

# JESSIE LAKE WATERSHED ASSOCIATION



# JESSIE JABBER

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## **GREETINGS FROM PRESIDENT HAROLD GOETZMAN:**

As we look forward to the new lake season, I hope this finds you all well and enjoying the spring weather. After returning from a recent trip to SE Asia, I feel very fortunate to be thinking about my favorite place for fishing and recreation, Jessie Lake. In Cambodia we visited Tonle Sap Lake, which is about 75 miles long and the largest freshwater lake in SE Asia. Water quality does not appear to be a term they are familiar with as it was hard to believe the condition of that lake. We thought our guide was kidding when he told us to bring a handkerchief to cover our noses because of the smell – not so! We are lucky to live where people consider fresh water to be a valuable resource that needs protecting and best of all; we still have water we can drink.

The start of this year again finds us without an active grant committing us to a large number of volunteer hours for specific project activities. As you may remember, based on the results of our previous Clean Water Partnership (CWP) grant work, we applied for a Phase II grant last fall. However, the Minnesota Pollution Control Agency (MPCA) did not select us for funding. As it turned out most grant work at the MPCA was tabled because of budget constraints. At a recent meeting with our agency partners we agreed to update our application and resubmit it this fall. We are also looking at alternative sources for grant money. However, we still plan on monitoring the walleye spawning, keeping Spring Creek free of debris, installing loon nesting platforms, water sampling, and installing more rock in Spring Creek to provide additional walleye spawning habitat (Department of Natural Resources funded). We had hoped to get the rock in last fall, but due to budget problems at the DNR the project was delayed.

I was again reminded this winter why it is important to have a healthy and active watershed association when we got involved in a project to remove erosion material from Jessie Lake. This required working with the people at the DNR, Itasca County, and the Soil and Water Conservation District (SWCD) to complete the project in a timely manner before the frost went out. You can read the details in a following article in this newsletter, but the main point is that this was a great example of how well the Jessie Lake Watershed Association (JLWA) and the various agencies can work together to benefit all the people of Itasca County in protecting our valuable resources. However, the agencies still need concerned citizens like our members to stay involved and help provide direction as to the needs of the area. Public awareness, community involvement and good stewardship are all characteristics necessary to being a good citizen. In this regard, make sure your county representative knows your feelings on shoreland alterations and dwelling density so he/she can act accordingly in setting a new county zoning ordinance.

This spring Bill Nichols and I will attend a workshop on shore land management and land use practices that impact water quality. We hope to obtain educational materials relating to shore land vegetation and other means of erosion control that we can share with our members. Give us a call if you have concerns regarding your shoreland.

Hope to see you all at the spring meeting at 10:00 a.m. on May 24<sup>th</sup>. Come early and have coffee with your directors, neighbors or maybe meet someone new.

## **WATER QUALITY 2002**

**By Harold Goetzman**

During the summer of 2002 we continued to monitor the water quality on Jessie Lake. Equipment was borrowed from the SWCD and the lake was sampled once a month from May to September, or five times. This is the minimum sampling program recommended by the MPCA to give a reasonable summer average. We also measured the Secchi disk transparency or water clarity every two weeks. During this time the lake level fluctuated nearly two feet, from rather low spring and fall levels to an almost record high, after two six-inch rains in June.

The results of the water sampling indicated that we experienced the worst water quality since the summer of 1998 and in fact the numbers were disturbingly closer to that record bad year. If you remember, it was the poor water quality data from 1998 that prompted us to apply for the CWP grant to continue detailed sampling for the following three years. The average phosphorus for 2002 measured 46 ppb compared to 59.9, 32.1, 31.4, and 31.6 ppb for the years 1998 through 2001. The following table shows the Trophic State Index (TSI) as estimated by phosphorus (TSIP), chlorophyll (TSIC) and Secchi disk (TSIS) for the years we have available data. Since the TSI is a logarithmic scale (0 to 100) each increase of 10 units represents a doubling of total phosphorus or a reduction in water transparency by half.

