2019 State of Long Lake

Update and Revision of
2004 State of Long Lake Report

Developed by
Long Lake Preservation Association

January 13, 2020

2019 State of Long Lake

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1. **Overview of the 2019 Update and Revision**

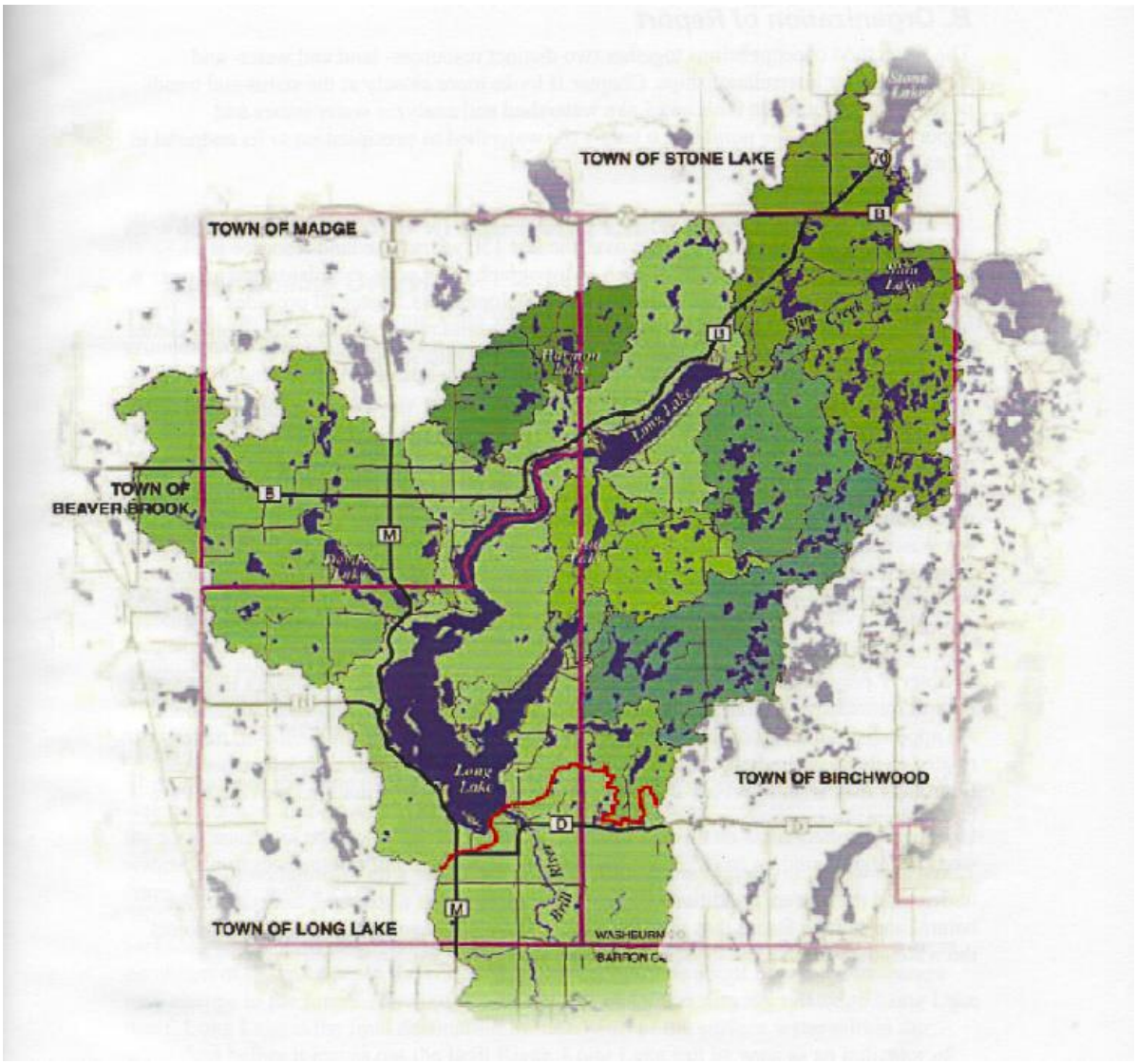
1.1. **Why Long Lake Preservation Association –** The mission of the Long Lake Preservation Association is to maintain, protect, and enhance the quality of the lake and its surroundings for the collective interests of the members and the general public, to carry out educational programs, and to make representations on behalf of its members. The LLPA is an organization of standing committees structured around priorities and strategies intended to benefit the Long Lake Watershed.

Funding of LLPA operation, activities, events and projects comes from membership dues and donations. Some activities have also been supported by grants but donations over and above dues are essential to support all current activities.

2. **Description of Long Lake**

2.1. **Physical Description**

2.1.1 **Geography** - Located at the headwaters of the Brill River in northwest Wisconsin, Long Lake is a unique and important natural resource featuring abundant, high quality groundwater and surface waters. Covering 3,290 acres Long Lake is the largest lake in Washburn County. It has a maximum depth of 74 feet, has about 99 miles of shoreline, and approximately 63% of the Lake basin is deeper than 20 feet. It is known as one of the premier lakes in Wisconsin due to its water quality with the benefit of a large undeveloped section of shoreline being home to the Tomahawk Scout Camp. Its water comes from precipitation on the lake, groundwater springs, and surface water runoff from a 38,000-acre watershed. The lake is a headwaters region of the Red Cedar River, which is a tributary of the Chippewa and Mississippi Rivers.



