

## 2003 LSA Board Meeting Minutes

### LAKE SHAMINEAU ASSOCIATION BOARD MEETING MINUTES January 11, 2003

The Lake Shamineau Association president, Dale Williams, requested a meeting of the board on January 11, 2003. The meeting was held at the Scandia Valley Town Hall. Members present were Dale Williams, Vern Sowada, Eugene Floistad, Carolyn Held, Dale Mashuga, Bill Faust and Maggie Hirschey. Members not in attendance were Marlene Friedl, Deryl Ramey, Troy Hradsky and John Koll.

President Dale Williams called the meeting to order at 10:10 a.m. Secretary Maggie Hirschey read the minutes. They were approved as corrected. Vern Sowada, treasurer, reported as follows:

**Balance 8/31/02 - \$1,351.73**

9/2/02	1006 Lakes Printing printing	-161.56
9/5/02	Memberships	540.00
9/10/02	1007 Morrison Cty	-14.02
9/12/02	Hugo Heiling memorial	-30.00
10/21/02	Memberships	160.00

Total 9/1/02 – 1/11/03 494.42

**Balance 1/11/03** 1,846.15

Total Inflows	700.00
Total Outflows	205.58
Net Total Inflows	494.42

#### **OLD BUSINESS**

##### No Wake Signs

Eugene inquired as to the status of the “no wake” signs. It wasn’t known if there are permanent signs posted. The Water Quality Committee will follow up to see if signs have been posted.

##### Water Quality

Aqua Tech conducted a test on Oct. 7, 2002. A sampling was taken from four areas of the lake. Eugene received a report, but it was unclear what the numbers indicate. He will contact Aqua Tech for clarification.

### August 31<sup>st</sup> General Meeting

Dale stated he was pleased with the turnout at the meeting and by the positive comments from those attending. The displays done by the committees were well done and received a lot of interest.

### Vacant Seat on Board

A vacancy has been created by the death of Hugo Heiling. President Dale Williams made a motion to ask Luella Heiling be asked to serve out her husband's term. If she wishes not to, it will remain empty until the Spring election. Motion passed. Carolyn Held will contact Luella.

## **NEW BUSINESS**

### Ice Heaving

It has been reported that there is ice heaving problem on the West side of the lake. Bill Faust has information on a DNR approved solution to ice heaving. He will contact the company and get literature.

### Lakes and River Days

Lakes and River Days will be held April 26<sup>th</sup> at a location to be announced.

### Mission Statement

President Dale Williams conducted a brainstorming session to put together a mission statement for the association. After input from the board members the following statement was voted on and approved: "The Lake Shamineau Association is an organization dedicated to lake preservation, to wildlife habitat, to building of community."

### Goals

As an association we will communicate, monitor water quality, have involvement with the members, involvement with agencies involved with the lake, improve fishing. We will accomplish these goals by informing via newsletters and website, annual meeting, social events and canvassing lake residents. The Water Quality Committee will continue to monitor the water quality. The Fishing Committee will foster and improve relationships with the DNR by inviting them to our meetings. They will solicit new members for their committee.

### Meetings

The association will hold general meetings in May and September. The board will meet one month before the May meeting and directly after the May meeting. The May meeting this year will be held after the Lakes and River Days meeting. The January board meeting will be held the second or third Saturday of the month.

### Newsletter

The newsletter will be printed in March or April.

### Committee Reports

Water Quality Committee – See Old Business

Membership Committee – Nothing to report at this time.

Fishing Committee – Dale Mashuga observed the DNR netting

### Miscellaneous

President Dale Williams requested that committees send him a listing of their membership. They should submit a report to secretary Maggie Hirschey detailing their plans, meeting dates and results. These details will be published in the newsletter and reported at the annual meeting.

Maggie will call Herb Blomquist, director of Camp Shamineau to see if the annual meeting can be held at the camp.

President Dale Williams stated that his goals are to finalize the association's non-profit status and to give members the sense that they have input in the association.

