

April 2002

The GRINDSTONE TRUMPETER



**The Grindstone Lake Association
is a community of neighbors
dedicated to promoting the
preservation and enjoyment
of our precious lake !**

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Mission Statement

The Grindstone Lake Association was organized:

- To Inform
- To Enhance the Community
- To Protect the Environment around Grindstone Lake

President's Message

THE SHACKLETON EFFECT ON GRINDSTONE ICE

by Eric Nilsson

Author's Preface: I suppose that this column should focus on Association matters, but the experience that prompts this particular piece is a reminder of the dangers posed by our gem of a lake. If it's a little out of season, I may this story at least heighten respect for Grindstone at all times of the year.

Once I heard a story about an ice fisherman who went through the ice on White Bear Lake, just north of St. Paul. By itself, a guy going through the ice is more or less a yawner here in these parts, where every year a number of stupid people — and even a few semi-smart people, I can now attest — go through the frozen surface of one lake or another. What was remarkable about this particular story was: (1) It occurred after a two solid

weeks of subzero temperatures; and (2) The guy had just augured a fishing hole through a foot and a half of ice. What a surprise, then, when he stepped back to admire his handiwork and broke through a mere *half-inch* of ice no more than a yard from the spot where he had labored securely. I didn't necessarily believe the story, but with an authoritative tone, I passed it on to my teenage sons to illustrate the dangers of venturing out onto thin ice in front of our cabin on Grindstone. However, based on my own terrifying experience, the story now has legs. Anything can happen out there on the ice.

The storm blasted the Northland for three days straight. First raged snow, then rain and sleet, more snow, followed by high winds and a plunge of the mercury into the deep freeze. Finally, the storm relented and the sun burst forth, clearing

the skies but with little effect on the frozen landscape. I donned my cross-country skis and ventured onto the white, wind-swept, wide open flat that is Grindstone in winter. The recent concoction of weather had produced a perfect surface for skating on skis. I set out along the shore, and after a half-mile or so, decided it was an auspicious day for a round-the-lake tour on skis, an expedition I had often contemplated but never attempted.

If you follow our shoreline closely, you discover many interesting little bays, inlets and corners that aren't apparent during summer boating farther from shore. I made good time all the way to *The Waterfront* directly across the lake from our cabin. I stopped there briefly to phone my wife and let her know my plan to circle the lake and that I was approximately halfway around. It was too early for the lunch crowd, and no snowmobilers were on hand either. No Rick. Just his backup bartender, concentrating hard on a game of pinball, and three waitresses, looking bore. Within less than a minute, I was back out on the ice.

The wind was now behind me, and like a giant invisible hand on my back, it pushed me ever faster along the wooded shoreline. I imagined that I was circling Antarctica, the first man to do so on skis, or by any other conveyance, for all I knew. In my imagination, I simply inverted water and *terra firma*. The lake would be the continent, and the shoreline would be the ocean. The year was 1930. Except for one stop — at McMurdo Station, *The Waterfront* — the feat would be accomplished without human

contact, without any assistance. Always within a mere ten miles of the geologic edge of the white continent, it would be a first in the annals of polar exploration. There would be a feature article in *National Geographic*, a speaking tour, laurels and riches.

No sooner had the full image taken shape, than disaster struck. Down I went, as if the hand on my back shoved me violently forward and down into the snow. How on such a cold day, after such a cold week, with everything frozen hard, could I be in the drink? In *liquid*? Now, this wasn't a case where a guy breaks clean through the ice, uses a long stick, or, in my case, his ski poles, spreads out his arms and legs and distributing his weight as far as possible, crawls onto the ice at the edge of the break and proceeds to safety. This was worse. My skis broke through the crust, punched through soft snow and splashed into a good foot of icy slurry. In falling, my hands found the slush as well. Bad enough, but when the slush began to harden around my feet, I felt panic displace my romantic sense of adventure. Try as I might, I could not pull my skis out of what felt like concrete, nor could I release the bindings, which were encased in fast-forming ice. Worse yet, I had double-knotted my laces, and now they too were frozen stiff. With all my strength, I struggled, but to no avail. I

cast a view up and down the shoreline, but saw no sign of life.

McMurdo Station was half a mile to the west, around the bend and out of sight.

