

Issue 39
October, 2007



LAKE SARAH IMPROVEMENT ASSOCIATION

Mouth of Lake Sarah

Lake Sarah's Future

MARK OCTOBER 25th ON YOUR CALENDAR

It's an important meeting for the future of Lake Sarah. Here's why:

Lake Sarah is on the state's Impaired Waters List for phosphorous. In fact, at a level almost three times that of Lake Independence and could impair the lake to a level where only rough fish exist and lake recreation wouldn't. The level is over 109 micrograms per liter and the state mandate is no more than 40 micrograms per liter. A substantial amount of the phosphorous comes from within the lake due to curly-leaf pondweed - called ***in lake loading***. The best way to eradicate curly-leaf pondweed is whole lake treatment; but before we can do that, three things have to happen.

1.) A TMDL (Total Maximum Daily Load) study has to be performed. The study was started in the spring of 2006 and will be completed this fall. The preliminary results substantiate the 109 mpl reading.

2.) An Aquatic Vegetation Management Plan needs to be written. The DNR requires an AVM plan which documents how we plan to replace exotic species with native species before they will give a permit for whole lake treatment. It's important to emphasize that Lake Sarah will always have weeds; it needs vegetation to remain healthy. The goal is to kill off the curly-leaf pondweed and Eurasian Milfoil and replace them with native species that are non-threatening to recreational activities and are much more conducive to fresh water game fish.

3.) Signed permission is required from each lakeshore owner. You will be receiving a letter from the LSSC (Lake Sarah Stakeholders Committee) in the very near future. In it will provide a brief description of the problem, outline the plan, and give you an opportunity to okay the treatment.

By October 25th, the results from the TMDL and the Lake Vegetation Survey will be available, a draft of the Aquatic Vegetation Management Plan will be completed, and we will have received permissions for whole lake treatment. The only thing that might be missing is you, that is, if you don't' show up for this very important meeting.

Hopefully, ALL questions will be able to be answered at this informational meeting. We should have representatives from the MN DNR, Three Rivers Park, the Pioneer-Sarah Creek Watershed Management Commission, Lake Sarah Stakeholders Committee, the cities of Independence, Greenfield, Loretto, Medina and Corcoran and the MPCA.

THURSDAY, OCTOBER 25, 2007 at 7:00 pm
INDEPENDENCE CITY HALL

Thanks for reading this and I look forward to seeing you.

Jerry Wise
President, LSIA

The Lake's Ecosystem

University of Wisconsin-Extension

The water's edge is a busy place. Northern pike, sunfish, bass, and other fish spawn in the shallow water along the shore. Loons, ducks, geese, and other water birds nest along the banks. Wildlife such as frogs, otters, and mink live there, too. Shoreline areas, on land and into the shallow water, provide essential habitat for fish and wildlife that live in or near Minnesota's lakes, rivers, and streams. Overdeveloped shorelines can't support the fish, wildlife, and clean water that are so appealing to the people attracted to the water's edge.

Unfortunately, that's exactly what's happening to many Minnesota waterways. The problem is poorly planned shoreland development. Bit by bit, the cumulative effects of tens of thousands of waterfront homeowners "fixing up" their property are destroying one of our state's most valuable resources – its fragile lake and stream habitats. Some examples are:

Sand trucked in for swimming beaches covers the underwater gravel or silt used by:

- fish for spawning
- mayflies for burrows
- frogs for laying eggs

Aquatic vegetation removed to create swimming and boating areas eliminates shoreline stabilizing plants that are also habitat for:

- bass and other fish that hide among the plants and spawn in areas protected from waves
- loons that nest on floating vegetation
- waterfowl that feed on underwater plants
- insects that live among underwater plants

Shoreline shrubs and "unsightly" fallen trees are removed to create golf course-type lawns, eliminating habitat for wildlife such as:

- songbirds that use these shrubs for nesting
- ducks that lay eggs in native shoreline grasses
- turtles that sun on fallen logs
- bass and panfish that hide in the shade under toppled trees
- mink, muskrat, pheasants that hide in the bulrush

The lake's ecosystem doesn't stop at the shoreline. Here are some reasons why restoring shoreland vegetation is important.

