body name)*_____ is an important resource used by the public for recreation and enjoyment of natural beauty; and

WHEREAS, public use and enjoyment of _____*(insert water body name)*_____is best served by protection of _____*(insert water body name)*_____from infestation of aquatic invasive species; and

WHEREAS, we recognize the need to provide information or education about aquatic invasive species; and

WHEREAS, we are qualified to carry out the responsibilities of an aquatic invasive species control project.

NOW, THEREFORE, BE IT RESOLVED THAT the _____(*insert management unit name*) _____ requests grant funding and assistance available from the Wisconsin Department of Natural Resources under the "Aquatic Invasive Species Control Grant Program" and hereby authorizes the ____(*insert management unit's representative*) _____ to act on behalf of _____ (*insert management unit name)*_____ to:

- submit an application to the State of Wisconsin for financial aid for aquatic invasive species control purposes;
- sign documents;
- take necessary action to undertake, direct, and complete an approved aquatic invasive species control grant; and
- submit reimbursement claims along with necessary supporting documentation within six months of project completion date.

BE IT FURTHER RESOLVED THAT the _____ (*insert management unit name)* __ will meet the obligations of the aquatic invasive species control project including timely publication of the results and meet the financial obligations of an aquatic invasive species grant, including the prompt payment of our 25% commitment to aquatic invasive species control project costs.

Adopted this day ___ of _____, 20___

By a vote of: ____ in favor _____ against _____ abstain

BY: _____Secretary/Clerk of

_____

***NOTE: Management Unit** as defined in s. 281.68, Wisconsin Statutes, or defined in s. 281.70, Wisconsin Statutes, are counties, cities, towns, villages, town sanitary districts, public inland lake protection and rehabilitation districts, qualified lake associations, qualified river management organizations, nonprofit conservation organizations, or other local governmental units established for the purpose of lake management or river management.*

*The **management unit's representative** must be indicated by naming a position or a person who is either an official or employee of the management unit. By naming a position instead of a specific person, a new resolution does not have to be submitted to the DNR if there is turnover in the position. A contracted consultant to the sponsor cannot be the authorized representative. The resolution may not pass on grant responsibility to another group or organization.*

Sample School District Resolution

Resolution # _____

RESOLUTION OF _____ *(insert School District name)* _____

County of _____

WHEREAS, __*(insert water body name)*_____ is an important resource used by the public for recreation and enjoyment of natural beauty; and

WHEREAS, public use and enjoyment of _____*(insert water body name)*_____is best served by protection of _____*(insert water body name)*_____from infestation of aquatic invasive species; and

WHEREAS, we recognize the need to provide information or education about aquatic invasive species; and

WHEREAS, we are qualified to carry out the responsibilities of the aquatic invasive species control project.

NOW, THEREFORE, BE IT RESOLVED THAT the _____(*insert School District name*) _____ requests grant funding and assistance available from the Wisconsin Department of Natural Resources under the "Aquatic Invasive Species Control Grant Program" and hereby authorizes the ____(*insert name of School District representative*) _____ to act on behalf of _____ (*insert School District name)*_____ to:

- submit an application to the State of Wisconsin for financial aid for aquatic invasive species control purposes;
- sign documents;
- take necessary action to undertake, direct, and complete an approved aquatic invasive species control grant; and
- submit reimbursement claims along with necessary supporting documentation within six months of project completion date.

BE IT FURTHER RESOLVED THAT the _____ (*insert School District name)* __ will meet the obligations of the aquatic invasive species control project including timely publication of the results and meet the financial obligations under this grant including the prompt payment of our 25% commitment to aquatic invasive species control project costs.

BE IT FURTHER RESOLVED THAT the ____*(insert School District name)*___ will partner with the___*(insert name of another project sponsor eligible to receive aquatic invasive species control grants)*___ to accomplish the educational efforts of the Aquatic Invasive Species Control project. This partnership will be documented in the form of a written cooperative agreement and will be submitted to the DNR as proof that this program requirement has been satisfied.

Adopted this day ___ of _____, 20___

By a vote of: ____ in favor _____ against _____ abstain

BY: _____Secretary/Clerk of

_____

***NOTE: School Districts** must partner with another project sponsor eligible to receive aquatic invasive species control grants in order to qualify for AIS control grants. Eligible recipients, as defined in S. 281.68, Wisconsin Statutes, are counties, cities, towns, villages, town sanitary districts, public inland lake protection and rehabilitation districts, qualified lake associations, nonprofit conservation organizations, or other local governmental units established for the purpose of lake management.*

*The **School District's representative** must be indicated by naming a position or a person who is either an official or employee of the School District. By naming a position instead of a specific person, a new resolution does not have to be submitted to the DNR if there is turnover in the position. A contracted consultant to the sponsor cannot be the authorized representative. The resolution may not pass on grant responsibility to another group or organization.*

Aquatic Invasive Species Control Grants
Project Ranking for Subchapter II – Education, Prevention and Planning Projects
2013

Score all criteria cumulatively unless otherwise instructed. No partial points unless specified.

A) The degree to which the project includes a prevention and control strategy.
(8 points possible)

1) The project includes funding for a well described, community-focused, educational outreach effort on aquatic invasive species and prevention methods that implements a statewide education strategy or priority. This does not include routine passive outreach activities such as newsletters and press releases, websites or CBCW or CLMN training & monitoring activities.
1- 2 points (One point per activity)

- Participate in media campaign using a "Protect WI Waters/It's the Law"
- Implement the Bait Dealer Initiative utilizing the Bait Dealer Toolkit. Participation in Landing Blitz -July 4th weekend
- Installing new State AIS signs (rev. 2010) at boat landings
- Establishing enforcement partnerships with local law enforcement

2) The project will train volunteers to identify AIS and conduct water body surveillance monitoring for early detection using accepted WDNR or citizen-based monitoring (CLMN/Project RED, etc) protocols where data is being entered into SWIMS.
1 point

3) The project will deliver a professional level monitoring report and map about the presence or absence of aquatic invasive and native species. [e.g. a point/intercept aquatic plant survey(s) or other DNR approved protocols appropriate for the target species. Not protocols in #2]
1 point

4) The project includes (or the sponsor is already conducting) a Clean Boats, Clean Waters watercraft inspection program per the requirements of s. NR 198.22 (1)(d) or an approved Alternative Equivalent (see guidance)
a) **1 point** - if project waters are AIS free
b) **2 points –** if project waters have AIS
c) **3 points** – if the project is county or town wide involving multiple waters
- more than 3 hydrologically separate boatable waters with public access
- Countywide AIS Coordinator projects must show 200 hours of CBCW activities

5) The project will conduct other complimentary source containment activities that go above and beyond minimum level of boat landing inspection; e.g. boat washing or cleaning stations, augmented enforcement.
1 point

B) The degree to which the project will prevent the spread of aquatic invasive species.
(7 points possible – note 1a – 1d are not cumulative).

1a) The majority (50%) of project activity will take place on a Statewide AIS Source Water listed on the following table.
5 points
or

1b) The majority (50%) of the project will take place on a major AIS source water with high public use (lakes greater than 500 acres and all boat-able rivers that meet or exceed the minimum boating access criteria in

NR 1.91(4) or wetlands greater than 500 acres in public ownership) OR; the project includes a Statewide AIS Source Water where less than 50% of the activities are directed.

4 points

or

1c) The majority (50%) of the project activity takes place on a significant AIS source water with high public use (lakes between 500 and 100 acres and all rivers that meet or exceed the minimum boating access criteria in NR 1.91(4); wade-able streams with public access or wetlands between 500 and 100 acres in public ownership).

3 points

or

1d) The majority (50%) of the project activity will take place on a minor AIS source water (lakes less than 100 acres that meet or exceed the minimum boating access criteria in NR 1.91(4); any river or stream with public access or; wetlands less than 100 acres in public ownership) OR any water determined to be a High Vulnerability Water as determined by Smart Prevention Analysis (for spiny water flea and zebra mussels only)

2 points

and

2) The project works to contain or plan the control of a NR40 prohibited species e.g Hydrilla, yellow floating heart, spiny water flea, red swamp crayfish, etc).

2 points

Statewide AIS Source Water Lakes List ***07/01/2011***

LAKE	*REG*	*COUNTY*
Beaver Dam	*SC*	*Dodge*
Castle Rock	*WC*	*Adams*
Chippewa Flowage	*NOR*	*Sawyer*
Eagle Chain	*NOR*	*Vilas*
Geneva	*SE*	*Walworth*
Green	*NE*	*Green Lake*
Koshgonong	*SCR*	*Rock*
Madison Chain	*SCR*	*Dane*
Mendota	*SC*	*Dane*
Michigan	*NE, SE*	*All counties*
Minocqua Chain	*NOR*	*Vilas*
Onalaska	*WC*	*La Crosse*
Petenwell Lake	*WC*	*Adams*
Puckaway	*NER*	*Marquette*
Shawano Lake	*NE*	*Shawano*
Superior	*NO*	*All counties*
Winnebago & up river pools	*NE*	*Calumet*
Wisconsin	*SC*	*Columbia*
Wissota	*WC*	*Chippewa*

RIVERS
St. Croix,
Mississippi,
Menominee *WCR,SCR,NOR*

Statewide AIS Source Water Criteria

- Great Lakes or Mississippi River tributaries up to first dam
- Great Lakes landings/shorelines, including Green Bay
- VHS waters (Lower Fox River, Lake Winnebago, upper pool lakes and rivers up to first dam)
- Waters involving "prohibited" species (as per NR40) that are established or at risk of becoming established (e.g Hydrilla pond, yellow floating heart, spiny water flea lakes, etc)
- Lakes or impoundments that meet <u>all</u> of the following criteria:*
    - Greater than 5000 acres
    - Multiple boat landings (5 or more)
    - Contain two or more of the following species (EWM, CLP, zebra mussels)

**Regions may recommend other lakes for inclusion that meet the criteria, but do not show up on the list due to incomplete or new information.*

C) The degree to which the project protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses.
(3 points possible)

1a) Project will produce a management plan(s) that meets the specifications of s. NR 198.43(1) or a regional (county or town-wide) strategic plan if not water body-specific. (See your AIS coordinator for an example)
2 points
or

1b) Project implements a Department-approved AIS plan.
1 point
and

2) Project area has a high degree of native biodiversity or is critical habitat, as expressed by:
- an above eco-region average aquatic or wetland plant FQI
- the presence of a listed aquatic species (NHI endangered, threatened or watch)
- is an ERW or ORW water
- has a Sensitive Area or Critical Habitat designation
- is within or adjacent to a State Natural Area, State Park, other publicly owned unique natural area or such an area owned/managed by a nonprofit conservation organization (e.g., Nature Conservancy).

1 point

D) The stage of the AIS population in the water body. (2 points possible)

1) Project addresses a pioneer population (as defined by s.198.12 (8)), or has previously been an early response project.
2 points

E) The degree to which the project will be likely to result in successful long-term prevention or control. (2 points possible)

1) Sponsor has demonstrated by previous actions that they are capable of managing projects successfully. Either they have a previous project history e.g. reports completed, on budget, on schedule, objectives achieved or they have been conducting the project activities without state financial assistance.
1 point

2) The sponsor has had a pre-application grant scoping consultation with the Department and the application is consistent with the results of those discussions.
1 point

F) The availability of public access to, and public use of, the waterbody. [If regional scale, consider relative degree of public access for significant water bodies] (2 points possible)

1) Any lake of 100 surface acres or greater and any boat-able river that has more than the minimum public boating access as defined in s. NR 1.91(4) or any wetland greater than 50 acres in public ownership.
1 point

2) The water provides significant alternative public access and use opportunities that include two of the following at separate locations: public swimming beach; park or other public land with accessible frontage; public fishing pier or wildlife observation area; platted access sites and road rights-of-way reaching the water's edge; two or more private resorts, youth camps or sportsmen clubs; or where more than 50% of the lake or river shore in the project area is in public ownership as documented on the map provided with the application.
1 point

G) The degree to which the proposed project includes or is complemented by other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization. (3 points possible)

1) Project is supported by existing, or will produce, create or improve local ordinances, lake rules or plans that protect habitat and aquatic resources and prevent the spread of aquatic invasive species (Slow no wake ordinances, stormwater ordinances, runoff and nonpoint source pollution management plans)
1 point

2) Applicant demonstrates that they have implemented (within the last 5 years) - or the project includes developing plans for – a shoreland restoration, habitat protection, sediment and nutrient control or other substantial lake stewardship activity that protects the lake ecosystem.
1 point

3) The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 point

H) Community support and commitment, including past efforts to control aquatic invasive species. (5 points possible)

1) This is demonstrated by requesting less than the maximum state share cost rate (cash costs) for the total project costs. No more than 25% of the total project cost can be in-kind or donated labor. The sponsor is requesting:

65% State share Projects < $50K = **1 point**
Projects > $50K = **2 points**

OR

50% State share Projects < $50K = **2 points**
Projects > $50K **= 3 points**

In order to get points for reducing state funds, any match over and above the standard 25% of total project cost, must be cash. Donated and volunteer labor is limited to 25% of the total project costs.

Project cash cost (75%)	*$33,000*
Donated match (25%)	*$11,000*
Total project cost (100%)	*$44,000 (for ranking criteria evaluation)*
State share requested (50%)	*$22,000*
Match	*$22,000*
cash match (50%)	*$11,000*
donated match (50%)	*$11,000*
	$22,000

(The donated amount is 50% of the match but it is only 25% of the total project cost.)

2) Sponsor has previously implemented projects or control actions to reduce or eliminate AIS or that help support the success of the current proposal including enacting ordinances and has successfully completed all previously funded projects.
1 point

3) Project includes partnerships between the applicant and a local unit of government, school, lake or community organization or business (other than a contractor) that is committed in writing to providing important project resources (time or $) and will not receive grant funding from the project.
1 point

I) Whether the sponsor has previously received a grant for a similar project for the same water body. (1 point possible)

1) The sponsor has not received an AIS grant for essentially the same EPP project(s) (same activities, same species) in the last five years. This does not include Early Detection & Response.
1 point

J) The degree to which the project will advance the knowledge and understanding of the prevention and control of aquatic invasive species. (1 point possible)

1) Project has an evaluation component that will be conducted by an objective outside entity to assess project outcomes or is a participant in a Department-sponsored research and demonstration project on the AIS research priority list.
1 point

Aquatic Invasive Species Control Grants
Project Ranking for Subchapter IV – Established Population Control Projects
2013

A) The degree to which the project includes a prevention and control strategy.
(6 points possible)

1) The water being controlled has, or the project includes, a Clean Boats, Clean Waters watercraft inspection program per the requirements of s. NR 198.22 (1)(d) or an approved Alternative Equivalent (see guidance).
2 points

2) The project will conduct other complimentary source containment activities that go above and beyond minimum level of boat landing inspection e.g. boat washing or cleaning stations, augmented enforcement.
2 points

3) The water being controlled has, or the project will train, volunteers to identify AIS and conduct water body surveillance monitoring for early detection using accepted WDNR or citizen-based monitoring (CLMN/Project RED, etc) protocols where data is being entered into SWIMS.
2 point

B) The degree to which the project will prevent the spread of aquatic invasive species.
(7 points possible)

1a) The control activity will take place on a Statewide AIS Source Water listed on the following table.
5 points
or

1b) The control activity will take place on a major AIS source water with high public use (lakes greater than 500 acres and all boat-able rivers that meet or exceed the minimum boating access criteria in NR 1.91(4) or wetlands greater than 500 acres in public ownership) or the project includes a Statewide AIS Source Water where less than 50% of the activities are directed.
4 points
or

1c) The control activity takes place on a significant AIS source water with high public use (lakes between 500 and 100 acres and all rivers that meet or exceed the minimum boating access criteria in NR 1.91(4); wade-able streams with public access or wetlands between 500 and 100 acres in public ownership.
3 points
or

1d) The control activity takes place on an a minor AIS source water (lakes less than 100 acres that meet or exceed the minimum boating access criteria in NR 1.91(4); any river or stream with public access or wetlands less than 100 acres in public ownership).
2 points

and

2) The project will control a NR40 prohibited species; e.g Hydrilla, yellow floating heart, spiny water flea, red swamp crayfish, etc.

2 points

Statewide AIS Source Water Lakes List 07/01/2011

LAKE	*REG*	*COUNTY*
Beaver Dam	*SC*	*Dodge*
Castle Rock	*WC*	*Adams*
Chippewa Flowage	*NOR*	*Sawyer*
Eagle Chain	*NOR*	*Vilas*
Geneva	*SE*	*Walworth*
Green	*NE*	*Green Lake*
Koshgonong	*SCR*	*Rock*
Madison Chain	*SCR*	*Dane*
Mendota	*SC*	*Dane*
Michigan	*NE, SE*	*All counties*
Minocqua Chain	*NOR*	*Vilas*
Onalaska	*WC*	*La Crosse*
Petenwell Lake	*WC*	*Adams*
Puckaway	*NER*	*Marquette*
Shawano Lake	*NE*	*Shawano*
Superior	*NO*	*All counties*
Winnebago & up river pools	*NE*	*Calumet*
Wisconsin	*SC*	*Columbia*
Wissota	*WC*	*Chippewa*
RIVERS		
St. Croix, Mississippi, Menominee	*WCR,SCR,NOR*	

Statewide AIS Source Water Criteria

- Great Lakes or Mississippi River tributaries up to first dam
- Great Lakes landings/shorelines, including Green Bay
- VHS waters (Lower Fox River, Lake Winnebago, upper pool lakes and rivers up to first dam)
- Waters involving "prohibited" species (as per NR40) that are established or at risk of becoming established (e.g Hydrilla pond, yellow floating heart, spiny water flea lakes, etc)
- Lakes or impoundments that meet <u>all</u> of the following criteria:*
    - Greater than 5000 acres
    - Multiple boat landings (5 or more)
    - Contain two or more of the following species (EWM, CLP, zebra mussels)

**Regions may recommend other lakes for inclusion that meet the criteria, but do not show up on the list due to incomplete or new information.*

C) The degree to which the project protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses.
(3 points possible)

1) Project plan implementation includes stocking or planting to reintroduce native community species or implements other actions or changes in management strategies that will provide added protection to native species beyond herbicide treatments alone.
2 point

2) Project area has a high degree of native biodiversity or is critical habitat, as expressed by:
- an above eco-region average aquatic or wetland plant FQI
- the presence of a listed aquatic species (NHI endangered, threatened or watch)
- is an ERW or ORW water
- has a Sensitive Area or Critical Habitat designation
- is within or adjacent to a State Natural Area, State Park, other publicly owned unique natural area or such an area owned/managed by a nonprofit conservation organization (e.g., Nature Conservancy).

