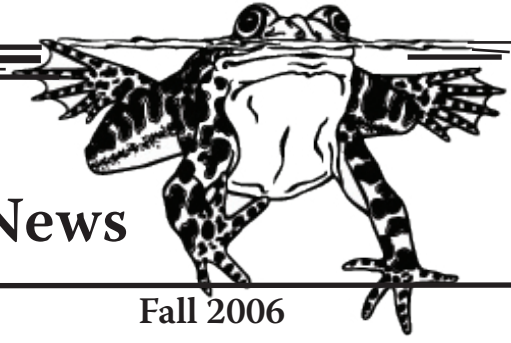


Water's Edge

Gratiot Lake Conservancy News



Volume 8

Fall 2006



Aquatic Plant Survey

You may have seen someone fishing with a rake at Gratiot Lake this summer. Although this unusual technique elicited stares, puzzled looks, and queries, it provided good data on the health of the lake. Botanist Janet Marr and Finlandia University intern Laura Peterson tossed out the rake attached to a rope and pulled in the catch—in this case aquatic plants. They identified plant species and numbers in waters up to 30 feet in depth. Bob Marr also volunteered to assist Janet (or was he conscripted?) in searching for plants by wading and from kayaks. In all over 150 points around the lake were sampled.

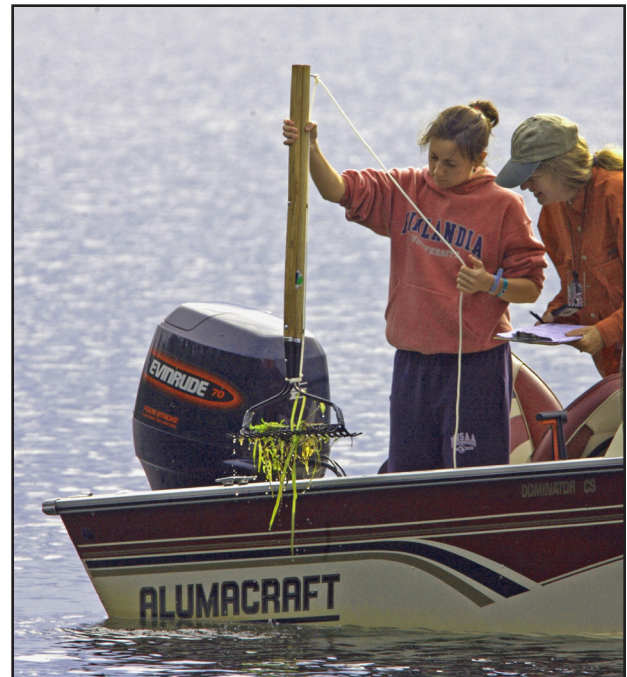
Fishery Discussed at GLC Meeting

GLC's Annual Meeting of Members was held on July 18 at the Eagle Harbor Community Center. Over 35 members attended the business meeting which was followed by a presentation by George Madison, Michigan DNR West Lake Superior Fisheries Supervisor.

Madison presented a summary of the history of the Gratiot Lake fishery back to 1926 when the main species noted in the lake were yellow perch, brook trout, small mouth bass, and abundant northern pike. The first walleye were planted in Gratiot Lake in 1935. According to Madison, more recently walleye had been over planted in Gratiot. Partially as a result of this, Gratiot's excellent yellow perch fishery collapsed in the 1990's. Since the perch that the walleye feed on became scarce, the walleye population began to decline even though walleye plantings were continued through 2004.

The DNR's 2005 survey of Gratiot Lake fish revealed a broad variety of species—many types of minnows, white suckers, northern pike, pumpkinseed, rock bass, small-mouth bass, walleye, and yellow perch. In fact, although the yellow perch fishery remains depleted now, the diversity of fish present at Gratiot indicates a basically healthy ecology, better than most Keweenaw lakes according to Madison.