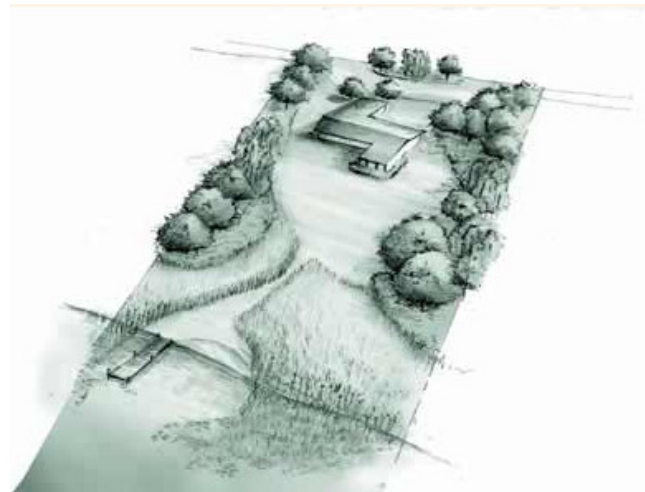
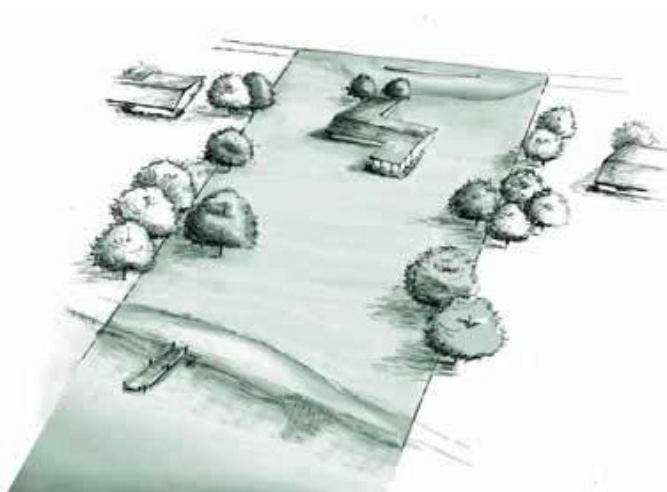
Protecting Water Quality

One of the primary functions of a shoreland buffer zone is filtration of sediments from runoff waters. According to a study in the Journal of Environmental Quality in terms of volume, sediment is the largest pollutant of streams and rivers. The addition of sediments to a river or lake can block light needed for plant photosynthesis, and can smother life on the bottom, such as fish eggs, clams, and insects that are a crucial component of the food web. Sediments also can carry contaminants such as phosphorous and agricultural chemicals into surface waters. Native vegetation within shoreland buffer zones act as a natural filter to trap sediments contained in runoff waters before they reach lakes and rivers.

In the mid 1990s, Panuska, of the Wisconsin Department of Natural Resources, studied the differences in the amounts of runoff and sedimentation at various levels of shoreland development. His computer modeling work compared two 20,000 square foot areas. The first site was a typical maple-beech forest. The second site was a developed property containing a home (3,350 square feet), a paved driveway (770 square feet) and a groomed lawn around the property. Both sites had the same slope (6%). The results illustrated that the runoff volume on the developed site was five-fold greater than on the vegetated maple-beech forest site. Additionally, the runoff from the developed site carried seven times the phosphorous load and 18 times the sediment load compared to the runoff from the undeveloped site. This study illustrates the potential impact of shoreland development on water quality.

"If you destroy the natural shoreline habitat, then fishing will get worse — and we cannot fix that situation simply by stocking or changing the fishing regulations. If you want great fishing — then you have to protect the fish habitat."
Mike Staggs, DNR

In addition to filtering sediments, shoreland buffer zones also serve to stabilize shoreland banks, reducing bank erosion. The roots of the trees, shrubs, and ground cover plants help stabilize shorelines. These roots add structure to soils as well as increase



water infiltration. The net result is a reduction in bank erosion and an increase in water quality. The vegetation also aids in slowing down the speed of the runoff water. By slowing down the velocity of runoff water, the coarser sediment particles settle out on land prior to reaching the water. Recommendations range from 15 feet to 100 feet to maximize sediment removal. It is clear that the State defined width of 35 feet will have a positive impact on reducing sediments entering our lakes, but a larger buffer would be better.



Aquatic and Wildlife Habitat

Aside from reducing sedimentation that degrades aquatic habitat, shoreland buffer zones enhance this habitat through the deposition of woody debris and leaf litter. For the avid fisherman, shoreland buffer zones extending into the water are great habitat for fish. Aquatic plants not only help stabilize bottom sediments, but along with woody debris they provide structure for insects, snails, and other critters that small fish feed on. Larger game fish, the ones we enjoy catching and eating, feed on the small fish, and seek refuge amongst the underwater structure. Trees along the water's edge also help stabilize temperatures by shading shallow water and cooling headwaters. Increases in water temperature can have a major negative impact on fish populations.

Shoreland buffer areas are also an extremely important habitat for many species of wildlife. Birds, mammals, frogs, fish and turtles spend some or all of their life cycle in or around the water. Many species depend on this habitat for breeding, foraging, hunting, fishing, and other essential uses. Trees and shrubs along the shoreline are important feeding, nesting, and perching areas for songbirds. Standing dead trees, or snags, also provide habitat for those species that use cavities for nesting, such as the woodpeckers, black-capped chickadees, nut-hatches, wood ducks, mergansers, tree swallows, and saw-whet owls. Fallen tree branches and logs provide habitat for fish, turtles, and numerous other critters.