Pat and Carolyn Held will host a concert by George Mauer on August 9<sup>th</sup> at 7:00 p.m. This information will appear in the newsletter as well as information on the July 4<sup>th</sup> boat parade.

Items to be discussed at the April meeting will be the leaving of board members and establishing a budget.

The meeting adjourned at 12:25 p.m.

Respectfully submitted,

Maggie Hirschey, Secretary

## **LAKE SHAMINEAU ASSOCIATION BOARD MEETING MINUTES May 10, 2003**

The Aqua Tech project is underway. Morrison County will pay for 2 readings and the Lake Association will pay for 2 readings for a total of 4 per year. Aqua Tech recommends 8 readings per year.

Water Quality Committee recommends that we join the Minnesota Lakes Association at a cost of \$50 per year.

A membership drive will be conducted throughout the summer. A goal is to contact all lakeshore property owners. Lake Association membership signs are being considered. The fishing committee would like ideas from the membership on the direction the fishing committee should take.

What can be done about lakeshore damage was discussed. When are permits needed? Troy Hradsky will contact Roger Kluklok – Planning and Zoning, Helen McLellan – Soil & Water and Tim Crocker – Hydrologist.

Dale Williams spoke about the Initiative Foundation and the requirements to receive grant money.

Chuck also said the Morrison County comprehensive land use plan and land use ordinance is being rewritten. There will be public meetings and he encourages association members to attend and give input.

## **LAKE SHAMINEAU ASSOCIATION BOARD MEETING MINUTES May 24, 2003**

A short board meeting was held following the membership meeting. Dale Williams introduced the new board members, Bob Koll, Pat Held and Al Doree. Chris Erickson was not in attendance.

Election of officers was held. Dale Williams, President, Bob Koll, Vice President, Maggie Hershey, Secretary and Vern Sowada, Treasurer.

Committees are Water Quality, Al Doree and Pat Held co-chairmen. Luella Heiling and Dale Williams members. Fishing Committee, John Koll chairman, Troy Hradsky, Vern Sowada, Dale Mashuga members. Membership Committee, Carolyn Held chairman, Maggie Hershey, Lois Gammon and Sandy Williams members.

Meeting adjourned at 12:15.  
Maggie Hershey

## **LAKE SHAMINEAU ASSOCIATION SUMMARY of BOARD MEETING August 16, 2003**

The August 16th meeting of the Lake Shamineau Association Board was held at Auger's Resort.

Secretary Maggie Hirschey read the minutes from the May 10th Board Meeting. They were approved as read.

The Treasurer's Report was approved subject to clarification of the balance and audit. Carolyn Held and Chris Erickson will do the audit. The following agenda items were discussed:

August 30th membership meeting - The meeting will be held at Camp Shamineau. Meeting time is 10:00a.m. Guest speakers invited will be Sheriff Michel Wetul, Commission Tom Wenzel and Dan Swanson, DNR

**Pull Tab proposal** (fund raising) - Dick Auger, Auger's Resort, currently has pull-tabs at his resort. The Lincoln Area Business Association holds the license. He proposed that the Lake Shamineau Association apply for a gaming license and the monies collected at Auger's Resort go to the association. The first step is to apply for a 5013C

non-profit corporation. Carolyn Held moved to file for a 5013C Troy Hradsky seconded. Motion carried Troy will present the idea at the August 30th meeting.

**Lake association liability insurance-** the reasons for insurance and the cost. We will not apply for insurance at this time. The subject will be addressed in the future. Troy moved, Carolyn seconded that Bylaw Article V Sec. C be amended. This bylaw addresses the board secretary's reimbursement Motion carried.

**Web Site.** It is up and running. Sandy Williams has set up a new email address for association members to give feedback, ask questions, etc. The address for reaching the board is on the web site Dale recommended that the Vice President monitor the mailbox and forward comments & questions to the appropriate people.