Continued on page 7



This survey was funded in part by a grant from the Michigan Department of Environmental Quality, Office of the Great Lakes and the aim was to search for aquatic invasive species (AIS) and to map aquatic plants and their distribution in Gratiot.

Continued on page 4

GLC gratefully acknowledges this year's Donors to the Land Acquisition Fund,
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About *Water's Edge*

Water's Edge is the newsletter of the Gratiot Lake Conservancy. Its purpose is to report Conservancy news, to share information about the ecology and history of Gratiot Lake and its environs, and to suggest ways to improve stewardship of the Lake and its watershed.

Please send questions, comments, or articles to
Bonnie Hay, *Water's Edge* Editor
Gratiot Lake Conservancy
P.O. Box 310
Mohawk, MI 49950

e-mail: belh@verizon.net phone: 906-337-5476
Visit our web site: <http://www.mlswa.org/gratiot-lake-1508/>

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Grants Received

Michigan Department of Environmental Quality, Office of the Great Lakes
Upper Peninsula Power Company

GLC Receives UPPCO Grant

Thirty-two Volunteers worked nearly 400 hours maintaining trails, cleaning shoreline, taking photos, baking goodies, planning programs, writing grants, monitoring water, tidying the cabin, assisting at programs, maintaining the website, watching the lake, assembling notecards, editing newsletters, and generally pitching in.

Thank you to Everyone who helped. Your actions sustain GLC!

A grant to partially fund the Gratiot Lake aquatic vegetation survey and aquatic invasive species search was awarded by the Upper Peninsula Power Company's (UPPCO) Corporate Giving Division. "Non-native invasive species are becoming a problem here in the U.P.," said Janet Wolfe, who administers the corporate giving program at UPPCO. "We were pleased to hear that a study was to be done on Gratiot Lake and that the information would be shared with educators. The Environment and Education are two of the six major areas UPPCO funds through its donations program, making this project a good fit with our company's goals."

GLC is grateful for this donation. A major portion of the UPPCO funds allowed GLC to bring in submersible remotely operated vehicle specialist Mark Gleason (see article on page 4.)

Continued from page 1.

So far no AIS have been found by Marr or by environmental educator, Brian Rajdl who searched for invasive aquatic species such as spiny water flea, rusty crayfish, and zebra mussels. That's very good news!

Next year GLC hopes to acquire funding in order to complete this study including mapping plant distribution in the lake. The last map made of weed beds in the lake was based on data compiled during the last aquatic vegetation survey at Gratiot in 1938. This was the information used to illustrate the commonly available fishing map of Gratiot. Anglers know that healthy weed beds mean good cover, food, and breeding areas for many fish species. We also plan to use photos of the plants to produce a guide to lake vegetation.



Aquatic Plants Workshop

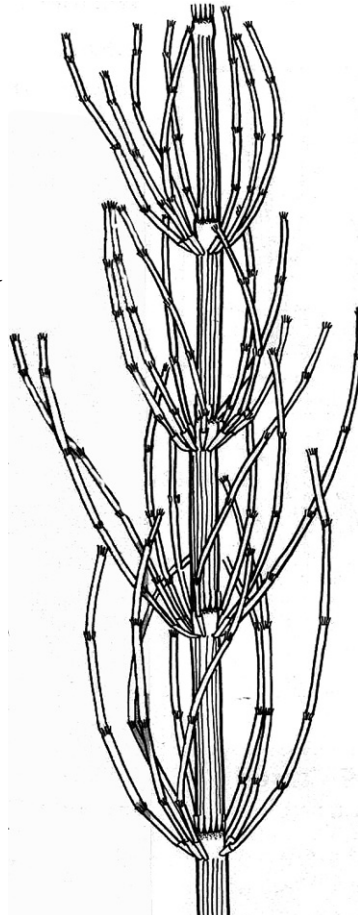
In August, Janet Marr's Aquatic Plants Workshop drew participants from as far as St. Ignace and Wisconsin. Participants explored Gratiot Lake shoreline and shallows and also visited Central Lake. Volunteer Bob Marr constructed black bucket viewing scopes which afforded a window to what was beneath the surface of the water. Along with many plant finds, some interesting non-plant discoveries were made—including a freshwater sponge which was colonized by algae, (not big enough to clean your counter with) and a chara, an alga which has the form of a plant and smells like a skunk!