Just then, I saw a mirage — Sir Ernest



Shackleton himself, coming my way. My eyes were playing tricks on me, but what would he have done in a situation like this? One thing was certain, I told myself: he wouldn't have lost a man. There in my predicament, I called it the Shackleton Effect — *When you might think you're doomed, you're not.* The Shackleton Effect gave me a charge of adrenalin, and with a mighty pull, I broke my feet and skis free from the lake's icy grip. I used the tip of my ski pole like an ice pick and chipped the ice away from my binding. After some effort, I managed to shed my skis. However, I wasn't yet in the clear. With each step toward shore, I splashed into knee-deep slush, and only then did I realize that my left pole — the upper half still attached to my wrist — had snapped in half. The good pole I had left behind at the place of my struggle, now four yards away. Without at least one good pole for the return to civilization, the Shackleton Effect might lose its *effect*. But alas! The Shackleton Effect allowed me to retrace my steps in the slush, retrieve the pole and make my way safely to shore.

The trek home wasn't easy, what with frozen mitts, an awkward stride, with the one pole, and a serious wind chill. I shall spare the reader further details, except to say that, an hour later, I was safe and sound, sipping a cup of hot Ovaltine inside our cabin. As I said at the outset, I no longer question the story about the ice fisherman who went through the ice on White Bear Lake. Any danger is possible, when it comes to snow and ice. What I'm uncertain about is whether the hapless man experienced the Shackleton Effect.



Fish Crib Project

Once again this year, there are no matching funds from the state or county for Grindstone Lake fish cribs. Therefore, the Fish Crib Program remains in hiatus for the 2002 season.

by Bruce Johnson
GLA Board Member



WANTED

Writers Article Topics

Several members have suggested ideas for future articles. Others have volunteered to write an article on a topic of interest to them that pertains to the Hayward area and Grindstone Lake.

Your input and your participation are welcome and appreciated. Contact Camille Venners, or any board member, to share your ideas and skills.



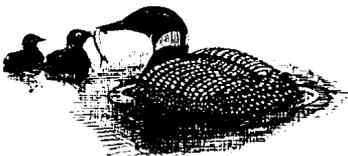
Gathering Waters Conservancy

The mission of Gathering Waters Conservancy is to help communities, land trusts, and private landowners protect the places that make Wisconsin special. Gathering Waters Conservancy helps individuals, communities, and non-profit conservation organizations to preserve, protect, maintain, and enhance the beauty and ecological integrity of the lands and waters in the state of Wisconsin.

The Gathering Waters Conservancy is primarily an education and information resource to facilitate organizations and persons interested in land stewardship. Seminars, workshops, low cost legal advice, personal appearances, and discussions are included in their array of services.

In the fall of 2001, Grindstone Lake Board Member, Roger Rickard, joined the Gathering Waters Board of Directors. Roger is a retired human resources executive with the 3M Company and currently lives year round on Grindstone Lake with his wife, Judith.

Roger, along with other GLA members, is keenly interested in preserving the quality of Grindstone Lake for future generations. He is actively researching new land trust opportunities in the Hayward area.



Keeping Clear Waters

We hope to keep Grindstone a clean, clear lake. Shoreland development, urban and agriculture runoff, reduction in near-shore aquatic vegetation and increased recreational use put pressure on the lake. The more nutrients it gets, such as phosphorus or solids in the form of soil from erosion, the more algae will grow in the lake and the murkier the water will be. Studies show that lawns deliver about 8 times more runoff than wooded areas. Consider that soil eroding the thickness of a dime over one acre is roughly equivalent to 10 tons of soil.

If you do have a lawn in Grindstone's watershed and you fertilize, make sure you select one with "0" phosphorus (the middle number on a bag of fertilizer). Many places are now requiring this. In fact, the state of Minnesota has just passed legislation banning application of lawn fertilizer containing phosphorus in the seven county metropolitan area and applying more than 3 percent in the 80 remaining counties. There are some exceptions, such as for new turf or if soil samples showing phosphorus is lacking. Several cities in Minnesota, including Minneapolis, St. Paul, and Shoreview already adopted similar ordinances.

Dale Olson, Sawyer County Conservationist, indicated that all the hardware stores in the county sell fertilizer with no phosphorus. There are also store signs that tell lake property owners to select zero or low P fertilizers if they must fertilize their lawns. This is one easy way to ensure you are not adding to Grindstone's algae problem.

by Marilyn Lundberg, GLA Secretary

— Update —

Sawyer County Lakes Forum

The Sawyer County Lakes Forum submitted the articles on this and the following three pages for inclusion in The Grindstone Trumpeter. This group has worked earnestly to research existing regulations, propose amendments, and solicit public input.