1 point

D) The stage of the infestation in the water body. (4 points possible)

1) Project addresses a pioneer population (as defined by s.198.12 (8)), or was a past early response project.
2 point

2) The target species is low in density and still at a controllable level as determined by being found in 25%, or less, of the colonizable area of the project water body (e.g. only the littoral zone of a lake can be colonized by EWM).
1 point

3) It is well documented (P/I surveys or GIS mapping, verified) that the target species is a rapidly expanding population (doubling annual increase in areal coverage or FOO). Population is still under 25% threshold above.
1 point

E) The degree to which the project will be likely to result in successful long-term control.
(4 points possible)

1) As also included in the approved management plan, the project employs multiple strategies (for the same species) to achieve and maintain control objectives. [e.g. hand pulling in combination with chemical treatment and biocontrol, draw downs, etc.]
2 points

2) The sponsor has had a pre-application grant scoping consultation with the Department and the application is consistent with the results of those discussions.
1 point

3) There is a low risk of reestablishment and spread after control activity occurs. All of the following apply: the project site is not impounded; is not tributary to or connected to any other AIS populated water and; the entire AIS population is being targeted for control.
1 point

F) The availability of public access to, and public use of, the water body.

1) Any lake of 100 surface acres or greater and any boat-able river that has more than the minimum public boating access as defined in s. NR 1.91(4) or any wetland greater than 50 acres in public ownership.
1 point

2) The water provides significant alternative public access and use opportunities that include two of the following at separate locations: public swimming beach; park or other public land with accessible frontage; public fishing pier or wildlife observation area; platted access sites and road rights-of-way reaching the water's edge; two or more private resorts, youth camps or sportsmen clubs; or where more than 50% of the lake or river shore in the project area is in public ownership as documented on the map provided with application.
1 point

G) The degree to which the proposed project includes or is complemented by other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization. (3 points possible)

1) Applicant demonstrates that they have implemented, or been a significant participant in a shoreland restoration, habitat protection, sediment and nutrient control, water level management or other substantial lake stewardship activity (not including education or planning) that protects the lake ecosystem. (Score 1point per action, provide documentation).
2 points

2) The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 point

H) Community support and commitment, including past efforts to control aquatic invasive species. (2 points possible)

1) This is demonstrated by requesting less than the maximum state share cost rate (cash costs) for the total project costs. No more than 25% of the total project cost can be in-kind or donated labor. The sponsor is requesting:

65% State share **1 point**

OR

50% State share **2 points**

In order to get points for reducing state funds, any match over and above the standard 25% of total project cost, must be cash. Donated and volunteer labor is limited to 25% of the total project costs.

Project cash cost (75%)	*$33,000*
Donated match (25%)	*$11,000*
Total project cost (100%)	*$44,000 (for ranking criteria evaluation)*
State share requested (50%)	*$22,000*
Match	*$22,000*
cash match (50%)	*$11,000*
donated match (50%)	*$11,000*
	$22,000

(The donated amount is 50% of the match but it is only 25% of the total project cost.)

2) The project has financial support from additional management units, interest groups or organizations committing > 10% of the hard cash local match.
1 point

3) The sponsor conducted AIS control, consistent with their Department-approved plan, in the previous season without financial assistance from the State. They may have begun implementation without a grant or received grants in past but did not receive a grant in the past season.
1 point

I) Whether the sponsor has previously received a grant for a similar project for the same water body. (2 points)

1) There has not been an AIS Established Population Control grant for the same species in the same waterbody in the last five years.
2 point

J) The degree to which the project will advance the knowledge and understanding of the prevention and control of aquatic invasive species. (1 point)

1) Project has an evaluation component that will be conducted by an objective outside entity to assess project outcomes or is a participant in a Department-sponsored research and demonstration project on the AIS research priority list. (The list projects is available from your AIS coordinator)
1 point

Environmental Hazards Assessment - Form 1800-001

Click on the link to go to the Environmental Hazards Assessment form on the web:

http://dnr.wi.gov/files/PDF/forms/1800/1800-001.pdf

NEW!

Clean Boats Clean Waters (CBCW)

Aquatic Invasive Species Control Grant Program

The Clean Boats Clean Waters subprogram of the DNR's Aquatic Invasive Species Control grant program assists eligible sponsors with the cost of practices that will prevent the introduction of aquatic invasive species in Wisconsin's surface waters or limit the spread of aquatic invasive species that may already be present. The DNR has recently simplified the grant application, grant award, data collection, and financial reporting requirements for sponsors simply wishing to implement CBCW projects. Here is some information about the simplified CBCW grant process.

Who May Apply?

Cities, towns, villages, counties, tribes, lake protection and rehabilitation districts, qualified lake associations, qualified river management organizations, and qualified nonprofit organizations are eligible to apply. Other eligible sponsors include private and public colleges, universities, technical schools, state and federal natural resource or land management agencies and FERC-licensed hydroelectric corporations.

What Project Activities are Eligible?

Activities eligible for CBCW funding include watercraft inspection programs following DNR guidelines of the Clean Boats, Clean Waters program and specifically including all of the following:

1. Inspectors that have attended a training workshop and received program materials
2. Trained inspectors deployed at boat launch sites to conduct inspections, collect and report data, provide boater education and report suspect specimens
3. Provide a minimum of 200 hours of watercraft inspection per boat landing annually during weekends, holidays, fishing tournaments & other special events between May 1 and October 30
4. Data collected is reported through the statewide watercraft inspection data base (SWIMS) and must be entered into SWIMS by November 30 immediately following the end of the inspection season.

What Cost Sharing is Available?

The state will issue a grant for 75% of project costs up to a max. of $4,000 per boat landing. The remaining 25% of the project cost must be provided by the project sponsor in the form of cash, donated labor or services, or "in-kind" items. This grant program operates on a reimbursement basis; so all costs must first be paid before reimbursement can be requested. A 25% advance payment will be provided to help get the project started.

When are Applications Due?

Applications for CBCW projects must be postmarked by February 1 or August 1 each year. Incomplete applications will not be added to the funding list and will be returned to the applicant. You can find revised application forms and guidance about CBCW grants at: http://dnr.wi.gov/Aid/AIS.html

When can I Expect a Grant Agreement?

For applications postmarked by Feb 1, the CBCW grant start date will be April 1 with an end date of December 31 of the same year. For applications postmarked by Aug 1, the CBCW grant will start on April 1 of the following year with end date of Dec 31. Costs incurred prior to the April 1 start date are not eligible for reimbursement.

Clean Boats Clean Waters (CBCW)
Aquatic Invasive Species Control Grant Program

How it Works…The Application:

Applicants complete the AIS Clean Boats Clean Waters Request for Funding form and also sign page 2 of the form which will be your grant agreement. Requests for Funding can be submitted electronically from the DNR web site or can be *submitted to the EGS Coordinator at 810 W. Maple St., Spooner WI 54801*, within the time frames mentioned on page 1.

Your application will be reviewed and if everything meets the CBCW program requirements, DNR will complete the Grant Award Data portion of the Grant Agreement and sign the agreement. A copy of the completed Grant Agreement will be returned to you. An advance payment will automatically be processed and mailed to you.

How it Works…Project Implementation:

Your CBCW landing inspection program includes landing inspector training, talking and educating boat launch users and conducting inspections, and collecting data to complete the Watercraft Inspection Report form. CBCW data is entered in the DNR SWIMS data base with all data entry being completed for the inspection season, by November 30 immediately following the inspection season.

How it Works…Final Reporting & Final Payment:

When data entry into SWIMS is completed the project sponsor should complete a Grant Payment Request and a Grant Payment Worksheet. All project expenses and any donations, including the total of all volunteer time, must be listed on the worksheet. The completed forms are submitted to your Environmental Grant Specialist.

The SWIMS data base will be checked to see that staff and volunteer time claimed on the worksheet matches the data entered. Final payment will then be completed and a check reimbursing project expenses over and above the advance payment, will be mailed to the grant sponsor.

Who may I Contact with Questions?

1- Pamela Toshner
DNR Regional Lake/AIS Coordinator
(715) 635-4073
Pamela.Toshner@Wi.gov

2- Jane Malischke
DNR Environmental Grant Specialist
(715) 635-4062
Jane.Malischke@Wi.gov

3- DNR Web Site
http://dnr.wi.gov/Aid/AIS.html

Lake Management Planning Grant Program

Lake Protection and Classification Grant Program

Guidelines and Application

WISCONSIN DEPT. OF NATURAL RESOURCES

Application Deadlines

Planning Grants: Feb. 1, Aug. 1

Protection Grants: May 1

Wisconsin Lakes Partnership

Available on the web: dnr.wi.gov

PUB-CF-007 2013

Table of Contents

Keys to a Successful Project

Plan, Plan, Plan!
Communication, Communication, Communication!

- Start ***planning*** your project early and communicate with your DNR regional lake coordinator often about your project goals.

  Before rushing out and applying for a grant, spend some time discussing needs, goals and expectations with the whole lake community. Invite the regional lake coordinator, a University of Wisconsin-Extension lake specialist, a county resource agent, or a representative of the Wisconsin Association of Lakes to come talk to your lake group, facilitate a goal-setting session, or provide other technical assistance. A little pre-planning will pay dividends down the road. The DNR has preferred methods and examples for many projects. Don't reinvent the wheel or design a project that won't be accepted by your DNR Lake Coordinator!

  Check to be sure your organization is eligible to apply for lake grants. Lake Associations, Schools, and Non-Profit Conservation Organizations need to be qualified before submitting an application. Review the eligibility requirements on pages 8 and 9 of this guide. If you have not already done so, submit an Organizational Application (#8700-226) at least six months before submitting your grant application.

  Start small and don't overestimate what you can do. Consider using a small-scale project for your first planning grant to organize, hold public forums, gather opinions and existing data, distribute information, build consensus and set long-term goals. This can often be done for less that $3,000. A large project may fail if it is too ambitious and doesn't have clear goals or agreement among important groups.

- If you are planning to use ***consultants***, "shop" for the firm most qualified for your project. A list of private consultants, without endorsement, can be found in The Lake List at this web site:

  http://www.uwsp.edu/cnr/uwexlakes/lakelist/default.asp

  Refer to this web page when selecting a contractor:

  http://www.wisconsinlakes.org/index.php/lakeshore-living/38-choosing-a-consultant-for-your-lake-project

  If your consultant fills out your application, be sure to check the completeness and accuracy of the information before it is submitted. Remember, as the grant applicant, you are responsible for the accuracy of the information provided on your application and fulfilling necessary requirements. Before signing your grant award agreement, make sure your consultant agrees with the project scope and conditions as described in the document.

- The ***financial responsibility*** for a grant cannot be passed to an ineligible sponsor by a resolution. All eligible payments for the grant can only be made by the sponsor indicated on the grant agreement. As costs are incurred, save all invoices, receipts, and other proof of expenses and how they were paid. Make sure to document volunteer hours with sign up sheets, as the hours are worked. This eliminates frantically searching for documents and trying to remember number of hours worked and who worked them, all at the last minute.

- Once a grant agreement is issued, your regional lake coordinator must approve all changes in project scope and other amendments. Your regional lake coordinator also needs to be notified if there is a change in the person listed as the contact or the authorized representative for the grant.

  Finish your grant project before the expiration date. If you need an extension to this date, contact your regional lake coordinator before the grant expiration date.

- All ***land acquisition projects*** must be managed as described in the land management plan. Any changes from this plan must be pre-approved by the Department of Natural Resources.

- When considering your **public education needs**, keep in mind that DNR and UW-Extension have numerous fact sheets, brochures and guides already developed on many lake-related topics. Before developing your own publication, check with your lake coordinator to see if a publication already exists that can be used or modified.

- **AND MOST IMPORTANTLY,** feel free to ask questions if you don't know how to proceed or need clarification on such topics as eligible costs or grant administration procedures.

DNR Contacts - Lakes

Your first and primary contact for lake management projects contact is the lakes coordinator. Additional information on lake grants and DNR lake programs can be found at: http://dnr.wi.gov/Aid/Grants.html

NER Northeast Region including the following counties: Brown, Door, Calumet (East ½), Fond du Lac, Kewaunee, Manitowoc, Outagamie	
Mary Gansberg, Lake Coordinator 2984 Shawano Ave., Green Bay WI 54313 920-662-5489 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Calumet (West ½), Green Lake, Marquette, Waupaca, Waushara, Winnebago	
Ted Johnson, Lake Coordinator 427 E. Tower Dr., Ste 100, Wautoma, WI 54982 920-787-3048 (ph) 920-787-2477 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NER Northeast Region including the following counties: Marinette, Menominee, Oconto, Shawano	
Brenda Nordin, Lake Coordinator 2984 Shawano Ave., Green Bay, 54313 920-662-5141 (ph) 920-662-5498 (fax)	Gary Hanson, Environmental Grants Specialist 920-662-5123 (ph) 920-662-5415 (fax)

NOR Northern Region (Rhinelander) including the following counties: Iron, Oneida, Vilas	
Kevin Gauthier, Sr., Lake Coordinator 107 Sutliff Ave., Rhinelander WI 54501 715-365-8937 (ph) 715-365-8932 (fax)	Jane Malischke, Environmental Grants Specialist 810 W. Maple St., Spooner, WI 54801 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Rhinelander) including the following counties: Forest, Florence, Langlade, Lincoln, Price, Taylor	
Jim Kreitlow, Lake Coordinator 107 Sutliff Ave., Rhinelander WI 54501 715-365-8947 (ph) 715-365-8932 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Ashland, Bayfield, Burnett, Douglas, Washburn	
Pam Toshner, Lake Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4073 (ph) 715-392-7993 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

NOR Northern Region (Spooner) including the following counties: Barron, Polk, Rusk, Sawyer	
Alex Smith, Lake Coordinator 810 W. Maple St., Spooner, WI 54801 715-635-4124 (ph) 715-635-4015 (fax)	Jane Malischke, Environmental Grants Specialist 715-635-4062 (ph) 715-635-4105 (fax)

SCR South Central Region including the following counties: Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, Sauk	
Susan Graham, Lake Coordinator 3911 Fish Hatchery Rd., Fitchburg WI 53711 608-275-3329 (ph) 608-275-3338 (fax)	Sandy Chancellor, Environmental Grant Specialist 3911 Fish Hatchery Rd., Fitchburg, WI 53711 608-275-7760 (ph) 608-275-3338 (fax)

SER Southeast Region including the following counties: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha	
Heidi Bunk, Lake Coordinator 141 NW Barstow St, Rm 180, Waukesha, WI 53188 262-574-2130 (ph) 262-574-2128 (fax)	Walt Ebersohl, Environmental Grant Specialist 2300 N Martin Luther King, Jr., Dr, Milw., WI 53212 414-263-8569 (ph) 414-263-8483 (fax)

WCR West Central Region including the following counties: Adams, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, Juneau, La Crosse, Marathon, Monroe, Pepin, Pierce, Portage, St. Croix, Trempealeau, Vernon, Wood	
Buzz Sorge, Lake Coordinator 1300 W. Clairemont Ave., Eau Claire WI 54701 715-839-3794 (ph) 715-839-6076 (fax)	Bruce Neeb, Environmental Grant Specialist 1300 W. Clairemont Ave., Eau Claire, WI 54701 715-839-3713 (ph) 715-839-6076 (fax)

Lake Partnerships:

Wisconsin Lakes This is a statewide organization of lake groups, set up to promote public policy, advance education and strengthen local leadership.

Karen von Huene, Executive Director
4513 Vernon Blvd., Suite 101
Madison, WI 53705 Fax 608-661-4314
608-661-4313
800-542-5253 (in WI only) email kvonhuene@wisconsinlakes.org

U.W. – Lakes Extension This office provides lake education and organization assistance .

Eric Olson, Lake Specialist
College of Natural Resources, UW-SP Fax 715-346-4038
Stevens Point, WI 54481-3897
715-346-2192 email Eric.Olson@uwsp.edu

Introduction

Lakes are arguably the jewels of Wisconsin's natural resources and are in jeopardy on many fronts. Recognizing we have a responsibility to protect and maintain their water quality and ecological integrity, the Wisconsin Lakes Partnership offers an assistance package to organizations concerned with their management. Part of that package is financial assistance in the form of three related grant programs that support a sequence of lake management activities: planning, protection and restoration. How a lake can best benefit from these grants depends on many things.

The **first step** to succeed in any venture is to develop a plan of action: determine needs, set goals, gather and analyze relevant information, and develop alternative courses of action. The **second step** is to choose and implement the action that best suits the need of all the parties involved. Developing a *Comprehensive Lake Management Plan* is a good way to address all the different issues and interests affecting a lake. In addition, these plans are often required to qualify for additional types of financial assistance and can be useful in making legal and permit decisions.

Before you start filling out an application you should talk with a DNR lake coordinator. Be sure to read "Keys to a Successful Project" located on the inside of the front cover of this guide, as well as the information that follows below.

Lake Management Planning Grants

Lake planning grants provide funding for the lake management planning process.

Small-scale lake planning grants of up to $3,000 are available to get you started. They can be used to obtain and disseminate lake information, conduct education projects, and develop management goals. These grants are ideal for lake groups just beginning the planning process or for activities that supplement an existing plan.

Large-scale lake planning grants of up to $25,000 per project are available for bigger projects. Projects may be phased in with multiple grants totaling up to a maximum of $100,000. However, each year the total amount of grants may not exceed $50,000 for any one lake. Be sure to describe the schedule for all past and future planning phases in each application. The intent of the large-scale program is to conduct technical studies to help develop elements of or complete comprehensive management plans. Depending on the condition and needs of the lake (which the planning process will help determine), the plan will specify activities, for example, improving water quality, managing user conflicts, or improving fishing.

There are several useful guides available to help you envision the plan and the planning process for your lake available from University Wisconsin Extension.

- *A Model Lake Plan for a Local Community*, Pub G3606
- *How's the Water? Planning for Recreation Use on Wisconsin Lakes and Rivers*, Pub FH-397-2002
- *Aquatic Plant Management in Wisconsin*

Implementing Your Plan

If you will be seeking additional funding from the DNR to implement your plan, you will need to work closely with your Lake Coordinator to assure that the plan you develop will be eligible for implementation funding. Any implementation activity *other than* land acquisition, wetland or shoreland restoration and ordinance development must first be a DNR approved

recommendation in a locally adopted lake management plan. **Plans approved for payment under ch. NR 190 do not constitute approval** of recommendations for project funding under Lake Protection Grants. The process for approval is described later in the Lake Protection Grants section. By using the Planning Checklists provided in these sections as a guide, you will help assure that your plan will have all the necessary elements to be eligible for implementation funding.

Lake Protection and Classification Grants

Lake protection grants provide funding for implementing projects to protect or improve a lake. As one progresses from planning to implementation, the costs and the time involved increase. Because implementation is more expensive, protection grants are available for up to $200,000 per project.

General Information

Source of Program Funds Come From

The source of funds for these programs is a portion of the state excise tax on gasoline consumed by motor boats.

Funding Possibilities

With the exception of Wetland Restoration Incentive Grants and Large and Small Lake Planning grants, the State will reimburse 75% of project costs up to the maximums stated on the pages describing each project type (called the state share). The grant applicant must provide 25% of total project costs (called the local share). The local share can be in the form of cash or donated labor, services, some equipment, or materials.