Aerial View of the Long Lake Watershed

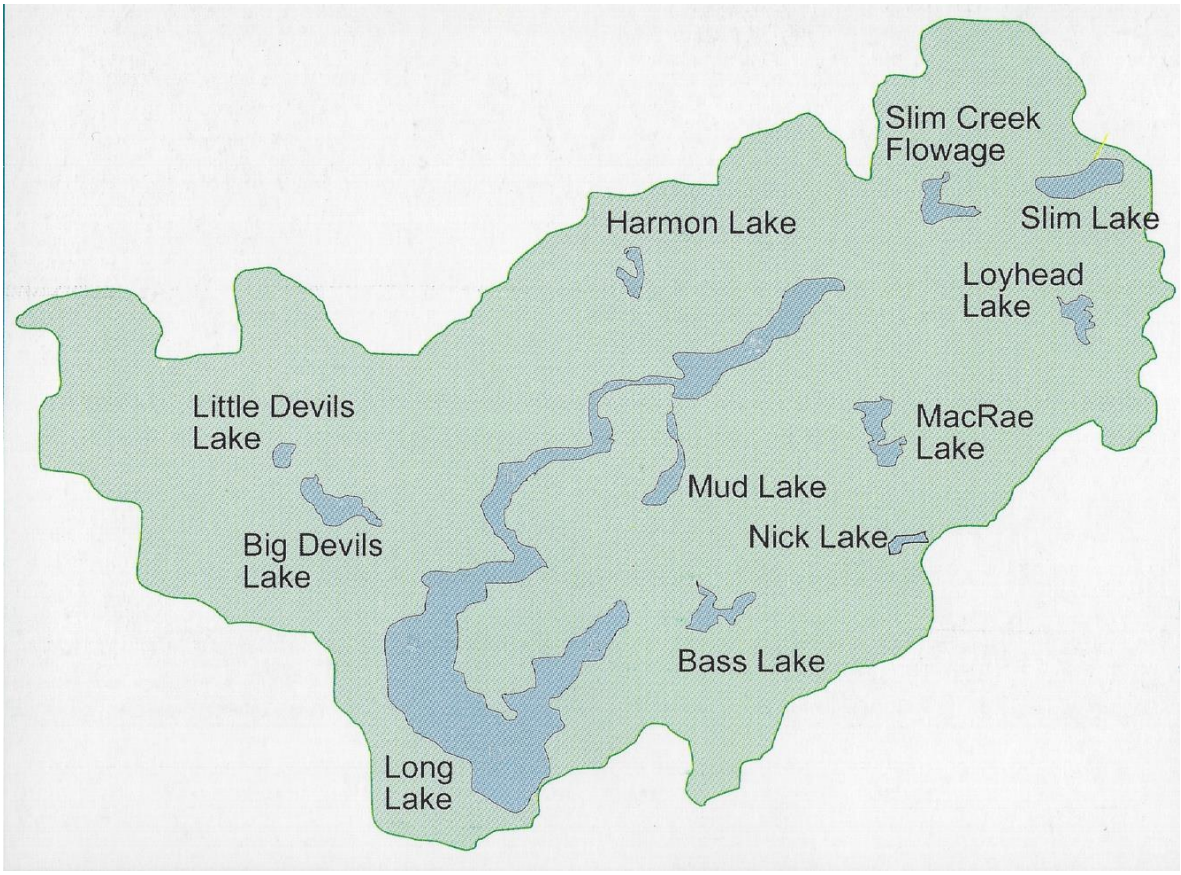
2.1.2 **Watershed Importance** – The Long Lake watershed is at cross-roads. Testing has shown that parts of Long Lake have been transformed into eutrophic conditions with high levels of phosphorous and poor water clarity. Higher phosphorous leads to more plant growth, with adverse effects on the ecology, appearance, economic and recreation qualities of the lake.

Growth and change have been radiating at an increasing pace from nearby urban areas. Widespread, unplanned development will have impacts beyond the watershed – the rural lands in the Long Lake watershed could eventually be replaced by a more urban landscape. What is lost in the process will be impossible to recover.

While change is inevitable, specific impacts can be managed. Local decisions and actions will play a major role in shaping the watershed's future. Independent studies conducted by UW-Extension, UW-Stevens Point and the LLPA have all found widespread local support for enforcement of rules and regulations that protect water quality.

The popularity of the Long Lake watershed ensures a steady stream of visitors from distant locations. These visitors can accidently bring with them uninvited guests such as Zebra Mussels, Eurasian Water Milfoil, gypsy moths, oak wilt, and other invasive species.

The challenge is to ensure that the changes in population, land use, and economic activities in the watershed do not seriously degrade the value of the community's natural assets. Meeting this challenge requires a widespread understanding of how the watershed functions and the threats posed by development and change.



Major Lakes in the Watershed

3. **Ecological Significance** – The ecology of the lake.

3.1 **Introduction** - Since its beginning Long Lake has no doubt evolved into a distinct ecosystem that in its own right provides ecological services that contribute to establishing the biosphere or life support zone of the planet.

3.2 **Long Lake and Energy Flow** - As an ecosystem Long Lake is able to capture the sun's energy through a vast array of photosynthesizing "producers," green plants that live in and around the lake. Some energy is then used and released to the atmosphere by plants for photosynthesis and respiration. The energy stored by the plants is then passed on to organisms that consume the plants which are called herbivores, or omnivores (organisms that consume plants and animals as food sources). Then herbivores/omnivores in time are consumed by carnivores (animals that feed on other animals). All organisms release energy back into the atmosphere through respiration and when they die they are broken down by the Long Lake decomposers that finally release the remaining energy back into the

atmosphere. Ultimately Long Lake is a system that accomplishes the major ecosystem function of "Energy Flow".

Although it has not been formally measured there is a certain amount of energy that equally enters and leaves the Long Lake ecosystem every second--minute--hour--day--week--month--year, etc. The amount of energy coming in and leaving results in a dynamic balance that over time created and maintains the freshwater ecosystem we know to be Long Lake.

