Lake Latoka Lake Management Plan

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(June 2016)

Introduction to the Lake Management Plan - The Lake Latoka Lake Management Plan is a valuable resource document to be used by local government, shore land and property owners, owners and users of property in and on Lake Latoka's watershed and all users of the lake as a guide in leading to the protection and preservation of the valuable resources of the water, shore land and watershed. The Lake Management Plan provides a brief history of the lake, identifies potential concerns and threats to the overall ecology and health of the lake including water quality, its fisheries, the natural vegetation, the natural wildlife habitat and land management and its use. The plan outlines some basic solutions and strategies to these concerns and threats and provides steps for good management stewardship that must be practiced by all citizens to protect this most vital resource and ensure that the generations to come will inherit a clear, clean healthy lake.

History and Description of Lake Latoka - Lake Latoka is located in southern Douglas County approximately 2 miles west of Alexandria, MN. The name Lake Latoka means "Pretty Lake." The lake is approximately 763 acres in size, has a mean depth of 35 feet and a maximum depth of about 108 feet. Interstate 94 (I-94) intersects or divides the lake into two portions. The North Portion or basin is referred to as "Big Latoka" and the south portion or basin is called "Little Latoka". Big Latoka is 564 acres in size and Little Latoka is 199 acres in size. There is no restriction to access or to watercraft due to the large and accessible bridge between the two basins.

Lake Latoka's watershed is relatively small (2,346 acres) and is typified by a fairly even distribution of land use types. Lake Latoka's water clarity analysis is explained in detail later in the Lake Management Plan. Lake Latoka has participated in the Citizen Lake Monitoring Program (CLMP) since 1980.

Lake Latoka's amenities include two public accesses, one on Big Latoka (north lake) and one on Little Latoka (south lake). There is also a public beach adjacent to the public access on Big Latoka featuring a beautiful sand beach attended by life guards, a roped off area for swimming, and a bath house/restroom.

Lake Latoka Property Owner's Association - The Lake Latoka Property Owner's Association (LLPOA) plays an instrumental role in the protection and enhancement of Lake Latoka. The LLPOA is legally organized as a 501c5 non-profit organization. The LLPOA's Mission Statement is as follows:

MISSION STATEMENT

"The Lake Latoka Property Owner's Association (LLPOA) is organized to encourage wise use and preservation of Lake Latoka in order to maintain the delicate ecological balance between the lake and adjacent shore land. The association will coordinate and lead environment efforts to provide government and regulator liaison, promote education and public awareness, and be the advocacy of Lake Latoka regarding lake shore issues."

The LLPOA has a **Board of Directors** that consists of nine directors who manage the business of the association. They are elected at the LLOPA annual meeting for a 3-year term.

Membership is open to all property owners on Lake Latoka as defined in Article II of the By Laws of Lake Latoka Property Owners Association. Article II states: "One parcel of land (defined as a buildable lot on Lake Latoka) shall represent one membership. … Associate membership shall be anyone desiring to support the association and not otherwise eligible for membership." There are approximately 270 possible members; however, the average paid membership per year is around 200.

Some activities fall directly under the responsibility of the LLPOA and the individual lakeshore property owner/user while other activities are the responsibility of local governments within the lake watershed. All successful efforts at protecting Lake Latoka are ultimately reliant on the ability of the LLPOA to enlist the support and commitment of individuals and various units of government such as the Minnesota Pollution Control Agency (MPCA), the Department of Natural Resources (DNR), the Douglas County Commissioners, Douglas County Land and Resource, and LaGrand Township.

The **General Goals** established in the Mission Statement are as follows:

- ► Encourage wise use and preservation of all the resources
- ► Maintain ecological balance between lake and shore land
- ► Coordinate and lead environment efforts
- ► Provide government and regulatory liaison
- ► Promote education and public awareness
- ► Provide advocacy for Lake Latoka and lake shore (watershed) issues
- ► Provide leadership in the preservation of natural vegetation and the development of shore land buffer strips.
- ► Provide leadership in the preservation and enhancement of existing natural wetland systems within Lake Latoka's watershed.

The Lake Latoka Properties Owners Association has established a website that is intended to provide information regarding the activities, recent events and other happenings on the lake. These include articles of interest, a bulletin board for announcements, the LLPOA Board meeting minutes and links to the DNR, Lake Monitoring Program, Douglas County, etc. The website is: **www.latokaassociation.org.**

Lake Latoka's water quality can be preserved for future generations if sound land use management decisions and practices are implemented and maintained throughout the lake's watershed by all citizens.