Eligible Sponsors

- Counties, towns, villages and cities
- Qualified lake associations (see description below)
- Town sanitary districts
- Public Inland Lake Protection & Rehabilitation Districts
- Other local governmental units as defined in S. 66.299, Wis. Stats.
- Tribal governments
- Qualified school districts (lake planning only)
- Qualified nonprofit conservation organizations (see description below and web page under "Before Applying" tab) http://dnr.wi.gov/topic/Stewardship/Grants/ApplyNCO.html
- Eligible RMOs can apply for AIS grants

Qualified Lake Associations: To be eligible, a lake association must have been in existence for at least one year prior to applying for a grant and meet certain qualifications explained on Form 8700-226, "Lake Association Organizational Application." The form must be submitted with a copy of the association's by-laws and articles of incorporation to the regional lake coordinator before or accompanying your grant application. A copy of the form is included in the appendix of this document.

Qualified School Districts: To be eligible, the board of a school district must adopt a resolution to conduct a lake management planning project that will provide information or education on the use of lakes or natural lake ecosystems, on the quality of water in lakes, or on the quality of natural lake ecosystems and allow another eligible lake grant recipient (like a lake association) to cooperate with the school district in the project.

Qualified Nonprofit Conservation Organizations (NCOs): To be eligible, a nonprofit group must be tax exempt under Section 501(c)(3) of the Internal Revenue Service code and show that it has as one of its primary purposes the acquisition of property for conservation purposes. A NCO must submit a copy of its IRS Section (c)(3) confirmation letter and the group's by-laws and articles of incorporation to the regional lake coordinator or environmental grant specialist before or accompanying the grant application.

Official Project Resolution

Every lake management grant application must include a resolution adopted by the applicant's governing body. This resolution must:

- Formally request financial assistance by the applicant
- Authorize one representative by name or preferably by "title" rather than by "name" so newly elected/appointed officials would already be authorized to act on behalf of the applicant's organization to sign all documents and take necessary action to complete the proposed project
- Resolve that the applicant will meet the financial obligations of a grant
- Name another cooperating eligible sponsor (for school districts only)

Please see the sample resolutions in the appendix for Lake Planning grants and for Lake Protection grants.

Sponsor Responsibility

The financial responsibility for a grant cannot be passed to another entity by a resolution or any other means. All eligible payments for project costs must be made by the sponsor named on the grant agreement.

Caution: If your consultant fills out your application, be sure to check the completeness and accuracy of the information. Remember, as the grant applicant, you are responsible for the accuracy of the information provided on your application and fulfilling necessary requirements. Before signing your grant agreement, make sure your consultant agrees with the project scope and conditions as described in the document. Your consultant cannot sign your grant agreement.

Caution: Expenses incurred by a volunteer(s) completing tasks during the project period can be considered an eligible grant expense. Compensating a volunteer beyond incurred project expenses may mean that the volunteer(s) should be considered an employee or independent contractor. For further information, please contact your attorney.

Sponsor Financial Capability

Upon application the applicant must be able to demonstrate financial stability and the ability to raise matching funds.

Sponsor Land Management Capability

If the applicant is applying for a lake protection land acquisition project, it must also show the ability to enter into a long-term land management contract with the Department.

"Local Share" Responsibility

"Local share" means that portion of the cost (25% in most cases) of the project other than state grant funds provided by the Department of Natural Resources. Your local share can consist of cash, funds from a third party (other than the DNR), donated labor, services, materials, or the value of some equipment used.

Donated labor and equipment as part of local share: A volunteer's time and donated services, equipment, or materials may be used as all or part of the required local share of a planning grant project. This allows project sponsors to get "credit" toward a grant for using volunteers to collect data, using donated equipment, or receiving donated professional services like consulting. Donations are subject to the following provisions:

1. All sources of the local share donation must be indicated in the grant application.
2. The maximum hourly value of donated labor is $12.00 per hour. Counties may use the donated labor rate established for their county by the Farm Service Agency if the project requires compliance with NRCS technical standards.

3. The value of donated equipment will be based on the Wisconsin Department of Transportation (DOT) county highway rates for similar equipment. (County highway rates for equipment can be obtained from your county highway and transportation office.)
4. The value of donated materials and professional services shall conform to market rates and be established by invoice.

Donated property as part of local share: For certain projects, the Department may consider the value of donated property, as determined by appraisal, as part of the local share. In no case may a grant exceed the actual cash outlay by the sponsor. The appraisal prepared for the donated property is subject to department review and approval. Two approved appraisals are required for projects involving the purchase of lands or easements of more than $200,000.

Application Review

Regional staff will review your application for completeness and may return the application for more detailed information. The application is considered complete and the project eligible for funding only when the additional information requested is received and all questions or comments have been resolved.

Rating and ranking: Regional staff then review and rate eligible projects according to how well they meet the program criteria established by law and administrative code. (See the rating and ranking questions for each project type in the Appendix.) Projects and their ratings are then combined in a statewide priority-ranking list where projects of the same type compete against each other. Projects that rank the highest are funded to the extent that funds are available.

Public Access: Your lake coordinator will determine whether your project lake currently has adequate public access. Lakes that do not have adequate public access will receive a lower priority in the project ranking system. Public access standards are addressed in s. NR 1.90 – 1.93, Wis. Admin. Code.

Regional lake coordinators and/or environmental grant specialists will notify applicants as to whether their application will be funded. There can be no firm commitment from the Department on a grant until the statewide priority-ranking list of projects has been finalized.

Project Grant Awards

Upon selection of your project, you will receive a signed agreement from the department outlining the approved project scope, time period, and budget. **Read your agreement carefully and share it with your consultant if you are working with one. It contains conditions that govern your project.** Make sure your consultant agrees with the project scope and conditions described in the grant agreement. The project sponsor must sign both copies of the agreement and return one to your regional environmental grant coordinator within 30 days.

<u>Important:</u> Costs incurred prior to the beginning date of the grant agreement will not be eligible for reimbursement.
<u>Exception:</u> Land acquisition and some design costs may be reimbursed even if they were incurred before the start date of your grant agreement. Ask for "letter of retroactivity".

Reimbursement Grant Program

This means reimbursement is only possible after the grantee can show evidence of having first paid 100% of project costs. However, depending upon the type of grant you receive, you may be able to request a grant advance equal to a certain **percentage** of your grant amount. However, even with a grant advance, you still have some "out of pocket" expenses while you await the final payment. You may also be able to request partial reimbursement payments during the project. A description of payment options specific to each grant type is found in the sections that describe each category of grants.

Financial Administration For Your Project

At the time you receive your grant agreement, you will also receive information on financial administration during your project, what to do if your project requires changes, how to request advance payments (if applicable for your project type) and reimbursement of project expenditures after completion of your project.

Final Report Requirements

A final report that describes the project's results and is useable by the public must be prepared and submitted for all lake projects in paper and electronic form (see Data Standards, below). The DNR regional lake coordinator must approve final reports before you may receive your final reimbursement payment. **If a consultant writes the final report, be sure the report has been approved by the regional lake coordinator before making the final payment to the consultant.** Periodic progress reports may be required for multi-year projects.

See the guidance section for your particular project type for specific requirements for the final report.

Water Quality Lab Work

All water quality laboratory work must be performed by a facility that has received approval from the department. Generally, lake water quality monitoring samples are processed by the State Laboratory of Hygiene. This arrangement allows for ease in administration as well as data consistency and quality control.

If your project includes water analyses by the State Laboratory of Hygiene (SLOH), your consultant will receive a summary of the analyses to be performed with a set of unique lab slip labels, lab slips, and instructions from your regional Lake Coordinator. Requiring unique labels on water sample lab slips enables the SLOH to assist the DNR in tracking water samples by project to assure we pay for only the number of samples specified in a project's grant agreement. Your consultant must use the slips provided and only those. If more samples are done above what was originally planned, the cost of those samples will be subtracted from any final payment due you.

Data Standards

All data gathered during the project and the final report is required to be provided to the DNR in electronic format, on a CD or DVD. Word format is preferred, but PDFs are also acceptable. Photos should be submitted in their original format (.JPG,.PNG or .TIFF). Water quality, aquatic invasive monitoring and Clean Boats, Clean Waters data should be entered into the SWIMS database. Other data could be submitted in Excel format or GIS files. This must be submitted to your DNR Lake Coordinator as part of your final report. This will assure that the information you collect is archived and can be shared with others in the future. Data may be submitted in alternate formats. Check with your Lake Coordinator to discuss your specific project needs.

Lake Management Planning Grants Program

Ch. 281.68, Wis. Statutes
NR 190, Wis. Admin. Code

The lake management planning grants program provides state cost-sharing assistance to eligible sponsors for the collection, analysis, and communication of information needed to protect and restore lakes and their watersheds. Projects funded through the Lake Management Planning Grant program often become the basis for later projects funded with Lake Protection grants. See page 27 for the process and standards for approving plans as eligible for Lake Protection grants. There are two categories of lake management planning grants: small-scale grants and large-scale grants.

Important

For lake planning grant applications with a postmark deadline of February 1st and August 1st, the DNR needs to award grants by the next application date (for example; grant applications on the priority list for the February 1st cycle must be awarded prior to August 1st). Project sponsors may apply again in the next grant cycle.

Small Scale

Eligible Projects

Small-scale lake management planning grants are intended as seed money to organize a larger planning effort or to address lakes without extensive planning needs where public awareness, fundamental information, and enhanced organizational capacity are the primary management objectives. These are intended to be protection oriented, often volunteer-led efforts to obtain and disseminate basic information about lake ecosystems that will be used to develop a foundation for future lake management efforts.

Grants of up to $3,000 may be awarded for the following project types:

- Lake Monitoring projects: Water quality, aquatic plant or other monitoring activities that do not fit into a large scale planning project. Ideal for issue specific investigations or post project evaluation. Organizations interested in basic lake water quality (trophic state) monitoring should first contact their Regional Lake Coordinator about opportunities under the Citizen Lake Monitoring program.
- Lake Education projects: Activities that will assist management units in collecting and disseminating existing information about lakes for the purpose of broadening the understanding of lake use, lake ecosystem conditions and lake management techniques.
- Organization development projects: Activities that will assist management units in the formation of goals and objectives for the management of a lake or lakes.
- Studies, assessments and other activities needed to develop management goals: Activities needed to implement or augment management goals or an existing plan for a lake or lakes; for expanded monitoring; or a combination of the activities listed above.

Application Deadlines

Application must be postmarked no later than February 1st and August 1st of each year.

Funding Possibilities

The maximum grant amount is $3,000. Grants are based on 67% of the total eligible project costs not to exceed the maximum grant amount.

Payment Options Grantees may request a 75% advance payment to begin project activities. (If your project includes any State Lab of Hygiene water quality testing costs, those costs will be subtracted from your advance payment because the DNR pays the State Lab directly for these services on your behalf.) The final 25% of the grant amount may be requested at the end of the project when the final project report and documentation for actual eligible costs are submitted and approved. For volunteer lake chemistry monitors, no payment is required.

Large Scale

Eligible Projects **Large-scale lake management planning grants** are intended to address the needs of lakes with complex and technical planning challenges. The intent of these projects is to result in a lake management plan that may require more than one year to complete.

Grants of up to $25,000 may be awarded for the following project types:

- Gathering and analysis of physical, chemical, and biological information on a lake, groundwater within its watershed, or surface water tributaries to a lake.
- Defining and describing a lake's watershed and sub-watershed boundaries.
- Mapping and describing existing and potential land uses within a lake's watershed.
- Reviewing jurisdictional boundaries, evaluating and developing ordinances that relate to zoning, sanitation, or pollution control.
- Gathering and analyzing information from lake property owners, community residents, and lake users.
- Acquiring sociological information such as census data and land use information necessary to develop a long-term lake use plan.
- Developing management and implementation plans for lake protection or rehabilitation.
- Communicating project results to the public by various media such as newsletters, slide shows, radio spots, etc.
- Countywide or regional initiatives involving the above activities.
- Certain educational activities as a component of a planning project.

Projects may be phased in with multiple grants totaling up to a maximum of $100,000. However, each year the total amount of grants may not exceed $50,000 for any one lake. Be sure to describe the schedule for all past and future planning phases in each application.

Application Deadlines Application must be postmarked no later than August 1st and February 1st of each year.

Funding Possibilities The maximum grant amount is $25,000. Grants are based on 67% of the total eligible project costs not to exceed the maximum grant amount.

Payment Options Grantees may request a 75% advance payment to begin project activities. (If your project includes any State Lab of Hygiene water quality testing costs, those costs will be subtracted from your advance payment because the department pays the State Lab directly for these services on your behalf.) The final 25% of the grant amount may be requested at the end of the project when the final project report and documentation for actual eligible costs are submitted and approved.

Funding Priorities Statewide priorities are for activities on multiple waterbodies and projects that seek to prevent the spread or control new infestations over projects that attempt control large established infestations. The Department will use the follow factors to competitively evaluate projects including the degree to which the project:

- Includes a prevention and control strategy.
- Prevents the spread of aquatic invasive species.
- Results in successful long-term control
- Protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses.
- Complements other management efforts

Application Deadline February 1st or August 1st of each year.

Lake Protection Grant Program

Ch 281.69 and 281.71 Wis. Statutes
NR 191, Wis. Admin. Code

The lake protection and classification grant program provides state cost sharing assistance to eligible sponsors for lake protection and restoration projects, which benefit the quality of water in lakes or the natural ecosystem of lakes. Sub-categories of this program include Lake Classification Grants to assist counties in developing and implementing lake protection activities based on countywide lake classification and Wetland Restoration Incentive Grants.

Important

The DNR issues a final project priority list by September 1st of each year from eligible applications received by the May 1st application deadline. All required permit approvals need to be obtained by the Sponsor no later than the final project priority list date of September 1st. If your project requires a permit(s), or you are unsure whether your project requires a permit(s), please contact your regional lake coordinator well in advance of the May 1st application date to discuss project details.

Eligible Projects

1. The **purchase of property or a conservation easement** that will significantly contribute to the protection or improvement of the natural ecosystem and water quality of a lake (up to $200,000).
2. The **restoration of wetlands or shoreline habitat** that will prevent degradation of a lake's water quality or its natural ecosystem (up to $100,000).
3. The **development of local regulations or ordinances** to protect lakes and the educational activities necessary for them to begin to be implemented (up to $50,000).
4. **Lake classification projects** that allow counties to tailor local land and water management programs to classes of lakes in response to development and recreational use pressures (up to $50,000).
5. **Lake management plan implementation projects** recommended in a DNR-approved plan including watershed management, lake restoration, diagnostic feasibility studies, and pollution prevention and control projects (up to $200,000).

See details for each project type in the pages that follow.

Ineligible Projects

Activities not eligible for funding under this program include:

- Dam repair, operation or removal
- Purchase of property on which a dam is located
- Dredging
- Design, installation, operation or maintenance of sanitary sewers or septic systems
- Routine chemical treatments or mechanical harvesting of aquatic plants
- Maintenance and operation of equipment or facilities
- Water safety patrols, as defined in s. 30.79(1)(b), Wis. Stats.

Application Postmark Deadline

May 1st of each year.

Land Acquisition

Land acquisition projects are reviewed and processed by DNR regional environmental grant specialists (as opposed to the regional lake coordinators who handle the other types of lake protection grant projects.) A list of regional environmental grant specialists appears in the front of this guide.

Important

The land acquisition process can be a complicated one. For this reason, it is important to start planning your project early and communicating with your DNR regional environmental grant specialist. NOTE: Your application will not be considered complete unless it includes an appraisal that establishes the value of real property proposed for acquisition. Additionally, DNR approval of your submitted appraisal is required before a grant contract can be issued.

Enhanced Appraisal Review Process

Prior to submitting a grant application for an acquisition project, project sponsors are **required** to meet in person with their regional environmental grants specialist (see DNR Contacts) and the regional real estate staff member responsible for appraisal reviews to discuss grant requirements and DNR appraisal review procedures and requirements. Your application **will not be considered complete** without proof that this required meeting has occurred prior to submittal. Following the meeting, the regional real estate staff member will submit proof that the meeting occurred to your regional environmental grants specialist.

Eligible Land Acquisitions and Conservation Easements

The purchase of land in fee title ownership (resulting in a warranty deed) and the purchase of a conservation easement in perpetuity are eligible for 75% grants not to exceed the maximum. After April 1, 2005, the use of a standard easement, made available by the DNR, will be required to be submitted with the application. http://dnr.wi.gov/Aid/easements.html

Eligible Costs

Eligible acquisition costs include:

- The fair market value of the property as determined by DNR-approved appraisals
- The cost of appraisals
- Land survey fees
- Relocation payments
- Land stabilization costs
- Title insurance
- Recording fees
- Historical and cultural assessments (if required by the DNR)
- Baseline documentation (required for conservation easements)
- Environmental inspections and audits
- Attorney closing fees up to $2,000
- Building demolition may be an eligible cost based on the degree to which the demolition contributes to lake protection or restoration.

Ineligible Costs

Land acquisition costs not eligible include:

- Acquisition of any property that is subject to a reversionary right or has restrictions or covenants which would prevent the property from being managed for purposes consistent with this grant program
- Land acquired through condemnation; land where landowners were not treated fairly and negotiations were not conducted on a willing buyer-willing seller basis
- Acquisition of land on which a dam is located
- Acquisition of land for which the power of eminent domain is used

- Environmental clean-up costs
- Brokerage fees paid by the buyer
- Real estate transfer taxes
- Land on which a dam is located
- Any other cost not identified as eligible above

Land with a Mortgage or Land Contract

The DNR **cannot** award a grant for property on which a mortgage or land contract exists. This is because the department is not able to subordinate the state's interests to the prior interests of a mortgage holder. If you have the funds needed for sponsor match, but are working with a landowner who wishes to extend payment over several years for tax reasons, it is possible to arrange scheduled payments through an escrow account. Discuss this situation with your DNR regional environmental grant specialist.

Lake Protection Land Acquisition Conditions

When a sponsor/grantee signs a grant and/or management contract accepting lake protection funds, the sponsor/grantee assumes responsibility for complying with program requirements. These requirements are spelled out in the grant contract and in Chapter NR 191 of the Wisconsin Administrative Code. All obligations, terms, conditions, and restrictions of the grant contract are limitations on the use of the property in perpetuity. Your regional environmental grant specialist can review the program's grant conditions with you.

Appraisal Requirement

The value of real property proposed for acquisition must be established by an appraisal prepared in accordance with DNR appraisal guidelines and approved by the DNR. The appraisal must be submitted with the application. The DNR must approve your appraisal before it can issue a grant contract. Contact the DNR regional environmental grant specialist for a copy of these. (See environmental grant specialist contacts listed in front of this guide.)