If the dynamic balance of energy flow is disrupted in any significant way the Long Lake ecosystem could correspondingly change in significant ways. Two examples of disturbances that threaten the balanced energy flow of Long Lake are ozone depletion and global warming. Each of these disturbances over time could lead to a collapse or radical change of the Long Lake ecosystem as we know it.

3.3 **Long Lake and Biogeochemical Cycling** - The other significant ecosystem/biosphere service that is provided by Long Lake is "biogeochemical cycling" or more simply matter cycling. When producers (plants) are capturing the sun's energy they are also absorbing nutrients and other essential chemicals through their roots and leaves. Ultimately, these nutrient/chemicals are then passed through the system of herbivores, omnivores, carnivores, and decomposers. The nutrients/chemicals left after decomposition are deposited back into the Long Lake soil and water reservoirs to, in time, be cycled through the system again and again.

Freshwater lakes with relatively minimal nutrient material to cycle are known as oligotrophic lakes. Moderate nutrient cycling lakes are labeled mesotrophic. Mesotrophic lakes tend to have balanced oxygen content and support for healthy populations of flora and fauna. This is the most stable and desirable situation from a human perspective. Excessive nutrients in a lake are associated with the term eutrophic. Long Lake is characterized as a mesotrophic lake in some areas and eutrophic in others.

If the dynamic balance of biogeochemical cycles is disrupted in any significant way, the Long Lake ecosystem could correspondingly change in significant ways that could lead to advanced eutrophication. Some examples of disruptions might include excessive inputs of phosphorus, nitrogen or both. Overloads of phosphorus or nitrogen results in over fertilizing the Lake. Thus, plant growth becomes excessive and as plants die decomposer populations explode to use up all the oxygen and the conditions exponentially move to advanced anaerobic or eutrophic conditions. Eutrophic conditions are not appropriate for supporting healthy flora and fauna populations. Land values and quality of life conditions for landowners on eutrophic lakes are relatively undesirable.

There are also non-organism biogeochemical cycles like the hydrologic cycle to which the Long Lake ecosystem contributes. In this cycle water is evaporated from Long Lake to the atmosphere where it eventually falls out as rain or snow.

The amount and content of biogeochemical cycling results in a dynamic balance that over time created and maintains the freshwater ecosystem we know as Long Lake. Presently, there is a monitoring (water testing) program on Long Lake which is used to assess the lake's trophic status.

4. **Long Lake and Biodiversity** - The availability of energy flow and nutrient/chemical cycling in the Long Lake system together with its weather and climate provides for habitats or places where certain organisms find it suitable to live. As these various organisms exist in their habitats within the freshwater

ecosystem of Long Lake, they each play their own role in establishing the dynamic balances of energy flow and nutrient/chemical cycling. The role each organism plays, or "what they do," is called their "Long Lake niche". In general, Long Lake has niches filled by certain types of producers, herbivores, carnivores, omnivores, and decomposers. Biodiversity is the term used to describe all the organisms found interacting in the ecosystem.

Long Lake also provides temporary habitat service to species of insects and birds that may be migrating through the area in spring or fall.

Long Lake as a healthy mesotrophic freshwater ecosystem would have some balanced level of interacting organisms or biodiversity. If some disturbance upsets the dynamic balanced biodiversity of the Long Lake system, it results in undesirable changes to the system. For example, invasive species or organisms might be introduced from outside the established system. These invasive species may out compete or cause the displacement or even disappearance of established parts of the existing biodiversity, thus having a negative effect or even leading to collapse of the existing ecosystem.

Certain species of plants, amphibians, fish, and birds are considered "indicator species". These are particularly sensitive to changes in environmental factors such as temperature (an energy source)or chemical (lack of nutrients or introduction of pollution into the biochemical cycle). By periodically inventorying these species we can determine the health of the Long Lake ecosystem.

A formal "Biodiversity Inventory" or listing of the various key organisms in the Long Lake ecosystem has not been accomplished. A macrophyte (plants visible to the naked eye) inventory has been completed but its utility has not been explored. Additionally, Long Lake has a Loon Watch Program which monitors the loon nesting population on the lake. However, they are monitored more out of interest in the natural history of the loon rather than as an indicator species.

4.1 **General list of key organisms** found in Long Lake with some examples.

4.1.1 **Plants** - The Long Lake plant communities may occupy habitats in the Lake, on the shoreline, or inland around the Lake.

Floating Plants or Floating Leaves

Duckweed	Lotus
Yellow Pond Lily	White Water Lily
Green Algae	Blue Green Algae

Emergent Plants (leaves extend above water surface)

Reeds	Rushes	Sedges
Grasses	Marigold	Pickerelweed
Arrowhead	Loosestrife	Watercress
Cattails	Wild Rice	

Submersed Plants (plants with most of their leaves growing below the water surface)

Waterwort	Elodea	Pond Weed
Eelgrass	Wild Celery	Bladderwort
Milfoil	Grasses	Musky Weed
Bullrush	Marigold	Coontail & others...

Shoreline Plants

Grasses	Wildflowers	Blackberries
Raspberries	Viburnum	Maples
Oaks	Butternut	Walnut & others

4.1.2 **Insects** - The Long Lake aquatic insects may live their lives in the Lake or part of their lives in the Lake then hatch, fly around the Lake or move across the land. Insects can be herbivores, omnivores, carnivores, and even decomposers.