**Initiative Foundation training sessions.** Dale reported the committee has completed the first two sessions. The next step is a public lake planning meeting facilitated by a professional facilitator. This will be held September 13th. The time is 9:31)-12:00, place Scandia Valley Town Hall. Carolyn moved, Pat seconded that the association proceed with the process. Motion carried.

**Membership Committee** -The association had 116 members in 2002. Thus far in 2003, we have 96 members. membership drive is in process. A newsletter will be mailed before the August 30th meeting.

**Fishing Committee** - John Koll has written a letter containing information from the DNR. It will be on the web site.

**Water Quality Committee** - Pat Held spoke about the Aqua Tech testing and how we should proceed. A suggestion was made that the Board approve 4 more tests. Pat Held moved, Chis Erickson seconded that the association finance 4 more tests. Motion carried.

**Respectfully submitted, Maggie Hirschey**

### **Special Board Meeting**

**August 22, 2003**

#### **Discussion Regarding the High Water Levels on Lake Shamineau**

**Board members present:** Al Doree, Bob Koll, Troy Hradsky, Vern Sowada, Dale Maschuga, Luella Heiling, Dale Williams

**Other lake association members present:** Nick Heiling, Shirley Doree, Deryl Ramey, Terry Sandstrom, Sandy Williams

**Guests:** Helen McLennan, Morrison County Soil & Water Conservation district manager; Tim Crocker, DNR Area Hydrologist; Roger Kukloc, Morrison County Planning & Zoning Administrator; Tim Houle, Morrison County Administrator; Tom Wenzel, Morrison County District 1 County Commissioner; Chuck Forss, Morrison County Water Plan Coordinator & Land Use Planner

General discussion related to the high water level on Lake Shamineau is summarized below. Questions raised by association members were posed to the guests present regarding the lake level, watershed, erosion, etc. The various agencies represented are interested in getting answers for the lakeshore property owners.

There are two main concerns from the high water level: 1) Risk to structures (cabins & homes) and 2) Shoreline erosion eating away at the banks.

Lake Shamineau is a basin-type lake with no outlet. In a basin lake, the water comes up over a longer period of time and it goes down over a longer period of time, than a lake with an outlet. Evaporation during warm dry weather will reduce the lake level. The watershed area includes farm and forestry land, including areas of wetlands, Crookneck Lake and Lake Shamineau. The watershed is 7 miles long east to west and three miles wide north to south. High water is also a problem in many lakes across Minnesota this year. Tim Crocker noted that the area has received above normal rainfall the past five years. Summers have been cooler and not very dry. Al Doree calculated that one inch of depth of water on the surface of Lake Shamineau is equal to forty-one million gallons. The high water has also contributed to the ice jacking damage in the spring. Water is deeper and nearer to structures, so the power of ice expansion in the spring has resulted in more costly damage to property.

Where is the water coming from and has the rate of inflow increased? Rain, runoff and the direction of flow in the watershed affect this. Discussion is categorized under these general topics:

1. **New Development:** The Scandia Forest subdivision south of County Road 203 was platted in 2002. It is a large tract subdivision with a minimum 10 acre lot size. There is a single road leading off 30<sup>th</sup> Avenue into the subdivision. The road has new ditches. Is this development and road ditches affecting the amount of or speed of runoff of water moving in the watershed into Lake Shamineau? The road construction ditch has been inspected. What about private property in the area, i.e. farms – have wetlands been filled or drainage ditches been dug? New laws as of January 1, 2003 will require holding ponds in subdivisions if water issues need to be addressed. Lake Shamineau Board requested that they receive notification from the county regarding development and land use permits in our watershed that will be discussed at county planning and zoning meetings. See email from Chuck Forss (June 27, 2003) regarding the development.
2. **Drainage/Ditches:** Is the water in the watershed south of Lake Shamineau being intentionally directed to the north into the lake and is the east and west flow of water being impeded? Tim Houle indicated no - not to the county's knowledge. The county planning commission should be contacted if this is a concern. Road ditches are maintained by the highway department. Clogged ditches are cleaned out and drainage needs to be maintained to protect the roadbeds. In the past 3 years there have been no new ditches or drainage changes that would contribute to higher water according to Tim Houle. Increasing drainage on private property without a permit will result in a requirement to restore the land to its previous condition.