A grant from the Upper Peninsula Power Company enabled Remotely Operated Vehicle (ROV) specialist Mark Gleason (pictured at left with ROV) to demonstrate the use of this technology for viewing plants and animals in deep water for the benefit of participants in the Aquatic Plants Workshop at Gratiot Lake. Gleason is working on his dissertation on the use of ROV technology in natural resources education as a Ph.D. student at MTU school of Forest Resources and Environmental Science.

The equipment set up at the public access to Gratiot included a full color screen and controls which were linked by a long cable to a mini submersible vehicle. A video camera was mounted on the ROV. The device was carefully dropped in deeper water after being hauled out by a boat. From there it could be propelled to view a larger underwater landscape via the controls on shore. On the screen, workshop participants viewed plants waving in the water and fish swimming by.

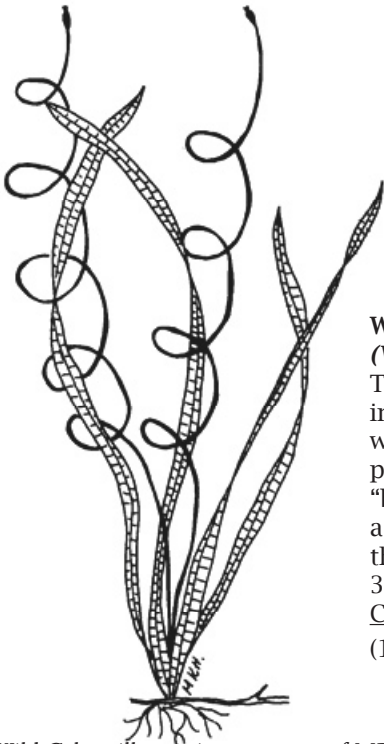
Although he has demonstrated the use of this device to thousands of people in four of the Great Lakes and many inland lakes, this was Gleason's first use of ROV technology in a class focusing on fresh water plants.

Isle Royale botanist Valena Hofman received a *Janet Avery Scholarship* to attend the workshop. She shared her knowledge of AIS with information about purple loosestrife, Eurasian watermilfoil, reed canary grass, and phragmites. She is involved with controlling species like these on Isle Royale.



Some Aquatic Plants of Gratiot Lake (and one alga!)

Water horsetail
(*Equisetum fluviatile*)
Horsetails have thrived for 300 million years. They have a very high silica content which seems to protect them from many insects and fungi. They have an ability to colonize even the harshest of environments. Their rough texture makes horsetails a good scrubbing and polishing material. This attribute gave rise to their nickname—"scouring rush."

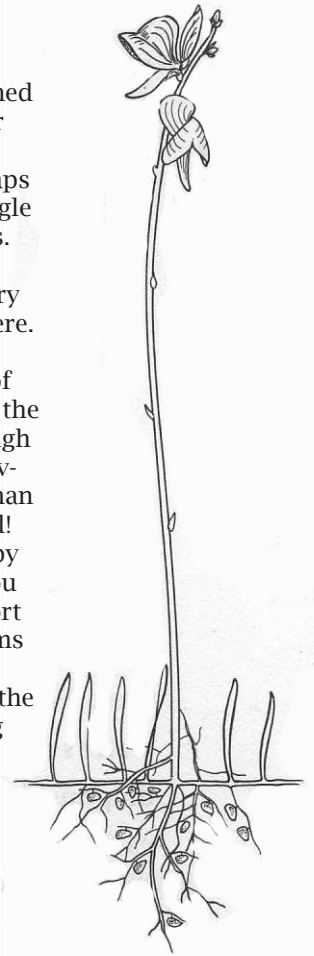


Wild celery or Eel-grass (*Vallisneria Americana*)
 This plant is an extremely important food for waterfowl which eat all parts of the plant. It is called wild celery "because it is said to impart a celery-like flavor to ducks that feed on it." --from page 3428 of L.H. Bailey's Standard Cyclopedia of Horticulture (1914 - 1917).