Mayflies	Dragonflies	Damselflies
Mosquitoes	Grasshoppers	Stoneflies
Caddisflies	Black Flies	Beetles
Crickets		

4.1.3 **Reptiles and Amphibians** (found on, in and around the Lake)

Snakes	Turtles
Salamanders	Frogs
Toads	

4.1.4 **Fish**

Bowfin	Perch	Large Mouth Bass
Bullhead	Bluegill	Small Mouth Bass
Minnow	Sunfish	Northern Pike
Cisco	Sucker	Sculpt & others
Walleye	Stickleback	
Crappie	Rock Bass	

4.1.5 **Birds**

Songbirds	Duck	Eagles
Shorebirds	Geese	Hawks
Seagulls	Owls	Peregrine Falcon
Loon		

4.1.6 **Mammals** (found on, in or around the Lake)

Muskrat	Fox	Coyote
Beaver	Deer	Raccoon
Mice	Wolf	Skunk, & others
Rats	Bear	

4.1.7 **Decomposers** (found in and around the Lake)

Fungus	Bacteria	Molds
Insects	Snails	

4.1.8 **Summary** - In summary, the ecological structure and functions of the Long Lake ecosystem are similar to other ecosystems on the planet. That is energy flow, biogeochemical cycling and biodiversity.

Aldo Leopold (ecologist) and Albert Einstein, two of our preeminent scientists, have held that all natural systems--from the broad universe down to the smallest ecosystem--are connected. All science exploration and interpretation seem to confirm the idea of connectedness over and over again. Thus,

the Long Lake ecosystem has a role that is connected or codependent with other ecosystems in our biosphere and its importance to maintaining a balanced life supporting biosphere should not be underestimated.

5. **Economic Significance**

5.1 **Townships of Long Lake, Madge, Birchwood** - Long Lake is a 3,290 acre lake located in the southeast corner of Washburn County. It is a pristine lake of 99 miles of shore line with a maximum depth of 74 feet. It is a premier lake known for its water quality, and a fishery that is exceptional. The lake also has a large section of undeveloped shore line due to the home of the Tomahawk Scout Camp. Also, it is home to about 750+ (mostly non-resident) property owners. These qualities are what makes the lake attractive to a large group of vacationers as they provide an abundance of year around recreational activities. The surrounding area of county forest provides a host of outdoor activities for the non-water audience. These qualities create a large impact on the economy of the area.

5.2 **Local Government -** Long Lake is comprised of three township, Long Lake, Madge, and Birchwood. Most of the lake property owners are not residents. The economic impact of this area can be reflected in the assessed value of these townships:

Long Lake:	$200,237,100
Madge:	$135,096,100
Birchwood:	$217,756,000
Total	$553,089,200

The assessed value of two townships is larger than the largest municipality in the county. (City of Spooner is at $155,449,100). Long Lake has its own Chamber of Commerce. The size of Long Lake contributes to a large contingence of resorts, bars, restaurants, bait shops, a golf course and 2 marinas.

5.3 **County of Washburn**- Located in northwest Wisconsin, Washburn County was created in 1883. The county seat is Shell Lake. The County is 810 sq. miles with a population estimated to be about 16,000. It is highly dependent upon year round tourism with the largest county forest area in the state. It has 964 lakes comprising 48.85 sq. miles in addition to hundreds of miles of trails for use by snowmobiles, ATV's, bicycles, hiking and cross-country enthusiasts.

Major rivers include, Brill, Clam, Namekagon, Ounce, Totagatic and Yellow with major Watersheds: St. Croix River (North) and Chippewa River (South). Long Lake is the largest lake in the county.

6. **Process for Development of Updated and Revised 2019 Plan**

6.1 **LLPA Board Members**

Randy Krautkramer - President
Randy Poznansky - Vice President
Joe Thrasher - Past President
Marcia Kampf - Secretary
Chuck Lawrence - Treasurer
DJ Ehrike
Sandra Hovey Campbell
Jim Garey
Nikki Janisin
Wes Mohns
Byron Crouse

Randy Champeau
Donnie Marker
Brian Halloran

6.2 **Board Meeting Minutes** - The discussion by the LLPA board to update our Management Plan started with the January 2018 board meeting. Since then it has been on the agenda and discussed in ten of the monthly board meetings.

6.3 **Professional Consultation**

6.3.1 **UWEX** - University of Wisconsin Cooperative Extension - Eric Olsen, Wisconsin Lakes Program

6.3.2 **UWSP** - University of Wisconsin Stevens Point, College of Natural Resources - Dr. Paul McGinley, Center for Watershed Science and Education and Dr. Anna Haines, UWSP Land Use Center

6.3.3 **Washburn County** - Brent Edlin, Washburn County Conservation Office

6.3.4 **DNR** - Wisconsin Department of Natural Resources - Pamela Toshner, Wisconsin DNR Northwest Water Quality Specialist

7. **Strategic Planning Committee**

7.1 **Committee Members** - the committee was formed in September of 2018

Randy Krautkramer
Randy Champeau
Joe Thrasher
Randy Poznansky
Wayne Sabatke

7.1.2 **Member Background**

Randy Krautkramer – Retired CPA and CFP. Current LLPA President and full-time resident of Long Lake.

Randy Champeau - Emeritus Dean and Professor of Resource Management/Environmental Science, College of Natural Resources UW Stevens Point

Joe Thrasher - J.D. Senior Counsel to the law firm of Thrasher, Pelish & Heaney, Rice Lake WI. Currently Past President of LLPA.

Randy Poznansky - Has deep family connections to Long Lake going back to the 1920's. Degreed Engineer and active LLPA board member. Current Vice President of the LLPA and avid user of the area watershed, snowmobile and ATV trails.

Wayne Sabatke – 16-year member of the LLPA and has served as President and Vice President. Has worked with County and local government committees on the preservation of Long Lake and its watershed. Served for ten years on the Washburn County Rivers and Lakes Association as a representative of the LLPA. Has served as President and Vice President and for fifteen years on the board of Friends of Hunt Hill, a partner of the LLPA.

8. **Process for Review of Long Lake Preservation Association Management Plan & Development of an Updated Plan** - In the 2004 LLPA Management Plan over 175 strategies were developed to direct LLPA efforts toward pursuit of its Mission. Because of the large number of strategies, the Strategic Planning Committee established a formal process for evaluating the status of each of the strategies. The process (see appendix 1, p. #15) involved evaluating each strategy as to whether it was accomplished or not accomplished. If it was identified as accomplished it was determined whether ongoing efforts should be pursued or not pursued. If it was identified as not accomplished it was determined whether it should be dropped or whether the LLPA should continue to pursue it. Finally, there was an open response area for identifying new strategies that should be pursued.