3.

**Wetlands:** Wetlands within the watershed are holding areas for water. Helen McLennan gave the definition of a wetland - in determining a wetland, we have to prove three parameters, that there is evidence of hydrology in the first 12 inches, it is a hydric soil, and that it will support hydrophytic vegetation. If the vegetation or area has been altered, such as filled or plowed, then our discovery has to be a little more investigative, but on an undisturbed area, that is what we look for.

Al Doree noted that beaver dams are currently holding back water from the south. The water levels are not currently threatening the road bed of #203 but if it would then the dams would need to be altered.

Luella Heiling questioned whether the wetlands can be cleaned out (decaying vegetation, leaves, silt) in order for there to be more holding capacity for the water. Luella referred to an article about similar work at the Minnesota Arboretum. Dredging will not reduce the level of water, but will it allow more water in the same area as a result of removing debris that currently displaces some of the water?

Expanding the size of the wetland will allow for more water to be held there. This may require private landowners to be willing to create wetlands/ponds. Monetary support through grants may be available for wetland restoration. The county has strict regulations that are enforced regarding the amount of fill that is allowed.

4. **Culverts on #203:** Culverts under county road 203 provide water flow within the watershed and protects the road. Older culverts were replaced during road work in \_\_\_\_ (year?). Replacement culverts are larger than the old ones. Al Doree and Wayne Pikal (AquaTek) measured the flow of water running through the culverts (when?) and the amount was not significant. Culverts may have been plugged in years past. Intentional plugging of the culverts is a misdemeanor.
5. **Outlet:** Was there ever, historically, an outlet on Lake Shamineau? Could an outlet be made through the land in the NE bay, at what distance and size of pipe/culvert? Issues include the cost and the impact economically and ecologically on property downstream.
6. **Stanchfield Lake Dam:** A lake property owner (who?) says that dye was placed in Lake Shamineau (when and where?) and was later found in Stanchfield Lake. Other reports indicate that dye placed in Stanchfield Lake was later found in Lake Shamineau. Stanchfield Lake is at a higher elevation and in a separate watershed from Lake Shamineau. Tim indicated that the DNR does not do this type of testing. Who did it and why? A dam was built on Stanchfield Lake by DRN Fisheries. See Tim Crocker's emails (May 8 and May 22, 2003) answering questions regarding Stanchfield Lake.
7. **Ice Jacking Damage:** Weather conditions during the winter of 02-03 created greater icejacking on Minnesota lakes than usual. The lack of snow cover and cold temperatures resulted in very thick ice. Late winter temperature fluctuations, as the sun becomes warmer, creates expansion of the ice and a powerful force pushing on shorelines. Solutions attempted on other lakes include aeration/bubblers to keep the water open along the shoreline, or heat tapes run into the water from the shore to keep the water open, or multiple large auger holes across the ice that may allow ice breakage during the expansion. These processes have had mixed results in various lakes. To use an aerator/bubbler may require a permit. Tim Crocker will contact the fisheries department to find out. There is a potential liability issue related to the danger to snowmobiles, vehicles, cross country skiers, etc. on the lake if they fall into open water.

8. **Shoreline Erosion/Shoreline Protection:** Questions were raised regarding using floating breakwaters in the lake to protect the shoreline. Native plants along the shoreline have root systems to hold the soil in place. Cost sharing grants are available for shoreline plantings that help with erosion control. The soil & water conservation office has information regarding this and will provide information to the Water Quality Committee for distribution at the membership meeting.
9. **Zoning:** Cabins/structures built prior to zoning laws are often at risk from high water levels. Zoning laws protect property by requiring minimum setbacks and limit development density that affects runoff. In the long term, depending on nature (rainfall, ice damage) some structures may not survive in their current location.