Please note that the previously publicized date for the upcoming Zoning Committee hearing (April 19, 2002) has been changed to May 17, 2002.

1 - February 15, 2002 meeting:

The Forum Board of Directors met with the Forum Members of the Shoreland Protection Committee on Friday, February 15, 2002. Here is a synopsis of the meeting and information for your members.

The Forum Member Meeting scheduled for Friday, May 3, 2002 has been postponed to a future date to be determined. Plans for a Property Tax focused program are being developed. We will keep you informed as this will be a popular subject with good attendance. Speakers from the Wisconsin Taxpayers Alliance and Out of State Landowners Organization are expected. This Forum sponsored meeting will be open to the public and held in a large meeting venue in Hayward.

On Friday, May 17, the Shoreland Protection Committee will make an informal presentation of their revised Amendment recommendations to the County Zoning Committee. This is an open meeting. Your attendance is welcome. We expect that the Zoning Committee will recommend two or three Public Information Meetings similar to

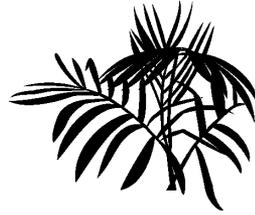
those held last year in Winter, Stone Lake and Hayward. The Zoning Committee may also set the date and place for the official Public Hearing where the Amendments may be adopted, revised or rejected. When the dates and locations are determined the Forum will send you a supply of Oversize Post Cards with pre-printed Meeting Information and an Executive Summary of the Amendments for you to distribute to your Lake Association Members and other Interested Parties.

The Forum efforts in support of the Proposed Shoreland Zoning Amendments and the Property Tax Forum Meeting will require financial expenditures. Therefore, we are requesting voluntary contributions from each Lake Association. One dollar per lake association member has been suggested. Send contributions to Mary Ann Churchill, our Secretary- Treasurer, Box 20, Hayward WI 54843. Thanks, very much!

Be on the lookout for a Forum Newsletter Page that we suggest you include with your Association Newsletter Spring mailing. Mel Kelly is our editor for this Page which will be mailed to your editor soon. She can be reached at

melkelly@cheqnet.net. She will welcome your contributions.

Harry Schroeder, President
February 21, 2002



#2 - Upcoming Meeting:

Shoreland Protection Zoning Revisions will be presented to the Sawyer County Zoning Committee for their review and comment at the Committee's May 17, 2002 meeting to be held at 9:00 am in the Sawyer County Courthouse. Lake Association members are encouraged to attend. Public Information listening sessions may be scheduled after that date; watch for dates, locations and times.

The Shoreland Protection committee has been meeting regularly for more than three years to prepare revisions, consolidations and clarifications of current county ordinances as they pertain to shoreland development. Previous public information sessions held in June and July, 2001 generated numerous comments; the committee continued to meet, discussing and including much of the public input. These proposed amendments detail regulations for shoreland vegetation protection areas, land disturbing activities, mitigation requirements, resource management and agricultural exemptions, structures with nonconforming shoreline setbacks, setbacks from navigable waters, impervious surface limitations, shore land lighting, lake access, and resorts. Some of the issues listed are being amended to insure county conformity with existing Wisconsin administrative rules and regulations, such as NR 115 which was passed early in the 1970's, mandating

shoreland vegetative protection buffer areas, for example.

Copies of the proposed Sawyer County amendments may be found at the Zoning Office, 406 Main, Hayward (715-634-8288). The Wisconsin Department of Natural Resources regulations currently in effect may be read on the DNR website: www.dnr.state.wi.us.

The Shoreland Protection committee was appointed by the SC Board in 1999. The committee is composed of area-wide representatives from businesses, private citizens, lake associations and government. The committee members were directed to review and prepare these amendments to help the zoning administration and concerned residents better understand and apply the often-confusing current ordinances which are intended to regulate shoreland development, expansion, remodeling and vegetation.

The SC Lakes Forum has been an important energy behind the review, completion and presentation of these amendments. Now, it is time to call upon our membership to join in our efforts. We need letters of support written to the SC Record and Gazette newspapers. We need you to attend the scheduled information sessions and to take an active part in supporting the committee's work. We need accurate information, not rumor or heresy, to be disseminated to lake shore property owners (and others

as well), so that fear and suspicion will not slow or sabotage the SCSP committee's well-accomplished achievement. We need the SC Zoning Committee and County Board to hear our support and appreciation for these revised amendments which, when finally passed, will help to preserve and protect our valued lakeshore resources. We need all

our lake association members and leaders to become informed, to become shoreland advocates and to rally in public support of these proposed amendments.