8.1 **Results** - After a number of reviews by the Strategic Planning Committee the original strategy list was narrowed to four categories with 40 strategies. This was possible due to collapsing similar or overlapping strategies. Ultimately four general categories with 40 strategies were reviewed with the formal process that was developed. Specific results relative to each strategy are presented in Appendix 2, p. #16.

8.1.1 **Applying the Results** - In general many of the original strategies were yet to be accomplished due to lack of staff or financial resources. A good number of the strategies that were accomplished are ongoing and will continue to be pursued over the long term by the LLPA. From the original list of categorical strategies four goals supporting the Mission of LLPA have been established along with corresponding objectives/strategies.

9. **Future Goals** , Objectives, and Strategies for LLPA - Following Strategic Planning Committee meetings four goals were developed to lead future activities of the LLPA. The goals involve monitoring, management, education/ communications, and capacity building. They are followed by relevant objectives and strategies which will be used to operationalize each goal. Presented below are goals I - IV with corresponding objectives, strategies, and a summary discussion statement.

9.1 **Goal #1 - Monitoring** - The LLPA will pursue ecosystem mapping and monitoring efforts to establish baseline data to be used for appropriate management/protection and education/communication efforts.

9.1.1 **Objective 1** - Continue and further develop monitoring efforts and data recording related to water quality.

9.1.2 **Objective 2** - Continue monitoring efforts and recording data related to invasive species threatening the Lake.

9.1.3 **Objective 3** - Continue to develop data on health of loons and other flora and fauna and insects that establish the biodiversity of the Long Lake ecosystem.

9.1.4 **Objective 4** - Continue mapping related to "sensitive areas" on the Lake and continue monitoring the health of these areas (i.e. water quality, biodiversity, invasives, etc.).

9.1.5 **Strategies for Monitoring Objectives #1 - #4** - The strategies include a Water Testing Program, Zebra Mussel monitoring, full Point-Intercept Macrophyte Survey, Loon Watch, Sensitive Area Mapping and Monitoring.

9.1.6 **Objective 1**: Continue monitoring and data recording of water quality:

9.1.7 **Strategy**: LLPA participates in the Citizen Lake Monitoring Network (CLMN) of WDNR. Four times during the summer months water testing is performed at six sites. At each site Secchi disk readings are recorded and dissolved oxygen (DO) and temperature are recorded at the one, three and five foot levels and at every five feet thereafter to the bottom. At two of the sites a water sample is obtained from the upper six feet and prepared for shipment to the Wisconsin Laboratory of Hygiene for measurement of phosphorus and chlorophyll levels. Locally obtained data (Secchi, DO and temp) are uploaded to the Surface Water Integrated Monitoring System (SWIMS). LLPA intends to continue this participation.

9.1.8 **Objective 2:** Continue monitoring efforts and recording data relative to aquatic invasive species (AIS).

9.1.9 **Strategy:** LLPA also participates in the Clean Boats Clean Waters (CBCW) program, having boat inspectors at the busiest landings on the busiest days. All activity is uploaded to SWIMS. This has been done both with and without grant assistance. Availability of personnel and cost considerations do

somewhat limit total time devoted to this program below the ideal, but LLPA intends to continue the program to the fullest extent practicable.

Commencing in 2014 LLPA has been mapping Curly-leaf Pondweed with GPS mapping equipment and computer programs. This demonstrates graphically whether CLP is expanding its range. Findings are represented on a map with each year being color coded. These maps are published on the LLPA web site. Continuation of this activity is anticipated.

Following the discovery of Zebra Mussels in Big McKenzie Lake in 2016, LLPA fabricated collector plates and places them beneath docks at four public landings (a fifth has no dock and no parking) and two private marinas. The plates are inspected at least monthly. This activity will continue.

In 2011 LLPA commissioned a Macrophyte Point Intercept Survey to establish a baseline survey of aquatic vegetation species density and distribution. Among other things, such surveys establish certain indices of lake health, such as the Floristic Quality Index and Simpson's Diversity Index. The survey was repeated in 2016, permitting detection of any changes during the intervening period. Resources permitting it is anticipated that such surveys will be periodically repeated in the future.

In 2018 LLPA and the Long Lake Chamber of Commerce jointly erected decontamination stations at the four major public landings. Each station consists of a 4x8' sign with a cleaning brush, weed removal hook, goggles and a one gallon sprayer containing a mild bleach solution targeted at the larva of Zebra Mussels. The sign contains a notice that its use is mandated by a Washburn County Ordinance. Two of the stations were supplied by the Washburn County Land and Water Conservation Department, aided by a WDNR grant, and two were purchased by LLPA and the Chamber. Since the active ingredients of bleach break down chemically within three days even when shielded from direct sunlight, as these are, volunteers continuously replenish the solution during the boating season. This practice will continue for the foreseeable future.

9.1.10 **Objective 3:** Continue to develop data on health of loons and other flora and fauna and insects that establish the biodiversity of the Long Lake ecosystem.

9.1.11 **Strategy:** Continue to work with the Loon Rangers on Long Lake to monitor the status of loons on Long Lake. Long Lake currently has two Loon Rangers, one located in the north basin and the other located in the south basin. These individuals are affiliated with the Sigurd Olson Environmental Institute located at Northland College in Ashland, WI. The work done by the Loon Rangers, documented and recorded at the Institute, involves monitoring the loons once they arrival (ice out) in the spring till the loons leave in the fall (ice in). The information collected is a significant indicator of the water quality of a lake and includes:

1. The number of loons (adult and Juveniles) that inhabit Long Lake.
2. The number of successful or failed loon nesting sites.
3. Lake Habitat conditions effecting nesting sites
4. Building and monitoring artificial nesting platforms (ANP).
5. Determining success rates of hatched clicks over the breeding and growing season.
6. Educating the public on protecting loons by making presentations at various group gatherings.
7. Rescue efforts with distressed loons in trouble.
8. Working closely with wildlife rehab center in Rhinelander area.