Green frogs are an excellent indicator of healthy near-shore habitat. Male green frogs establish breeding territories within two feet of a lake's edge and defend it against other breeding males. During the breeding season (early June-late July)

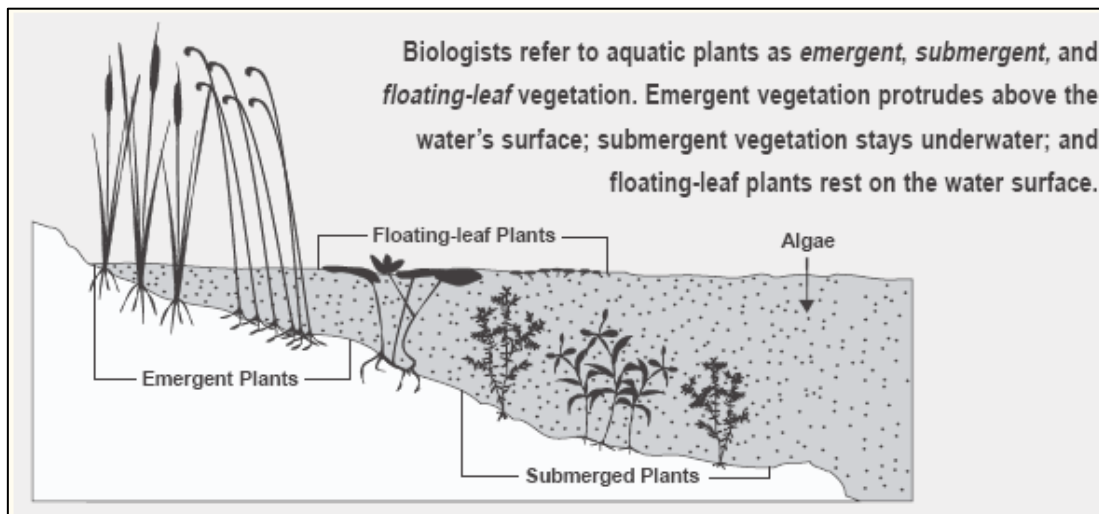
researchers surveyed green frogs on 24 developed and undeveloped lakes in Vilas and Oneida counties. Results indicated that as lakeshore development becomes denser, green frogs declined in abundance.

Songbirds may also be affected by shoreland development. Research results show that although the total number of birds may not change, the species does change. Less common neotropical migrant species like warblers and vireos decline, while abundant suburban-style birds like bluejays and grackles increase.

According to the Wisconsin Department of Natural Resources, nearly 80% of all the plants and animals on the Endangered Species List live all or part of their in the littoral (near shore) zone. Additionally, a United States Forest Service study found that there can be as much as 500% greater species diversity in the shoreline area than in the adjoining uplands. Scientists examining biodiversity in the Willamette National Forest found that the riparian forest area supported almost twice as many species than the upland forest area (Gregory and Ashkenas 1990).

Wildlife Corridors

In addition to serving as habitat, shoreland buffer strips also serve as wildlife corridors by connecting different ecosystems. Thus for animals that have large territories, or that move from one area to another, these corridors are critical to their continued survival. According to landscape ecologists Rogers and Premo (1997), the inter-connections between ecosystems are as important, if not more important, than the size of the ecosystems themselves. They suggest that corridors allow wildlife movement between animal populations resulting in increased genetic diversity and healthier species populations.



What can you do?

- Leave aquatic plants along your shoreline.
- Explore options for re-establishing aquatic plants along your shoreline.
- If you must remove plants, limit their removal to an area needed for boat access.

PICNIC FUN!!

If you weren't there, you missed a great picnic!

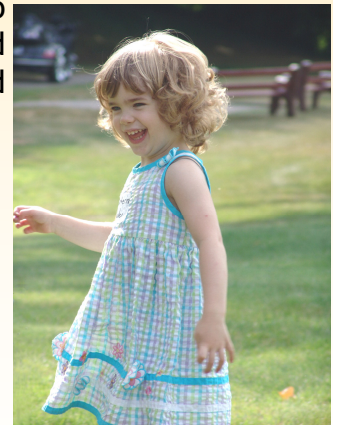
The 19th Annual Lake Sarah Improvement Association Picnic was held on Sunday July 22, 2007 at Jorgenson's "park" on Shady Beach Circle.

The summer LSIA General Membership meeting was held first beginning at 3:00pm, followed by games and activities for the kids including face painting by Pat Peterson.

The 100+ neighbors brought side dishes and desserts; the main course was provided by LSIA and was an excellent Mexican style buffet from Salsarita's Fresh Cantina.

This year's chairperson was Pam Peterson, who did a fantastic job again!

Thank you to the Jorgenson's for providing the use of their property, their canopies, and their "party trailer"...and also to all those who volunteered to help set up before and cleanup after the event.





July 4th Boat Parade

We had great weather and a great turnout for the 10th Annual July 4th Boat Parade. There were many decorated boats and spectators - a great time for kids and adults!

This year's top prizes were awarded to Peterson's Star Spangled Guitars (Most Creative) and Terry Wise's Dancing Sailors (Most Patriotic).

Thank you to all the participants, spectators, and to Sue & Tom Mitzell, our 2007 Fourth of July Boat Parade Chairpersons.



Winner - 2007 Most Creative - Peterson's Star Spangled Guitars (photo by Brad Spencer)



Winner - 2007 Most Patriotic - Terry Wise and her Dancing Sailors (photo by Brad Spencer)



2007 Parade Chairpersons and Judges (photo by Brad Spencer)



Get the Lead Out!