Where answers are available, the county and state officials present at the meeting will follow up and communicate to the lake association. Chuck Forss proposes to do a study of the Lake Shamineau watershed. What is the current pattern of water flow, what is the history of areas that may have been drained in the past. Will landowners restore old wetland areas with grant money available? The Lake Management Plan that is to be developed beginning with the public meeting on September 13, 2003 at the Scandia Town Hall from 9:30 – 12:00 noon is a good avenue to support this study.

*Meeting summary provided by Sandy Williams.*

**From: Timothy J. Houle**

**County Administrator**

I would like to see more emphasis placed on riparian plantings as the best known alternative right now to limit ice damage and control shoreline erosion. Some is inevitable and some banks with various kinds of sandy soils are more susceptible than others. In addition, the shoreline that sticks out more into the lake, such as on points is more susceptible as well. Rip-rap is helpful in some circumstances, but is not a panacea in all circumstances. So far, the best alternative we have is to restore what Mother Nature allowed to thrive there: native plants that, from an evolutionary perspective, had to have extensive root systems to thrive there or they'd get washed away, which results in them doing a better job of holding the bank in place. It will be harder to establish some of these under the current conditions, but it remains our best alternative to limit the erosion and ice jacking.

**From Helen McLennan**

**Soil & Water Conservation District Manager**

In determining a wetland, we have to prove three parameters, that there is evidence of hydrology in the first 12 inches, it is a hydric soil, and that it will support hydrophytic vegetation. If the vegetation or area has been altered, such as filled or plowed, then our discovery has to be a little more investigative, but on an undisturbed area, that is what we look for.

The Wetland Conservation Act that sets the deminimus (maximum) amount of wetland that can be placed in a wetland is a state law, not a county law. This county however has

placed shoreland wetlands as the highest priority, and therefore when requests are made to exceed the exempted amount, I hold very firm and say no. The deminimus is 400 square feet within 1000 feet of a lake, regardless of the type of wetland. Beyond the 1,000 feet, types 1, 2, 6, and 7 may have 5,000 square feet exempted, 3, 4, 5, and 8's reverts to the 400 square feet deminimus. If a landowner is granted permission to exceed the deminimus, they have to replace it at a 2:1 ratio. Again, in the shoreland impact zone, it is very rarely allowed.

Regarding the cost share available for shoreland protection and stabilization:

We may provide up to 75% cost share, not to exceed \$2,500 for a shoreland stabilization practice. We typically will recommend a bio-engineered plan, rather than rock rip-rap. Sometimes, rock is still recommended, but not just at the whim of the landowner. We have to feel it is the best practice. A riparian buffer must accompany the stabilization to qualify. The width of the plants will be determined by our technical staff, myself or Alan Ringwelski or a plan done by Marilyn Emerson with the DNR Fisheries Dept.

The plants must be native species primarily and can be a combination of grasses, shrubs, and/or trees. The landowner has to cease weed whipping or mowing and there cannot be terracing or decorative mulches or rock used. The plants typically will be placed close enough together that within a couple of years it presents a solid front and there is no maintenance required between plants. Ground cover plants like Engleman Ivy or Crown Vetch can be used around plants to fill in the areas where the landowner is concerned about a weedy appearance.

We also do not recommend the removal of stumps in a shoreland setback. It is better to grind the stump down to ground level and cover with soil. Removing the stump creates a hole that will quickly erode and further escalate erosion.

None of our recommended practices assure that ice damage will not occur again. We have no solutions that are permanent. Mother Nature is powerful and I have seen entire rock rip-rap practices destroyed in a single year. Ice heaves themselves, left alone, sometimes are the best barrier to future damage and covering them with plants might be a reasonable solution.

The use of bio-logs is becoming a much recommended alternative to rock rip-rap. It is cheaper, easier to install without damage to roads, and is more natural looking. Bio-logs are a coconut fibre roll that comes in 10 foot lengths, various diameters. They are snuggled right into the base of a shoreline, and staked in with wooden stakes. Plantings of willows are shoved right through the log into the bank and eventually you don't even see the logs.