This effort and the work of these individuals is collected, recorded, and analyzed to determine the health of Loons population and reproduction efforts. This effort is another indicator of the water quality and the overall health of Long Lake.

9.1.12 **Objective 4:** Continue mapping related to "sensitive areas" on the Lake and continue monitoring the health of these areas (i.e. water quality, biodiversity, invasives, etc.).
9.1.13 **Strategy:** In 1998 a Lake Sensitive Area Survey conducted by WDNR identified 32 areas which merit special protection of the aquatic habitat. LLPA is currently exploring the possibility of a follow up analysis of these areas and of the need for and feasibility of taking steps to protect them.
9.1.14 **Discussion** - In general LLPA has done a good job of monitoring key indicators of Long Lake ecosystem health. There are, however, significant problems related to the storage and application of this data and mapping to appropriate management and education/communications goals. There simply are not enough resources to take advantage of all the valuable data that has been collected.

10. Goal #2 – LLPA Management - The LLPA will pursue ecosystem management and protection efforts to maintain the natural integrity of Long Lake as a healthy functioning ecosystem within the biosphere or life supporting zone of the planet.

10.1 **Objective 1** - Continue or develop management practices that serve to maintain the physical and chemical factors of a healthy mesotrophic lake.
10.2 **Objective 2** - Continue or develop management practices that serve to support the health of the natural flora and fauna of the Long Lake ecosystem.
10.3 **Strategies for objective #1 and #2** include erosion/runoff control effort (e.g. Hwy M), Fish Sticks Program, Loon Nest Placement, Invasive Decontamination Stations, etc.

While this strategy goes beyond monitoring and constitutes affirmative action to improve the fishery, it should be noted that LLPA is also involved in a Fish Sticks program. LLPA, in partnership with Camp Tomahawk, constructed Long Lake's first Fish Sticks project in 2015. The second and third projects were constructed in early 2018 and 2019. Working with the DNR and the Boy Scout Camp personnel, the LLPA applied for a permit to place four more Fish Sticks projects within the next three years. The permit was approved and issued on October 29, 2019.
10.4 **Discussion** - In general, LLPA has done a good job in some management areas given the all-volunteer nature of LLPA and limited resources. However, the organization does not feel it is doing enough to maintain a healthy Lake in the long run. The Lake has increasing signs of eutrophic conditions. Management practices are presently selected on availability of resources verses actual need for implementation of more strategic management. Evaluation of existing practices falls far short of defending continuing efforts more then on an intuitive level (i.e. We think it's good for the Lake!).

11. Goal #3 - Education/Communication - The LLPA will pursue education and communications efforts that relate to and support knowledge, values, and eco-management skills that individuals can acquire to participate in maintaining Long Lake as a healthy functioning ecosystem within the biosphere or life support zone of the planet.

11.1 **Objective 1** - Continue to develop and distribute educational information that promote the ecosystem health of Long Lake.
11.2 **Objective 2** - Continue to develop and offer education programs and events that promote the ecosystem health of Long Lake.
11.3 **Objective 3** - Communicate important notices, warnings, laws, etc. that relate to participating in the maintenance of Long Lake as a healthy ecosystem by its users.
11.4 **Strategies for the Education/Communication Objectives 1 - 3** are presented below. Some strategies include dissemination of the Long Lake Preservation Association educational newsletter twice a year; use of Constant Contact for email communication of information to members; educational events like Cakes on the Lake is supported. The LLPA regularly meets with Washburn County and Town

of Long Lake Boards to promote policies, laws, and practices that are environmentally healthy for Long Lake. The LLPA annual meeting provides an update on relevant activities that are related to what is being done and what could be done by individuals or landowners to maintain the environmental quality of the Lake.

11.5 **Discussion** - Given the limited volunteer staff and resource base of the LLPA it does a good job of addressing Long Lake environmental health through various education and communication efforts. However, the LLPA feels there is a need for more effort in this area as efforts by outside agencies have decreased (e.g. University of Wisconsin Cooperative Extension (UWEX), Wisconsin Department of Natural Resources (DNR), etc.). The LLPA would like to increase both its capacity and sustainability relative to this goal and objective. This is a very important goal to operationalize because it embodies strategies to affect "people activities" which have the most impact on the Lake be it good, bad, or ugly.

12. **Goal #4 - LLPA Capacity Building** - The LLPA will develop an organizational structure that will support its effort to more effectively build capacity and increase its sustainability.

12.1 **Objective 1** - Review existing LLPA organizational structure relative to increasing its capacity to more effectively pursue its Mission.

12.2 **Objective 2** - Review existing LLPA organizational structure relative to the need for securing long term sustainability of the organization.

12.3 **Strategies for Objectives #1 and #2** are relatively new and are considered a priority for the organization. Thus, these relatively new strategies are as follows:

12.3.1 **Establish a LLPA Steering Committee to pursue development of capacity and organizational sustainability.**

12.3.2 **LLPA Steering Committee will review resources** to determine how a temporary part-time management position can be established to provide assistance related to Goals #1 - #4.

12.3.3 **LLPA Steering Committee** with support of the temporary part-time management position will write and submit an "Implementation Grant" to the DNR. This grant will request funds to support the temporary part-time management position for at least two years. The position will help facilitate Goals #1 - #4. Over a two-year period, the LLPA Steering Committee together with the LLPA Board will work to develop a long-term plan and resources to maintain the temporary part-time management position and secure the sustainability of LLPA.