Non-lead alternatives for fishing tackle: Lead is a toxic metal that, in sufficient quantities, has

adverse effects on the nervous and reproductive systems of mammals and birds. Found in most fishing jigs and sinkers, this metal is poisoning wildlife such as loons and eagles.

But there is hope. There are alternatives to traditional lead tackle. Anglers can now use sinkers and jigs made from non-poisonous materials such as tin, bismuth, steel, and tungsten-nickel alloy — and they can find them at established sporting goods retailers and on the Internet. Water birds can die from lead poisoning after swallowing lead fishing tackle. Eating just one lead sinker can poison a loon.

Hook, line and sinker

When lead fishing sinkers are lost through broken line or other means, birds can inadvertently eat them. Water birds like loons and swans often swallow lead when they scoop up pebbles from the bottom of a lake or river to help grind their food. Eagles ingest lead by eating fish which have themselves swallowed sinkers.

The dangers of lead poisoning

A bird with lead poisoning will have physical and behavioral changes, including loss of balance, gasping,

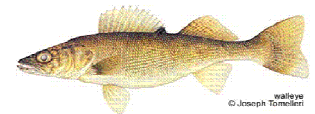
tremors, and impaired ability to fly. The weakened bird is more vulnerable to predators, or it may have trouble feeding, mating, nesting, and caring for its young. It becomes emaciated and often dies within two to three weeks after eating the lead.

Tips for Anglers to help safeguard wildlife

- Use non-lead fishing weights. Inexpensive and ecologically sound alternatives to lead fishing weights are available. Anglers should use sinkers and jigs made from non-hazardous materials such as steel, tin and bismuth.
- Never throw old fishing gear into the water or shore. Discard old lead sinkers and jigs properly. For example, you may want to bring them to your local household hazardous waste collection site during your next visit.
- Never put a lead sinker in your mouth or bite down on slip shot—use a pair of pliers instead!
- Always wash you hands thoroughly after handling lead sinkers or cleaning out your tackle box.
- Spread the word. Tell other anglers about the problem, and encourage them to switch to non-lead sinkers and jigs. Talk to your favorite retailers and ask them to stock non-lead fishing tackle.

Walleye Enthusiast

Joe Slavec



A big thank you to all of this years contributors!

David and Mary Allen
 Don and Kathleen Becchetti
 Tom and Tracy Bremel
 Harold and Renee Burrows
 Jeff and Kathy Carlson
 Scott and Shelly Heintzman
 Fred and Lynette Lang
 Beverly Lawless
 Mark and Judy Luhmann
 Robert and Ramona Meehan
 Len Nadasdy
 Jim Olson
 Vincent and Betty Pavik
 Craig and Mary Lou Peterson
 Mike and Pam Peterson
 Kirk and Britta Reiersen
 Steve and Julie Riley
 Jerry and Cathy Robb
 Dan Ryan

Rob and Donna Sheeley
 Kraig and Doris Smeby
 Brad and Lisa Spencer
 Delano Sportsman's Club
 Gary Stephens
 Jerry and Kathy Storlien
 Roger and Mary Van Beusekom
 Scott and Sylvia Walsh
 Norm and Mollie Wenck
 Marvin and Maryls Timm
 Scott and Laura Engle
 Gerald and Joan Evenson
 Suzette Rothberg

Please let me know if I have missed anyone!

Thank you to these individuals for your generous contributions. There are continued reports of individuals catching 6" to 10" walleyes after only two years of stocking!

I will be getting the tax deductible information out to you before the end of the year. Thank you again for your support on this project.

Goals for the upcoming year:

1. Meet with the DNR to gain the support of state run programs.
2. Apply for a Conservation and Appropriations Grant from a privately funded fisheries program.
3. Possibly do a 6" fingerling stocking - approximately 800 walleye this fall.
4. Continue to raise funds for next years spring stocking of fry.

Fish Story

Brian Hanson of Apple Valley caught this 22-inch, 5-pound largemouth bass on Lake Sarah. Jean Truax tells the story:

"I'm 80 and have lived on Lake Sarah in Loretto for 33 years. One recent Sunday my two nephews came to fish with their friend, Brian Hanson. They have fished here many times. They use my old aluminum boat with an old motor. Soon they came back to my dock, calling for me to bring my camera. 'Look at the big fish I caught on a fake frog!' Brian said. It's the largest largemouth bass we've seen caught in this lake. It just proves you don't have to have a fancy boat and motor to catch fish and have fun."



Minnesota Waters 2007 Legislative Update

AQUATIC INVASIVE SPECIES CONTROL & MANAGEMENT

Reprinted in part with permission from Minnesota Waters

The Omnibus Environment, Energy, and Natural Resources Finance Bill (SF2096) was signed by the Governor on May 8, 2007. The bill appropriates a total of \$865 million in 2008 & 2009 for Environment & Energy programs. SF2096 contained three provisions that Minnesota Waters was focused on: raising the boat registration fee to fund an Invasive Species prevention fund; providing funding for Clean Water Legacy; and, providing funding for statewide Shoreland rule-making. Here is an update on the Aquatic Invasive Species portion of the bill:

AQUATIC INVASIVE SPECIES CONTROL & MANAGEMENT

Background: A very active Minnesota Waters Aquatic Invasive Species Task Force spent many hours lobbying for additional funding for the prevention and management of aquatic invasive species. The DNR proposed to raise approximately \$2 million per year of additional funds for the management of aquatic invasive species through an increase in the watercraft license surcharge already going to aquatic invasive species, a new \$2 surcharge on non-resident fishing licenses, and a one time surcharge on utility trailers and towed recreational vehicles. The additional funds would be used for local grants to control Eurasian watermilfoil and curly-leaf pondweed as well as increased inspections and enforcement. Minnesota Waters found the funding goal is short of the amount needed to adequately manage and prevent the spread of aquatic invasive species.