YEAR	TSIP	TSIC	TSIS	MEAN TSI
1986	51.3	50.0	47.8	49.7
1992	50.2	45.8	39.5	45.2
1998	63.8	61.0	53.8	59.6
1999	54.0	53.0	46.8	51.3
2000	54.4	52.7	44.4	50.5
2001	53.8	55.0	46.5	51.8
2002	57.7	59.2	47.9	54.9

The decline in water quality last summer may have been due to the unusual weather that we experienced. The heavy rainfall in June washed a large amount of nutrients (including the NW beaver pond) into the lake and then we had a very hot and dry period, which also increased the nutrients coming from the bottom sediment. The result was we saw green algae blooms much later into the fall than normal. Hopefully, we will see a return to more normal weather patterns for a few years that will help stabilize the water quality in Jessie Lake.

### **LAKE PROTECTION - WHAT CAN YOU DO?**

#### **MPCA RECOMMENDATIONS**

People often ask what they can do to help their lake? One of the best ways you can protect a lake's water quality is by implementing best management practices (BMPs) in the near-shore area. These activities help control non-point source pollution and reduce the amounts of soils and nutrients entering the lake. The MPCA has established a list of 7 Great Shoreland BMPs to follow.

- Use "phosphorus free" lawn fertilizers only as needed and don't fertilize along the shoreline.
- Septic systems should be properly maintained and currently up to code.

- Do **not** deposit grass clippings, leaves or other organic materials in the lake.
- Encourage woody vegetation and tall grasses (buffer strips) to stabilize the shoreline and prevent runoff.
- Always maintain natural vegetation when possible or slow shoreland runoff with gentle slopes or terrace landscaping.
- Minimize disturbance and removal of aquatic plants; as they are vital to the health of the lake and fisheries.
- Work with the lake association and local officials (SWCD) to ensure that the local water plan contains protective/restoration management efforts for your lake.

## **JESSIE LAKE SEDIMENT REMOVAL PROJECT**

**By Harold Goetzman**

Due to the abnormally high rainfall in the later part of June 2002 a segment of CR 135 was overtopped by runoff at the Tilly's Creek culvert. The two six-inch plus rainstorms caused a beaver dam to rupture which in-turn caused erosion of the roadway and portions of the stream bank and bed. This erosion deposited a large delta of material in Jessie Lake in front of Bill and Lil Baird's property. The lake water quality model that was developed from our past CWP project was used to show that the amount of phosphorus contained in these sediments could have a significant effect on future water quality. In addition, valuable shoreline habitat would be impaired as future wave action moved this material to the north.

The DNR, SWCD, JLWA and the Bairds agreed that it would be desirable to remove those materials and entered into an agreement with Itasca County to correct this problem. Several meetings were held to discuss this project and it was agreed that due to the low water levels in Jessie Lake it would be best to complete the removal during this past winter. Thus, the DNR and Itasca County proceeded to work out the details and costs for removing this sediment in a very timely manner. With the support of our County Commissioner (R. Klegstad), the County Board approved the project through use of funds in the County Environmental Fund. This fund consists of the receipts from the sale of lease lake lots and the interest is available for funding environmental improvement projects.

An access road was cleared through Bill and Rhonda Nichol's property, which was critical for the success of this project. During the week of March 10, 2003 an estimated 1500 tons of sediment, or about 200 truckloads, were removed from Jessie Lake and hauled to a nearby field. An excavator with a frost hook was used to first loosen the material and another machine loaded the trucks. With great weather and excellent cooperation of all parties involved the project was completed on time and without any problems. Thanks are in order to all those involved.

## **ICE RIDGES**

**Reprinted from MLA Reporter Volume 7, Number 1.**

Property owners returning to their cabins this spring may discover they are dealing with ice ridges caused by this winter's wide range of temperatures and lack of snow cover. "Without a buffering snow cover, temperatures between the top and bottom of the ice varied significantly, leading to cracking of the ice" said Russ Schultz, Supervisor of the DNR's Division of Waters Lake Management Program. "Water then rises in these cracks and freezes, resulting in slight expansion of the ice sheet. When air temperatures rise and warm the ice, additional expansion

exerts a tremendous thrust against the shore (ice jacking). The expanding ice sheer moves soil to create ice ridges as high as five feet or more.”