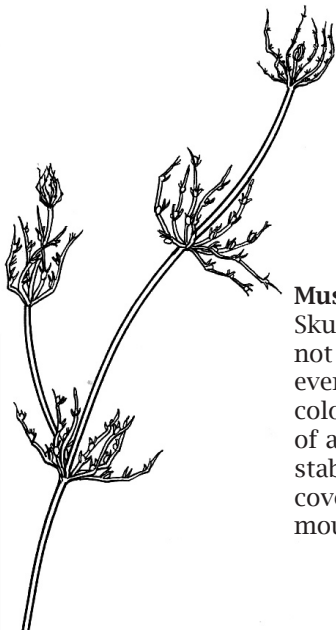
Wild Celery illustration courtesy of MDEQ Water Bureau publication *Common Aquatic Plants of Michigan* <http://www.deq.state.mi.us/documents/deq-lwm-inlandlakes-commonplants.pdf>

Horned bladderwort (*Utricularia cornuta*)

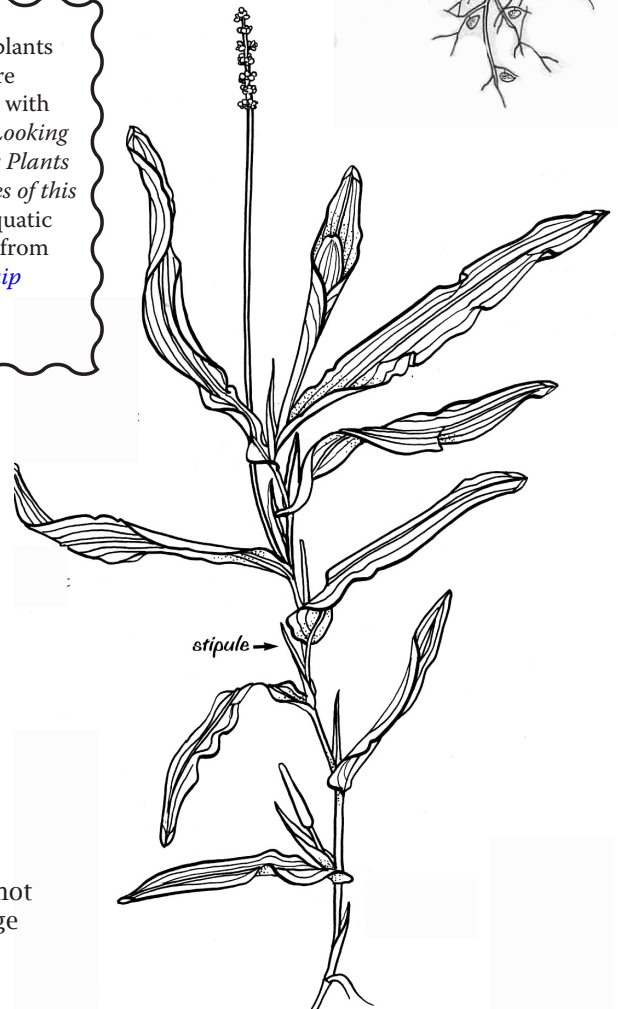
Bladderworts have many tiny saclike bladders which are attached to their stems under the sand (or in some types floating in water). These bladders act as suction traps for prey ranging in size from single celled organisms to small insects. The prey is attracted to the entrance to each bladder by a sugary substance excreted by glands there. When the insect brushes trigger "hairs," they break the tension of the sac's seal and are swept into the trap with a rush of water. Although we might not think of plants moving quickly, the trap takes less than 1/500 of a second to snap closed! In the sac the prey are digested by enzymes. In August at Gratiot you may see bright yellow bladderwort flowers- perched on delicate stems about 3 inches tall- dotting the sandy shoreline. The fragility of the flowers belies the drama ensuing under the sand!