Minnesota Waters had two bills, SF1994 and HF2216, for a larger boat license surcharge increase than proposed by the DNR—from \$5 to \$25— to increase funding for AIS control and management by approximately \$5 million per year. In addition to the priorities proposed by the DNR, Minnesota Waters' bills would provide additional monies for a new prevention grant program, functional containment of new AIS, an increase in the local control grants and a rapid response and treatment program.

Results: The Omnibus Environment, Energy, and Natural Resources Finance bill appropriates approximately \$3.7 million bi-annually of "new money" for management of invasive species – both terrestrial and aquatic. The bill also creates an Invasive Species Account in the natural resources fund, and will raise approximately \$2.19 million annually. Money received from currently existing surcharges on watercraft licenses under civil penalties, both dealing with management of aquatic invasive species, will be deposited in the Invasive Species Account. Additionally, there will be a \$2 increase on non-resident fishing licenses which will also be deposited in the Invasive Species Account. Money credited to the Invasive Species Account will be used for management of invasive species including control, public awareness, law enforcement, assessment and monitoring, management planning, and research. Please note that this money is dedicated for both terrestrial and aquatic invasive species management.

\$1,968,000 the first year and \$2,195,000 the second year from the Invasive Species Account is for law enforcement and water access inspection to prevent the spread of invasive species, grants to manage invasive plants in public waters, technical assistance to grant applicants for improving lake quality, and management of terrestrial invasive species on state administered lands. Priority will be given to preventing the spread of aquatic invertebrates. **An applicant for a grant to manage invasive plants in public waters must have a workable plan for improving water quality and reducing the need for additional treatment. Grants may not be made for chemicals that are likely endocrine disruptors.**

What's Next? Minnesota Waters is grateful to Rep. Scalze and Sen. Chaudhary for their support off Minnesota Waters' AIS bill. We are also grateful to the many members who contacted their legislators throughout the session. We appreciate the increases in AIS funding that has been accomplished, and look forward to working with the DNR to maximize the use of those funds for managing and preventing AIS.

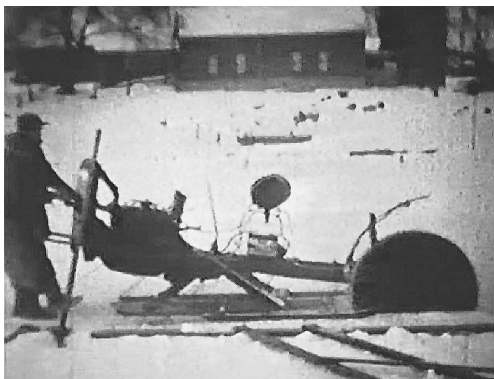
The Mielke Ice Cutting Business on Lake Sarah

by Brad Spencer with a lot of help from Art Mielke!

Herman and Cora Mielke purchased the Breezy Hill Resort (currently owned by Kimberly and Perry Buffie) in 1938. It had three cabins on the property at the time. Beginning in 1939, the Mielkes operated an ice harvesting business from their resort, cutting tons and tons of ice on Lake Sarah until Art Mielke (Herman's son) retired from ice making in 1974. Prior to 1945-46 when electricity came to the area, each resort and the dance hall had ice houses where they stored their ice until summer for use in their ice boxes and to cool their beverages. The Mielkes cut the ice to fill all of these icehouses. They also furnished ice for the Delano 4th of July celebration and the creameries in both Rockford and Delano. Whenever a wedding or party was to be held in the area, they would put the big blocks of ice into stock tanks to cool their beer and beverages.

Art Mielke has a videotape made in the early 60's from old movies taken by Art's sister, Irene. The video shows not only the ice cutting and storing process; it also shows the shoreline and many of the buildings that were located on their property. The Mielke's barn can be seen in the background of the photo. Art was kind enough to lend us the video, which has now been converted to digital. The video does not have an audio track, although Art hopes to add narration to the video soon. After converting the video, I spoke with Art who was quick to point out the movie made the process look much simpler than it truly was!

They started cutting when the ice was 16 inches thick. The ice usually got to be about 30 inches thick by the time they finished cutting. A record year was 38 inches! At that thickness, each block weighed as much as 400 pounds. Ice could only be cut when the air temperature was above 10 degrees F. If the air was too cold, the ice blocks became fragile and were prone to chipping at the corners or cracking. Herman Mielke made the ice grippers that the men wore on their boots while cutting the ice. Art recalls that great care was taken to keep the process safe. No one ever fell into the icy water. There was one close call when Art's dad stepped on a block of ice that he thought was part of a long tier that was not broken up yet. Fortunately, Art was close



behind him and grabbed his jacket, pulling him back to safety before even his foot got wet!