While you might be tempted to remove the ice ridges, remember that ice ridges are part of the balance of nature that has protected our lakes for thousands of years. They protect the lake by providing a natural barrier to nutrient loading and further help protect the shore from erosion. Nesting and spawning fish also benefit from the ice ridges. If the ice ridge is 6 to 8 feet high and prohibits the use of the lake, then it’s reasonable to remove a portion of it. However, as shores continue to erode and fish populations continue to decline, it might be time to consider a change in how we think about ice ridges. Consider leaving the ice ridges, or at least minimize how much is removed. This is a good time to consider planting a naturalized lakeshore and using the ice ridge to form a rain garden along the shore. It can be beautiful – very lake friendly – and a lot less work now and in the future. Come to the MLA annual meeting to hear more about this and other important lakeshore issues.

If you do remove the ridge, a permit is required for shoreland restoration. Contact the DNR office, your local planning and zoning authority, or the SWCD office. Our lakes have been here for 12,000 years; laws allowing the removal of ice ridges have been here for about 30 years. Maybe we should allow nature to perform its miracles without our interference.

## **TURNOVER - NOT A PASTRY**

**By Harold Goetzman**

Often we see a sudden change in water quality, as a green algae bloom appears almost overnight during the summer months. Usually, the comment is made that the lake “turned over” causing the green water. During the summer most lakes such as Spring and Peterson tend to form thermal layers which trap nutrients in the cold bottom layers. These lakes are subject to spring and fall “turnover” and are referred to as dimictic lakes. However, lakes like Jessie that are shallower and subject to mixing by winds are susceptible to “turnover” during the summer months and are referred to as polymictic lakes. With turnover, the phosphorus, which may have recycled from the bottom sediments under low-oxygen conditions, is now brought into the sunlit zone and becomes available for use by algae. Some algae, such as diatoms, which prosper in cooler water, often “bloom” in response to this sudden surge in nutrients. These blooms are often short-lived and the diatoms will settle to the bottom of the lake, taking with them the phosphorus in their cells. This cycle continues to build the supply of phosphorus in the sediment over many years as we have found in Jessie Lake.

The lake “turnover” that occurs in the fall is the result of gradual cooling of the lake surface waters. An important factor is that water is most dense (heaviest) at 39F and as temperature increases or decreases from 39F it becomes increasingly less dense (lighter). As water temperatures cool, the surface layers become denser or heavier than the underlying layers, and sink resulting in the mixing of the top and bottom waters. The consequence of this turnover is again the mixing of the nutrient-rich bottom layers with the top resulting in an algae bloom. Jessie, Spring and Peterson lakes experience this phenomenon in the fall. During spring, the process reverses itself as ice melts and surface waters warm to 39F and sink until the water temperature at all depths reaches approximately 39F. This sinking of heavier water combined with wind mixing causes spring “turnover”.

Be careful the next time you ask for a “turnover” - you may not get a pastry.

## **HISTORY HIGHLIGHTS OF THE JESSIE LAKE WATERSHED**

**By Neil Gustafson**

Following is a list of highlights in the history of the Jessie Lake Watershed (JLW) arranged in “eras” or time periods since the 1800’s that have similar characteristics. This is a working outline that is amended as significant new information is acquired. Individual items or combinations of items in the list represent potential areas for further research.