Morphometric, Watershed and Fisheries Characteristics of Lake Latoka

Morphometry	**North Basin**	**South Basin**	**Total**
Area (Lake)	564 Acres	199 Acres	763 Acres
Mean Depth	35.1 ft	35.1 ft	
Maximum Depth	108 ft	80 ft	
Volume	19,796 acre/ft	6,985 acre/ft	26,781 acre/ft
Littoral Area	34 percent	34 percent	

Watershed

Watershed area	2,346 acres
Watershed/lake surface ratio:	3.1
Estimated average water residence time:	25 years

Fisheries

Number of public accesses:	2
Number of inlets:	1
Number of outlets:	1

Watershed Land Use

Forest	10%
Water and Marsh	15%
Pasture	10%
Cultivated	36%
Urban	29%

Land Use and Zoning

Water quality of Lake Latoka is ultimately a reflection of the land uses within its watershed. While the specific impacts to the lake from various land uses vary as a function of local soils (topography, vegetation, precipitation, and other factors), it is ultimately the land uses which citizens have the most control over through prudent **zoning.**

Many zoning regulations are based upon the Shore Land Management Act and/or the Minnesota Department of Natural Resources (DNR) classification of a given lake. The DNR has classified all lakes within Minnesota as (1) General Development), (2) Recreational Development, or (3) Natural Environment lakes and has assigned an identification number to the lake for ease of reference. Counties in turn have used these classifications as a tool to establish minimum lot area (width and setbacks) that is intended to protect and preserve the character reflected in the classification. In addition, local municipal jurisdiction can have additional and usually more restrictive standards as well. On any shore land the permissible density and setbacks for virtually all new uses are determined by the lake standards established by the DNR.

Here is how the DNR has defined lake classifications:

(1) **General Development** lakes are generally large, deep lakes with high levels and mixes of existing development. These lakes often are extensively used for recreation and are heavily developed around the shore. Second and third tiers of development are fairly common. Douglas County's Shore Land Ordinance notes that "the GD management district is established to provide minimum regulations in areas presently developed as high density, multiple use areas; and to provide guidance for future growth of commercial and industrial establishments which require locations on protected waters."

(2) **Recreational Development** lakes are generally medium sized lakes of varying depths and shapes with a variety of landform, soil, and ground water situations on the lands around them. Development consists mainly of seasonal and year-round residences and recreationally-oriented development and use.

(3) **Natural Environment** lakes are generally small, often shallow lakes with limited capacities for assimilating the impacts of development and recreational use. They often have adjacent lands with substantial constraints for development such as high water tables, exposed bedrock, and unsuitable soils. These lakes, particularly in rural areas, usually do not have much existing development or recreational use.

Lake Latoka (DNR Lake ID 21-0106-01) is classified by the DNR as a General Development (GD) Lake.

The state Shore Land Management Act establishes a set of minimum development standards specifically for shore land areas. Shore lands are defined as lands located within 1,000 feet of a lake, pond or flowage, and within 300 feet of a river. Shore land standards are adopted and administered by local governments and are commonly incorporated into their overall zoning controls. Shore land standards set permissible uses and specify minimum requirements for newly created lots. Shore land standards may also limit physical alterations to shore land property, and may control the placement of

structures, roads and other improvements to minimize impacts on the adjoining lake. The primary agency responsible for land use controls and zoning in Douglas County is Douglas County Land and Resource. They have the authority to administer land use zoning controls for areas within their boundaries including shore lands.

Encouraging and promoting volunteerism - Before additional regulatory controls are considered, it is worthwhile for the lake association to assist local units in government in the promotion of voluntary participation in best management practices (BMP's) throughout the watershed. These BMP's can help to minimize the amount of nutrients and sediments entering the lake. The institution of BMP's such as grassed waterways, minimum tillage, contour plowing and vegetative buffer strips protect both the soil and water resources and should be practiced by lakeshore owners and farmers alike. It is important that all citizens in the Lake Latoka watershed area understand the value of the resources we have, such as:

- **Wetlands –** the wetlands located in Lake Latoka's watershed and in or on the shore land serve as filters to remove nutrients and sediments from surface runoff before they reach the lake. They also provide important habitat for many species of wildlife. Wetland vegetation along a lakeshore provides habitat for fish and wildlife and protects the shore from erosion caused by wave action. Wetlands are also protected by both federal and state laws.
- **Bluffs and steep slopes –** the properties surrounding the lake characterized by bluffs and steep slopes can become a serious erosion threat if they are disturbed by grading, filling or vegetation removal. Bluffs are already protected from intensive removal of vegetation and grading or filling involving more than 10 cubic yards of material by local shore land management ordinances. It is considered a bluff if the rise is at least 25 feet above the lake at an average slope of 30 percent or greater.
- **Soils and Geology –** the geology and soils of the Lake Latoka watershed were formed during the late Wisconsin Glacial period. The watershed is both part of the Alexandria Terminal Moraine and Alexandria Outwash plain. Slopes in the lake's watershed typically vary from 2 to 18 percent with a significant portion being 6 to 18 percent and loamy sands that support good drainage. Depression areas are characterized by wet and mucky soils and shore land areas consist primarily of beach sands.
- **Precipitation –** normal precipitation in Douglas County for the period from May to September is on the order of 17 inches and the annual normal is on the order of 26 inches. Evaporation typically exceeds precipitation and averages about 35 inches per year. Runoff averages about 3.9 inches with 1 in 10 year low and high values of 0.8 inches and 5.9 inches respectively. The run out elevation of water for Lake Latoka is 1361.7 feet as it exits via a culvert to Lake Cowdry and eventually the Long Prairie River. The highest recorded lake level was recorded in July of 2003 at 1362.95 feet and the lowest recorded lake level was recorded in September 1937 at 1356.8 feet.

Empowerment - The ultimate success or failure of our Water Management Plan for Lake Latoka rests with the association's ability to encourage and solicit local government support. There is much the association membership can do on its own, but local expertise is necessary to ensure effectiveness over the long haul. Efforts must be made to create a partnership with local government. Since most lakes and their associations within

Douglas County have common problems and concerns, Lake Latoka has joined forces with other lake associations within the county under the umbrella of the Douglas County Lake Association (DCLA).

Douglas County's Zoning Standards

General Development Lake Standards	Unsewered	Sewered (Prior to Jan 2001)	Sewered (After Jan 2001	Septic System
Structure Setbacks from Ordinary High Water Level (OHWL)	50 ft.	75 ft.	75 ft.	75 ft.
Septic System Setback from OHWL	N/A	N/A	N/A	75 ft.
Elevation Above OHWL	3 ft.	3 ft.	3 ft.	3 ft.
Sewage Soil Treatment System Setback from all Structures	10 ft.	10 ft.	10 ft.	10 ft.
Maximum Impervious Coverage	25 percent	25 percent	25 percent	25 percent
Structure from Top of Bluff	30 ft.	30 ft.	30 ft.	30 ft.
Minimum Lot Size:				
Riparian Lots	20,000 Sq ft.	20,000 Sq ft.	20,000 Sq ft.	
Non-Riparian Lots	40,000 Sq ft.	40,000 Sq ft.	40,000 Sq ft.	
Minimum Lot Width				
Riparian Lots	100 ft.		150 ft.	
Non-Riparian Lots	150 ft.		300 ft.	
Side Yard Setback	10 ft.	10 ft.	10 ft.	10 ft.

There are a few properties on Lake Latoka that do not comply with the above zoning standards because they are "grandfathered" or were developed prior to the established restrictions. In general, these pre-existing uses are allowed to remain unless they are identified as a threat to human health or environment.

Details on shore land standards and restrictions and/or answers to "frequently asked questions" regarding best management practices, resources of education or information, and additional assistance are provided through **Douglas County Land and Resource Management** (Phone: 320-762-3863), located in the Douglas County Courthouse.

Aquatic Vegetation and Wildlife

Aquatic Vegetation - Rooted aquatic plants are a natural part of Lake Latoka and provide many benefits to fish, wildlife and people. They are one of the primary producers in the aquatic food chain, converting the basic chemical nutrients in the water and soil into plant matter that becomes food for other aquatic and terrestrial life.

Other important functions that aquatic vegetation provides include:

- ► improving water quality by trapping nutrients
- ► protecting shorelines and lake bottoms by decreasing wave action
- ► improving aesthetics by adding to the biodiversity of the lakeshore

While aquatic plants perform these important functions, they can also interfere with various uses of the lake if their growth is profuse. Control of aquatic plants is appropriate when reasonable access to, and the use of the water, is impeded.

Lake Latoka has a few remaining stands of bulrushes and cattails. Bulrushes and cattails are classified as emergent plans. Emergent plants are defined as plants that are rooted in the lake bottom, but their leaves and stems extend out of the water. Bulrushes and cattails typically grow in wetlands and along the shore where water is less than 4 feet deep. These plants are found in Big Latoka (North Lake) in the northeast shallow bay and in the shallow bay in the southwest corner of the lake, presently known as Pearson's Bay. The major stand of bulrushes and cattails in Little Latoka (South Lake) is located in the northwest bay adjacent to Interstate 94. Small stands of bulrushes are dispersed along the west and east shoreline. However, the DNR has estimated that over 80 percent of the bulrushes and cattails have been lost on Lake Latoka due to shoreline development.