"A lake is much more than an individual body of water...it is a reflection of how we use the surrounding land..." cautions a WDNR publ-wr-261 90.

3 - NORTHWEST LAKES LEADERSHIP CONFERENCE SLATED FOR JUNE 28

Five Counties Partner to Produce Lake Event

Minong, WI The fourth annual Northwest Lakes Leadership Conference Will be held at the Marvin M. Schwan Retreat and Conference Center on Friday, June 28, 2002. Sponsor organizations include the Bayfield County Lakes Forum, Burnett County Lakes and Rivers Association, Douglas County Association of Lakes and Streams, Sawyer County Lakes Forum, Washburn County Lakes and Rivers Association, and the Wisconsin Association of Lakes. The event will be funded in part by contributions from area businesses and a grant from the WDNR Lakes Planning Grant Program.

The one day event Will focus on four major themes: Local government issues, building more effective lake organizations, protecting our lakes and fisheries from exotic species and threats, and recognition of lake organization volunteers.

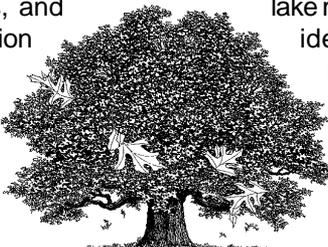
Jeff Bode, WDNR Section Chief, Lakes and Wetlands, and a panel of local legislators will provide insight into

department and government action affecting lakes. Attending lake' managers, county and local government leaders and other attendees will have opportunities to participate in discussions with these state leaders.

Newsletters, web pages, fund-raising and grant application will be among subjects explored in sessions on the nuts and bolts of successful lake organization operations. Wisconsin Association of Lakes specialists will be on hand to answer questions and help with the formation of new lake associations.

Purple loosestrife, Eurasian Watermilfoil, zebra mussels and other invasive species will be the focus of sessions on lake protection and modern lake monitoring techniques. Lake specific information will be available. Successful lake management techniques and ideas will be exchanged as northwestern Wisconsin lake leaders are recognized for their accomplishments as the conference closes.

The Schwan Center,



associated with Bethany College, is a new retreat nestled between two lakes near Minong, Wisconsin. Pre-registration is required; no registrations will be taken at the door. Early registration discount is \$35 through June 1, \$40 afterward. Registration closes June 20. A buffet lunch and refreshments will be provided.

Local and county governments and all lake organizations are asked to send

representatives to the Northwest Lakes Leadership Conference. Lakeshore owners, lake users, relevant businesses and media representatives are also urged to attend.

For information go to bclf.freewebspace.com or contact Sybil Brakken, Conference Coordinator, at 798-3163 or NWLLC@hotmail.com



The March 20, 2002, Sawyer County Record published the following article. This information is provided as an update to the Fall 2001 GLA Trumpeter article.

Boys and Girls Club of LCO Serves the Area Community

The Boys and Girls Club of Lac Courte Oreilles serves the LCO Community and surrounding areas in numerous ways, including:

****The Smart Moves program, offered to youths 6-18 years of age through the Hayward School District. It helps promote an alcohol-, drug-, and tobacco-free lifestyle along with abstinence.**

"The Smart Moves program soon will be offered to the LCO Ojibwe School also," said Brian Jackson. "The goal is to train more volunteers or staff to implement this needed message.

"A core cultural component is the Woodland Dance Troupe, which includes dancing and singing at the Club and at pow-wows, and attending youth conferences (networking with other tribes),"

he added.

****At community circles and general membership meetings at the LCO Lodge and Convention Center, Club youth assist with the serving of meals and beverages and with clean-up.**

****The Club provides technical assistance to the Great Lakes Indian Fish and Wildlife Commission with posters and flyers for hunter safety, snowmobile safety and ATV safety classes.**

****Staff and youth donated their services to the LCO Sobriety Pow Wow on New Year's Eve by doing set-up, serving of food and clean-up.**

Club youth also were honored as part of the pow wow for their alcohol-and-drug-free lifestyles and for being positive roles in the community.

**The club participates in the Job Training Partnership Act (JTPA) youth employment program in coordination with the LCO Tribe. Youth have the opportunity to work up to 10 hours per week during the school year, learning the core employment values of respect, being on time, working as a team and understanding what it takes to complete tasks.