### **Indigenous Era: before 1800**

- virgin timber and wetlands
- mixed northern hardwoods dominant; wetland and upland conifers
- natural resource balance
- beaver was most important landscaper
- drainage headwaters; no major stream or water transport in Jessie Lake Watershed (JLW)
- native persons at very low density; occasional traversing of JLW
- no evidence of long term native settlements
- Big Fork, Rainy, & Mississippi Rivers were “major thoroughfares”
- burial mounds along thoroughfares
- European settlers in Eastern USA pushed native people westward
- subsistence non-monetary economy: hunting & gathering
- communal self sufficiency
- native remedies for illness

### **Exploration/Trapping Era: 1800-1850**

- major rivers are arteries of transport
- non navigable streams, JLW bypassed by explorers
- trappers followed beaver (also mink, fox, muskrat)
- JLW trapped intensively; pelts shipped to European markets
- fur trade: Northwest Co., American Co.
- native people pushed westward
- territorial battles between Ojibway and Sioux
- Sioux eventually pushed west and south onto prairie
- little protection, support or supplies available to prospective settlers
- Minnesota Territory established 1849; Itasca one of original nine counties

### **Statehood and Pre-settlement Era: 1850-1900**

- Minnesota organized as a state, 1858
- rapid settlement on fertile soils of southern and western MN
- timber cruisers and tree inventorying in JLW
- beaver market curtailed - fur hats replaced by silk
- trapping declined and beaver population gradually recovered
- JLW surveyed in 1875
- iron ore discovered on Mesabi Range in 1887 and developed 1890s
- first recorded homesteads in JLW were in late 1880’s

### **Logging Era: 1900-1910**

- intensive timber cutting - mainly white and red pine
- logging camps pushed northward
- Jessie Lake township organized 1901 (41 people in 1900 census)
- National Park proposed; Minnesota Forest Reserve established 1902, renamed Minnesota National Forest, 1908
- timber removed from land; short term profits prevailed over conservation
- tote roads and trails only JLW access until RR
- railroad extended from Deer River to access timber and serve settlers; reached Jessie Lake in 1903
- hunting and fishing attracted seasonal visitors
- logging peaked in JLWA about 1910, then pushed northward
- homesteading, stump removal and cultivation of cutover lands

### **Settlement Era: 1910-1950**

- subsistence agriculture: mainly hay, potatoes, garden vegetables and dairying
- forest fires fueled by slash (cuttings from downed timber), severe in 1910 - 1915
- villages established along routes of transportation
- telephone service began, 1911 (mainly RR use at first)
- first all-weather roads about 1915
- Bowstring Township split from Jessie Lake Township in 1916
- World War I 1917 – 1919
- Farm Bureau branch established at Jessie Lake 1921
- trucks and cars replace railroad 1920's
- Minnesota National Forest renamed Chippewa National Forest, 1928; expanded to include JLW, 1933
- CCC camps; reforestation during 1930's
- M & R Railroad bankrupt, tracks removed in 1934
- villages grew to serve settlers then faded after WW II: Mack, Jessie Lake, Spring Lake
- peak permanent population 552 in 1940; land in farms declined thereafter
- contraction of agricultural frontier to more fertile soils in S & W Minnesota
- lakeside farms rented boats and rooms, later built cabins, some became fishing/hunting resorts; DeGroote's, Lindgren's, Woods
- electricity arrived at Jessie Lake, 1945
- rural schools established at Alzen, Combs, Jessie Lake, NW Jessie, and Spring Lake
- post offices established: Jessie Lake 1909-54; Mack-Hayslip's-Talmoon 1912-54; Spring Lake 1912; Bowstring 1902; Marcell 1902; Bass Lake 1913-43
- churches organized: Pilgrim (Swedish) Lutheran; Norwegian Lutheran, Jessie Lake Baptist (1911), Spring Lake, Bowstring (1957)
- cemeteries: Greenwood, Norwegian, Spring Lake
- Sunday baseball - every community had a team
- World War II, 1941 - 1945
- Minnesota iron ore production reaches peak as hematite depleted

### **Diversification/Expansion Era: 1950-1990**

- most agriculture part time
- some fields returned to woodlots
- taconite process developed and amendment passed; new vigor to Mesabi Range 1960s
- school consolidation; North Elementary built 1956; rural schools closed
- year-round population bottomed out at 349 in 1960
- DeGroot's Resort (Stone's) on Jessie Lake closed in 1968 and the cabins sold
- vacationers seek hunting, fishing and more
- logging stabilizes; reforestation; aspen valued, no longer a "weed"
- automobiles and paved highways make remote lakes accessible
- increase in private lakeshore development