Members of the lake association were concerned that the bulrushes and cattails were being illegally destroyed as areas were being developed and that water craft were also contributing to their demise by going through the stands at high speed. Floating buoys were constructed and signs that were furnished by the DNR were attached warning all watercraft that these areas are sensitive areas and wildlife habitat areas. The buoys are placed on the outside perimeters of the stands of bulrushes and cattails. The results have been very successful. In addition, the lake association is using the Lake Latoka newsletter and information furnished by the DNR and Douglas County Land and Resource to educate property owners and users of the lake about the value of aquatic vegetation and the appropriate ways of preserving the shoreline.

Wildlife - Lake Latoka is home to many species of wildlife. From our famous loons to the bald eagles that are frequently on the lake in early spring and late fall, the muskrats, the numerous species of water fowl and the frogs, wildlife is an important part of our relationship with the lake. In fact, abundant wildlife can be attributed largely to our wealth of having a clear clean lake which is essential to the survival of wildlife.

The most important wildlife habitat begins at the shoreline. The more natural the shoreline with trees, shrubs and herbaceous vegetation, the more likely that wildlife will be there. Just as important are the shallow water zones close to shore and our shallow bays in both the Big Latoka and Little Latoka. Besides providing excellent fish spawning

areas, the areas provide nesting for the loons, black terns and many other species of wildlife.

Pearson's Bay on the southwest corner of Big Lake Latoka is one of the prime shallow areas offering excellent habitat for wildlife on the lake, especially loon nesting. The bay was given the honorary name of "Pearson's Bay" due to the generosity of Dennis Pearson who owned the property adjacent to the bay. This property was being considered for development which could have led to destruction of this vital habitat area. Mr. Pearson, because of his concern for the future of the lake, generously donated the property to the lake association which, in turn, donated it to the DNR as a wildlife management area assuring that this most vital habitat will remain intact.

Exotic Species

The Minnesota Department of Natural Resources has defined **exotic species** as organisms introduced into habitats where they are not native and are a major cause of biological diversity loss throughout Minnesota and thus are considered "biological pollutants." Introducing any species accidentally or intentionally, from one habitat into another, is risky business to say the least. Freed from the predators, parasites, pathogens and competitors that have kept their numbers in check, species introduced into new habitats often overrun their new home and crowd out native species. In the presence of enough food and favorable environment, their numbers will explode. Once established, exotics rarely can be eliminated.

Most species introductions are the work of humans. Some introductions, such as carp and purple loosestrife, were intentionally introduced with assumptions that they would be beneficial to their habitat. However, their presence has done great damage to the environment and has caused the extinction of some native species. Many exotic introductions are accidental. The species are carried in on animals, vehicles, ships, commercial goods, produce and even clothing.

Many property owners and users of the lake are greatly concerned about the future since most exotic species are introduced by humans. Some of the major exotic invasive species that local citizens are concerned about are:

- **Zebra Mussels** – are present in the chain-of-lakes in Douglas County and can easily be spread by boats and personal watercraft, in live wells, bait buckets, trailers, attaching to motors, etc. Zebra mussels have spread throughout the Great Lakes and the Mississippi River and were first found in the Duluth/Superior Harbor in 1989. Since then they have been rapidly spreading throughout Minnesota waters including the chain-of-lakes in Douglas County. There is no known guaranteed method to prevent or control them. For further information on description, origin, impact and status, contact the Minnesota Department of Natural Resources.

  Utilizing information and critical data regarding zebra mussels, the lake association's goal is public education aimed at prevention. These include training of lake property owners and users on the identification of zebra mussels and establish a communication channel to immediately report the finding,

information as how to prevent their further spread, establishing a monitoring system and keeping lake residents and users informed of the newest prevention techniques and policies.

- **Eurasian Water Milfoil** – was accidentally introduced to North America from Europe. It spread westward into inland lakes primarily by boats and water birds and reached Midwestern states between the 1950s and 1980s. Eurasian water milfoil forms thick underwater stands of tangled stems and vast mats of vegetation at the water's surface. In shallow areas the plant can interfere with water recreation such as boating, fishing and swimming. The plant's floating canopy can also crowd out important native water plants. A key factor in the plant's success is its ability to reproduce through stem fragmentation and runners. A single segment of stem and leaves can take root and form a new colony. The likely means of spreading the milfoil is from boats and watercraft being launched at two landings. Milfoil can become entangled in boat propellers, attached to keels and rudders on sailboats, on personal watercraft or sports equipment and especially boat trailers. Signs have been posted at both landings informing users of the responsibility of checking their equipment. The DNR has spent time and monies statewide educating citizens and users of the lakes regarding the inspection of all watercraft. In addition to spreading via watercraft, the mechanical clearing of aquatic plants for beaches, docks and landings also creates thousands of new stem fragments. Removing native vegetation creates perfect habitat for invading Eurasian water milfoil. The lake association's concern is that all it takes is one careless user to introduce Eurasian water milfoil into Lake Latoka.