Landowners can contact us at our office at 320-616-2479 or stop in at 16776 Heron Road, Little Falls. The USDA Center is located just north of Little Falls off County Road 76, next to Herzog Roofing.

**June 27 email excerpt from Chuck Forss regarding developments in Lake Shamineau watershed:**

The 2 developments in question included "wetlands" but they were delineated on the plat to prevent a structure or impervious surface from being placed in one. The access road, on the other hand, has a different set of rules as outlined in the Wetland Conservation Act (WCA). WCA is administered by the SWCD for the County. Ditches and drainage for the roads are the responsibility of the State the County's Public Works department or the township depending on what type of road it is on, and are negotiated with P&Z and the SWCD and the developer as appropriate. All property owners within 500 feet of the parcel, the township, SWCD, the DNR, and the public (by the newspaper notice) were made aware of the actions. So legally, the County met the requirements of the "current" land use ordinance. That process could be reviewed if it made the list of changes addressed in the 2004 Re-write.

The township surrounding your lake is zoned (classified) AG Forestry with 10 acres minimum lot sizes unless in a platted development. That is the largest parcel size required in the County. Funny thing about draining a wetland though approval of it is not a function of the Planning and Zoning office. It falls on the SWCD.

I am meeting with Tim Crocker on Monday to discuss a Watershed analysis that could complement the Lake watershed Study they recently completed. I am working on a challenge grant from the state that could help pay for the study. If I were you, I would identify support for it as a priority in the Lake Management Plan you will produce through the Lake and River Alliance process we will start in July.

I just spoke to Al Doree. He indicated after all this rain the lake is up about 8 inches from the OHWM. Crookneck is higher yet. Water levels that fluctuate like this are a symptom of a basin type lake similar to Shamineau.

**From Tim Crocker DNR: INFORMATION REGARDING STANCHFIELD LAKE (49-188P) AS IT RELATES TO LAKE SHAMINEAU (49-127P)**

*Someone has said the lake was dammed some years ago. Do you know when and who authorized it? Why was a dam put in?*

According to a MN Division of Game and Fish *Lake Survey Report* dated 10/10/1960, "a reinforced concrete control dam was constructed on the outlet stream during the years 1955-1956". The dam is owned by the State of Minnesota (DNR Fisheries), and was constructed for the purpose of raising the lake level about 6 feet, resulting in the addition of a large natural spawning area (for northern pike) to the lake. Raising the water level would also decrease the potential for winterkill. The dam consists of two wing-wall abutments and a concrete weir with a **fixed** crest.

According to a 4/26/1954 letter from Walter Gulbranson (former DNR Fisheries Supervisor), the history of the lake is as follows: "The average depth now is approximately 10 feet, however, it used to be about 60' in some spots in the past. Prior to 1916, there was a large ridge formed there and was cut down by the

farmers to make more pasture land, at this time the water started to go down. The lake was about 14 feet or more higher than it is at the present time. Also, in the past, this lake was one of the best commercially fished lakes in Morrison County. IN 1932 to 33 the Beaver came in and raised the lake about 8 feet. From 1938 the water level has slowly gone down after the dam was taken out.”

Also indicated in this letter, it states that the property owners were “...very much in favor of having this lake restored and have gone all out for cooperation with us.”

*Is the lake accessible to the public? It's been said that the road to the lake has been closed by the township, as people were dumping trash at the end of it. Was the dam built with public funds?*

There is a State owned public access located at the southwest end of the lake, according to the last DNR Fisheries Lake Survey and the DNR Public Water Access Map for Morrison County. I could not find information in the files pertaining to the road closure.

Since the DNR Division of Game and Fish made the request for dam construction (based on the support of the surrounding property owners), I surmise that public funds were spent for construction of the dam.