### **Contemporary Era: 1990 - 2002**

- development pressure increases around lakes
- year-round retired residents bring new money and economic stimulation
- independence emphasized over interdependence
- small resorts sell out or modernize: Jessie Lake (Wood's); Jessie View (Ayer's); Aspen Springs (Birchwood), Three Cedars; Van Cleve (closed)
- JLW equals 32 square miles; 12% water; 35% privately owned land (1995)
- 68% of private land is forested, remainder pasture, fields, homesteads (1995)
- seasonal and second homes increase to 289 in 2000
- total population reached new peak of 577 in 2000
- Jessie Lake Watershed Association established, 1998
- Jessie Lake walleye spawning beds constructed in Spring Creek, 1999
- Jessie Lake Shoreline Restoration project initiated, 1999
- Conservation Partners Grant received; extensive water sampling 2000 – 2001

## **WEST NILE VIRUS IS HERE**

**By Harold Goetzman**

The West Nile Virus has arrived in northern Minnesota as mosquitoes are spreading the virus to people, birds, and horses. In 1999 the West Nile Virus found its way to New York City after spreading across Europe and Africa. From New York, the virus has spread to 43 states and last year killed 250 Americans and sickened 4,000 more. Crows, blue jays, and horses have been the most affected by the disease. Last year more than 91,000 dead birds were reported and over 400 horses died. So far, only birds and horses have been infected in Minnesota and Wisconsin. However, the outbreak is expected to be worse in 2003.

In general, however, the risk is not particularly high for the average person. The virus is spread by mosquito bites. Less than a tenth of one percent of all mosquitoes carry the virus and less than one percent of people infected with the virus develop serious illness. People cannot pass the virus from one to another and there is only a slight chance humans could get infected from handling an infected dead bird. The most susceptible people to the virus include the elderly and those with suppressed immune systems. While there is a vaccine for horses, there is neither a vaccine nor a cure for humans with the worst cases of infection. The virus can lead to encephalitis, an inflammation of the brain, but often the symptoms are mild. Normally, the infection causes a fever, headache, body aches, skin rash, and swollen lymph nodes.

The solution is prevention, which means using an insect repellent with DEET concentrations of less than 30%. The mosquitoes that carry the virus typically bite at dawn and dusk so avoiding the outside during these times and wearing long sleeves and pants can help. Also, remove any containers of stagnant water in your yard to discourage mosquito breeding.

If you find a dead bird and are concerned it could be infected you can call the MN Dept. of Health at (877) 676-5414.

## **PURPLE LOOSESTRIFE**

**By Harold Goetzman**

Purple loosestrife has now spread to the Jessie Lake area so it is important that you watch for it and report any sightings. It was observed last summer along County Road 135 on the north end of Jessie Lake. This exotic plant is spreading to wetlands across the region and is choking out native plants and destroying habitat for wildlife.

Purple loosestrife is a beautiful, but aggressive invader, that arrived in the US from Europe during the 1800's as a garden perennial and was distributed by nurseries as an ornamental wildflower. The plant is a very hardy perennial, which can rapidly degrade wetlands and shoreline areas by replacing all the other species of plants. Other wildflowers such as fireweed, blue vervain, swamp loosestrife, and winged loosestrife are often mistaken for purple loosestrife, but each has a distinguishing difference and is not a problem. The flowers of the purple loosestrife have five or six pink-purple petals surrounding small, yellow centers. Each flower spike is made up of many individual flowers. The leaves are downy with smooth edges and are arranged opposite each other in pairs, which alternate down the stalk at 90-degree angles. The woody stalks are square or six sided and can be up to 6 feet tall.