- **Curly-leaf Pondweed** – is an exotic plant, a rooted, submersed plant that forms dense surface mats that interfere with aquatic recreation and limit the growth of native aquatic plants. Curly-leaf plants usually die in early summer in response to increasing water temperatures, which can result in rafts of dying plants piling up on shorelines. Curly-leaf pondweed was the most severe nuisance aquatic plant in the Midwest until Eurasian water milfoil appeared. Curly-leaf pondweed is generally spread by watercraft and watercraft inspection is the only means to prevent its spread.

- **Flowering Rush** – is a perennial aquatic plant that grows along lake shores as an emergent plant with three-angled fleshy leaves and may produce an umbel-shaped cluster of pink flowers. The invasive species grows rapidly and forms solid mats of dense vegetation interfering with most forms of recreation.

There are many other exotic invasive species in Minnesota, but the lake association has identified those which we feel could presently do the most damage to Lake Latoka. Our plan of action is to work with local and state agencies to manage, eradicate, and prevent future infestations through monitoring lake accesses and education of boaters using the lake.

Lake Latoka's Water Clarity Monitoring Program

The Secchi Disk - The Secchi disk originated with Fr. Pietro Angelo Secchi, an astrophysicist, who was requested to measure transparency in the Mediterranean Sea by Commander Cialdi, head of the Papal Navy. Secchi was the scientific advisor to the Pope. Secchi used some white disks to measure the clarity of water in the Mediterranean in April of 1865. Various sizes of disks have been used since that time, but the most frequently used disk is an 8 inch diameter metal disk painted in alternate black and white quadrants.

The Secchi disk is used to measure how deep a person can see into the water. It is lowered into the lake by unwinding the waterproof tape to which it is attached until the observer loses sight of it. The disk is then raised until is reappears. The depth of the water where the disk vanishes and reappears is the Secchi disk reading. The depth level reading on the tape at the surface level of the lake is recorded to the nearest foot.

Even though the Secchi disk measurement of water clarity is an approximate evaluation of the transparency of water, it is used primarily for its simplicity. A more accurate measurement of underwater irradiance can be made by the use of photometer, but the amount of accuracy is not needed by the Minnesota Pollution Control Agency. The cost of the photometer and the training needed to successfully operate it is beyond the scope of the lake's paid membership and the volunteers who would use it.

Secchi Disk Readings – How Valuable Are They? The greatest value of the Secchi disk measurements occurs when each lake compares its own readings from week to week, month to month and season to season. No comparisons between lakes should be made unless similarities in measurements are followed vigorously. Several factors are involved, such as the eyesight of the viewer, the time of day of the readings (midday – between 10:00am and 2:00pm is preferred), the color of the water, the amount of activity on the lake, etc.

Some of the reports for any one reason may show an increased water transparency depth after the first few weeks of ice out in the spring. This may be due to:

- ► Reduced nutrient input from the watershed
- ► Reduced soil erosion into the lake.
- ► No algae growth

If the Secchi disk transparency depths are getting shallower during the summer season, it may be due to one or more of the following:

- ► Increase abundance of free floating algae.
- ► Erosion of the shoreline or erosion from site development near the lake.
- ► Recirculation of bottom sediment from motorboat activity.
- ► Discoloration of the water from wetland runoff and/or plant decomposition.
- ► Increase turbidity (wind).

Most Minnesota lakes will experience increase boat activity on weekends and holidays. Taking Secchi readings on Mondays and the day following a holiday is not a good idea for the readings are not typical for the lake. Also, significant storm events within the watershed will cause lower readings.

Secchi Disk Data

Water clarity should be measured with the Secchi Disk regularly from May through September. In order that the Secchi disk measurement is done to provide the greatest accuracy, the following conditions should be met:

- The same person should be taking all readings since sharpness of vision varies from person to person.
- The reading should be taken on the same day of the week, or at least not more than one day before or after the same day of the week.
- It is preferable that the measurement be taken between 10:00am and 2:00pm so that the light rays from the sky are at a similar angle each time the reading is taken.
- Avoid taking the measurement when the lake is choppy or rough.
- The Secchi disk measurement should be taken at the deepest part of the lake.
- Take the reading on the shady side of the boat.
- The reading should be taken at the same location.
- Water color and weather conditions should be recorded at the time of the reading.

