Water's Edge

Gratiot Lake Conservancy News

Volume 13 **Fall 2011**

Gratiot Lake Fishery History

At GLC's Members Meeting in July, retired fisheries biologist Tom Rozich gave an informative presentation about the Gratiot Lake fishery history. Gratiot Lake, because it's Keweenaw's largest inland lake and it has a public boat access, has been managed more actively than most other Keweenaw lakes. Tom's slide show and a timeline of management and surveys of the lake are posted in the new Gratiot Lake Fishery page on the updated gratiotlakeconservancy.com website. Here are some highlights from Tom's presentation:

In July and August of 1926, John Lowe performed the first recorded survey of the fish in Gratiot Lake. Lowe noted, "This lake provides some fine fish, moderately abundant, but very small. Perch, common suckers, and northern pike abundant, Rock bass and smallmouth (black) bass moderately abundant. Whitefish are probably present, but we didn't get them. A few brook trout. No planting needed, except for crayfish as food for bass." In spite of Lowe's advice, the lake was stocked with large mouth bass, walleye, yellow perch, small mouth bass, and lake trout during the latter half of the 1930s.

Stocking of various fish including northern pike, walleye, tiger muskie, and rainbow trout continued until 2004 when walleye were last stocked. *Continued on page 5.*

Phil Quenzi and Breanne Carne tow vegetation laden loon nesting platform into place in Gratiot Lake in early May. Photo by Keren Tischler

A Partnership to Benefit Loons on Gratiot Lake

by Keren Tischler

Though once common on most suitably-sized inland lakes in Michigan, breeding common loons are a rare sighting on Keweenaw County lakes today. Legislatively considered State Threatened in the mid-1980s, only 500-750 breeding loon pairs remain statewide. In the early 1990s and again beginning in 2000, the Copper Country Audubon Club (CCAC) assisted residents of Gratiot Lake in placing two floating nest platforms on the lake to enhance loon breeding habitat. Though these attempts were unsuccessful, CCAC agreed to partner with Common Coast Research & Conservation, Gratiot Lake Conservancy, and the MTU BirdBums club to deploy and monitor a newly designed platform in 2011.

While the ultimate goal of this project was to encourage loon nesting on Gratiot Lake, two other important goals were to understand loon territory occupancy on the lake, because platform success is much greater on lakes with established territories, and to provide MTU students with a valuable field experience. Constructed by Gratiot Lake residents Ron Sibbald and Herb Marutz in the fall of 2010, the new loon platform was deployed and monitored from May through August 2011 by MTU students Breanne Carne, Jeffrey Kiiskila, and Auriel Van Der Laar, as well as by Judy Foster and Keren Tischler. CCAC board member Phil Quenzie was a great help with platform deployment, and Bonnie and Jim Hay (GLC) transported student observers. Unfortunately, the platform was not used by loons this year. As in years past, we were challenged to keep nesting material on it due to the lake fetch. We will consider potential changes to location and design next year. The good news is that there is a territorial loon pair on Gratiot Lake, and one MTU student got to observe the full-spectrum of territory defense behaviors. Time well spent.

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GLC Life Membership

Gratiot Lake Conservancy now offers the option of a life membership for individuals. A contribution of $500 or more for Life Membership offers the convenience of a one-time enrollment. Life memberships, like annual memberships and donations, are tax deductible.

Grants Received

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Donation in Honor of Charlie and Gracie Kroon

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Rick and Mary Oliveto

Janet Avery Scholarship

Michael Rotter received a Janet Avery Scholarship to attend Janet Marr's Aquatic Plant Workshop held in August. Michael who has a BS in Biology is pursuing a masters degree in plant ecology at Northern Michigan University. Michael noted in his scholarship application, "One area that I have held little knowledge of is aquatic plants. Although a major plant life form and an important one, aquatic plants are mostly ignored or under appreciated parts of a flora. Having a firm grasp on these plants is critical to understanding the composition of taxonomic groups as well as understanding the quality of ecosystems and communities. For this reason I became interested in this class. (It will)...help me expand my perspectives on plant ecology and watershed dynamics in order to better study and help conserve these important systems."

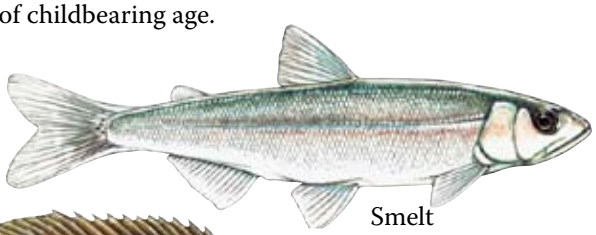
High Levels of Mercury and PCB's in Upper Peninsula Fish

High Levels of Mercury and PCB's in Upper Peninsula Fish Recent research shows that chemical and heavy metal contamination is surprisingly pervasive both in Great Lakes fish and in birds that eat fish - even in seemingly more pristine northern areas, and especially in inland lakes.