Lake Districts, Sanitary Districts, Lake Associations, NCOs

Grant awards involving the purchase of property by a lake district, sanitary district, qualified lake association, qualified nonprofit conservation organization, or management unit organized under s. 66.299(1)(a), Wis. Stats., require establishment of a grant contract before you can receive payment for land purchase. The grant contract, between the grantee and the DNR, details how lands acquired with grants will be managed. The contract will contain, but is not limited to, provisions which:

- Provide for long-term management of the property.
- Prohibit using the property as security for any debt unless the DNR previously approves the incurring of the debt.
- Prohibit closing the purchased property to the public except where the DNR has made a determination that closure is necessary to protect wild animals, plants, or other natural features or for property acquired through a conservation easement.
- Prohibit the conversion of property to any use other than that specified in the land management plan or easement.
- Require that any subsequent sale or transfer of the property to a third party is subject to prior approval by the DNR and that any transfer remains subject to all requirements contained in the initial grant contract.
- Require that the instrument conveying the property to any subsequent owner state the interest of the State of Wisconsin and be recorded together with the grant contract in the office of register of deeds of each county in which the property is located.
- Require that, should the recipient violate any essential provision of the grant contract, interest in or title to the acquired property shall vest in the State of Wisconsin, without necessity of re-entry.

Retroactivity

When acquisition is necessary before approved grant contract.

Grants may not be made for property acquired prior to a grant application without prior written approval from the DNR.

In some cases, it may be necessary for the applicant to acquire property before all grant program requirements can be met. In these situations, a waiver to acquire the property before a grant contract is signed by the DNR may be issued by the DNR. To be eligible for a waiver, an applicant must submit in writing a request for retroactivity BEFORE the purchase of the property. Written statements must contain specific reasons for the request, be accompanied by a location map, and the estimated value of the property.

A letter of retroactivity from the DNR only allows an applicant to apply for a grant after a parcel is purchased. It does not guarantee that a project will be approved or that grant funds will be allocated to the project.

Use of an Escrow Account

When the grantee is purchasing property under the terms of a grant contract, the DNR upon request may distribute the entire state-share of the purchase cost of the parcel to a non-interest bearing escrow account, subject to a DNR-approved title insurance commitment for each property. Funds in an escrow account will be released upon completion of an insured closing and conveyance of the property to the sponsor. If the property closing has not occurred within 30 days from the time the funds are distributed to the escrow account, the DNR may cause the funds in the escrow account to be returned to the DNR.

Property Management Plan

All land acquisition project applications must include a draft land management plan that describes the site, how it protects the lake and its ecosystem, and how it will be managed and maintained over the long term. The level of detail in the plan will depend upon the size and condition of the site. Decisions regarding funding are based, in part, on information in the plan. The plan also serves as a long-range planning tool for the project.

Please submit the narrative and plan as a separate "stand alone" document. The DNR may recommend revisions to the draft plan before final adoption and it will become part of the Lake Protection grant and management contract should the project receive funding. Attach maps as an appendix.

Property Management Plan Checklist

The following topics should be addressed in your narrative and plan:

A. Description of existing conditions. Describe and/or show on a map or good quality low altitude aerial photograph of appropriate scale:
   1. Land cover conditions, vegetation, wetlands, farm fields, etc.
   2. Structures such as roads, buildings, etc.
   3. Drainage patterns, general topography, etc.
   4. Adjacent land uses
   5. Problem sites, e.g. dumping areas, active erosion, barnyards, etc.
   6. Site photos

B. Description of proposed conditions. Describe and/or show on a map how the site will change and be maintained.
   1. Include how the site will be used and who will use it, and any plans to restrict public access.
   2. Include plans to transfer, gift, or sell the property rights to any other organization.
   3. Include who will manage and maintain the site.

4. Include how the property will be maintained, e.g. trees planted, mowed? Note: An undisturbed vegetated buffer extending a minimum of 30 feet from the ordinary high water mark of the lake and any streams or wetlands is required on all plans.
5. Specify and attach any third-party management agreements.
6. Include as attachments other documents or previously prepared management plans.
7. Use active and binding terms, such as will and shall, rather than passive terms such as may and should.
8. If the site is "natural" and no development or land-altering management activities are planned, then a map or current aerial photo and a short descriptive narrative will suffice.
9. If development (soil stabilization, vegetation restoration, or the installation of public improvements such as trails or parking lots) is being proposed, the plan will need to be more detailed and include:
    a. A map showing proposed conditions and any interim construction phases.
    b. A description and schedule or sequence of activities (How/when buildings will be removed, plantings done, rip-rap installed, paths located, etc.)
    c. If roads, piers or grading are contemplated, a topographic survey and specific locations and design cross-sections are required.

Relocation Plans

If buildings and farmland are used or occupied, governmental sponsors must prepare relocation plans in accordance with Chapter COMM 202 Relocation Assistance, Wisconsin Administrative Code. It is extremely important that the land acquisition procedures are followed carefully as non-compliance with the laws may nullify a grant award. Information pamphlets regarding the need to prepare a relocation plan and any potential relocation payments can be obtained by contacting:

- Department of Commerce, Relocation Unit, Division of Community Development, 201 West Washington Avenue, PO Box 7970, Madison, WI 53707, 608-264-7822.
- Information and forms are also available from the Department of Commerce website: www.commerce.state.wi.us (search for “relocation unit”).

Qualified lake associations and nonprofit conservation organizations will need to prepare a relocation plan if the land they are purchasing will cause the involuntary relocation of a tenant from a dwelling. An owner who voluntarily sells a property to a qualified lake association is not considered a displaced person under relocation laws. Similarly, a tenant who can remain permanently on a property subject to normal rent conditions is not considered a displaced person. If relocation payments are necessary, they are eligible for 75% cost sharing assistance.

Environmental Hazards Assessment

No grant for land acquisition or easement may be awarded prior to receipt of an environmental hazards assessment showing the property contains no undesirable environmental conditions or liabilities or potential liability or hazards that are unacceptable to the department. For lake districts, sanitary districts, qualified lake associations and management units organized under s. 66.299(1)(a), Wis. Stats., this environmental hazards assessment report must be approved by the DNR. A copy of the *Environmental Hazards Assessment Report*, Form 1800-001, is found in the appendix to this document.

Archaeological Sites and Historic Buildings

The DNR will check resource inventories for known archaeological sites and/or historic buildings on the property proposed for acquisition of title or easement. If any are present, the DNR will advise the applicant what, if any, additional steps must be taken for compliance with state historic preservation laws before a grant award can be made.

Application Postmark Deadline

May 1st of each year

Funding Possibilities

The maximum grant amount is $200,000. Grants are based on 75% of total eligible costs not to exceed the maximum grant amount.

Payment Options

Land acquisitions are complicated transactions. Refer to information listed previously in this section and check with your regional Environmental Grant Specialist.

Wetland and Shoreline Habitat Restoration

Eligible Project Costs

1. Development of plans, specifications and environmental assessment, including pre- and post-engineering and design costs.
2. Construction, earth moving, or structure removal costs.
3. Native plant stock or seeds for re-establishing vegetation.
4. Incentive payments per landowner up to $250.
5. Public meetings and education and promotional materials, mailing and similar costs related to the distribution of information about restoration.
6. Necessary monitoring in order to measure success in achieving the ecologic function of restoration activities.
7. Purchase of property or easements on which wetland restoration activities will take place. The cost of preparing and filing deed restrictions on the property where shoreline habitat restoration will take place.
8. Labor costs required to carry out activities identified in the grant agreement.
9. Other costs determined by the DNR necessary to carry out a successful wetland or shoreline habitat restoration.
10. Water regulatory permits required for the project.

Shoreline Habitat Restoration: Restoration sites must meet minimum dimensional standards and other requirements as specified in s. NR 191.24(3) for cost-sharing restoration work. Cost sharing for technical assistance and design assistance is eligible for any site.

Costs not eligible include the costs of environmental cleanup, stairs, walkways, or piers.

Projects that are necessary to comply with a regulatory action, including wetland or shoreland mitigation projects are **ineligible.**

Water Regulatory Permits

An application for all necessary water regulatory permits must be filed with the DNR by the date on which a grant application is submitted. The preliminary design costs necessary to obtain the permit will be considered allowable pre-approval costs and are eligible project costs.

Detailed Project Description

The narrative description of the project should include:

- Physical description of the project site(s) including the number of acres or lots to be restored, unique features, current land use and surrounding land use
- Description of the methods used to conduct the restoration
- Explanation of the project including how the results of the project will protect or improve lake water quality or the natural ecosystem of the lake
- Explanation of how the proposed wetland restoration complements other lake management efforts
- General time frame for completion of the project

Ownership, Easements or Deed Restrictions Required for all Restoration Activities

For **wetland restoration** activities, the grantee must have control of the restoration site through fee simple ownership or a conservation easement in perpetuity in order to apply for funding. The costs of acquiring property for this purpose are eligible project costs. However, the procedures outlined in the land acquisition project section must be followed.

For **shoreline habitat restoration,** the restoration site must be deed restricted so that it remains in conservation use in perpetuity. Cost for filing and preparing deed restrictions is an eligible cost, in addition to a $250 incentive payment to the landowner.

Application Postmark Deadline May 1st of each year

Funding Possibilities The maximum grant amount is $100,000. Grants are based on 75% of the total eligible project costs not to exceed the maximum grant amount.

Wetland Restoration Incentive Grants: A special subset of wetland restoration grants allows for 100% funding up to $10,000 for wetland restoration projects if they are identified in the applicant's comprehensive land use plan adopted by the applicant. At a minimum, the plan must identify the project location and include a policy statement on the need for restoration or enhancement.

Payment Options It is not possible to request an advance payment in this project category. However, it is possible to submit partial payment reimbursement requests accompanied by a progress report during the project.

Development of Local Regulations and Ordinances

Eligible Project Costs

To be eligible for funding consideration, all projects must include the development of an ordinance to be presented for adoption with an assessment of the administration and enforcement capacity and cost to implement the ordinance. Land use planning alone is not an eligible activity.

1. Boating or lake use, conservancy, wetland, shoreland, floodplain, construction erosion control stormwater control or other ordinances with water quality or lake protection benefit.
2. Review and evaluation of an existing regulation or ordinance effectiveness, including necessary surveys.
3. Mapping, planning and related activities as needed limited to what is necessary to the development of the proposed regulation.
4. Legal fees to develop regulation or ordinance language.
5. Public meetings and materials, surveys, mailing, and similar costs related to community education on the need for and implementation of an ordinance or regulation.
6. Training of officials and citizens for compliance and enforcement of an existing or new regulation or ordinance.
7. Labor costs required to carry out activities identified in the grant agreement provided they require additional staff or increased hours of existing staff. Costs of additional staff positions or increased staff hours shall be based on management unit rates for the position including salary, fringe benefits and other items determined to be appropriate by the DNR.
8. Other costs determined by the DNR to be necessary to carry out the development of a regulation or ordinance.

Legal fees incurred in appealing department decisions are not reimbursable costs.

Note: The DNR has developed model ordinances,(e.g., shoreland, wetland, flood plain), that are available to you free of charge. Your regional lake coordinator will have information on these models as well as other department contacts that can assist you with ordinance development.

Detailed Project Description

The narrative description of the project should include:

- ✓ Describe the problem that has resulted in the need for an ordinance
- ✓ Describe past attempts to address the problem
- ✓ Explain how the regulation or ordinance will protect or improve lake water quality or the natural ecosystem of the lake
- ✓ Explain how the proposed ordinance development complements other lake management efforts
- ✓ Describe the level of support for the project from other affected management units
- ✓ Identify other groups or management units that will be involved, describe their roles and level of financial support
- ✓ Describe the process of long-term enforcement of the regulation or ordinance and an estimate of enforcement costs

All ordinance development projects should include the following project scope elements:

1. Inventory of applicable existing ordinances currently in effect on lake(s) effected.
2. Definition and extent of the local jurisdictions enforcing existing ordinances.
3. Description of the resources (staff, budget, and equipment) each jurisdiction allocates to the enforcement of existing ordinances.

Final Report Requirements

All projects must result in a final report that describes the project results and includes copies of the proposed ordinances or regulations. Both paper and electronic copies of this report are required before reimbursement will be made.

Periodic progress reports may be required for multi-year projects.

Application Postmark Deadline

May 1st of each year

Funding Possibilities

The maximum grant amount is $50,000. Grants are based on 75% of the total eligible project costs not to exceed the maximum grant amount.

Payment Options

An advance payment of 25% of the grant amount may be requested to begin project activities.

Lake Classification

Only Counties are eligible for Lake Classification Grants.

The Wisconsin Lakes provides technical and educational assistance to lake classification efforts statewide. They have numerous resources and examples of what other counties have or are doing. For more information contact Wisconsin Lakes at (608) 662-0923 or at http://www.wisconsinlakes.org/.

Eligible Projects

Classification:

1. Objective setting for the classification system
2. Preliminary investigation of appropriate management tools
3. Investigation and selection of appropriate classification criteria
4. Data collection and analysis to place waters in classes

Management:

1. Public information and education relating to impacts of development on water resources, alternative management options and expected consequences
2. Objective-setting for individual lake classes
3. Ordinance development: zoning, watercraft regulation, construction site erosion control, public water access, piers and moorings, etc.
4. Implementation of alternative management tools: purchase of land or development rights, conservation easements, public information and education, continuing education for local government decision makers and staff, individual lakes and watershed plans, etc.
5. Adoption of policies which encourage management of waters based on the specific needs of each waterbody

Implementation: (NOTE: A county must have adopted a lake classification system to be eligible for an implementation grant.

1. Tracking and evaluating the enforcement and compliance with ordinances implementing the classification.
2. Developing forms, computer programs and other procedures to improve and streamline administration.
3. Conducting training and education sessions on the classification system and the new regulations or develop and distribute printed materials or electronic media (WEB sites).
4. Supporting programs resulting from lake classification such as shoreland restoration technical assistance.
5. Making revisions, amendments and "touch ups" to the classification system (maps, GIS, and databases) or the ordinances implementing them.

Detailed Project Description

The narrative description of the project should include:

- ✓ Describe the problem that has resulted in the need for lake classification
- ✓ Describe past attempts to address the problem
- ✓ Explain how lake classification will protect or improve lake water quality or the natural ecosystem of the lake
- ✓ Explain how the proposed lake classification complements other lake management efforts

- ✓ Describe the level of support for the project from other affected

management units

- ✓ Identify other groups or management units that will be involved, describe their roles and level of financial support
- ✓ Describe the process of long-term enforcement of lake classification and estimate enforcement costs

All lake classification projects should include the following project scope elements:

1. Inventory of applicable existing ordinances pertaining to the lake(s) in question.
2. Definition and extent of the local jurisdictions enforcing existing ordinances.
3. Description of the resources (staff, budget, equipment) each jurisdiction allocates to the enforcement of existing ordinances.

Final Report Requirements

All projects must result in a final report that describes the project results and includes copies of the proposed lake classification. Final reports are required before final reimbursement can be made.

Periodic progress reports may be required for multi-year projects.

Application Postmark Deadline

May 1st of each year

Funding Possibilities

The maximum grant amount is $50,000. Grants are based on 75% of the total eligible project costs not to exceed the maximum grant amount.

Payment Options

An advance payment of 25% of the grant amount may be requested to begin project activities.

Eligible Project Activities

Eligible activities include watershed management or protection activities, pollution prevention and control activities, in-lake restoration activities, diagnostic/feasibility studies, project design projects or any other activity recommended in a plan approved by the DNR. Project activities must be recommended in a department-approved plan. **An application for all necessary permits must be filed with the DNR by the date on which a grant application is submitted.**

Plan Approval

Prior to submitting an application, the sponsor must submit a copy of the lake management plan to the appropriate regional headquarters for approval. This should be done several months before the May 1 application deadline. The request must specify which recommendations in the plan the sponsor is considering for a grant application and describe the process used to provide the public the opportunity to comment on the plan and a summary of those comments and documentation of the sponsor's adoption of the plan.

The DNR will review the plan and consider the extent to which it adequately supports the recommended actions. Below are the elements that should be addressed in every plan. The Department will complete its review in 45 days after receipt and notify you of its decision or request additional information. Once the plan or plan recommendation is approved, you may submit an application for a grant.

Lake Plan Checklist

Use the following check list to assure that your plan is ready to be submitted to the Department for funding eligible.

1. An assessment of the lake's historical water quality, including at least one year of current baseline limnological data.
2. An identification of the water quality problems or threats to lake water quality including degradation of fish habitat and wetlands caused by nonpoint sources of pollution in the watershed.
3. An assessment of the lake's fishery and aquatic habitat including the extent of the lake area covered by aquatic plants and a characterization of the shoreline habitat and any known ecological relationships.
4. An identification of the need for the protection and enhancement of fish and wildlife habitat, endangered resources, aesthetics or other natural resources.
5. An assessment of the lake's watershed including:
    a. A description of land uses listing each land use classification as a percentage of the whole and an estimate of the amount of nonpoint pollution loading produced by each category.
    b. Identification and ranking of the most significant nonpoint source types and contributing areas.
    c. A listing of known point sources of pollution affecting the lake or that have affected the lake.
    d. A characterization of the habitat conditions and any known ecological relationships.
    e. A description of the institutional framework affecting management of the lake including, local government jurisdictional boundaries, plans, ordinances including an analysis of the need for adoption of local ordinances for lake protection.

6. A summary of the historical uses of the lake, including recreational uses up to the time of application, and how these uses may have changed because of water quality or habitat degradation.
7. A description of any other problems or issues perceived to need management actions.
8. A description of any management actions taken or are in progress.
9. Identification of objectives to maintain or improve the lake's water quality, fisheries, aquatic habitat and recreational and other uses.
10. Identification of target levels of control and resource protection needed to meet the objectives.
11. Identification and discussion of the alternative management actions considered for pollution control, lake restoration or other management including expected results.
12. An analysis of the need for and a list of the proposed management actions that will be implemented to achieve the target level of pollution abatement or resource protection.
13. A strategy for tracking, evaluating and revising the plan including water quality monitoring.
14. A plan for operation and maintenance of any structural management practice. The operation and maintenance period shall be for a minimum of 25 years.

Eligible Project Costs

1. Watershed restoration or protection involving pollution prevention or control practices (Best Management Practices).
2. In-lake restoration projects such as alum treatments, drawdowns, etc.
3. Planning and engineering, landscape or construction design plans and specifications that are necessary to determine appropriate options and recommendations for lake protection improvement.
4. Labor, materials, supplies, laboratory costs related to the above.
5. Other costs as approved by the DNR and necessary for implementing a recommendation in an approved lake management plan.

Lake Restoration Grants

Lake restoration grant activities that improve the recreational or environmental values of a lake. They include such natural resource enhancement activities as aeration, aquatic plant management, alum or lime treatments, artificial circulation, bio-manipulation, dilution/flushing, drawdown, fishery rehabilitation, habitat restoration, harvesting lake plants, hypolimnetic withdrawal, and sediment covers, oxidation, removal or tilling. The sources or causative factors of the problems to be remediated should have been or very likely will be controlled prior to in-lake improvement activities.