Lake Latoka has participated in the Citizen Lake Monitoring Program (CLMP) since 1980. The Lake Latoka Secchi disk readings for the past several years for both Big Latoka (North Bay) and Little Latoka (South Bay) and the Secchi data from the CLMP for both lakes is in the Appendix, Exhibit 2.

Concerns, Threats, and Goals

Specific Concerns and Goals to address the Protection and Preservation of Lake Latoka

CONCERN #1 – The impact of exotic species and loss of natural vegetation on lake water quality and lake preservation.

The MN Dept of Natural Resources (DNR) has identified several exotic species that are present in area lakes that are not native to Minnesota lakes and are harmful to the native species of the lake and are causing harm to the overall ecology of the lakes. These species include, but are not exclusive to: Zebra Mussels, Eurasian Milfoil, Curly-leaf Pondweed, and Flowering Rush. Information related to these exotic species is included in other sections of this document. See Exhibit 1 in the Appendix for history on Zebra Mussel Inspections.

Loss of Buffer Zones and Shore land

The natural vegetation that grows on shore lands is nature's way of protecting the lake from all sorts of poisonous and toxic runoff. These natural buffer zones or strips absorb the pesticides, household hazardous wastes, solid wastes, gas and oil and many other types of chemicals that the property owner uses in daily life from entering into the lake. With the shore land alterations that have taken place on the lake, many natural barriers have been destroyed allowing all of the above pollutants to enter the lake. Although there has been some awareness of the importance of natural buffer zones on the lake, much more has to be done to preserve the water quality on Lake Latoka for the next generation.

Monitoring water quality and land usage is critical to preservation of the lake. With this as a priority, the following Goals and Objectives have been established.

Goal 1.1: Maintain or Improve Lake Water Quality

Objective 1.1.1: Establish lake and watershed monitoring programs.

Action Plan:

- Continue lake association involvement in the CLMP. LLPOA volunteers use a Secchi Disk to measure the water clarity on both Big Latoka and Little Latoka. These samples will be collected and recorded monthly from May through October.
- In addition to Secchi Disk readings, LLPOA volunteers collect water chemistry samples from both lakes and record temperature profiles monthly. The water sample and the Secchi Disk data are forwarded to the Minnesota Pollution Control Agency (MPCA). The collected water samples are analyzed for the following parameters: TP, chlorophyll-a, pheophytin, total Kjeldahl

nitrogen (TKN), total suspended solids (TSS), suspended volatile solids (SVS), total chloride, alkalinity and color. The lab will analyze the data and generate a series of reports, graphs, a trend analysis and recommendations.

- Continue working closely with the DNR and Douglas County Land and Resource securing assistance and enforcement of the Land Use Ordinances through educational programs.
- Maintain communication with the Minnesota Department of Transportation (MNDOT) on the Interstate 94 bridge project, and all future projects to provide input and protect the interests of LLPOA.
- Investigate how the gas pipeline that goes under Lake Latoka and any other lake associated utilities projects are monitored.

Objective 1.1.2: Work with local and State agencies to manage, eradicate, and prevent future infestations through monitoring lake accesses and education of boaters using the lake. Establish programs to educate association members and to monitor for exotic species.

Action Plan:

- Work cooperatively with the Douglas County Lakes Association (DCLA) in establishing and funding programs to prevent the introduction of exotic species.
- Post signs at the two boat landings reminding boaters of the state laws and their responsibility to empty all live wells, bait buckets, and anything else that holds lake water and to check and remove any vegetation that may have attached its self to the trailer or watercraft before transporting the watercraft.
- Support the DNR's Volunteer Watercraft Inspector Program. In an effort to contain the zebra mussels and prevent their spread, volunteers would set up at each access on Lake Latoka inspecting watercraft entering and exiting the lake.
- Conduct monthly milfoil inspections by a milfoil committee, or enlisted volunteers. The volunteers will be trained to identify the invasive species and take immediate action in reporting their sightings and location to the DNR.
- Publish articles in the LLPOA Newsletter and on the website regarding exotic species.

Objective 1.1.3: Educate Lake Latoka property owners and 2nd and 3rd tier property owners on their impact on Lake Latoka preservation.

Action Plan:

- Utilize information from DNR trained private lands specialists to assist property owners with managing the natural shoreline on their properties. Provide information to all property owners through the LLPOA newsletter, e-mail, and website.
- Invite the DNR lands specialists to attend the annual meetings to provide the latest up-to-date information.
- Invite 2nd and 3rd tier property owners to attend LLPOA meetings to learn how their property management can help preserve Lake Latoka.
- Introduce 2nd and 3rd tier property owners to information available on the LLPOA website.
- Investigate providing a LLPOA fund to support lake property owners' projects to restore shoreline natural vegetation.