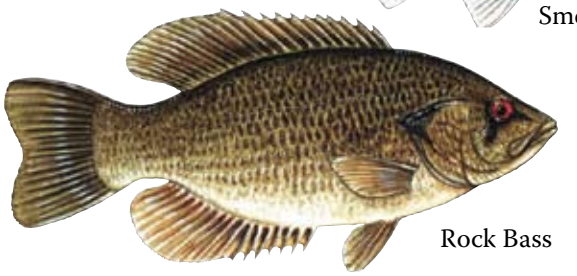
Many contaminants are deposited in lakes by precipitation, which contains airborne material emitted from coal fired power plants and trash burning facilities. Some, regrettably not all, power plants and waste disposal incinerators in the US now have more effective scrubber technology. However, in some parts of the world, notably Asia, emissions of airborne pollutants are far higher than in the past. Airborne pollution travels great distances. Contaminants remain in water-bodies for many years, sometimes trapped in sediments, so persistent toxic materials can remain in the environment long after they are banned from use. The contaminants move up the aquatic food chain from microorganisms to animals such as fish and birds... and us.

Unfortunately, many inland lakes in the northern Great Lakes region appear to be especially vulnerable to mercury, for example, because of the low pH of the water, which allows mercury to travel more easily through the aquatic food chain. In addition to mercury, fish tested from Lake Superior watershed also contain contaminants such as PCB's, chlordane, and dioxin.

The health benefits derived from eating fish are generally considered to outweigh the idea of avoiding fish consumption altogether. Salt-water fish are also contaminated with various toxins You can check the average mercury content of most types of fish you eat on the web at gotmercury.org. So what fish is really safe to eat? Generally speaking, the largest and fattiest fish contain the highest concentrations of toxins. Large predators are often the most contaminated because these toxins bio-accumulate as they move up the food chain. Smaller fish tend to contain lower levels of contaminants. Since children are more sensitive to contaminants, fish consumption limitations are much greater for children and for women of childbearing age.



Smelt



Rock Bass

Many states, including Michigan, produce fish advisories to help consumers make healthier choices.

The Michigan Department of Public Health website on Great Lakes Fish Consumption (http://www.michigan.gov/eatsafefish) advises consumers to follow the **3 C's if they <u>eat less than 8 fish meals a YEAR</u>**:

Choose, Clean, and Cook fish carefully to avoid consuming an excess amount of toxins.

Choose: Michigan fish with least toxic levels are yellow perch, bluegill, rock bass, and crappies. Fish with the highest toxin levels are trout, whitefish (better in Lake Superior), catfish and carp

Clean: PCB's and dioxin collect in the fat of fish, so trimming away the fat and removing the skin before cooking helps. However, mercury and other heavy metals accumulate in the muscle tissue and cannot be removed.

Cook: Cooking fish by grilling or in a broiler pan allows fat to drip away.

Yellow Perch

If you eat 8 or more meals of fish per year follow guidelines for particular lakes and rivers set out in the "2011-2012 Michigan Fish Advisory." The Fish Advisory is available free of charge at the website above or by calling 1-800-648-6942.

The Michigan Fish Advisory has the following advice on Lake Superior. In the big lake, siskowet, a very fatty trout and the most contaminated, is considered a "do not eat" fish if over 18 inches in length. Other fish that show fairly high levels of contaminants are: lake trout over 26", walleye over 24", burbot over 22", and Chinook salmon, too. Whitefish, rainbow trout, and suckers appear to be better fish to eat out of Lake Superior, although children and women of childbearing age are still advised to have no more than one fish meal a week of these fish. More detail is in the report itself.

The table at right is my summary of some data for inland lakes in Keweenaw and Houghton counties presented in the "2011-2012 Michigan Fish Advisory." Many lakes are not listed individually in this advisory but are included in the general Lake Superior inland waterbody advisory. The only inland lake listed separately in Keweenaw County is Siskiwit on Isle Royale. All other Keweenaw County lakes, including Gratiot, fall under the general inland waterbody mercury advisory for the Lake Superior Watershed. In the table a meal of fish for an adult is equal to 8 ounces of raw fish (6 cooked) and for a child 4 ounces of raw fish (3 cooked).

Gratiot Lake Fishery History continued from page 1.