Lake Restoration Grants Public Access Requirement

Projects meeting the definition of Lake Restoration Grants under s. NR 191.03(5) require public access as defined in s. NR 1.91.

Detailed Project Description

Once you have received approval of your plan recommendation(s), you may proceed with preparing a standard application. Be sure to include all the following information.

- A description of the project scope including specific work tasks, a time schedule and a breakdown of costs. Use Form 8700-244, *Project Cost Estimate Worksheet.*
- Engineering and design plans.
- Copies of required water regulatory permits or permit applications.

Application Postmark Deadline May 1st of each year

Funding Possibilities The maximum grant amount is $200,000. Grants are based on 75% of the total eligible project costs not to exceed the maximum grant amount.

Payment Options While it is not possible to request an advance payment to begin project activities, it is possible to submit partial payment reimbursement requests accompanied by a progress report during the project.

Appendix

Lakes Grant Application – Form 8700-283

Click here for form: http://dnr.wi.gov/files/PDF/forms/8700/8700-283.pdf

Application Instructions-Lakes Management Grants

Before filling out your application, please thoroughly review the application guidelines, read the ranking criteria for your proposed project type (located in the appendix of the guidance booklet), and talk with your regional DNR Lake Coordinator and/or Environmental Grant Specialist for your area.

Applicants other than counties, towns, cities, villages, tribes, sanitary districts, protection and rehabilitation districts, and school districts working with another eligible sponsor, must complete and submit an Organizational Application form (#8700-226), preferably well ahead of the grant application deadline. Applications from organizations not eligible for funding at the time of application deadline will not be considered for funding.

Your completed application must be postmarked to your regional DNR Lake Coordinator by the following deadlines:

> Lake Management Planning Grants, February 1 and August 1, for the Spring and Fall grant cycles, respectively. Lake Protection Grants, May 1.

The complete application includes the Lake Management Grants application form and all attachments required for the type of project for which you are applying. Contact your regional DNR Lake Coordinator or Environmental Grant Specialist at any time if you have questions or need clarification of any requirement.

Section I: Application Type

Check the box next to the project type that most closely describes the project you are proposing.

Section II: Applicant Information

Applicant: The applicant must be a county, town, city, village, town sanitary district, public inland lake protection and rehabilitation district, school districts (planning only), other local governmental unit as defined in s. 66.299, Wis. Stats., tribal unit of government, qualified lake association, or qualified nonprofit conservation organization. Name the applicant and check the box that describes the applicant.

Authorized Representative Named by Resolution: The authorized representative must be the person named and authorized by a resolution of the applicant's governing body to act on behalf of the applicant to sign the application and all grant-related documents, receive grant payments on behalf of the applicant, and take necessary action to complete the proposed project. A consultant hired by the applicant may not be named as authorized representative for the project.

Project Contact Name: The contact person is the person the applicant designates to perform day-to-day management and coordination of the project. The contact person may or may not be the same person as the authorized representative. The applicant may choose to designate a consultant as the contact person.

Section III: Project information

Project Title: Give a descriptive title for the project that includes the name of the lake and/or project area.

Proposed Ending Date: The project ending date must be June 30 or December 31 of the year you plan to complete your project.

Other Management Units Around Lake: List other management units, including municipalities and organizations, that are in or adjacent to the project area. Check the corresponding box for each management unit from which you include a letter of support for your project.

Section IV: Public Access

Both Lake Planning and Protection Grants give priority to waterbodies with, and in some cases require, public access per NR l.91, Wis. Admin. Code.

Provide a map with updated public access information in your application. This is grant eligible.

How to Generate a Map Showing Currently Known Public Access to Your Project Waterway(s):
(1) Go to the Boat and Shorefishing Access web site at http://dnr.wi.gov/topic/lands/boataccess/ and click on "Launch" to open the mapping application. (2) Use the roller button on your computer mouse or the Zoom scale on the left-hand side of the map to zoom in on your project waters. (3) You may want to click on the "Satellite" tab to access a satellite image. Then print a copy of the map. (4) Use the "Identify" function under the Tools tab to get information regarding access sites that appear. Assuming we have accurate information, this function should identify the roads providing access to these sites. If the information is not accurate, please make notes on your printed copy so that we can update the information on the web site.

Information Needed:
Do a good faith effort to update the map with:

- Names and approximate locations of all boat landings available for public use. Identify the roads on which they are located and best estimate of the number of Vehicle-Trailer (VT) parking spaces at each (note VT # under Section IV of grant application).
- Add new markings and information for other public access points including public parks, public roadways extending to the water's edge, and public access dedicated through subdivision platting.

Note: Platted public access sites are identified on original subdivision plat maps kept at town halls and can be found on tax parcel maps available from your county Lands Record Office. If you are unable to obtain access to these maps, please explain your good faith efforts to obtain them, and the problems you encountered.

Town or County-wide Grant Applications: Make a good faith effort at providing comprehensive access information, starting with access on waters most likely to be the subject of future Lake Protection, River Planning or Management, or Aquatic Invasive Species Control grants. Consider adding an access inventory element to the scope of your project to help meet this requirement for future applications.

Section V: Cost Estimate and Grant Request

The cost estimate is divided into two columns for each cost category, Cash Costs and Donated Value.

> Column 1, Cash Costs, are those costs the applicant expects to incur specifically for the project and will pay in cash, either out-of-pocket or with grant funds.
> Column 2, Donated Value, includes the value of donated labor, services and goods that contribute directly to the progress of the project and the value of which will be documented by invoice or other reliable means.

Enter your projected costs for each applicable cost category 1 through 13 listed in Section V, indicating for each category the portion of the cost that is a Cash Cost and the portion that is Donated Value. Most projects won't have costs in all categories. Refer to the instructions below for descriptive notes for certain cost categories that may not be self-explanatory or which have special requirements.

1. Salaries, wages and employee benefits: Column 1, Cash Costs, includes salaries, wages and employee benefits paid by the applicant to its own employees for work directly allocable to the grant project and documented by time sheets and payroll records. Column 2, Donated Value, includes the value of labor donated to the project. The value of such labor is limited to a maximum value of $12.00 per hour.

2. Consulting services: Column 1, Cash Costs, include the full cost of the consulting contract(s) for the project. Column 2, Donated Value, includes the value of donated professional consulting services valued at the rate the professional person actually receives for similar work performed for pay.

3. Purchased services--printing and mailing:

4. Other purchased services (specify):

5. Plant material: Plant, seed, mulch and erosion control materials. Rock rip-rap for erosion control shall have prior approval from the DNR.

6. Supplies (specify): Supplies are consumable items.

7. Depreciation on equipment: If you are purchasing equipment for the project, using equipment owned by the applicant, or accepting donations of equipment use, please consult with your regional DNR Environmental Grant Specialist for information on the lakes grant equipment depreciation and hourly use policy.

8. Hourly equipment use charges: Please see 7, above.

9. State Lab of Hygiene (SLOH) costs: If your project includes the collection of water chemistry samples and analysis at the State Lab of Hygiene, you must get a completed projected SLOH costs spreadsheet from your regional DNR Lake Coordinator and submit it with your application. Enter the total cost for testing from that form on Line 9 in Column 1. Do not enter anything in Column 2 of Line 9.

10. Non-SLOH laboratory costs: Enter on this line the costs of laboratory work at non-SLOH laboratories. You must have prior approval from the DNR to use a lab other than the State Lab of Hygiene. If you put costs on this line, include in your project description information on which lab you plan to use and how many samples you plan to submit.

11. Land or easement acquisition value: Enter the certified fair market value of the land or easement that you intend to purchase. If you don't know the certified value because your appraisal has not yet been certified by DNR real estate staff, list the price indicated in the submitted appraisal. If all or part of the value of the land will be donated, enter the donated portion of the value in Column 2, and the remainder, if any, in Column 1. Note: The cost of acquisition of any property that is subject to a reversionary right or has restrictions or covenants which would prevent the property from being managed for purposes consistent with this grant program is not an eligible cost.

12. Associated acquisition costs: Enter the sum of eligible acquisition costs other than the value of the land or easement itself. Eligible costs include the cost of appraisals, land survey fees, required relocation expenses, land stabilization costs, title insurance, attorneys closing fees up to $2,000, recording fees, historical and cultural assessments (if required by the department), baseline documentation (required for conservation easements), and the cost of environmental audits. Building demolition may be an eligible cost based on the degree to which the demolition contributes to lake protection or restoration. Ineligible costs include environmental clean up costs, brokerage fees paid by the buyer, real estate transfer taxes, and any other cost not listed above as an eligible cost.

13. Other: List costs that are needed to implement the project but are not captured in Lines 1 through 12, above, and enter the sum of these costs.

14. Subtotals: Add up the numbers in Column 1, Cash Costs, and enter the sum in Column 1 on Line 14. Add the numbers in Column 2, Donated Value, and enter the sum in Column 2 on Line 14.

15. Total project cost estimate: Add together the numbers from Columns 1 and 2 on Line 14. Enter the sum in the box for Line 15. This is your total project cost estimate, including costs the applicant will pay with cash and the value of donated labor, services and goods.

16. State share requested: The state share requested is 75% (67% for Large and Small Lake Planning grants) of the total project cost estimate from Line 15 up to the maximum grant amount for your project type, and not exceeding the total cash costs from Line 14, Column 1. You may use the worksheet below to calculate the state share requested.

    a) Total project cost estimate from Line 15 _____

    b) Figure on a) times .75 or .67 _____

    c) Maximum grant amount for project type _____

    d) The lesser of b) or c), above _____

    e) Cash costs from Line 14, Column 1 _____

    f) The lesser of or d) or e), above _____

    This is the maximum state share you may request. Enter the amount from f), above, in the box for Line 16.

Section VI: Attachments

To complete your application you must submit all attachments indicated on the checklist as required for your project type. All applicants must submit the attachments listed in Section A. Please review the headings for Sections B through F to identify those sections that apply to your organization and/or project type. Check the box next to each listed attachment that you are including with your application.

Refer to the instructions below for descriptive notes for certain attachments that may not be self-explanatory.

A. For all applicants:

A.1: Authorizing resolution: A sample authorizing resolution for Lake Management Planning Projects (as well as a separate sample resolution for school districts) and another for Lake Management Protection Projects are located in the guidance in the Appendix. Select the sample resolution that matches your project type and use it as a model for your own. The resolution must be passed by the applicant's governing body, and properly signed and dated. (Remember that you may not designate a contracted consultant as your authorized representative.)

A.2: Letters of support: The DNR's objective in requesting these letters is to ensure that other management units that may be affected by the project are aware that it will be carried out, and have the opportunity to indicate whether or not they support the project.

A.3: Map of project location and boundaries: Let the map(s) you provide fit the complexity of the project. For small, simple projects, a simple location map, such as a copy of a page from a plat book or a county map with the project lake circled will do.

A.4: Itemized breakdown of expenses: For each cost category for which you estimated costs in Section V, provide a brief explanation of what the cost will cover and how you calculated the amounts you entered on Lines 1 through 13 in Schedule V.

A.5: State Lab of Hygiene (SLOH) Projected Cost Form: This is required only for those applicants who will send samples to the SLOH for testing. This form is not included in this application packet and must be obtained from the lake coordinator. Enter the total cost for testing from that form on Line 9 in Column 1. Do not enter anything in Column 2 of Line 9.

A.6: Project scope/description: This is the heart of your grant application, and should provide the grant reviewer with a narrative that gives a full picture of your project. Write your project description commensurate with the size and complexity of your project. For a relatively simple small-scale planning grant, a few paragraphs may suffice; for a large-scale planning grant or protection grant, you would need to provide more. Be sure to thoroughly address every element on the checklist for project description, a. through k.

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

B.1: For LMOs only: Include a completed Form 8700-226 (Lake Association Organizational application). This form is available in the appendix of the lake grant application guidance package. See the table of contents for page number.

B.2: Documentation of Financial Status: Either a copy of the most recent audited financial statement or the most recent IRS 990 filing will usually suffice. You may also include additional information that evidences your organization's financial capability to provide the "local share" and complete the proposed project.

Note: If your organization has received a grant from the DNR after 2001 under the Lakes Management Planning, Lakes Management Protection, Stewardship, and/or Nonpoint Source Pollution Abatement grant program, give the name of the program, the date of the grant award and the grant number. If you provide this information, B.1 and B.2 do not apply to your application

Attachments C through F: Please refer to the section in the guidance booklet that pertains to your project type for more detailed descriptions of the required attachments.

Section VII: Certification

Be sure that the representative authorized by resolution of the applicant's governing body signs and dates the application!

Lake Management Organization Application - Form 8700-226

Click on the link to go to the Lake Management Organization Application on the web:

http://dnr.wi.gov/files/PDF/forms/8700/8700-226.pdf

Lake Planning Grants
Sample Resolution

Resolution # _____

RESOLUTION OF _____ *(insert management unit name)* _____

County of _____

WHEREAS, _____*(name of lake)*_____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 recognize the need to provide information or education on the use of lakes or natural lake ecosystems, on the quality of water in lakes, or on the quality of natural lake ecosystems; and.

WHEREAS, we are qualified to carry out the responsibilities of the planning project; and

WHEREAS, we understand the importance of a continuing management program for _____(name of lake)_____ Lake and intend to proceed on that course.

NOW, THEREFORE, BE IT RESOLVED THAT _____(*insert management unit name*) _____ requests grant funding and assistance available from the Wisconsin Department of Natural Resources under the "Lake Management Planning Grant Program" and hereby authorizes the ____(*insert management unit's representative*) _____ to act on behalf of _____ (*insert management unit name)*_____ to:

- submit an application to the State of Wisconsin for financial aid for lake planning purposes;
- sign documents;
- take necessary action to undertake, direct, and complete an approved lake planning grant; and
- submit reimbursement claims along with necessary supporting documentation within six months of project completion date.

BE IT FURTHER RESOLVED THAT the _____ (*insert management unit name)* __ will meet the obligations of the planning project including timely publication of the results and meet the financial obligations under the lake planning grant including the prompt payment of our 33% commitment to project costs.

Adopted this day ___ of _____, 20___

By a vote of: ____ in favor _____ against _____ abstain

BY: _____Secretary/Clerk of

_____(insert management unit name)_____

Note: management unit *is the eligible sponsor of a project as defined in S. 281.68, Wisconsin Statutes – any county, city, town, village, town sanitary district, public inland lake protection and rehabilitation district, qualified lake association or nonprofit conservation organization, or other local governmental unit established for the purpose of lake management that chooses to apply for a lake planning grant.*

The ***management unit's representative*** *must be indicated by naming a position or a person within the management unit. If a position is named, the person who holds that position (who must be an official or employee of the management unit) is the individual authorized to act on behalf of the management unit. By naming a position instead of a specific person, a new resolution does not have to be submitted to the DNR if there is turnover in the position. A contracted consultant to the sponsor cannot be the authorized representative. The resolution may not pass on grant responsibility to another group or organization.*

Lake Planning Grants
Sample School District Resolution

Resolution # _____

RESOLUTION OF _____ *(insert School District name)* _____

County of _____

WHEREAS, _____*(name of lake)*_____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 recognize the need to provide information or education on the use of lakes or natural lake ecosystems, on the quality of water in lakes, or on the quality of natural lake ecosystems; and.

WHEREAS, we are qualified to carry out the responsibilities of the planning project; and

WHEREAS, we understand the importance of a continuing management program for _____(name of lake)_____ Lake and intend to proceed on that course.

NOW, THEREFORE, BE IT RESOLVED THAT the _____ (*insert School District name*) _____ requests grant funding and assistance available from the Wisconsin Department of Natural Resources under the "Lake Management Planning Grant Program" and hereby authorizes the ____(*insert name of School District representative*) _____ to act on behalf of _____ (*insert School District name)*_____ to:

- submit an application to the State of Wisconsin for financial aid for lake planning purposes;
- sign documents;
- take necessary action to undertake, direct, and complete an approved planning grant; and
- submit reimbursement claims along with necessary supporting documentation within six months of project completion date.

BE IT FURTHER RESOLVED THAT the _____ (*insert School District name)* __ 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% commitment to planning project costs.

BE IT FURTHER RESOLVED THAT the ____ *(insert School District name)*___ will partner with the___*(insert name of another project sponsor eligible to receive lake planning grants)*___ in a cooperative agreement to accomplish the educational efforts of the Lake Management Planning project.

Adopted this day ___ of _____, 20___

By a vote of: ____ in favor _____ against _____ abstain

BY: _____Secretary/Clerk of

_____ (*insert School District name)*_____

***NOTE: School Districts** must partner with another eligible recipient of grants in order to qualify for lake planning grants. Eligible recipients, as defined in s. 281.68, Wisconsin Statutes, are counties, cities, towns, villages, town sanitary districts, public inland lake protection and rehabilitation districts, qualified lake associations, nonprofit conservation organizations, or other local governmental units established for the purpose of lake management.*

*The **School District's representative** must be indicated by naming a position or a person who is either an official or employee of the School District. If a position is named, the person who holds that position (who must be an official or employee of the management unit) is the individual authorized to act on behalf of the management unit. By naming a position instead of a specific person, a new resolution does not have to be submitted to the DNR if there is turnover in the position. A contracted consultant to the sponsor cannot be the authorized representative. The resolution may not pass on grant responsibility to another group or organization.*

LAKE PLANNING GRANT PRIORITIES

Small-Scale Ranking Questions

Ranking/Activities Sheet
2013

For DNR use only. Provided for informational purposes to the applicant.

Instructions: Select **one** specific category (IA through D) which best describes the project for which funding is being requested and rank the project using the criteria listed. Then also answer questions II and III to complete the ranking and total the score. Be careful to note if all or only one answer is to be checked for each question.

☐ Lake meets minimum boating access standards of s. NR 1.91 (4) or existing facilities are sufficient to meet existing public demand for access.

I.A. Monitoring Projects. Projects that collect and report chemical biological and physical data about lakes to monitor trends in lake ecosystem health or collect project specific information. **When ranking projects, the Department shall consider the utility of the data and information that will be generated for assessing lake ecosystems determined as follows:**
(check only one that applies)

_____ 5 pts.	1) The lake is recommended for monitoring in a Department's approved plan and currently not being monitored. (New project)
_____ 4 pts.	2) The lake is NOT recommended for monitoring in a Department-approved plan but recent local management need has been identified, e.g. planning or management actions are being initiated or conducted that will be supported by the data to be collected.
_____ 3 pts.	3) The project will continue a monitoring effort on a lake that is recommended for monitoring in a Department-approved plan.
_____ 2 pts.	4) The lake is NOT recommended for monitoring in a Department-approved plan AND no planning or management actions are conducted but no data is currently available for lake.
_____ 1 pt.	5) The project will monitor a lake that is NOT recommended in a Department-approved Plan and is of limited utility.