- Investigate grant monies available through other agencies to support lake property owners in funding projects to restore shoreline natural vegetation. Provide guidance to facilitate owners in connecting with other agencies.

Objective 1.1.4: Develop a Shore Line Management Plan.

Action Plan:

- With the assistance of Douglas County Land and Resource Management, develop lakescaping/lake shore management policies that identify the best management practices for lake shore management.
- Provide educational programs and materials regarding the responsibilities of practicing good and sound stewardship of lake shore properties.
- Encourage all citizens to report any suspected violation of the land and shore land usage policies and ordinances and provide the proper channels to do so.

CONCERN #2 – The Fisheries

The quality of the fisheries is important to property owners on Lake Latoka as well as vacationers and those just coming to fish for a day. Fish are also an important and integral part of the lake's ecology. The species and numbers indicate the condition of the lake. The concerning trend has been a decrease in the walleye and black crappie populations and an increase in the carp and red sucker populations.

The walleye, crappie and sun fish are considered the favorites by most fishermen because of the palatability at the dinner table. The rough fish (carp and red suckers) populations have increased in Lake Latoka and can and will have a major impact on the fisheries and lake quality. These species are bottom feeders and uproot natural vegetation and eat the spawn of the other species of fish. In lakes where they have become the dominant species, the waters have become cloudy, if not muddy, and healthy aquatic vegetation has disappeared.

Fish are an integral part of Lake Latoka's ecology and must be included in the preservation process. Being aware of this, the following Goal and Objective have been established.

Goal 2.1: Maintain and Improve the Lake's Fisheries

Objective 2.1.1: Continue to support a Fish Stock Committee with goals and priorities for improving the lake's fisheries.

Action Plan:

- Coordinate with the DNR to increase their fish stocking in Lake Latoka. Historic data on fish stocking is in the Appendix, Exhibit 3.
- Maintain a fund by encouraging donations from lake association members and other interested parties to finance additional fish stocking.
- Encourage the Viking Sportsman Club to continue its support of the Lake Latoka walleye stocking program by providing matching funds.
- Encourage and educate those who fish to keep small northern instead of throwing them back into the lake.

- Work with the DNR in establishing a size slot limit for crappies and a size limit for walleyes.
- Protect fish nesting and spawning areas on the lake.

CONCERN #3 – Loss of Loons, Their Nesting Places and Other Wildlife

Lake Latoka is home to many species of wildlife. Minnesota's famous loons return every year to nest on the floating platforms. Many birds nest in the reeds in the shallow bays and in the adjacent trees, and frogs and other water creatures spawn in the shallow waters. There are also many spring and fall visitors such as the geese, ducks and eagles that stop for a few weeks on their way North in the spring and South in the fall.

Most properties on the lake are now developed, which has had an impact on the numbers and variety of the wildlife that were native to Lake Latoka. Much of the natural habitat has been replaced by landscaping. However, Lake Latoka still has several pairs of nesting loons and the presence of other wildlife. The concern is that the lake has had a tremendous increase in watercraft usage. Even though the loons' nests are properly marked alerting watercraft to stay away, there have been many instances of watercraft cruising through the bulrushes at full speed harassing the loons. Loons and other wildlife are very sensitive to encroachment and harassment, and the fear is that they will leave the lake for quieter waters.

Wildlife is an important part of our relationship with the lake. To preserve our wildlife, the following Goal and Objective have been established.

Goal 3.1: Preserve the Presence of Wildlife on Lake Latoka

Objective 3.1.1: Continue to support a 'Loon Committee' with responsibilities to maintain loon nesting areas.

Action Plan:

- Place the floating loon nesting platforms in the appropriate bays in early spring and remove them after the nesting season.
- Ensure that the floating loon nesting platforms are maintained in good usable condition.
- Place warning markers near and around the loons' nests.
- Encourage everyone to report to authorities any watercraft which is observed harassing loons or other wildlife.

CONCERN #4 – Watercraft Safety

The numbers of boats, personal watercraft (jet skis), wake boards, and pontoons have dramatically increased on the lake in recent years. Along with this has come the increase in recreational activity on the lake.

To date, Lake Latoka has averted a major boating accident. However, with the increased watercraft usage, the increase in horsepower and speeds, safety is a major concern. In

addition to the potential danger, the wake that is sometimes created by larger boats has created waves that are not natural to the lake. This has resulted in shore land being washed away and bulrushes being destroyed. This can also pose a threat to small craft such as canoes, kayaks, paddle boats and swim rafts.

The intent is not to over regulate, but to provide a safe and enjoyable lake environment for property owners, guests, and general public. With both safety and enjoyment in mind, the following Goal and Objective have been established.