These illustrations of aquatic plants by Carol Watkins (except where otherwise noted) are reprinted with permission from *Through the Looking Glass: A field Guide to Aquatic Plants by Borman, and Temte*. Copies of this guide which was used in the aquatic plants workshop are available from [The Wisconsin Lakes Partnership](#) (phone: 715-346-2116.)



Muskgrass (*Chara*)
 Skunky smelling Muskgrass is not really a grass, in fact it's not even a true plant. It is a type of colonial alga which has the form of a plant. It is a good bottom stabilizer in lakes and provides cover for fish including small mouth bass at Gratiot.



White-stemmed pondweed (*Potamogeton praelongus*)
 likes the cool clear waters of northern lakes. This plant cannot tolerate murky, turbid water. You may see the top of its large leaves floating just below the surface of the lake.

Foaming Waters...Are they polluted???

The foam at Gratiot Lake is not likely caused by detergent pollution; a natural surfactant, similar to surfactants in laundry detergents and shampoos, is at work. Lakes with fairly soft water, aquatic plants and algae, and enough lake surface area will naturally produce foam on the shoreline when there is a brisk, constant wind producing enough wave action.

Surfactants are released into the water when plants and algae decay. The surfactants break the surface tension of the water allowing air to easily be churned into bubbles with wave action. When the foam reaches the shoreline, it forms a loose line where it mixes with tiny bits of organic matter. This matter acts as a binding agent to stabilize the foam.

Detergent foam can be distinguished from the naturally occurring foam by its bright white color and perfumed odor.



The Gratiot Lake Conservancy is a Michigan Not-For-Profit Corporation formed in 1998 to preserve and protect Gratiot Lake and land within the Gratiot Lake watershed.

Through educational programs and materials, the Conservancy encourages good stewardship of the watershed and an understanding of its history and ecology.

We promote research to further understand the Lake and its watershed. The Noblet Field Station located in the SE corner of the Lake is the staging area for many of the Conservancy's educational and research activities.

SUPPORT GLC!
Your year end donation is appreciated!
[Click here!](#)

A Cleaner Beach Thanks to Volunteers

Eight volunteers cleaned several miles of Gratiot Lake beach on September 18. Low lake levels allowed easy access to all of the GLC Preserve shoreline and more. This was the second year that Gratiot Lake participated in the International Coastal Clean-Up in conjunction with a clean-up of Keweenaw's Lake Superior shoreline organized by the North Woods Conservancy.

We found less debris this year, mostly small items except for remnants of an ice fishing shack and some tires we needed to return to collect. The most numerous finds were cigarette filters. Filters take up to five years to disintegrate when discarded.



Photo by Jim Hay

A Solitary Sandpiper searches Gratiot Lake shoreline for tasty insects in September. This shorebird is a migrant that nests in Canada and winters in the tropics. It is so named because of its habit of traveling solo rather than in flocks.

Algae Dismay

In 2000 and 2001, student Robert Heyman and Headwaters naturalist Michael Scheiwe studied algae at Gratiot and identified 25 species. Having a large variety of algae without an overgrowth of any particular kind is actually a good sign of a healthy lake.

However, lots of sunshine, sporadic rain, rising lake temperatures, and a more concentrated water body most likely contributed to some larger than normal (for Gratiot) algal “blooms” this summer. In fact, by early September the outflow from the lake into the Little Gratiot River had ceased and most of the feeder springs to the lake were dry.