The ice was cleared and scratched with a chisel using a large wooden square to mark a large grid.

Herman Mielke made the power saw pictured (above) from the engine, drive train and transmission of a model A Ford with a 30" saw blade attached which he balanced on a cradle (like a teeter-totter on a skid). The saw was typically operated at 3/4 throttle using the model A's 2nd gear. Art still has a 40" blade from the saw for use when the ice was thicker. Herman and Art's uncle, Herbert Becker, typically operated the saw; both are

shown operating the saw together on the video and in the images above. The saw cuts were made in both directions such that there was 2" of uncut ice at the bottom. This was done for safety and to keep the water from getting into the cuts. The ends of each tier were cut by hand as they were broke out using the long hand saw as Art is shown doing in the picture (below).



When it was time to load the ice blocks (called kegs), a spud chisel was used to break off a long tier (row) of the nearly cut ice kegs. The row of kegs was then floated towards a conveyor that was positioned at the edge of the cutting area. The blocks were then broken apart and the individual kegs were then guided onto the conveyor and loaded onto the truck. It took only



a slight hit with the spud chisel to break the thin layer of ice that still held the individual blocks together. The truck could haul 22 ice kegs per trip. The conveyor, also made by Herman Mielke, was constructed of wood and angle iron and positioned 8" or so below the ice sheet. A wide belt over a wooden pulley powered by a "one lunger" engine drove the conveyor. The photo below shows Art Mielke sliding the kegs onto the truck using ice tongs. In the background of the photo you can see a couple of fish houses that the Mielke's used for fishing sunfish when they weren't cutting the ice.



(Continued from page 8)



The ice was stacked into each icehouse using another conveyer system. The photos show Art Mielke (on the left) feeding blocks off the truck onto the conveyor to his brother-in-law Ray Thompson (on the right). Ray pushed the kegs into the icehouse, probably forming the third or fourth layer of ice blocks. Each keg was trimmed using a chisel or shaver until it was square. The blocks had to fit tightly together leaving no air spaces between them to keep them from melting. It took two and a half truckloads to form one layer of kegs in the Mielke's icehouse. After each layer was set, the top of the new layer was shaved until all the kegs were the same height in preparation for the next layer. Depending upon ice thickness the icehouse would hold 5 – 6 layers or about 260 kegs on average. It would take a full day, or perhaps



day and a half, to fill their icehouse.

Eight inches of sawdust insulation was packed around the outside and on top of the ice blocks for insulation and protection from air. The sawdust came from the Greehling's who owned a steam-powered sawmill located on County Road 92, just north of the horse facility currently operated by the Shriner's.

The photos used here were captured from the actual video. To view the entire 10-minute video visit www.lakesarah.com and use the streaming video link that can be found on the History page (this link works best with a high speed internet connection).

Thank you to Art Mielke for continuing to share the memories and memorabilia from his family's long history on Lake Sarah! Also, Thank you to Mark Paulson who was able to convert the old movie into digital format so this video and these images can be viewed and shared!

Keep Phosphorus Out of Our Waters



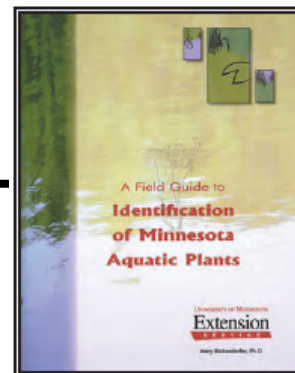
Minnesota's Phosphorus Lawn Fertilizer Law, was enacted to reduce over-enrichment of rivers, lakes, and wetlands with the nutrient phosphorus. Excessive phosphorus in surface water leads to an overabundance of algae and other aquatic plants. Restriction on phosphorus fertilizer use on lawns and turf started in 2004 in the seven county Twin Cities metro area and in Minnesota's other 80 counties in 2005. As of January 2007, Minnesota

is the only state in the nation which regulates phosphorus fertilizer use on lawns and turf.

Look for the middle number: The nutrient value of a fertilizer is indicated by a series of three numbers printed on its container. The numbers represent percent nutrient content of nitrogen, phosphorous, and potassium, in that order. A zero in the middle means a phosphorus-free fertilizer. A fertilizer marked with 22-0-15, for example, is phosphorus-free as the middle number is zero. Zero is defined to be less than 0.67% phosphate.

A Field Guide to Identification of Minnesota Aquatic Plants: New for 2007

This is a useful guide for people with no prior botanical training to identify most families of aquatic plants found in Minnesota lakes and rivers – even when the plants are not blooming. This laminated publication includes detailed information on aquatic invasive species, a glossary of basic botanical terms, and aquatic plant references. Cost: \$20 Item: 08242 To purchase online, visit <http://shop.extension.umn.edu/>.



The Great Northern Diver

One of the best things about going up north is sitting out on the porch of a lake cabin and listening to the haunting, sometimes melancholy sounds of the loon.