Explanation:

I.B. Lake Education Projects. Projects that will assist management units in collecting and disseminating existing information about lakes for the purpose of broadening the understanding of lake use, the lake community, lake ecosystem conditions and lake management techniques. **When ranking projects, the Department shall consider the degree to which the project will enhance knowledge and understanding of lake ecosystems determined as follows:**
(check all that apply)

_____1 pt. 1) Creates a partnership between a lake organization and youth organization and implements an Adopt-a-Lake, Project WET or similar activity.

_____1 pt. 2) Seeks to inform the community about a specific lake management issue, management project or creates a lake history.

_____ 1 pt. 3) Project results will be presented to a lake organization meeting and a local unit of government.

_____ 1 pt. 4) Project results will be presented to a lake organization meeting a local unit of government AND the general public via community forums, lake fairs, press releases, newsletter articles or signage.

_____1 pt. 5) Provides information on lake ecosystems that has regional or statewide significance or audience.

Explanation:

I.C. Organization development projects. Projects that will assist management units in the formation of goals and objectives for the management of a lake or lakes. **When ranking projects, the Department shall consider the degree to which the project will assist local decision-making and provide for the formation of goals or a strategy to protect a lake or lakes and lake ecosystems as determined as follows:**
(check all that apply)

_____ 2 pt. 1) The project will result in the formation of management goals and objectives or a strategy for the management of a lake or lakes.

_____ 1 pt. 2) The project will provide results that assist local decision-making affecting lake management on a specific topic or issue.

_____ 1 pt. 3) Provides training for management unit representatives on a topic of relevance to unit's lake management activities.

_____ 1 pt. 4) The project will enhance the capacity or effectiveness of a lake management unit.

Explanation:

I.D. Studies, assessments and other activities. These projects will implement or augment management goals or management plan recommendations for a lake or lakes or result in obtaining information needed to develop or refine management goals and objectives. **When ranking projects, the Department shall consider the degree to which the project will likely result in significant improvement in the management of a lake or lakes and lake ecosystems as determined by:**
(check all that apply)

_____ 2 pts. 1) Project completes an element of a comprehensive lake management plan with recommendations for implementation i.e. aquatic plant management plan, tributary monitoring/assessment, shoreland restoration plan, etc.

_____ 1 pt. 2) The project is recommended or identified as a need in a local or department resource plan.

_____ 1 pt. 3) The project help to resolve issues and inform decision-making within the lake management unit on a specific topic.

_____ 1 pt. 4) The project implements or tests an innovative management technique with applicability to other lakes.

Explanation:

II. When ranking projects the Department shall consider the degree of public access to the lake as determined as follows:

_____ 1 pt. Lake exceeds minimum boating access requirements or meets minimum boating access requirements and the lake has significant other non-boating public access opportunities such as swimming beaches, parklands or public piers.

Explanation:

III. When ranking projects the Department shall consider whether this is a first-time small-scale project for a lake.

_____ 1pt.

LAKE PLANNING GRANT PRIORITIES

Large-Scale Ranking Questions

Ranking/Activities Sheet
2013

For DNR use only. Provided for informational purposes to the applicant.

Instructions: For each large-scale grant, answer all questions that apply and total score.

☐ Lake meets minimum boating access standards of s. NR 1.91 (4) or existing facilities are sufficient to meet existing public demand for access.

A. The degree to which the project contributes toward a holistic set of alternatives to assist local decision-making or contributes to the formation of a strategy to enhance or maintain the quality of a lake ecosystem.

(check all that apply to the current status of planning for the lake in addition to those proposed in the application) *This is a **cumulative** score that acknowledges past planning efforts***. Cumulative scoring only applies to Section A.

____ 2 pts. 1) Completes or updates a comprehensive lake management plan.

____ 1 pt. 2) Identifies and prioritizes lake management needs and sets goals (long-term focus).

____ 1 pt. 3) Provides specific lake water quality management objectives (resource desired conditions in TSI or other accepted index).

____ 1 pt. 4) Provides specific objectives for watershed or land use management (loading reduction strategy, identify critical sites, or develops land management ordinances).

____ 1 pt. 5) Provides specific management objectives for fish, aquatic life or wildlife habitat.

____ 1 pt. 6) Provides a specific sociological management objective (recreational use, education, organization, regulatory, incentive program).

Explanation:

B. The degree to which the planning project will enhance knowledge and understanding of a lake's fish, aquatic life and their habitats. (Check all that apply)

_____1 pt. 1) Project inventories fish, aquatic life or wildlife and their habitats but will not include management recommendations.

_____ 2 pt. 2) Develops a comprehensive assessment of fish, aquatic life or wildlife habitat with management recommendations (aquatic plant management plan, shoreland restoration plan, spawning site protection plan, species habitat management plan, etc.).

_____ 2 pt. 3) Information will be used in development of a DNR Sensitive Area Designation or shoreland restoration and protection program for the lake.

_____ 1 pt. 4) Project has direct benefit to the protection of listed threatened, rare or endangered species that are known to use the lake for habitat.

Explanation:

C. The degree to which the planning project will enhance knowledge and understanding of a lake's watershed conditions that affect or have potential to affect a lake's ecosystem. (Check all that apply)

____ 1 pt. 1) Delineate watershed boundary, map existing and future land uses and associated acreage and estimate annual pollutant loadings from watershed using standard runoff coefficients. For regional land use planning projects loading estimates may be substituted by an analysis of the quantity, type and location of various land uses and their relationship to lake water quality.

____ 1 pt. 2) Identify surface runoff patterns and delineates environmentally sensitive areas in the lake watershed (wetlands, habitat, steep slopes, riparian buffer zones, etc).

____ 2 pt. 3) Inventory and review in detail the adequacy of institutional programs effecting lake quality (land use planning, management, regulations, enforcement).

____ 2 pts. 4) Develops a comprehensive assessment and management strategy for watershed pollution source(s). Partition actual load(s) by subwatershed or source(s) [septic, feedlots, etc.] conducts a loading reduction feasibility analysis and creates a nutrient or stormwater management plan that recommends BMPs, ordinances, etc.

Explanation:

D. The degree to which the proposed planning project enhances local understanding of the lake's water quality, potential uses and factors which affect a lake's water quality. (Check all that apply)

_____ 1 pt. 1) Secchi or other single parameter monitoring will be conducted and reported.

_____ 1 pt. 2) Condition specific monitoring for a specific purpose (Three parameter TSI, internal loading, tributary contribution, algae speciation, etc.).

_____ 2 pts. 3) Development of a lake nutrient budget. Multiple parameter lake and tributary monitoring with sufficient frequency to characterize whole lake conditions and make management decisions.

_____ 2 pts. 4) Generates lake condition response model output.

Explanation:

E. The degree to which the project will likely result in significant improvement in the management of a lake or lakes and lake ecosystems. (What implementation activities will result?) (Check all that apply)

_____ 1 pt. 1) Project completes a planning effort including a strategy (who, what, when) for implementation.

_____ 1 pt. 2) Project will provide design information (technical specifications) for specific management project implementation (e.g. lake protection grant application).

_____ 1 pt. 3) Project results are critical to support larger specific planning or management efforts (TMDL, water quality standards, ordinance development, lake restoration, etc.).

Explanation:

F. The availability of public access to, and public use of, the lake. (Check only one)

_____ 1 pt. 1) The lake has more than the minimum public boating access as defined in s. NR 1.91(4), (5) or (6) and is 100 surface acres or greater.

_____ 1 pt. 2) The lake has significant other public access and use opportunities that include two of the following at separate locations: public swimming beach; park or other public land with accessible lake frontage; public fishing pier; platted access sites and road rights-of-way reaching the water's edge; two or more private resorts or youth camps; or more than 50% of the lakeshore is in public ownership as documented on the map provided with application.

Note: Regional projects (county, towns) default to l pt. unless further justification is provided.

Explanation:

G. The degree to which the proposed planning project complements other lake management efforts, is supported by other affected management units and leverages other local community funds for the project. (Check all that apply)

____ 1 pt. 1) 10% or more of the financial or in-kind project match is coming from a management unit or interest group other than the sponsor.

____ 1 pt. 2) Grant is being used as matching funds to leverage other financial assistance beyond required sponsor match for lake planning grant.

____ 1 pt. 3) Letters of support from 2 or more eligible management units.

____ 1 pt. 4) This project continues or completes a previously started project. A phased project where other phases are specifically defined and scheduled.

____ 1 pt. 5) The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)

Explanation:

H. The importance of the information obtained from a planning project to the state as identified in its resource management plans. (Check all that apply)

_____ 2 pts. 1) Implementation of specific recommendations from the GMU/basin plan or County Land and Water Resources Management Plan.

_____ 1 pt. 2) Project results will be used to amend these plans at the time of the next update.

Explanation:

I. Whether the project is a first time large-scale project for a lake.
_____ 1 pt.

Lake Protection Grants
Sample Resolution

Resolution # _____

RESOLUTION OF _____ *(insert management unit name)* _____

County of _____

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

WHEREAS the protection of critical watershed areas and reasonable lake use activities are paramount in the protection of water quality and the natural ecosystem of the lake; and

WHEREAS we are qualified to carry out the responsibilities of this protection project

IT IS, THEREFORE, RESOLVED THAT:

____(*insert management unit name*) _____ requests the funds and assistance available from the Wisconsin Department of Natural Resources under the "Lake Management Protection Grant Program: and

HEREBY AUTHORIZES ____(*management unit's representative*) _____ to act on behalf of _____ (*insert management unit name*) _____ to: submit an application to the State of Wisconsin for financial aid for lake protection purposes; sign documents; and take necessary action to undertake, direct, and complete an approved protection project.

BE IT FURTHER RESOLVED THAT _____ (*insert management unit's name*) _____ will comply with state rules for the program, may perform force account work, and will meet the financial obligations under the grant.

Adopted this day ___ of _____, 20___
By a vote of: ____ in favor _____ against _____ abstain

BY: _____Secretary/Clerk of

_____ (insert *management unit's name*) _____

Note: ***management unit*** *is the eligible sponsor of a project as defined in S. 281.68, Wisconsin Statutes – any county, city, town, village, town sanitary district, public inland lake protection and rehabilitation district, qualified lake association or nonprofit conservation organization, or other local governmental unit established for the purpose of lake management that chooses to apply for a lake planning grant.*

The ***management unit's representative*** *must be indicated by naming a position or a person within the management unit. If a position is named, the person who holds that position (who must be an official or employee of the management unit) is the individual authorized to act on behalf of the management unit. By naming a position instead of a specific person, a new resolution does not have to be submitted to the DNR if there is turnover in the position. A contracted consultant to the sponsor cannot be the authorized representative. The resolution may not pass on grant responsibility to another group or organization.*

LAKE PROTECTION GRANT PRIORITIES
2013

For DNR ranking only. Provided for informational purposes to the applicants.

<u>SPECIAL NOTE</u>: These are the lake protection grant program priorities established for the May 1, 2010 grant cycle. Priorities may be modified slightly prior to subsequent grant cycles. (See Land Acquisition). Always check with your regional lake coordinator or environmental grants specialist prior to submitting an application to see if priorities have been modified.

All projects will be evaluated and ranked using one of five general ranking systems: 1) Land Acquisition Projects, 2) Wetland and Shoreline Habitat Restoration Projects, 3) Local Ordinance Development Projects (Lake-Specific Projects), 4) Lake Classification and Local Ordinance Development Projects (County Projects), and 5) Lake Management Plan Implementation Projects.

Land Acquisition Ranking Questions
2013

<u>Public Access Policy:</u> Land acquisition projects on lakes without adequate public access can meet the adequate access test if the project site, when completed, will provide access that meets the standards of NR 1.91(4) or (6) or will be determined adequate by the regional access coordinator.

I. A. The degree to which the project provides for the protection or improvement of water quality.

A.1. Implementation of land management plan will reduce nutrient loading to the lake.
1 pt. ____

A.2. Parcel's land management plan requires a land use change such as 1) the removal of existing impervious surface of at least ¼ acre or 2) conversion of at least ¼ acre of exposed soil (farmland, industrial site) to a vegetated condition.
2 pts. ____

A.3. Applicant can demonstrate by modeling that implementation of land management plan will reduce whole lake nutrient loading by 5%.
1 pt. ____

A.4. Project parcel is > 10 acres.
2 pts. ____

A.5. Project parcel drains directly to a lake, or within 1,000 feet if draining to a tributary.
2 pts. ____

A.6. The proposed site management plan calls for native/natural landscape management (no mowed or manicured landscaping) with no adverse or significant additions of impervious surfaces, or structures.
1 pt. ____

A.7. Project parcel is located on an Exceptional or Outstanding Resource Water.
1 pt. ____

I. B. The degree to which the project provides for protection or improvement of other aspects of the natural ecosystem such as fish, wildlife, native vegetation or natural beauty.

B.1. Project acquires at least 200 frontage feet of a lake.
2 pts. ____

B.2. The parcel provides habitat to state or federally listed endangered, threatened or special concern species or is listed on or adjacent to a site on the state natural heritage database.
1 pt. ____

B.3. The project parcel contains frontage on at least 1 wild lake (defined as less than one structure per mile of shoreline.).
1 pt. ____

B.4. The site links to other habitat areas being managed for public benefit (e.g. public lands, NCO lands, or private lands under easements or enrolled in conservation programs).
1 pt. ____

B.5. The project parcel is located at least partly within the shoreland zone of the lake.
1 pt. _____

B.6. The project parcel is adjacent to or within a DNR designated Sensitive Area or comparable habitat assessment study.
1 pt. ____

B.7. The project parcel contains a unique feature such as a bog, fen or springs.
1 pt. ____

B.8. The applicant has submitted verifiable documentation that the project parcel contains habitat for wildlife (amphibians, reptiles, shorebirds, songbirds).
1 pt. _____

B.9. The project parcel contains at least ½ acre of wetlands.
1 pt. _____

I.C. The availability of public access to, and public use of, the lake.

C.1. The lake currently has more than the minimum, but less than the maximum public boating access as defined in s. NR 1.91(4) (5) or (6).
1 pt. ____

C.2. The lake currently has significant other public access opportunities such as swimming beaches, park lands or public piers OR the parcel contains significant archeological, historical or cultural sites.
1 pt. ____

OR

C.3. The acquisition project will provide public access on a lake where currently none now exists.
2 pts. _____

I.D. The degree to which the proposed project complements other lake and watershed management efforts including comprehensive planning.

D.1. The project is specifically recommended in a plan other than the sponsor's (i.e., in a basin plan, county land and water resource plan, local comprehensive plan)
1 pt.____

D.2. The project continues or completes a previously started project in a department-approved plan or previously approved project that includes related resource goals and objectives.
1 pt.____

D.3. The project has a written letter of commitment from a school, unit of government, civic group (scouts, church, etc.), adult education group or volunteer group to utilize the site for educational purposes at least 1 time a year.
1 pt.____

D.4. The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 pt.____

I.E. The level of support for the project from other affected management units or organizations.

E.1. The project has the documented support from one other eligible management unit, which clearly describes how this management unit will assist the sponsor's ability to implement a successful project.
1 pt.___

E.2. The project has the written support from additional management units, or stakeholder groups committing significant financial support (>5% or $10,000 of the total project costs).
1 pt. ____

E.3 The applicant has the written commitment from the seller to sell the property as a bargain sale (donated value), donating greater than 5% of the total appraised value of the property.
1 pt.____

I.F. The likelihood of the project to successfully meet the stated project objectives.

F.1. Applicant has submitted a signed Offer to Purchase with the grant application.
2 pts. ____

F.2**.** Applicant has had a pre-application grant scoping consultation with the Department and the application is consistent with the results of those discussions.
1 pt. ____

I.G. The degree of detail in the application and the time frame within which it will be implemented.

G.1. Applicant provides a project implementation plan, which clearly documents funding availability and capacity to complete a successful project (i.e. personnel, partnerships, technical expertise, and political and social support for the project).
2 pts.___

I.H. Whether it is a first-time protection project for the lake.

H.1. The lake has not received a previous lake protection grant award in the last five years.
2 pts.____

Wetland and Shoreline Habitat Restoration Ranking Questions

Projects include 10K wetland grants, 100K wetland grants and 100K shoreland grants

2013

II. A. The degree to which the project provides for the protection or improvement or improvement of water quality.

For **wetland restoration** projects:

A.1. Wetland restoration is larger than 5 acres.
2 pts.____

A.2. Project site has a direct hydraulic connection to the lake or the water quality benefits to a lake have been documented and approved by the Department.
2 pts.____

A.3. Restores a farmed or converted wetland, hydrologic restoration i.e. ditch fills, tile disruption as opposed to vegetative restoration.
2 pts.____

A.4. Buffers 20% of the contributing watershed area or will reduce pollutant loading to the lake by 10%.
4 pts.____

For **shoreland restoration** projects:

A.5. Project will result in the restoration of 500 feet of contiguous shoreline on the lake.
2 pts.____

A.6. Restoration goes beyond minimum standards set in 191.24(3).
2 pts. ____

A.7. Restoration project will eliminate erosion that is currently impacting the lake from ice heave, surface water runoff, wave action or other sources.
2 pts.____

A.8. Restoration will reduce the impacts of a stormwater discharge such as drain tiles, drainage swales, stormwater outlets, or from impervious surfaces.
2 pts.____

A.9. Restorations include the removal of impervious surfaces such as riprap, seawalls, decks, and other structures.
2 pts._____

OR

A.10 Project will provide technical assistance to riparians and encourage adherence to the minimum standards set in 191.24(3).
5 pts.____

A.11 The project includes a demonstration restoration site that meets the condition of NR 191.24(3)
2 pts.____

II. B. The degree to which the project provides for protection or improvement of other aspects of the natural ecosystem such as fish, wildlife, native vegetation or natural beauty.

For **wetland restoration**:

B.1. The site links to other habitat areas being managed for public benefit (e.g. public lands, NCO lands, or private lands under easements or enrolled in conservation programs).
2 pts.____

B.2. Project will result in increased habitat for lake-dependent species.
2 pts.____

B.3. Project site is adjacent to, within, or a recommendation in a DNR Critical Habitat Designation or comparable habitat assessment study.
2 pts ____

B.4. The project is adjacent to or will directly impact a waterbody that is classified as an Exceptional or Outstanding Resource Water.
2 pts.____

B.5. Restoration sites will provide habitat to state or federal threatened or endangered species, or species of concern or is listed on or adjacent to a site on the state natural heritage database.
2 pts.___

For **shoreland restoration** projects:

B.6. The lake is classified as an Exceptional or Outstanding Resource Water.
2 pts.____

B.7. Restoration sites will provide habitat to state or federal threatened or endangered species, or is listed on or adjacent to a site on the state natural heritage database.
2 pts.____

. B.8. Project site is adjacent to, within, or a recommendation in a DNR Critical Habitat Designation or comparable habitat assessment study.
2 pts. ____

B.9. Project will remove documented infestations of exotic or nuisance invasives; for example, purple loosestrife.
2 pts.____

B.10. Project includes a component for aquatic restoration (below the OHWM).
2 pts.___

OR

B.11 Project will provide technical assistance only and will encourage adherence to the minimum standards set in 191.24(3).
5 pts.____

II.C. The availability of public access to, and public use of, the lake.