12.3.4 **Discussion** - The 2004 Strategic Plan and the strategies it presented was developed with significant assistance from numerous partnership organizations and their representative staff. Partners included Wisconsin DNR, University of Wisconsin Cooperative Extension (UWEX), University of Wisconsin Stevens Point Center for Watershed Science and Education, University of Wisconsin Stevens Point Center for Land Use Planning, Wisconsin Center for Environmental Education, Wisconsin Lakes Program, and Washburn County Conservation Department. All of these organizations over the last couple of years have experienced significant decreases in funding and personnel. They are no longer able to provide the ongoing support to LLPA that was previously available. Pursuit of many strategies in the 2004 Long Lake Preservation Association Management Plan were not achievable by LLPA given the decreased support of these partners. Thus, to continue to pursue its Mission effectively in the future LLPA will need to address its own capacity relative to establishing and pursuing a new set of realistic goals, objectives and strategies.

Appendix #1 – Each strategy under the various sections will be reviewed with the following criteria:

Criteria Format for Update on Strategies

1. Ask which response below best applies to each strategy
   - **Done** = Successful or not successful
   - **Not Done** = We should do this or we should not do this?
   - **In Progress** = Continuing

2. If **Not Done** do you think we should pursue this?
   - **Yes** or **No**
   - **Who** should pursue this?
   - **How** should this be pursued?

Example:
Section E "Watershed Protection Strategies"
- Category "Lake Protection Strategies" page 109
- Strategy "Use Long Lake Sensitive Areas Study as a basis for prioritizing in-lake habitat protection efforts"

3. Criteria:
   - **Not Done**
   - **Who** ...LLPA should be pursued in cooperation with DNR
   - **How** …LLPA should include development of action plan in DNR Grant Proposal

Appendix #2 – note: page references made to the 2004 State of the Long Lake Watershed report:

Groundwater Monitoring and Analysis Strategies (p. 101)

- Establish several sites throughout the watershed where well water samples can be collected and analyzed over a long period of time
  Partially Done: Well water was tested some years ago - that's how we know the phosphate level in groundwater is higher in the north end of the lake. It has not been done again. The state tests all new wells for bacteria (it might include nitrate?) but it appears that's it and there is no follow-up. If the LLPA board thinks it is worthwhile to proceed an email blast could be sent out asking for volunteers and volunteered sites.

- Conduct a watershed-wide assessment of septic system compliance with the state plumbing codes (Comm. 81,82,93). (See Post Lake example in Langlade County)
  Not Done: Washburn County Ordinance 74-67 requires septic systems be inspected every three years and pumped if inspection reveals one third or more of the tank is taken up with scum and sludge. Local septic companies tend to recommend pumping every two years. In any case, neither is enforced.

Lake Water Monitoring Strategies (p. 102)

- All lakes in the watershed should cooperate on water monitoring programs and share resources as feasible.
  Partially Done = We see Slim Lake on the DNR web site but not Devils Lake.

- Long Lake, Devils Lake, and Slim Lake should coordinate annual monitoring of oxygen depletion and lake groups in the watershed should work with UW Stevens Point and DNR to analyze the results.
  Partially Done = We see Slim Lake on the DNR web site but not Devils Lake. LLPA and Little Sissabagama are in the process of writing a grant to pursue further lake studies.

- A comprehensive system for storing and analyzing lake water quality is needed
  Done = The LLPA data is on the DNR web site.
  https://dnr.wi.gov/lakes/waterquality/Stations.aspx?location=66

Lake Ecology Monitoring Strategies (p. 102)

- A survey of the invertebrates and plankton in the watershed lakes is needed to assess the health of the watershed's food chain
  Not Done = Seems like a good idea and one the DNR should undertake.

- A survey of the Long Lakes aquatic plants is needed to establish the diversity of the macrophytes in the lake. Long term monitoring sites should be established to track changes over time.
  In Progress = Continuing. Done every five years annually by the DNR

- A route should be established for monitoring sites where Eurasian Water Milfoil is likely to gain foothold: the route should be checked annually.
  Being Done = Ongoing. Currently organized by the LLPA done every five years.

- Sensitive Areas studies should be conducted throughout the watershed to build upon and expand the existing analysis of critical fish habitat in Long Lake, Devils Lake; Slim Lake Flowage should be priorities for such studies.
  Partially Done = Thirty two areas were last identified in August 1998 as Sensitive Areas for fish and wildlife.

Education, Communication and Outreach Strategies (p. 103)

Groundwater Education Strategies (p. 103)

- Use town property-tax mailings to remind homeowners of the local source of groundwater and common threats to groundwater quality
  Possibly Done ? = Uncertain if this was ever done, if so not in recent years?

- Promote residential well water testing throughout the watershed by providing well testing kits at public events such as Town Annual Meetings and LLPA events
  Not Done = LLPA Board to discuss.

- Stress the importance of proper septic tank maintenance and use since most private wells recharge at least partially from nearby drain fields.
  Done = LLPA has issued various communications on well septic maintenance and care.

- Ensure that information regarding proper septic system use and maintenance are included in information packets to new homeowners.
  Likely Not Being Done = Best if it came from the realtors as they have the ideal connection to new homeowners. LLPA board should discuss sharing this information with local realtors.

Runoff Education Strategies (p. 104)

- Inform homeowners and developers on the importance of runoff and infiltration to reduce storm water runoff quantities and quality using newsletters, websites and other communications
  Being Done = Done in the past by the LLPA (calendars, newsletters and email blasts) and Wisconsin Lakes Partnership (Lake Tides newsletter).