In September stringy, filamentous masses of an algae, probably Spirogyra, could be seen floating under the surface in some parts of the lake. Especially on the North shore of Gratiot, periphytic algae was coating the lake bottom, rocks, and even plants in shallow areas.

According to the Tip of the Mitt Watershed Council, masses of this periphytic algae which coats lake shores—very common in Michigan lakes for the last two summers—are an unattractive nuisance but not hazardous. This type of algae does not contaminate the water, and so it should be safe to wade and swim (just don’t slip!)

Some steps lakeside property owners can take to decrease algal blooms are

1. It is best not to fertilize lawns near lakes. Test your lawn chemistry first and don’t use a fertilizer containing phosphate. Algal blooms can be made worse by fertilizer runoff from lawns.
2. Plant a buffer of larger plants—perennials and shrubs— between your camp and the shoreline. This can be done for part of the length and still allow beach access.
3. Maintain septic systems and drain fields. Even graywater needs to be filtered or it can pollute.
4. Phosphate is the element in fertilizer and detergent that stimulates excessive algal growth. Although phosphate is controlled in laundry detergent, there is no regulation on allowable amounts in dish detergent. Use brands of detergent which indicate they are low in phosphate.

More information on this subject...

From the Tip of the Mitt Watershed Council:
Lawn Care Tips for Shoreline Properties
<http://www.watershedcouncil.org/lawn.html>

From Michigan State University Extension
Managing Shoreline Property to Protect water Quality
<http://www.emdc.msue.msu.edu/>



Scholarship Awardees

Breanne Carne of Dollar Bay, MI and William Lytle of Elgin, IL (pictured above) were recipients of *Sandretto Scholarships* to attend the Aquatic Ecology at Gratiot Lake Exploration in July. MTU Summer Youth Program students stayed at GLC’s Noblet Field Station for five days and studied Gratiot Lake animals, plants, and water chemistry under the tutelage of science teacher Brian Rajdl.

Janet Morrow Avery Scholarships were awarded to Calumet High School teacher Corey Soumis to attend the Botany Workshop in June and to Valena Hofman to attend the Aquatic Plants Workshop in August.

Visit the Gratiot Lake Conservancy web site to view current and archived issues of Water’s Edge News (in full color), along with informative articles, photos, video clips, and links to more information.

<http://www.MLSWA.org/Gratiot-Lake-1508/>

Continued from page 1.

Madison emphasized that the DNR plan for now is to discontinue walleye plantings and to allow recovery of the yellow perch.

Madison encouraged resident anglers at the lake to volunteer to collect data on the minnow population at the lake. The quantity, type, and distribution of minnows will be a barometer of the fishery’s health. A diverse, abundant minnow population is essential food for larger fish. By monitoring the minnow population in this way, the DNR will be able to manage the fishery most effectively.

(Subsequently five fishermen from the lake volunteered to participate in this monitoring. GLC will provide the minnow traps.)

Become a Member of the Gratiot Lake Conservancy!

In addition to the biannual newsletter, members receive invitations to special events and an invitation to the Annual Members Meeting. Some GLC programs that have fees are discounted for members.

Membership dues are \$15 per year. Membership runs for one year from Dec.31st. [Please click here to open a membership/donation form which can be printed and mailed in.](#) Thanks!



Photo by Jim Hay

Donors of \$100 or more will receive a gift of notecards with photos taken at Gratiot Lake.

Visit the GLC website to view this hummingbird and other Gratiot Lake notecard photos in full color!
[Click here to view notecard photos!](#)



*Participants in the **Reading the Landscape Forest Recovery** session, show off black ash ornaments they assembled under the tutelage of Basketmaker Nancy Stoneman (4th from left standing). During this field trip held at GLC's Bammert Farm, Forester Byron Sailor (2nd from left) described the plan to manage and restore diversity to GLC's red pine plantation there.*