Goal 4.1: Provide a Safe and Enjoyable Environment for Property Owners and Watercraft Operators on Lake Latoka

Objective 4.1.1: Educate watercraft operators on boating regulations.

Action Plan:

- Publish a summary of watercraft regulations and shore land ordinances in the Lake Latoka directory. Include important contact information.
- Periodically publish a watercraft safety and respectful operation article in the Lake Latoka newsletter.
- Discuss watercraft safety and regulations at the LLPOA annual meeting.
- Encourage everyone to report reckless and/or unlawful activity. Talk to the negligent individuals and/or report the activity to the Douglas County Water Safety Patrol.

<u>CONCERN #5</u> – Effective Communication

The amount of developed Lake Latoka shoreline has increased significantly through the years. The number of property owners has increased and changes in ownership occur frequently. The responsibility for preserving Lake Latoka and providing a safe and enjoyable lake environment for everyone is the responsibility of all the property owners, whether they are year-around or seasonal owners.

Changes will continue to take place. It is important that property owners know what is going on around the lake and within the Lake Latoka Property Owners Association, as well as in county and state lake management. To support this, the following Goal and Objective have been established.

Goal 5.1: Provide Effective Communication of Information to Property Owners

Objective 5.1.1: Maintain a Publicity Committee with goals to provide timely and accurate communication regarding information of interest to Lake Latoka property owners, and the general public.

Action Plan:

- Update, improve, and maintain the LLPOA public website. Include information such as the LLPOA membership list, LLPOA Board of Directors, newsletters, scheduled meetings and events, articles of interest, and other information.
- Publish a LLPOA newsletter twice a year and distribute to all LLPOA property owners.

- Periodically conduct a property owners' survey to gather input on what is important to owners.

Objective 5.1.2: Continue to support a Membership Committee with goals to solicit membership and manage membership records.

Action Plan:

- Periodically publish a Lake Latoka property owner directory.
- Provide an updated property owner list to the Publicity Committee monthly.
- Investigate a potential electronic membership directory.

Appendix

Lake Latoka Lake Management Plan

Lake Latoka Zebra Mussel Inspection History
Conducted by MN DNR

Date	# of Locations Surveyed	# of Objects Checked	Zebra Mussels Found
July1, 2013	12	394	0
July 10, 2013*	SEE NOTE BELOW		
July 12, 2013	7	700	0
September 21, 2015	3	312	0

* NOTE: On July 10, 2013 an individual reported a zebra mussel attached to a rock found while snorkeling. An additional search was conducted by the MN DNR on July 12, 2013. No additional zebra mussels were located. However, as a result of the single zebra mussel found in Lake Latoka, a precautionary approach was taken, and Lake Latoka was designated as an infested lake.

Lake Latoka Secchi (Lake Clarity) Readings

Year	Lake	Max. Reading (ft)	Min. Reading (ft)	Avg. Reading (ft.) (June – Sept.)
1998	Big	14.0	7.0	9.0
	Little	16.0	7.5	12.0
1999	Big	17.0	9.0	11.0
	Little	16.0	9.0	12.0
2000	Big	16.0	10.0	14.0
	Little	16.5	11.0	14.0
2001	Big	12.5	7.0	10.2
	Little	19.0	11.5	13.0
2002	Big	18.0	8.0	14.2
	Little	17.0	11.0	14.1
2003	Big	13.5	9.0	12.7
	Little	16.0	9.0	12.2
2004	Big	17.0	10.0	14.5
	Little	17.0	9.0	15.0
2005	Big	16.5	12.0	13.0
	Little	17.0	9.5	13.1
2006	Big	17.0	11.0	14.0
	Little	16.5	11.0	14.0
2007	Big	14.0	10.5	13.0
	Little	15.5	9.5	13.0
2008	Big	23.5	9.5	19.0
	Little	18.0	10.0	15.0
2009	Big	24.0	11.0	16.0
	Little	24.0	13.0	16.0
2010	Big	18.0	12.5	15.0
	Little	19.0	11.0	14.0
2011	Big	13.5	8.5	11.0
	Little	14.0	6.0	10.0
2012	Big	17.0	8.5	13.0
	Little	16.5	8.0	12.0
2013	Big	18.0	9.0	11.5
	Little	18.0	8.0	11.7
2014	Big	17.0	9.5	13.9
	Little	16.0	8.5	13.5
2015	Big	21.0	11.0	14.7
	Little	19.0	7.0	15.5

Lake Latoka Fish Stocking History
(Information from Minnesota DNR Website)

Year	Quantity
2006	3,991
2007	-----
2008	13,115
2009	4,000
2010	1,047
2011	-----
2012	11,602
2013	480
2014	3,315
2015	5,000