**The club provides community service employment for youths in conjunction with the Sawyer County Juvenile Court.

**The Boys and Girls Club computer lab is open to the community during times when youths are not using it.

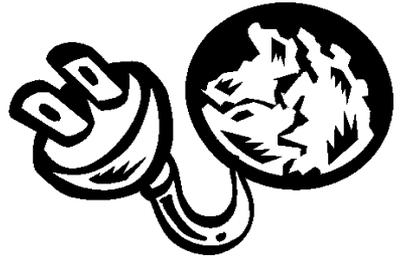
**The club's main unit on Trepania Road is open to the community. For example, the LCO Veterans hosted a dance, elders' feast and bingo.

**Teenage youths participate in the overlapping character and leadership development programs of Keystone Club, United National Indian Tribal Youth Organization, and Images.

These organizations within the Boys and Girls Club give back to the community by offering such services as road clean-up, stacking wood for elders, cutting grass, and working with Hayward area organizations such as Fishing Has No Boundaries and the American Birkebeiner.

"Our facility is need of major renovation just to accommodate the growing number of youth being served," Jackson said. "Just imagine or vision what a new building or major remodeling can do for youth. Picture a gym, baseball field, camping area and more rooms to really zero in on impactful messages.

"This is not just a dream, but a reality vision," he added. Anyone who is interested in helping out can call Jackson at 634-4030.



The GLA has not yet made the leap to a functional Internet web site. Initial planning has begun and hopefully a website will be operational by fall of this year.

Please consider what information the Grindstone Lake Association could include on the website that would be useful and helpful to you.

Perhaps . . .

- **The newsletter in Adobe PDF printable format**
- **Bass Lake Town Board contact information**
- **Local events calendar**
- **Links to other sites**
- **An email link to send messages to the GLA Board**
- **Etc.**

Spring and Fall Turnover of the Waters of Grindstone Lake

James G. Straka and Peter Vaughan

Lakes are remarkable and dynamic bodies of water. Most support a wide variety of life, such as plankton (including algae, beautiful glass-encased diatoms and microscopic animals), plants, insect larvae, all the way up the food chain to bass and muskie. For a lake the size and depth of Grindstone Lake in Sawyer County, Wisconsin, this wide variety of life is supported in part by periodic circulation of nutrients and life forms.

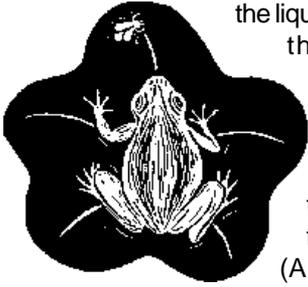
The behavior of lakes the size of Grindstone can be partially explained by the remarkable properties of water. Water is a unique substance in many regards. First, the water molecule comprises only three atoms, two atoms of hydrogen attached to one atom of oxygen. Most substances made up of molecules as small as water are gasses at room temperature, for example methane and propane. So considering its molecular size, water has very high melting and boiling points. Second, most substances are more dense when they are solids than when they are liquid. You may have



noticed that in home-canned preserves, the paraffin wax used to seal the contents of the jar sometimes has pulled away from the sides of the container and

formed a little dent on top; as the liquid paraffin solidified, it contracted and became more dense. This is the neat part about water. Liquid water is more dense than solid water (ice). Let's do a little thought experiment. If you were to cool liquid water starting at room temperature, about 25 °C, the density of water will increase, as is true for all fluids. (When you open the refrigerator door, you feel the cold air pouring onto your feet, so cold air is more dense than warm air.) At about 4 °C (near 39 °F), water is at its most dense. This is most unusual, since this is still above its freezing point, which is 0 °C (32 °F). So as you continue to cool liquid water to its freezing point it becomes a little less dense than it was at 4 °C. And solid water is significantly less dense than liquid water at any temperature. We, of course, know this to be true, since ice cubes float in your lemonade. Another demonstration of this is that if you let a bottle of water freeze it expands (becoming less dense) and breaks the bottle. As the ice layer on a lake gets more thick, it expands, pushing material up from the bottom and forming a hump around the shoreline; ice fishermen often hear booming sounds as the freezing ice cracks under the pressure of its own expansion.

So let's look at the consequences of this on the lake. In the winter, ice forms over the top, making an ice shell a few inches to a few feet thick. This insulates



the liquid water below the ice from potentially very cold air temperatures, and prevents the lake from freezing solid.