C.1. The lake has more than the minimum, but less than the maximum public boating access as defined in s. NR 1.91
1 pt.____

C.2. The lake has significant other public access opportunities such as swimming beaches, park lands or public piers.
1 pt.____

II.D. The degree to which the proposed project complements other lake and watershed management efforts including comprehensive planning.

D.1. The project is specifically recommended in a plan other than the sponsor's (i.e., in a basin plan, county land and water resource plan, local comprehensive plan) **or** local shoreland ordinance exceeds state minimums for water quality and habitat functions.
1 pt.____

D.2. This project continues or completes a previously started project in a department-approved plan or previously approved project that includes related resource goals and objectives.
1 pt._____

D.3. The project test new or innovative restoration techniques.
1 pt.____

D.4. The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 pt.____

II.E. The level of support for the project from other affected management units or organizations.

E.1. The project has the written support from one other eligible management unit, which clearly describes how this management unit will assist the sponsor's ability to implement a successful project.
1 pt.___

E.2. The project has the written support from additional management units, interest groups or organizations committing significant financial support (>5% total project costs)
1 pt.____

II.F. The likelihood of the project to successfully meet the stated project objectives.

F.1. Project proposal includes a list of property owner(s) and address(es) that have agreed to participate in a restoration project.
2 pts.___

F.2. Project has a public education component for lake residents and general public or will result in educational materials being developed.
1 pt.____

II.G. The degree of detail in the application and the time frame within which it will be implemented.

G.1. Sponsor provides a project implementation plan, which clearly documents funding availability and capacity to complete a successful project (i.e. personnel, partnerships, technical expertise, and political and social support for the project).
2 pts.___

G.2. Project proposal clearly describes project objectives, methods and implementation timeline.
1 pt.____

II.H. Whether it is a first-time protection project for the lake.

H.1. The lake has not received a previous lake protection grant award in the last five years**.**
2 pts.____

Local Ordinance Development Ranking Questions

Use for Lake-Specific Projects

2013

III.A. The degree to which the project provides for the protection or improvement of water quality.

A.1. The project includes an inventory and mapping of shorelands (land use-landcover) critical to water quality protection and will include:

Natural features (i.e. wetlands, woodlands, tributaries, etc.) that are important to maintaining lake water quality.
1 pt._____

Shoreland areas most susceptible to wind or boat generated erosion.
1 pt._____

Land uses and their potential for contributing to water quality problems.
1 pt._____

Location and information on on-site waste disposal (i.e.) septic systems or storm sewer outfalls.
1 pt. ____

A.2. The project will specifically propose to develop regulations for:

Addressing water quality (i.e., stormwater management, building setbacks, impervious surface, fertilizer applications, etc.)
2 pts.____

Septic system inspections and maintenance;
2 pts.____

Creating restrictions for boating activity in shallow areas susceptible to sediment resuspension or adjacent to shorelines most susceptible to erosion;
2 pts.____

III.B. The degree to which the project provides for protection or improvement of other aspects of the natural ecosystem such as fish, wildlife, native vegetation or natural beauty.

B.1. The project includes an inventory and mapping of shorelands critical to ecosystem protection including:

Vegetation cover types.
1 pt.____

Scenic or unique shoreland features.
1 pt.____

Environmental corridors or specific fish and wildlife habitats.
2 pts.____

B.2. Project will include an inventory, assessment and mapping of the lake's aquatic plants.
1 pt.____

B.3. The project specifically proposes to develop regulations to:

Protect aquatic plants other than through boating ordinance
1 pt. ____

Protect lake environmentally sensitive areas from use impacts (boating ordinances, lake zoning, etc.)
2 pts. ____

B.4. The lake is classified as an Exceptional or Outstanding Resource Water, or is listed on the Natural Area Heritage database.
2 pts.____

III.C. The availability of public access to, and public use of the lake.

C.1. The lake has more than the minimum, but less than the maximum public boating access as defined in s. NR 1.91
1 pt._____

C.2. The lake has significant other public access opportunities such as swimming beaches, park lands or public piers.
1 pt.____

III.D. The degree to which the proposed project complements other lake and watershed management efforts including comprehensive planning.

D.1. The project is specifically recommended in a comprehensive plan consistent with ss. 66.1001 Stats.
1 pt. ____

D.2. The project is specifically recommended in a lake, watershed or resource management plan. (not comprehensive in D.1.).
1 pt. ____

D.3. The project will implement recommendations contained in a department- approved sensitive area survey that has been completed for the lake or comparable habitat assessment study.
1 pt. ____

D.4. The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 pt.____

III.E. The level of support for the project from other affected management units or organizations.

E.1. The project has the written support from additional eligible management units, local interest group, civic organization or sportsman's club which clearly describes how this group will assist or commit to supporting the sponsor's to implement the project.
1 pt.____

E.2. The project has the written support from one other management unit, or interest group committing significant financial support or in-kind support (> 5% of project costs or $5,000).
1 pt.____

III.F. The likelihood of the project to successfully meet the stated project objectives.

F.1. A diverse study committee or advisory group of lake residents and users has been formed and recommended this project.
1 pt.____

F.2. The project sponsors have met and discussed this proposal with the DNR local recreation safety warden.
2 pts.____

III.G The degree of detail in the application and the time frame within which it will be implemented.

G.1. Sponsor provides a project implementation plan, which clearly documents funding availability and capacity to complete a successful project (i.e. personnel, partnerships, technical expertise, and political and social support for the project).
2 pts. ____

G.2. Application has clearly stated objectives, methods and a timeline.
1 pt.____

III.H. Whether it is a first-time protection project for the lake.

H.1. The lake has not received a previous lake protection grant award in the last five years.
2 pts.____

Lake Classification and Local Ordinance Development Ranking Questions

Use for County Projects

2013

IV.A. The degree to which the project provides for the protection or improvement of water quality.
NOTE: Award half the points available (.5 for 1.0 and so on) if the sponsor currently has these regulations and programs meeting the criteria in place.

A.1 The county proposes a new or substantially enhanced lake classification project that will provide the basis for improved resource protection.
3 pts.____

A.2. The project will specifically propose new regulations that exceed NR 115 minimums for:

Stormwater management or; construction site soil erosion and sediment control.
2 pts.____

Increasing building setbacks requirements or eliminate setback averaging.
2 pts.____

Minimizing impervious surface
2 pts.____

A.3. Project will develop nonregulatory programs (other than information and education) that will specifically address water quality protection. (e.g. buffer incentive programs or countywide Lake management plans, shoreland restoration assistance)
1 pt. ____

IV.B. The degree to which the project provides for protection or improvement of other aspects of the Natural ecosystem such as fish, wildlife, native vegetation or natural beauty.
NOTE: Award half the points available (.5 for 1.0 and so on) if the sponsor currently has these regulations and programs meeting the criteria in place.

B.1. The project will specifically propose new regulations that exceed NR 115 minimums.
2 pts.____

B.2. The project specifically proposes to develop regulations to:

Increase minimum lot sizes or enacts shoreland buffer requirements the exceed NR 115 minimums.
1 pt. ____

Eliminates boathouses as an allowed structure within the 75' setback
1 pt. ____

B.3. Project extends protections beyond 300 foot of the OHWM for wetlands, woodlands, drainage ways, or environmental corridors through conservancy overlay districts or other development restrictions.
2 pts.____

Project will define or recommend appropriate recreational activities or uses for environmentally sensitive areas within lakes or by classes of lakes.
2 pts.____

B.3. The County proposes to develop innovative or expanded mitigation concepts (beyond minimal buffer restoration).
2 pts.____

IV.C. The availability of public access to, and public use of the lake.

C.1. Counties with the greatest number of named lakes (not cumulative)
2 pts.___ > 200
1 pts.___ 200 - 100

IV.D. The degree to which the proposed project complements other lake and watershed management efforts including comprehensive planning.

D.1. The sponsor has adopted a comprehensive plan consistent with ss. 66.1001 Stats. and has a natural resources section that incorporates shoreland protections.
1 pt. ____

D.2. County has completed or is working on a lake classification project but never completed a Corresponding shoreland ordinance (and proposes to now).
1 pt.____

D.3. The County has adopted lake classification (for lake protection) and a shoreland ordinance prior to 2010.
1 pt. ____

D.4. The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 pt.____

IV.E. The level of support for the project from other affected management units or organizations.

E.1. The county has documented support from a town, lake organization or similar stakeholder that pledges a financial contribution or in-kind or donated support equal to $500 or more toward the development and promotion of a revised shoreland ordinance.
2 pts.____

IV.F. The likelihood of the project to successfully meet the stated project objectives.

F.1. A diverse committee or advisory group (i.e. lake residents, contractors, realtors and lake users) has been formed and will guide this project.
2 pts.____

F2. The information and education plan includes 3 or more public outreach events (not public hearings) to provide information, discuss potential ordinance changes and gather input from the general public.
1 pt.____

IV.G The degree of detail in the application and the time frame within which it will be implemented.

G.1. Sponsor provides a project implementation plan, which clearly documents funding availability and capacity to complete a successful project (i.e. personnel, partnerships, technical expertise, and political and social support for the project) w/in one year of project initiation
2 pts.___

G.2. Project proposal clearly describes project objectives, methods and implementation timeline.
1 pt.____

IV.H. Whether it is a first-time protection project for the lake(s).

H.1. The sponsor has not received a previous lake protection grant award under this subchapter (Effective May 2001).
2 pts.____

Lake Management Plan Implementation Ranking Questions

2013

V. A. The degree to which the project provides for the protection or improvement of water quality. ~10 pts.

A.1. For protection oriented projects or activities, modeling or analysis demonstrates that the project will prevent future or potential pollutant loadings by ≥5% of the predicted total load increase without the project.
1 pt.____

A.2. For restoration oriented projects or activities, modeling or analysis demonstrates that the project will reduce pollutant loadings by ≥5% of the current total load.
1 pt.____

A.3. For protection oriented projects or activities, modeling or analysis demonstrates that the project will prevent future or potential pollutant loadings by ≥20% of the predicted total load without the project.
1 pt.____

A.4. For restoration oriented projects or activities, modeling or analysis demonstrates that the project will reduce pollutant loadings by ≥ 20% of the current total load.
1 pt.____

A.5. The watershed to lake area ratio is 10:1 or less.
1 pt._____

A.6. The lake is assessed as Fair Condition under WisCALM (watch water) or on the 303(d) list as a threatened waterbody.
1 pt.____

A.7. The project will help protect the water quality of a listed ERW or ORW lake.
1 pt.____

A.8 Modeling or analysis demonstrates that the Project will change a lake from Good to Excellent condition per WisCALM.
1 pt._____

A.9. Modeling or analysis demonstrates that the Project will change a lake from Poor/Fair to Good condition per WisCALM.
2 pts.____

V. B. The degree to which the project provides for protection or improvement of other aspects of the natural ecosystem such as fish, aquatic life, wildlife, native vegetation or natural beauty. 10 pts.

B.1. The project will develop and enact a surface water use, or a local boating ordinance (e.g. slow no wake, electric motor only, etc) or placement of waterway marker buoys that protects important shallow water habitats
1 pt.____

B.2. The project specifically states how it will protect or enhance the habitat for state or federal threatened or endangered species, or species of special concern that is documented in the lake management plan, a sensitive area study or comparable habitat assessment.
1 pt.____

B.3. The project will restore or protect at least 500 linear feet (35 feet deep) of riparian habitat or 10% of impacted habitat as identified in the plan. Commitment to project implementation is documented in the application.
1 pt._____

B.4 The project will restore or protect at least 500 linear feet (35 feet deep) of contiguous riparian habitat Commitment to project implementation is documented in the application.
1 pt.____

B.5. The project will restore or protect 1000 linear feet (35 feet deep) of riparian habitat or 20 % of impacted habitat as identified in the plan. Commitment to project implementation is documented in the application
1 pt.____

B.6. The project will restore at least 1000 square feet of littoral habitat through the re-introduction of coarse wood, aquatic plants or other approved materials. Commitment to project implementation is documented in the application
1 pt.____

B.7. The project will restore 1000 square feet of littoral zone plant community through water level manipulation.
1 pt.____

B.8. The lake is designated an ASNRI water.
1 pt.____

B.9. The project actively and directly (not buoys, signs or education) protects or enhances a DNR critical habitat designation or sensitive area or similar ecologically important areas identified in the lake management plan approved by the Department.
1 pt.____

B.10. The project will reconnect fragmented fishery habitat to allow access to historic spawning, nursery or rearing grounds.
1 pt._____

V.C. The availability of public access to, and public use of, the lake. 2 points

C.1. The lake has more than the minimum public boating access as defined in s. NR 1.91(4), (5) or (6) and is 100 surface acres or greater.
1 pt._____

C.2. The lake has significant other public access and use opportunities that include two of the following at separate locations: public swimming beach; park or other public land with accessible lake frontage; public fishing pier; platted access sites and road rights-of-way reaching the water's edge; two or more private resorts or youth camps; or more than 50% of the lakeshore is in public ownership as documented on the map provided with application.
1 pt.____

V.D. The degree to which the proposed project complements other lake and watershed management efforts including comprehensive plans. 4 points

D.1. The project will continue or complete the implementation (excluding planning, education and information activities) of a protection or restoration activity.
1 pt._____

D.2. The lake and a project activity is specifically recommended in a plan other than the sponsor's (county's land and water resource plan, a local comprehensive land use plan, local storm water management plan.)
1 pt.____

D.3. The sponsor has initiated other water quality or habitat improvement projects that help support the success of the current proposal (including enacting ordinances but, excluding planning, education and information activities) and has demonstrated an ability to successfully manage previously funded projects.
1 pt.____

D.4. The sponsor is a Green Tier Community Charter member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse & the Village of Bayside)
1 pt.____

V.E. The level of support for the project from other affected management units and organizations.
3 points

E.1. The project has the written commitment of materials, equipment, staffing or funding support from another management unit, interest group or organization which describes how this management unit will assist the sponsor's ability to implement a successful project.
1 pt.___

E.2. The application indicates how the support from another management unit, interest group or organization reduces the maximum state share cost rate (cash costs) for the total project costs. No more than 25% of the project match can be in-kind or donated labor.

1 pt.____ 65% State share

2 pts.____ 50% State share

In order to get points for reducing state funds, any match over and above the standard 25% of total project cost, must be cash. Donated and volunteer labor is limited to 25% of the total project costs. In this example the sponsor is earning 2 points:

Project cash cost (75%)	*$200,000*
Donated match (25%)	*$66,666.67*
Total project cost (100%)	*$266,666.67 (for ranking criteria evaluation)*
State share requested (50%)	*$133,333.34*
Match	*$133,333.33*
cash match (50%)	*$66,666.66*
donated match (50%)	*$66,666.67*
	$133,333.33

(The donated amount is 50% of the match but it is only 25% of the total project cost.)

V.F. The likelihood of the project to successfully meet the stated project objectives.
3 points

F.1. A diverse advisory group to the governing board of the sponsoring organization that includes lake residents, users, technical experts, and other local partners/stakeholders was formed and recommended this project.
1 pt.____

F.2 The project has a complete design and the cost estimate is based on either competitive bids or is consistent with the average costs of similar DNR-funded projects.
1 pt.____

F.3. Landowners have been contacted and agree in writing to participate in the installation of BMPs or project components.
1 pt._____

V.G. The degree of detail in the application and the time frame within which it will be implemented. 2 points

G.1. Sponsor provides a project implementation plan which documents funding availability and capacity to complete a successful project (i.e. personnel, partnerships, technical expertise, and political and social support for the project).
1 pt. ____

G.2. Project proposal includes a detailed list of activities that describes project objectives, methods and implementation timeline.
1 pt.____

V.H. Whether it is a first-time protection project for the lake.

H.1. The lake or lake system has not received a previous lake protection grant award in the last five years.
2 pts.____

Environmental Hazards Assessment - Form 1800-001

Click on the link to go to the Environmental Hazards Assessment form on the web:

http://dnr.wi.gov/files/PDF/forms/1800/1800-001.pdf

Appendix I: WDNR Point-Intercept Survey Aquatic Plant Sampling Protocol

Protocol for Aquatic Plant Survey
Collecting, Mapping, Preserving and Data Entry

Below we outline the protocol for statewide baseline sampling of aquatic macrophytes, with the primary goals of 1) comparing year-to-year data within a lake, and 2) comparing data among lakes. We describe a formal quantitative survey conducted at pre-determined sampling locations distributed evenly over the lake surface (point-intercept approach). We believe that this method, when combined with a boat survey to gather additional information on areas not sampled directly, will best characterize a lake's plant community. The chief benefit of adopting a statewide protocol is that variation in the sample set can be primarily attributed to actual differences in plant communities, instead of the confounding variables introduced by using different sampling techniques.

These guidelines are intended to work on most lakes. However, modifications may be required if a lake is uniquely shaped so that a uniform distribution of points isn't representative (long, skinny lake shape), or if obtaining rake samples is difficult due to substrate (rocky/cobble bottom).

Please note these are "baseline" recommendations. Additional monitoring activities may be warranted if the goal is to assess a specific management activity. For example, to gauge the success of chemical spot-treating stands of an exotic species in a relatively large lake, we recommend additional mapping of the beds within a season before and after treatment.

The baseline sampling described below should be conducted between early July and mid August. Although changes (such as biomass) in the plant community through this long sampling window might complicate data interpretation, in this survey we are mostly interested in species diversity and frequency, variables that should be fairly constant through the growing season. However, as described below, field workers are asked to assess rake fullness for all species and these ratings will likely vary with sample date. For many species, including Eurasian water-milfoil, plant biomass and density will probably increase as the season progresses. Narrow-leaved pondweeds begin to disappear by mid-August. Data for these species must be interpreted carefully with the sampling date in mind.

Curly-leaf pondweed (CLP) creates a special problem because it is often gone before the recommended sampling window between early July and mid-August. If you have any suspicion that CLP is present but not found when sampled, be sure to talk to APM staff to work out the best sampling scheme.

DNR personnel and groups using state money (e.g. planning, protection or aquatic invasive species grants) must follow this protocol.

I. Field Equipment

1. Required field equipment: boat, handheld GPS unit with WAAS (Wide Area Augmentation System) capability (with site locations already loaded, Garmin 76 is a commonly used model within DNR), a lake map, waterproof field data sheets, pole-mounted rake, weighted rake on a rope, depth finder, storage bags for vouchered specimens, personal flotation device.

2. Recommended equipment (helpful, but not necessary): trolling motor, underwater video camera, plant ID references, hand lens, cooler for storing samples, digital camera to document shoreline features (e.g., deadfall, dock, house) for sample points near shore that will provide a visual complement to a dot on a map, waterproof paper tags and/or Sharpie for labeling bags with vouchers and unknown plant species.