One concern is that the plant is now invading drier sites and is encroaching on pastureland and road ditches. Once it spreads, the control problem becomes more difficult because each mature plant can produce up to 2.7 million seeds annually which are easily spread by wind, water and wildlife. Control methods used are digging, cutting, chemical and biological depending on the size of the infestation. Controlling the spread of purple loosestrife is crucial to protecting vital fish, wildlife and native plant habitat. Give me a call if you have seen some in our area.

## **AVAILABLE RESOURCES – JLWA**

The JLWA has acquired a number of resource materials that are available for members to use. The following is a list of items that can be borrowed by coming to the spring meeting or calling Harold Goetzman (218-326-3908):

- Jessie Lake Assessment Report for 1998, SWCD, Justin Watkins and Rian Reed
- Jessie Lake Clean Water Partnership Report to the MPCA (1998 - 2001), SWCD
- Phosphorus and the Trophic State of Jessie Lake – Development of a Model for Future Management, 1987, Jeffery Goetzman
- Lakescaping for Wildlife and Water Quality, DNR, Carrol Henderson et al
- The Itasca Lumber Company – A History of Logging and Settlement, USFS Chippewa National Forest, Keith Matson
- Jessie Lake – The First Fifty Years, 2001, Olga Lindgren Wise
- Restore Your Shore. DNR CD (2 copies-Windows Required)



## **DID YOU KNOW?**

**By Harold Goetzman**

- Minnesota is home to 29 of the 52 species of neo-tropical warblers and 26 are found in the Chippewa National Forest.
- Ray Reigstad of Duluth has made 11 gallons of Army Worm Wine. Connoisseurs have reported it has a taste that is dry and crisp similar to a pinot grigio. It takes 1 1/2 pounds of worms per gallon so it is best if you wait until mid-June to collect them when they are the biggest. A nice touch is to freeze a few and put one in each bottle.
- Minnesota has more than 2500 miles of trout streams.
- Wildlife watchers spend \$14 million/year on binoculars and spotting scopes.
- In Minnesota about \$42 million is spent each year on minnows.
- About 6,000 of Minnesota's 10,000 lakes hold game fish according to the DNR and they provide 3.8 million acres of fishing water.
- Minnesotans love to fish more than people anywhere else as Minnesota ranks first nationally in the sale of fishing licenses per capita.
- The top three most caught fish species in Minnesota are panfish, walleye, and northern pike.
- In October 1901 Louis Sjolund built a house on the east side of Jessie Lake and was considered the earliest settler in that area.
- Olaf/Ole Lind came to the east side of Jessie Lake in 1899 and filed for homestead on 160 acres.
- The creek by the church that we refer to as the NE Inlet was originally called Lina's Creek. Lina was Willard Lind's aunt, a single lady and it was her log house where the first school was held in Jessie Lake, which was named the Sjolund School.
- According to Field & Stream magazine, Minnesota's canoe-country wilderness ranks among the "Top 20 Places in North America to Wet a Line". About the Boundary Waters Canoe Area they said, "The fishing may have been better long ago, but that's tough to imagine."
- Itasca County taxes include a solid-waste disposal fee of \$35 for residential and \$25 for seasonal property. This is a \$5 increase for 2003 to pay for increased costs at the landfill.
- Our electric coop, North Itasca Electric, services 1195 miles of line for 4815 customers
- Dog and other animal waste also contain nutrients harmful to the lake. They should be picked up from the yard and disposed of either away from the lake or put into the septic system.
- Our web site ([www.mnlakes.org/Jessie](http://www.mnlakes.org/Jessie)) is updated regularly containing meeting notices and the latest issue of the Jabber.

## **SPRING MEETING**

The spring meeting of the JLWA will be held at the Bowstring Town Hall on May 24<sup>th</sup> at 10:00 AM. Following the business meeting there will be a guest speaker, but we do not have confirmation on the subject at this time. Come early (9:00 AM) to have a cup of coffee and visit with your Directors and fellow members before the meeting.

## **MEMBERSHIP**

The JLWA presently has 88 paid members. If you have not paid your dues send \$10 to Neil Gustafson, 47521 Tilly Road, Talmoon, MN 56637.