(A layer of snow also helps with the insulation. Excessive snowmobile activity removes this insulation by compressing the snow. The ice layer thickens, and sunlight is blocked from getting through into the water. Algae suspended just below the ice don't get enough sun and can't produce oxygen by photosynthesis. The combination leads to winter kill in the lake.)

The water immediately below the ice is at the freezing point, 0 °C, but as you go deeper the water temperature increases to 4 °C, which you remember is the temperature of water's maximum density. So in winter, there is an inverted temperature gradient, with the warmest and densest, 4 °C, water at the bottom, and the coldest water at the top of the lake.

In the early spring, the air warms, the sun's rays strike the surface of the ice more directly, and the ice melts. At the point when the ice has just melted, the temperature of the lake becomes uniform top to bottom, at 4 °C. Early spring winds create waves, and the wave action is capable of generating considerable turbulence all the way to the bottom of the lake. This results in mixing the contents of the entire lake. Nutrient-rich sediments, diatoms, and microscopic algae are brought up from the bottom of the lake toward the surface and into the sunlight, where the organisms start to grow. As a result, there is often a "bloom" in the lake at this time of spring turnover.

The bloom may make the lake appear cloudy and yellow to yellow-brown in color. In addition, since the diatoms and algae are photosynthetic, they actively produce oxygen. Between photosynthesis and wave action, which both mixes and aerates the lake water, the entire lake becomes oxygenated. As long as wind and wave action keeps mixing the lake water, heat from the sun is transferred throughout the lake basin. The temperature of the lake remains uniform, increasing to perhaps 6 to 10 °C (43 – 50 °F).

The only significant heat source for lake water is the direct radiation from the sun. Now, even when water is perfectly clear, sunlight penetrates poorly, losing about 90% of its intensity by about 6 meters (18 feet). When suspended sediments and plankton blooms are present, the penetration is much less deep with 90% loss observed as shallow as 4 to 6 feet. Because of this, the top few feet of water absorb all the energy responsible for heating the entire lake. As the sun warms these topmost layers and the spring winds decrease, mixing by wave action becomes much less efficient. Within a period of a few days to a few weeks, the sun's radiation will cause the top water of the lake to become significantly warmer than the deep water. Between the middle of May and early June, the surface water will reach 12 – 15 °C (54 – 59 °F), while the deeper water remains 6 – 10 °C (43 – 50 °F).

For lakes like Grindstone, there is a region 5 – 7 meters (16 – 23 feet) below the surface where the temperature changes rapidly. The depth at which the temperature change is greatest is called the *thermocline*. Remember that as water becomes colder, it becomes more dense, so the thermocline is also a region where

the density changes rapidly as well, the warmer less dense water above and the colder more dense water below. The region of rapidly changing density through the thermocline serves as a barrier which prevents the water layers above it from mixing with those below. You see something similar to this when you add cream to your coffee or tea. The dense cream sinks to the bottom of the cup. Disturbing the liquid near the top of the cup (for example blowing across it – even pretty hard) is very ineffective at mixing in the cream because of the density barrier between the two liquids. You have to dig down with a spoon and get right into the cream layer to mix it efficiently. Like your breath, the wind and waves just can't dig down through the thermocline the way your spoon can in the cup. So we now have a layer of water about 15 feet below the surface that prevents mixing the top water with the deeper water of the lake. With the establishment of the thermocline the lower layer becomes less turbulent, plankton and sediments settle back to the bottom, leaving a smaller population of algae and diatoms suspended in the surface waters. As a result, the lake water near the surface becomes clear again.

By the middle of the summer, surface water temperatures can be quite variable over time and from place to place. This depends on wind, local depths, presence of plants ("weed beds"), among other things. Local pockets at the top of the lake may reach temperatures as high 20 to 25 °C (68 – 77 °F), and growth of algae and very small animals (*zooplankton*) may become very active in these waters during the summer months. Meanwhile, the temperature toward the bottom of the lake remains fairly uniform and stable between 6 and 12 °C. We now have a normal



temperature gradient, with the coolest and densest water at the bottom, the warmest and less dense at the top, and the two layers separated by the thermocline. The thermocline may move deeper as wave action brings some of the thermocline water into the upper layer. For the most part, however, the thermocline remains intact throughout the summer months, and the presence of this barrier prevents the lower and upper water layers from mixing, even with strong winds and high waves. The cold water below the thermocline is at about refrigerator temperature, so you can keep your beer and soft drinks cold while you are fishing by lowering them below the thermocline (probably 15 to 20 feet) on a well-tied rope.