II. Point Intercept Sampling Method

1. Description

We require the following point-intercept sampling protocol. In this method, a large number of sampling sites are distributed in a grid across the lake. There are several benefits to a grid sampling design. An evenly spaced distribution of points results in a good overview of the entire lake. It is easy to replicate, and it is easy to preserve and present the spatial information. Please contact Jen Hauxwell (Jennifer.Hauxwell@dnr.state.wi.us) with lake name, county, water body identification code (WBIC), and any other depth and plant information available so that she can establish sampling points for the lake.

The size of the littoral zone and shape of the lake determines the number of points and the grid resolution. You will receive an electronic file of sampling points to upload into a GPS unit (below). Once on the lake, you will go to each site and collect plants and data as described below.

2. Uploading sampling points to the GPS unit

The following step-by-step instructions were adapted from the WIDNR Garmin GPS Tool User Manual v. 8.2.5, available to DNR employees on the intranet.
file:///%5C%5Ccentral%5Cet_apps%5CPROD%5CWiDNR_Garmin%5Cstandalone_garmin%5CDEV_Doc%5CWIDNR_Garmin_Standalone_GPS_Tool_User_Guide.pdf
This is a two step process. First you need to *_load_* the sample points you receive from Jen Hauxwell in a text file into the WIDNR Garmin GPS Tool, a computer file. Second you need to *_upload_* the points from your computer onto the GPS unit itself. For more information or troubleshooting help consult the User Manual.

Please note that GPS units vary in how many way points they can store. In the event that the number of sampling points exceeds your unit's storage capacity, simply split the text

file containing the point information into multiple files. Upload successive files of points as needed.
(For more information on Garmin GPS units, please see http://www.garmin.com/ and navigate to consumer/outdoor/GPS mapping. Choose a unit and then click on "specifications" and, under navigation features, find the number of waypoints/icons.)

To upload points into your GPS unit from a text file (.txt) using the WIDNR Garmin GPS Tool you will need:

- **PC/laptop with WIDNR Garmin GPS Tool software**. If you do not have the software on your computer contact your administrator for installation.

- **Waypoint .txt file** in the same format as one created by the WI DNR Garmin GPS Tool. Text files received from DNR Research will be in the correct format.

- **PC Interface cable**. Comes standard with the GPS unit, or can be ordered at http://www.garmin.com/outdoor/products.html#mapping.

- **GPS unit with external data port.**

Step 1: SET "SIMULATING GPS" MODE

You must operate the Garmin GPS receiver in Simulating GPS mode while uploading/downloading data, so that the receiver is not trying to acquire satellite data during these activities. Check your GPS manual to determine how to do this. Instructions for the GPSMap 76 are given below.

1. Press and hold the [ON/OFF] button for two seconds to turn the GPS receiver on.

2. Several informational screens will display. Press the [PAGE] button until the first Acquiring Satellites screen appears.

3. Press the [MENU] button and select Start Simulator to see the Simulating GPS page.

Step 2: SET SERIAL DATA FORMAT

You must set the serial data format to GARMIN prior to transferring data. Failure to set the serial data format to GARMIN will cause a communication error between the WIDNR Garmin Tool and the GPS unit. Instructions for a GPSMap 76 are given below.

1. Press the [MENU] button twice, use the rocker key to select Setup, and then press [ENTER].

2. Use the rocker key to scroll left or right until the Interface tab is highlighted. Use the rocker key to scroll down to highlight the drop-down box and press [ENTER].

3. A menu will appear; select GARMIN and [ENTER]. Press [QUIT] twice to return to the main screen.

Step 3: PLUG IN THE PC INTERFACE CABLE

1. Plug the 9-pin serial connector into COM port #1 on your PC. If port #1 is in use, plug into the next available port, and note the port number. The WIDNR Garmin GPS Tool does not support connection through a USB port.

2. Plug the round end of the cable into the external data/auxiliary power port on the back of the GPS receiver. Check your GPS manual if you do not know where the data port is located. The GPS receiver should be on and in "simulating GPS" mode.

Step 4: LOAD WAYPOINT DATA FROM A TEXT FILE TO THE WIDNR GARMIN GPS TOOL

1. Open the WIDNR Garmin GPS Tool file on computer. Select the WIDNR Garmin GPS Tool > File > Load > Waypoints From > GPS Text File option.

2. Enter/Select the path and name of the text file to load into the Open window. The GPS data will be loaded into the WIDNR Garmin GPS Tool. If you have trouble at this point, see the next section on troubleshooting. Otherwise, go on to section 4, Waypoints.

3. Troubleshooting. If you encounter problems during loading, a pop-up window will notify the user. Click OK.

    a. If problems are encountered, check that the COM port is set correctly: GPS > Assign Port > select correct port #.

    b. Also check that the baud rate matches that of the GPS unit: GPS > Assign Port > Baud Rate > select correct rate. A GPSMap 76 will transfer at 9600.

    c. Check that the Serial Data Format is set to GARMIN (outlined in Step 2).

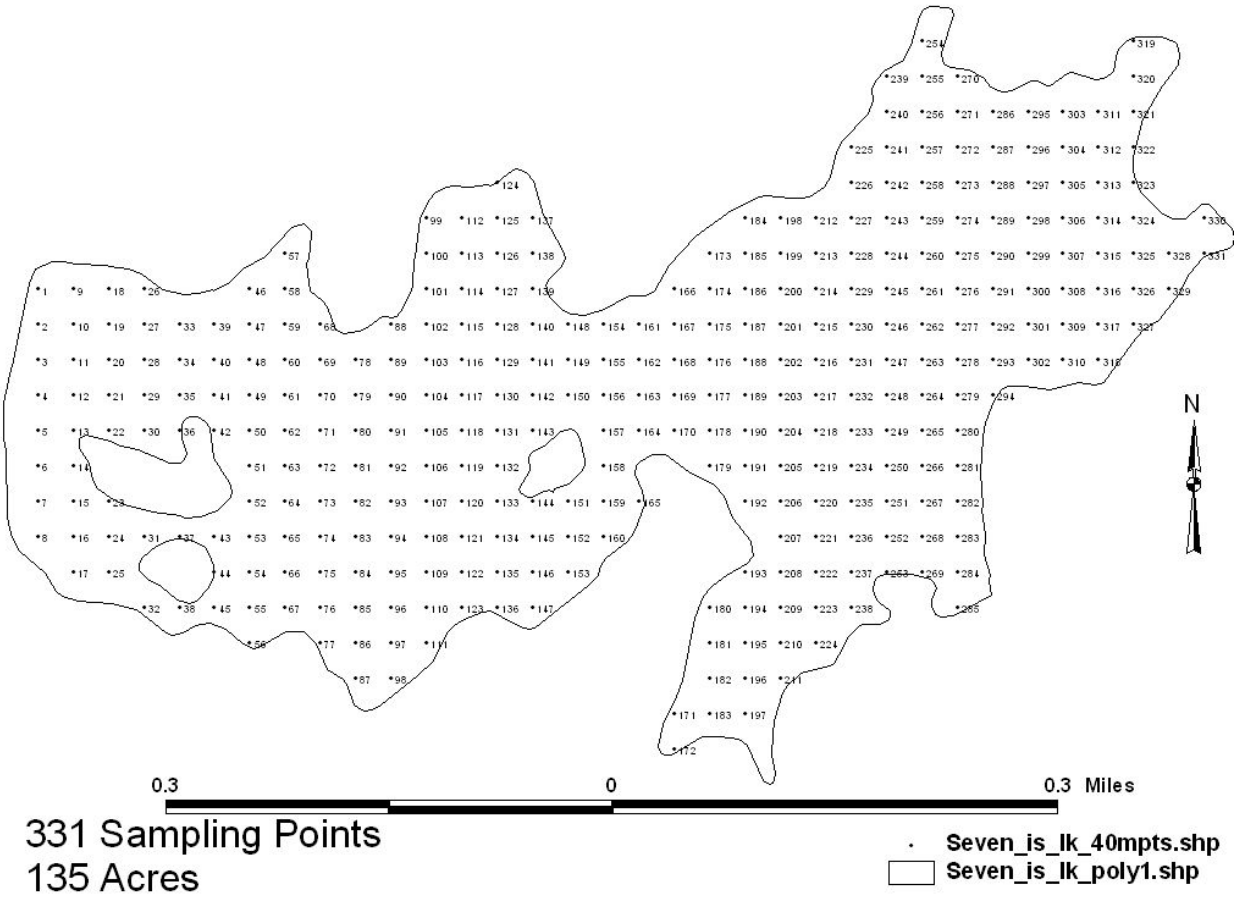
4. Waypoints. You can now view/edit waypoints by clicking the [Advanced] button on the WIDNR Garmin GPS Tool window.

Step 5: UPLOAD WAYPOINT DATA TO THE GPS RECEIVER

1. Select the WIDNR Garmin GPS Tool > Waypoint > Upload option.

2. When complete, the number of uploaded points appears at the bottom of the Garmin GPS Tool window. A pop-up window also indicates the number of waypoints successfully uploaded. Click OK. The uploaded waypoints should now be visible on the GPS receiver's Waypoints display.

3. Below is an example of lake with waypoints.



III. Collecting and Recording Plant Data

1. The rake sampler. The rake is constructed of two rake heads (double rake head) welded together, measuring 13.8 inches (35 centimeters) long with 14 teeth on each side. The handle is 8 ft (2.4 meters) in length, and should include a telescoping extension that results in a total handle length (from tip of rake head to fully extended end) of 15 feet (4.6 meters). You will also need a second, weighted, double rake head on a rope (rake-on-a-rope) to sample deeper sites. See section on "rake construction" for more detail.

2. Using the rake. Collect one rake sample per site: In waters less than 12 feet, handle the rake using the pole. In deeper water, toss the rake-on-a-rope. In either case, try to drag the rake along the bottom for 2.5 feet (0.75 meters). The amount of plants brought up on the rake may vary tremendously. Record each species present and estimate the rake fullness rating (more fully described). Keep two examples of each species found in the lake (see *7. Collect voucher samples* below). The rake may dislodge plants that will float to the surface, especially short rosette species not easily caught in the rake tines. Record each species present and estimate the rake fullness rating just as you would plants brought up on the rake

3. Point-intercept sampling issues and procedures.

a. Under-sampling near shore. One problem with the grid system is that it may under-sample very shallow sites where the vegetation is often quite different, even from sites just a bit deeper. To compensate for this problem, it is essential that you visit bays and shoreline areas missed by the grid and use the rake to collect and identify. Record any species seen, especially emergent vegetation (rooted in water), and describe near-shore habitats on the Boat Survey sheet. These data will not be tallied in the ENTRY or STATS pages but should be recorded on an electronic version of the Boat Survey Sheet to accompany the other data.

b. Navigational error. When navigating to sites using a handheld GPS unit, remember that there will be inherent error in locating points, sometimes as great as 60 feet. In addition to that error, there remains the question of "How close to the point is close enough?" You will almost never be able to sample a point at 0 feet from the point. Total error from the GPS error and navigational error *combined* should not exceed half of the sampling resolution. To avoid this when navigating using the map screen, navigate at no more than an 80-foot zoom level and completely cover the point with the arrow. At this level, the locational arrow on the screen is ~8 m long. This means that to sample with acceptable accuracy, the arrow must completely cover the point you are trying to hit, with the arrow centered over the point. At coarser zoom – 120-foot and up, even if you are completely covering the point you still may be quite far from the point, just because the arrow is so large in comparison to the size of the points. You may need to navigate at a greater zoom resolution, but, as you approach the target point, switch to the 80-ft zoom resolution to assure you hit your point accurately.

c. Hard-to-reach points. It may be hard to get to some sampling sites, especially in certain bays, where the water is very shallow and the substrate is mucky. When possible and practical, try to get to the point by poling with an oar, but do not spend undue time poling to these shallow sites. Due to safety concerns, field workers should not get out and drag the boat through mucky sediment to reach a site. If the sampling site is shallow but the substrate is firm, you should walk to the site from shore. If you cannot access a site, leave the depth blank and record NA (no access) or "land" (if the site is on land) in the comments column. (Remember to transfer these comments to the ENTRY sheet).

4. Filling out the Field Data sheet. Print the FIELD DATA sheet from the Excel workbook APMstats123.xls for use in the field. We recommend printing the data sheet onto waterproof paper such as Xerox Never Tear Paper.

a. Top portion. Fill out the top portion of the Field sheet with lake name, WBIC, county, and date. Also, record all the observers and how many hours they worked on this lake.

b. Site Number. Each site location is defined by the lat/long data imported onto your GPS unit and each site should have one row of data.

c. Depth. Measure and record the depth at each site sampled, regardless of whether vegetation is present. It is often easiest to mark the pole to establish depth for the shallower sites. However, a variety of options exist for taking depth measurements, including SONAR guns, depth finders that attach to the boat, or depth increments marked on the rope attached to the weighted rake sampler. If using a depth finder, please note that the accuracy decreases greatly in densely vegetated areas—depth will often be given to the top of the vegetation instead of to the lake bottom.

d. Dominant sediment type: Record sediment type (based on how the rake feels when in contact with the bottom) at each site where plants are sampled as: mucky (M), sandy (S), or rocky (R).

e. Pole vs. rope. Record whether the field team held the rake by the pole (P) or rope (R).

f. Species information. Note that the field data entry sheet does not include any species names, except for EWM (Eurasian water-milfoil) and CLP (curly-leaf pondweed). The sampling team must enter the species name the first time that species is encountered. Names will have to be entered again on successive field sheets (as they are encountered). The use of standard abbreviations can greatly shorten this process.

For all species, record the rake fullness rating (1- few, 2- moderate, 3-abundant, see illustration following this text) on the field data entry sheet at each sampling point where it is found. Record rake fullness for filamentous algae as well. Record the rake fullness rating for plants dislodged by, but not collected on the rake (please see "Under-sampling near shore", above). While at a site, look for any other plants (not already recorded) at that site within 6 ft (2m) of the boat. Record these species as a "visual" (V) on the data sheet. These species will be included in total number of species seen but will not be included in summary statistics. Account for plant parts that dangle or trail from the rake tines as if they were fully wrapped around the rake head.

5. Filling out the Boat Survey Data sheet. Often there will be localized occurrences of certain species (e.g., floating-leaf or emergent species) that are obvious to the viewer but could possibly be missed by the point-intercept grid. As discussed above in "Under-sampling near shore", you should examine shoreline areas that are out of the grid. While you need not make a separate trip around the entire lake, do visit areas that may be under-sampled and record the information (including the closest sampling point) on the Boat Survey (see APMstats123.xls) and on a lake map. Be sure to create an electronic version of the Boat Survey from the field notes.

6. If no plants are found. If no plants are found at a sampling site while approaching a deep section in the lake, record the depth but do not record any species information. Sample one more (deeper) site beyond that point to ensure that you have correctly identified the maximum plant depth. This should be done for each set of points surrounding the deep portion of the lake. Along any N-S or E-W transect, sampling should continue for at least 2 points beyond the last site with plants. Some sites may not have any plants, even if the site is shallower than the maximum plant depth. For these sites, fill out the data sheet as usual (with no species identified). These sites will be included as sites as deep as, or shallower than, the maximum plant depth.

7. Collect voucher samples. Collect 2 samples of each species found on each lake. These samples must be pressed and dried according to the protocol in Appendix F. Send one prepared specimen to the local DNR office (who will pass them on to a University herbarium). Keep one specimen for the lake group as a reference for future plant identification. If the field team is unable to identify a plant, please try to get fresh plants to the local DNR lake management specialist as it is much easier to identify fresh plants than pressed plants. Be sure to let them know you are sending plants so that they can be processed promptly.

IV. Entering data on the spreadsheets and summary data

The APMstats123.xls Excel workbook has 5 spreadsheets:

a. READ ME, with a summary of all the spreadsheets included in the worksheet. The date records the most recent version.

b. Field Data, discussed above.

c. ENTRY, a data entry sheet for transferring field data to the computer spread sheet. You must transfer all of the information collected in the field to the ENTRY sheet. You should be able to copy the coordinates for the sampling points from the text file you uploaded onto the GPS unit and paste these into the entry sheet. There is a column for comments on the ENTRY sheet.

d. STATS, an automated statistics page that provides a summary of the plant data. The summary statistics of the plant survey will automatically appear in the STATS sheet of APMstats123.xls after data are entered in ENTRY.

e. Boat Survey, discussed above.

V. Where to Send Data

Send electronic copies of the ENTRY, STATS and Boat Survey to Jen Hauxwell (Jennifer.Hauxwell@dnr.state.wi.us).

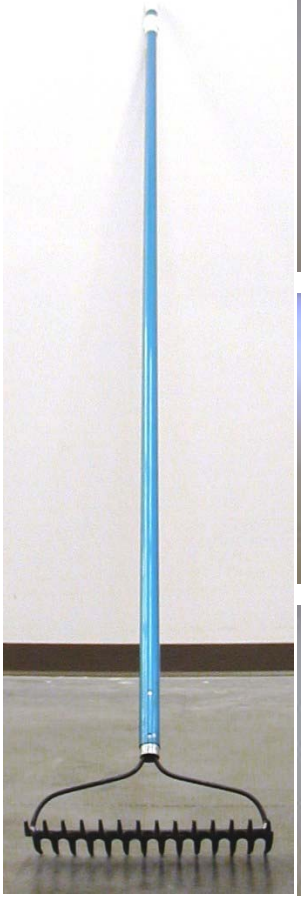
Rake Fullness Ratings

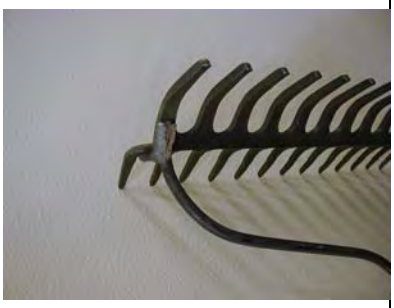
Rake fullness ratings are given from 1-3 for each species. Conditions of the ratings are described below:

Rating	Coverage	Description
1		A few plants on rake head
2		Rake head is about ½ full Can easily see top of rake head
3		Overflowing Cannot see top of rake head

Rake Construction

Pictures of a rake are shown below, with potential vendors of the components indicated. (These are not endorsements of specific vendors.)





Pole Sampler
The rake sampler is made from two rake heads welded together, measuring 13.8 inches (35 centimeters) long with 14 teeth on each side. This example purchased from Menards with wooden poles attached and subsequently removed).

The handle is 8 ft (2.4 meters) in length, and should include a telescoping extension that results in a total handle length (from tip of rake head to fully extended end) of 15 feet (4.6 meters). This example was purchased from a pool supply company in Madison, WI (Bachmann Pool & Spas).

Rope Sampler
A similar rake head should be constructed for the rope sampler. At the point where the pole would be attached, tie on a rope or anchor line of at least 40 ft in length. If desired, attach a 5 lb weight to the top of the rake (away from the tines) or thread it on the rake rope. This example has a length of steel tubing welded to the rake head to serve as a handle through which is strung ~45 ft of climbing rope.