*One individual aid that dye was put in Stanchfield Lake and the same dye was found in Shamineau after the test.*

Stanchfield Lake outlets to the north via a small stream that flows into a large wetland area that eventually drains into the Crow Wing River/Lake Placid Reservoir. Although Shamineau Lake is considered landlocked, the topography falls within the same **major** drainage pattern that makes up the **Long Prairie River** system. Stanchfield Lake is in a different drainage pattern, and flows into the Crow Wing River system. Also, Shamineau Lake is at a higher elevation than Stanchfield Lake. Generally speaking, ground water movement in the surficial aquifer formation follows the same patterns and boundaries found on the surface. Therefore, it would not make sense that dye placed at a lower elevation in Stanchfield would gravitate up to a higher elevation (Shamineau).

Note: For more information, please visit our web site at [www.dnr.state.mn.us/waters](http://www.dnr.state.mn.us/waters) and click on the ground water page.

*With high water in our watershed, it seems conceivable that a reservoir on Stanchfield Lake could be contributing to the high water on Shamineau.*

The lake levels on Stanchfield do not adversely affect levels on Shamineau due to their difference in elevation and the fact they fall within different watersheds.

*How can we explain the continuing rise of water on Lake Shamineau? Is there any reason/projection that our aquifer might lower anytime in the foreseeable future? Why is there so much darn water? How do we explain the continuing rise to homeowners?*

I grouped the above questions together since they all relate to the high lake level conditions we are experiencing on Lake Shamineau. For a little background, we have documented that basins that are landlocked (no outlet) such as Shamineau, tend to have high and low lake level conditions of a longer duration. It is quite common to have other area lakes with an outlet to be much lower due to lack of precipitation, while a landlocked lake is still quite high. Adversely, we have seen the same type of response on landlocked lakes following a drought, where the lake level remains low for a longer duration. Precipitation is the critical factor influencing lake levels.

I contacted Greg Spoden, Assistant State Climatologist for our Department to discuss the lake level situation in comparison with precipitation. Precipitation records for the Shamineau Lake area over the last ten years (1993-20002) indicate an average annual total of around 29 inches. This value is approximately two inches per year greater than the climatological normal (average for the years 1971-2000), and three inches per year greater than the long-term average for the period of record (1891-2002). The estimated annual average evaporation rate for area lakes is around 24 inches. Therefore, the amount of water entering the lake system from precipitation over the last 10 years has exceeded the amount leaving due to evaporation by approximately five inches per year.

In regards to ground water, the water table in the area is generally quite high. We have a DNR Observation Well (#49025) located near the intersection of County Road 203 and 40<sup>th</sup> Avenue (Section 21). The depth to water generally ranges from 0 to 4 feet below the ground. For more well information, please go to [www.climate.umn.edu/obwell/ObWICH.asp](http://www.climate.umn.edu/obwell/ObWICH.asp).

What does all this mean? In order for levels in Shamineau to drop, we need below normal precipitation totals coupled with normal to above normal evaporation rates.

*Is there anything property owners can do to protect their shores?*

I would encourage landowners to consider installing some form of erosion control practice if they are losing shoreline from wind/wave erosion. Maintaining a healthy growth of vegetation along the shoreline will normally prevent erosion. We encourage the use of a *buffer strip* consisting of natural vegetation be developed along the shoreline as the easiest and least costly approach. Simply not mowing your lawn to the waters edge can also be helpful, but may require additional vegetative plantings to help prevent erosion. For more severe erosion cases, a combination of vegetation and the placement of natural rock riprap along the toe of the shoreline can help prevent soil loss from wind/wave action. More information can be found at [www.dnr.state.mn.us/waters](http://www.dnr.state.mn.us/waters) under the heading of *Recent Developments – Shoreline Alteration Information Sheets*. Information is also available pertaining to ice ridge restoration at the same web site. Also, I recommend landowners to contact the Morrison County Soil and Water Conservation District for additional guidance on erosion control measures.

Finally, if landowners are being flooded, they may want to consider purchasing flood insurance through the National Flood Insurance Program, through their local agent.

Enclosed are attachments for your review pertaining to precipitation and lake level information. Although this ended up being longer than requested, I hope it is of some assistance. See spreadsheet file.