As summer moves into fall, the sun's path becomes lower in the south, and air temperature begins to drop. Along with some cooling due to the evaporation off the surface of the lake, these effects cause the top layer of the lake to begin to cool down. Between early October and the middle of November, depending on the year, the temperature of the surface waters approaches the temperature of the deep waters. As this happens, the temperature of the lake becomes more uniform and the thermocline vanishes. So in mid to late fall, the barrier to mixing disappears, and moderate to strong winds will cause lake-wide mixing once more. The lake undergoes its second turnover, again bringing nutrient rich water from the bottom up into the sunlight. It is common to have a second bloom of plankton

during the fall turnover. As the air temperature becomes colder and lake mixing continues, the entire body of water cools toward winter levels. When ice begins to form, the inverse temperature gradient is again established and is maintained until ice-out in the spring.

Summary: Lakes, such as Grindstone Lake, undergo two periods of wave-generated turnover through the course of the year, once in the spring and once in the fall. During those periods, the entire lake becomes oxygenated, and plankton and algae grow and become abundant, providing important food sources for animals such as small fish and crustaceans. During the rest of the year, the lakes show thermal stratification, normal in the summer and inverse in the winter. During summer and winter, wind driven mixing of the lake water is prevented, in the winter by the ice layer and in the summer by the presence of the thermocline.

Dr. Vaughan is an aquatic ecologist and Dr. Straka is a biochemist. Dr. Vaughan is Director of the Environmental Studies Program, and both are in the Biology Department of Macalester College, St. Paul, MN.



Mark Your Calendars !

JUNE 29, 2002

ANNUAL GLA MEETING
BASS LAKE TOWN HALL 9:30 A.M.

JULY 6, 2002

ANNUAL GLA PICNIC
PUBLIC BOAT LANDING
(LUNCH SERVED 11:00 A.M. - 3 P.M.)

Swimmer's Itch

(cercarial dermatitis, schistosome dermatitis)

What is swimmer's itch?

Swimmer's itch is a skin rash caused by a parasite (shistosomes) which ordinarily infect birds, semi-aquatic mammals, and snails. Common grackles, red-winged blackbirds, ducks, geese, swans, muskrats and moles have been found to carry the parasite. As part of their developmental life-cycle, these parasites are released from infected snails, migrate through the water, and are capable of penetrating the skin of man. After penetration, these parasites remain in the skin and die but can cause an allergic reaction in some people. The parasite in man does not mature, reproduce or cause any permanent infection.

Who gets swimmer's itch?

Only about one third of the people who come in contact with the parasite develop swimmer's itch. People who swim or wade in infested water may experience this itchy rash. All age groups and both sexes can be involved, but children are most often infected due to their habits of swimming or wading in shallow water and playing on the beach as the water evaporates from the skin. Swimmer's itch may be prevalent among bathers in lakes in many parts of the world, including the Great Lakes region of North America and certain coastal beaches.

How is swimmer's itch spread?

An individual may get the infection by swimming or wading in infested water and then allowing water to evaporate off the skin rather than drying the skin with a towel. Person-to-person spread does not occur.

What are the symptoms of swimmer's itch?

Whenever infested water is allowed to evaporate off the skin, an initial tingling sensation may be felt associated with the penetration of the parasite into the skin. The irritated spot reaches its maximum size after about 24 hours; the itching may continue for several days. The symptoms should disappear within a week.

How soon do the symptoms begin?

A person's first exposure to infested water may not result in the itchy rash. Repeated exposure increases a person's allergic sensitivity to the parasite and increases the likelihood of rash development. Symptoms may appear within 1 to 2 hours of exposure.

What is the treatment for swimmer's itch?

There is no treatment necessary for swimmer's itch. Some people may get relief

from the itching by applying skin lotions or creams to the infected site.

When can you get swimmer's itch?

The first outbreaks usually occur in late May or early June. The outbreaks in Wisconsin may last from 2 weeks in the northern lakes to a month in the southern lakes. In some lakes it may last the entire summer.

GLA Editor's Research Note: Wind, weather, and parasite conditions vary from year to year. Therefore, swimmer's itch problems may be present in a lake one year but not another. There are no treatments for the parasites that are not also harmful to fish and vegetation.