- Provide practical solutions and timely advice to help property owners reduce runoff and promote infiltration (e.g. rain gardens, use of pervious pavement, directing rooftop runoff to rain barrels).
  Being Done = Done in the past by the LLPA and Wisconsin Lakes Partnership. Probably could be done more by the LLPA through email blasts and other communications.

Land Use and Stewardship Education (p. 104)

- Produce local educational events such as watershed fairs to highlight the importance of protecting water quality through stewardship
  Done = Successful LLPA Ice Cream Social, Hunt Hill Cakes at the Lake.

- Develop and distribute a "Washburn County Stewardship Manual" in the form of an attractive wall calendar. Use the calendar to educate landowners about stewardship practices that can improve water quality.
  Done = LLPA annual calendar

- Use newsletters and webpages to communicate the connection between land uses and lake water quality.
  In Progress = Continuing. Probably could be done more often. Most recent example is the one-time use plastics and lake contamination LLPA email blast.

- Promote "Best Management Practices" for everyday household chores and activities: septic system maintenance, yard waste disposal, gardening and landscaping, etc.
  Done = Periodically done by the LLPA through email blasts, annual calendar and newsletters.

- Promote the Long Lake compost site for annual tree leaf disposal
  Done = via LL Town through town tax bills and LLPA newsletters and annual calendar.

General Lake Education (p. 105)

- Regularly communicate the state of the watershed lakes and water quality to residents and others through newsletters, websites and other methods.
  Done = Ongoing. LLPA communicates through Fall & Spring Newsletters, annual calendar, email blasts and Hunt Hill Cakes at the Lake.

- Include useful lake information on landing kiosks (no wake zones, sensitive areas, recent water quality tests).
  Done = Mostly by LLPA. Best if update as needed on an annual basis.

Shoreland Buffer and Riparian Education (p. 105)

- Sponsor roundtables to discuss the need to update the dam order on Long Lake
  Done = by Washburn County Highway Dept. - Successful

Invasive Species Education (p. 105)

- Create kiosks at boat launches in the watershed and include informational material describing how exotic plants/animals are spread and important steps for protecting lakes; post maps showing where exotics are found in the region.
  Done = by LLPA – Successful. Should inspect and update as needed.

- Sponsor public service announcements reminding boaters of their role in preventing the spread of exotic species.
  In Progress = Continuing - Washburn County (Lisa Burns) & LLPA with email blasts and newsletters. Installed boat launch decontamination stations as a co-sponsor with the Long Lake Chamber of Commerce.

Local Government and Officials Education (p. 106 & 107)

- Regularly provide information regarding watershed protection to area regulatory groups (county zoning, DNR, town boards, etc.)
  In Progress = Ongoing by the LLPA

- Regularly update and widely distribute the State of the Watershed report for the Long Lake Watershed.
  In Progress = Being evaluated now and grant being written by LLPA to determine what key subjects are done / not done from the 2004 report and if we should move ahead with a future report.

D. Resource Restoration and Improvement Strategies (p. 107)

Lake Ecology Restoration and Improvement Strategies (p. 107)

- Focus restoration efforts on degraded aquatic plant communities in and adjacent to DNR designated Sensitive Areas
  Not Done = The LLPA should discuss either at the board or Fish & Wildlife Protection committee level. Holy Island Bays ??

E. Watershed Protection Strategies (p. 103)

Storm Water Management and Improvement Strategies (p. 108)

- DNR, county and towns should work together to improve storm water infiltration at public boat landings and other public lands on or near the lake.
  In Progress = Completed at LL Town Hall launch and LLPA contributed funds to the effort. The LLPA could evaluate any other problem areas and bring it up to the appropriate Township or County.

- Eliminate direct road runoff into surface waters through structural modifications to town and county roads
  In Progress = Continuing. M&D is an example of a failed system with lack of monies/plan available to correct it. The LLPA should discuss at the board level to discuss if we want to pursue other runoff problem areas? Ultimately it is the towns and County's responsibility to correct. Holy Island Rd. is another example of a failed system.

- Install structural and/or natural means of filtering road runoff (settling basins, grass swales, etc.) near wetlands, lakes and streams where no such filtering exists
  In Progress = The LLPA has discussed problem areas with Town and County officials. Ongoing but much more work needs to be done. Need someone to take the lead. Holy Island Rd. issue as one example of an old/inadequate filtering system.

- Install structural storm water detention mechanisms (rain barrels, rain gardens) at town halls and other public landings in the watershed.
  In Progress = Completed at LL Town Hall, big hill at M/D wall and at various culverts in the area.

Lake Protection Strategies (p. 109 & 110)

- Support a feasibility study for developing a hypolimnic draw for the Long Lake dam
  Done = Successful – various water levels are being followed by the County since 2015.

- Utilize native Long Lake population genetics in any fish stocking programs on the lake
  Done / Ongoing = Fish stocking done in ’14, ’16 and 18.

- Support initiatives to modify catch and size limits on Long Lake to improve age-class structure and species mix in the lake
  Done = Successful

- Use Long Lake Sensitive Areas Study as a basis for prioritizing in-lake habitat protection efforts
  Not Done = Being discussed as a grant. The LLPA board will discuss in future meetings

- Work with land trusts such as Landmark Conservency to establish conservation easements for lands adjacent to Sensitive Areas that are not already in public ownership.
  In Progress = Continuing and the LLPA should pursue when and where feasible.

- Identify slow-no-wake zones around in-lake Sensitive areas
  Not Done = Partially complete (i.e. Narrows). May not be feasible in some areas. The LLPA board should discuss.

- Amend and update the dam orders to modernize them and reflect current concerns: develop a working dam operation agreement between the DNR and the Washburn County.
  Done = Successful – various water levels are being followed by the County since 2015.

- Consider elimination of the winter drawdown that occurs on Long lake
  In Progress = The LLPA is working with the Towns and County to eliminate the annual drawdown. The LLPA is receiving resistance from some of the Towns.