Characteristics

In the summer months, the Common Loon is very striking with its black-and-white checkered back, glossy black head, and characteristic white necklace around the throat. The white feathers of the belly and wing linings are present year-round, but all loons have grayish feathers in the winter. Both males and females look the same, although males are generally larger, ranging from 21 to 36 inches. Immature loons resemble adults in winter plumage.

Loon eyes are brilliant red probably to be attractive to the opposite sex and to be seen across the lake by other loons; it probably helps them to defend their territories the way the red epaulets help red-winged blackbirds defend their territories. During winter, when loons are not involved with mating or territorial activities, their eyes become a dull reddish-brown.

The bones of most birds are hollow and light; however, loons have some solid bones that make diving easier but flying more difficult.

This extra weight enables them to dive deep - in excess of 100 feet - to search for food. Once underwater loons can remain there for several minutes.

Even though loons are capable of diving deep and for long periods, most dives are shallower and shorter. For loons to dive and chase fish underwater without popping back up like a cork, their wings are as small as possible. The wings help propel them through the water, and to turn as fast as lightning while chasing prey. Because their bodies are heavy relative to their wing size, loons need a runway of 60 or more feet in order to take off from a lake. When airborne loons can fly more than 75 mph. To stay aloft on such small wings, loons must beat their wings fast and steady, and virtually never soar or glide even for a moment.

Another unique characteristic of a loon is its legs. These extremities are set far back on its body, which means a loon cannot walk like other birds. If on dry land, a loon must push itself along on its chest. Loons are excellent swimmers, using their feet to propel themselves above and under water and the wings for assistance. Because their feet are far back on the body, loons are badly adapted to moving on land. They usually avoid going onto land, except for nesting.

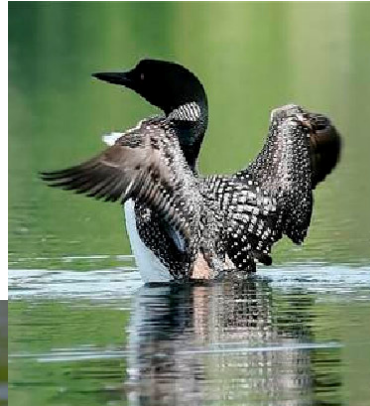
Behavior and Feeding

Loons spend their days hunting, feeding, resting, preening, and caring for young.

They are very territorial. In most species, the male signals that he is occupying a territory with a loud yodeling call that can

be heard several miles away. Territorial displays are elaborate and varied. They may rear up in the water with their bill pointed down and sometimes advance across the water in this position toward another loon intruding on their territory.

Their diet in summer consists of fish, crayfish, frogs, snails, salamanders, and leeches. Adult loons prefer fish to other food, and seem to favor perch, suckers, catfish, sunfish, smelt, and minnows.



Loons spend long rest periods motionless on the water. They may rouse themselves to stretch a leg or wing at intervals, occasionally comically wagging a foot above water. Loons peer underwater and move their heads from side to side to locate prey. Because loons hunt underwater primarily by sight, they usually inhabit clear water.

During dives, loons compress their feathers and force air from between their feathers and from the air sacs

in the body. Losing air also allows loons to quietly sink below the water's surface to avoid danger. To avoid a distant Bald Eagle, and to escape detection in the first place while the eagle is still far away, the loon will slowly sink into the water, without leaving a ripple.

Common Loons spend little time on land and literally have to pull themselves onto land to nest. They generally move one foot at a time to walk, shuffling along with their breast close to the ground. When returning to the water, the loon slides in along its breast and stomach. At night, loons sleep over deeper water, away from land, for protection from predators.

Family and Social Life

In spring, loons arrive on northern lakes as soon as the ice thaws. Loons are solitary nesters. Small lakes can accommodate one pair of loons while larger lakes may have several pairs of breeding loons, with each pair occupying a bay or section of the lake.

Until recently, loons were thought to mate for life. However, banding studies have shown that loons will sometimes switch mates after a failed nesting attempt and even between nesting attempts in the same season. Loons are actually more attached to their nesting lake than to a specific loon partner. Courtship and mating are a quiet time with most loons having synchronous displays of swimming and diving together. Eventually, the male leads the female to a suitable spot on land to mate. Nest building then begins.

Loons build their nests close to the water, with the best sites being completely surrounded by water, such as on an island, muskrat house, half-submerged log, or sedge mat. The same sites are often used from year to year. Loons will use whatever materials are on hand to build their nests; pine tree needles, leaves, grass, moss and other vegetation have been found in loon nests. Some-



times clumps of mud and vegetation are collected from the lake bottom to build the nest which is 1 to 5 inches high. Both the male and female help with nest building and with incubation, which usually lasts 26-31 days.

Usually in June, the loons lay only one or two eggs because their body size and physiology does not allow them to produce any more than that. The eggs are big—about the size of one and a half tennis balls - and it takes a lot of energy to produce two of them! Also, loons live for a long time—up to 30 years old, which is a long life compared to most birds. Animals that have long life spans produce low numbers of young. This prevents overpopulation and exceeding the carrying capacity of the habitat.