Bill Brewster wrote an article for ABCNEWS.com pertaining to swimmer's itch. The following prevention tips and treatments were just part of the article. If you wish to read the article in its entirety, it can be found at:

<http://abcnews.go.com/sections/science/DailyNews/swimmersitch990816.html>

TIPS FOR PREVENTING SWIMMER'S ITCH

Experts differ on how to prevent swimmer's itch. Some of the parasite species burrow into human skin while in the lake; others wait until you're back on dry land and the film of water clinging to your skin begins to evaporate.

There's no consistent prevention, but if you insist on swimming in a lake where the parasites are cycling, you can:

Swim in deeper water — many parasite species congregate near the shore because of wind and current.

Apply waterproof sunscreen, which might act as a barrier to some parasite species.

Avoid marshy areas where snails tend to congregate. Stick to sandy or rocky beaches.

Take a hot soapy shower immediately after getting out of the lake. **Remove swimsuits** as quickly as possible.

Towel dry your entire body briskly as

soon you get out of the water (**inside swimsuits too**), if showers aren't available.

Don't feed the ducks! The presence of waterfowl does *not* guarantee that parasites are in the lake, but if they are, feeding birds on the beach will only increase the level of parasite-infected poop in the swimming area. That, and it's just generally bad policy to encourage wild animals to rely on human feedings.

IF A RASH DEVELOPS ...

- Treat the symptoms with a **corticosteroid cream**.

If that's not available, various individuals and health departments recommend:

- baths with baking soda
- applying baking soda paste to the skin
- anti-itch lotion with antihistamine
- cool compresses
- Whatever salve you choose, heed your mother's childhood advice: Stop scratching!

Joanna Rovelstad brought this salad to the GLA 2001 Annual Picnic. She kindly shares the recipe which she received from her daughter.

Laurie's Summer Salad

- | | |
|---|--|
| 1 16 oz. can black beans, drain & rinse thoroughly | 1 head cauliflower, separated into bite sized pieces |
| 1 16 oz. can light red kidney beans, drain & rinse thoroughly | Add 1 bottle of Italian dressing or a packet of dry Italian dressing prepared as per directions on the package |
| 1 16 oz. can corn, drain & rinse thoroughly | Add garlic powder, dill weed and paprika to taste. |
| 1 16 oz. can pitted black olives, drain & rinse thoroughly | May add small zucchini, broccoli, carrots, cooked asparagus, etc. |
| 1 jar marinated artichokes | Optional: add cubed cheese, wild rice, or cooked sausage, chicken, or ham. |
| 1 bunch green onions, sliced thinly | |
| 1 medium red onion, sliced and cut into 1/2 circles | |

Toss and refrigerate. Mix daily. Serve with tomato wedges.

Drinking Water Issues

Well Owners Responsible for Own Water Safety

As GLA members primarily rely on well water, water quality issues should be considered every few years. Testing is required when a new well is put in (and sometimes when property changes ownership) but contaminants can be introduced at any time. Periodic testing to monitor your well water quality is recommended. Traditionally, nitrates and fecal matter are common well concerns. Water quality topics, and resources related to drinking and ground water, are provided at <http://www.dnr.state.wi.us/org/water/dwg/>.

An article in a December issue of the

Sawyer County Record mentioned that arsenic in drinking water is currently an emerging health concern and suggested an Internet resource for individuals concerned about issues related to the quality of drinking water.

As promised, the recommended site, <http://www.dnr.state.wi.us/org/water/dwg/arsenic/index.htm>, specifically offered information about arsenic in drinking water.

Persons drinking well water exclusively might also seek information from their dentists about fluoride supplements to prevent tooth decay.

Have you . . .

- moved?
- changed your phone number, e-mail address, etc.?
- changed your name?

Keeping our mailing database valid and up-to-date is increasingly more difficult in our mobile society. Please let us know when contact changes occur so we can continue to include you in our mailings.

To renew membership or become a member:

Please complete this form and return it along with your \$20.00 check (payable to the Grindstone Lake Association) to: Grindstone Lake Association, P.O. Box 292, Hayward, WI 54843-0292.

Bass Lake Fire Number _____

Name _____

(first and last of both husband and wife, if applicable)

Home address:

Street _____

City _____ State _____ Zip _____

Phone _____ FAX _____

e-mail _____

Lake address (if different):

Street _____

City _____ State _____ Zip _____

Phone _____ FAX _____

e-mail _____

Grindstone Trumpeter

Grindstone Lake Association

PO Box 292

Hayward, WI 54843