The eggs are greenish-brown with dark speckles that match their muddy nests. Because their nests are on a shore and often have little or no cover from above, the color and speckling help provide camouflage to protect them when eagles or gulls fly over. A female loon has only one working ovary, so her body can produce only one egg at a time. She lays her eggs 1-3 days apart, but the eggs usually hatch a little closer together than the time they were laid.



Young loons fight to establish a "pecking order" between the chicks. Loon chicks often hatch 24 hours apart and usually the first chick to hatch is slightly bigger and more dominant. When the parents bring food, the bigger chick is more likely to get fed. While this may seem cruel to the smaller sibling, it is a survival mechanism. If the loon parents don't bring enough food for both chicks, the larger dominant chick is likely to survive rather than both chicks being weaker and more vulnerable.

Towards the end of June, loon chicks covered in brown-black down appear on the water. Loon chicks can swim right away, but spend some time on their parents' back to rest, conserve heat, and avoid predators such as large carnivorous fish, snapping turtles, gulls, eagles and crows. After their first day or two of life, the chicks do not return to the nest.



Chicks are fed exclusively by their parent for the first few weeks, and up until eight weeks of age, the adults are with them most of the time. After this time, the chicks begin to dive for some of their own food, and by 11 or 12 weeks of age, the chicks are providing almost all of their own food and may be able to fly. At migration time, the young are able to look after themselves. The adults generally leave first, flying from the breeding lakes to coastal waters as far south as central Mexico. The young follow on their own, often as long as a month later. They will not return to their natal lakes until they are 3 to 4 years old and are ready to breed.

Although they are thought of as solitary birds, loons sometime gather into small groups in the summer, called rafting. In September, group feeding is quite common as loons gather on larger lakes during migration. Rafting may help loons to feed

more efficiently. Adults gather on a few large, non-breeding lakes, allowing the young to remain on their breeding lakes without competition as their flight feathers grow all the way in and their wings grow strong enough to finally migrate. Also, as loons lose their territorial drive in late summer and feed in groups, they no longer spend time and energy chasing off other loons. It may also help to prevent loons being attacked by predators because there are more eyes looking out for attacks.

Loons are completely flightless without every single one of their feathers. With a complete set of flight feathers, their wings have just about the minimum amount of surface area to hold up their bodies. If a loon were to try to fly while missing three wing feathers, the surface area of its wing would be too small to hold up its body! To minimize the time that they are flightless, loons molt all the feathers at once. Loons are flightless for about 2-3 weeks, usually in February, while their new feathers develop. This is the time when loons are in greatest danger. Not only are they unable to

fly, but they must expend a lot of energy to grow feathers. Since they are using their energy stores they are less able to deal with diseases at this time. When the molt is finished, they have brand new feathers for their trip north.



The Voice of the Loon

Perhaps one of the most fascinating things about the Common Loon is its haunting and variable voice. Loons are most vocal from mid-May to mid-June. They have four distinct calls which they use to communicate with their families and other loons.

- The tremolo is also known as the "crazy laugh." It is used for a variety of purposes, such as to signal alarm or worry and to denote annoyance or greeting.
- The wail call sounds much like a wolf's howl. It is used frequently during social interactions between loons and may be used to regain contact with a mate during night chorusing and in answering other loon tremolos.
- The yodel is given only by the male. It is a long, rising call with repetitive notes and can last up to six seconds. It is used by the male to defend his territory and can be simulated by another male entering a loon's territory.
- The hoot is a one-note call that sounds more like "hot." It is mainly used by family members to locate each other and check on their well-being.

(Continued on page 12)

Place label here

(Continued from page 11)

Threats to the Loon

Human activities are causing loons to disappear from many lakes. Traditional nesting areas have been destroyed by development of shorelines and islands for summer homes, campgrounds, and marinas. Being disturbed by tourists, pets, motorboats, jet skis, etc., especially during sensitive nesting and chick-rearing periods, can reduce loon populations. Pollution of lakes where loons nest can lead to build-up of toxins in eggs and young. Water pollution can also harm food supplies for chicks and adults--pesticide run-off, mercury, and lead are some of the worst.

To help digestion, loons swallow small pebbles from the bottom of a lake. Similar to grit eaten by chicken, these gastroliths may assist the loon's gizzard in crushing the hard parts of the loon's food or they may be involved in stomach cleaning as an aid to regurgitation of indigestible food parts. Loons may inadvertently ingest small lead pellets, released by anglers and hunters, which will slowly cause the loon's death by lead poisoning. Results of mortality studies have shown that lead sinkers and jigs are the primary cause of death of adult loons, while boat and personal watercraft collisions account for more chick deaths than any other cause.

LSIA Fall General Meeting

The LSIA Fall General meeting will be held Thursday, October 25th at Independence Town Hall on County Road 90 at 7:00 p.m. Note the date on your calendar and be sure to participate in a very important meeting on improving the water quality of Lake Sarah. Several LSIA Board positions (President, Secretary, and 2 Directors) will be up for election at the April meeting in 2008. A Nominating Committee will be formed at the Fall meeting to identify LSIA members that are interested in these positions. Each position is a two year term.