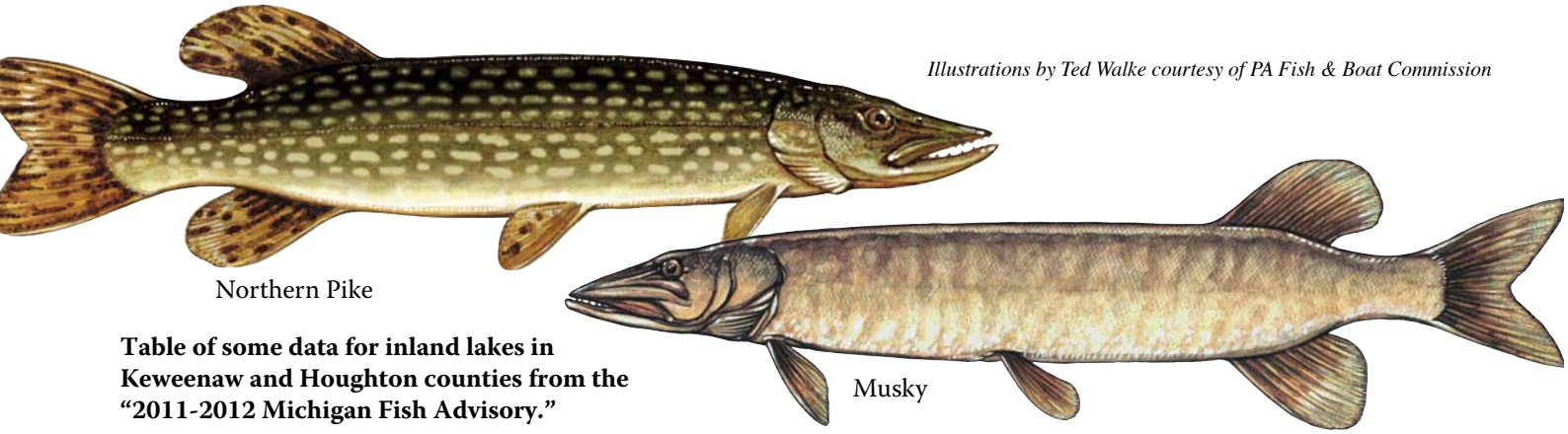
To improve fish habitat, 90 brush fish shelters were installed on the North shoal area in 1947, and 600 hoad type fish shelters were placed in 60 groups in 1958. Land was purchased and developed to allow public access to Gratiot Lake in 1961. Surveys over the years show many ups and downs in the abundance of the various fish species. Suckers and rock bass have continued in abundance... 81% of survey catch by weight in 1987 and 60% in 1997. By 1997 the survey noted that although pike and walleye numbers were good, but yellow perch were in decline.

The preliminary results of the survey carried out in May of 2011 found 659 walleye, 78 northern pike, 7 muskies, only 30 yellow perch, 24 small mouth bass, 134 white suckers (Tom notes that this figure will likely be revised steeply upward when data are analyzed). Three bullhead minnows found were a first. The presence of bullhead minnows, not native to Gratiot Lake, is not a good sign as they will outcompete other small fish for food.

Gratiot has very soft water, low ability to buffer, and little oxygen present in its deeper waters. Forage fish need the vegetation and rooted vegetation is not abundant in relation to the size of the lake. (Bonnie's note: However, the complement of species of aquatic vegetation present is good and indicative of a healthy ecosystem per studies in 2005, 2006 and 2007 by Janet Marr). The current lack of good forage fish except for suckers may limit the ability of the larger predator fish to flourish. Here are some possible management suggestions which Tom listed: lower the size limit on northern pike to 24", stock muskies at 2-3 per acre (Gratiot is 1438 acres), reintroduce smelt which were present in the lake for many years, encourage anglers to target rock bass, and add woody material to shoal areas.

Be sure to visit gratiotlakeconservancy.org to find more information on the history of the lake and to see Tom's slides.

Illustrations by Ted Walke courtesy of PA Fish & Boat Commission



Northern Pike

Musky

Table of some data for inland lakes in Keweenaw and Houghton counties from the "2011-2012 Michigan Fish Advisory."

INLAND WATERBODY	ADVISORY FOR ADULTS	ADVISORY FOR WOMEN OF CHILDBEARING AGE AND FOR CHILDREN
Siskiwit Lake, Isle Royale PCB' s	no limit advised	no more than one meal a week of any whitefish and of lake trout over 22 inches in length
Torch Lake, Houghton County Mercury and PCB's	no more than one meal a week of walleye under 22 inches in length and no meals of larger fish no more than one meal a week of northern pike no more than one meal a week of smallmouth bass 18 inches or over	no more than one meal a week of walleye under 22 inches in length and no larger fish no more than one meal a month of northern pike 30 inches or over and no more than one meal of smaller fish per week no more than one meal a week of smallmouth bass less than 18 inches. Larger fish only once a month
Lake Superior Watershed all Inland Lakes, reservoirs and impoundments Mercury	no more than one meal a week of any crappie, bass, muskie, northern pike, rock bass, walleye or yellow perch over 9 inches in length	no restrictions on crappie, rock bass and yellow perch 6-8 inches no more than one meal per month of any fish over 9 inches in length

If you have an appetite for the science behind concerns about the rising levels of mercury found in fish, in birds , and in people who eat fish, access *The Journal of Exotoxicology* "Special Issue: Mercury in the Great Lakes Region" (October 2011, Volume 20, Number 7) for free at *http://www.springerlink.com/content/0963-9292/20/7/*

Big Predators Sought in the Keweenaw

When John Yunger emailed me from Governors State University in University Park, Illinois inquiring about bringing biology students in his mammology field study class to conserved lands in the Keweenaw, I was a bit surprised. My amazement was not at the nature of the request but about the distance he and his students would have to travel. Then I learned that John who holds a PhD in Ecology and Evolutionary Biology had done research in Michigan. He and his family, who fell in love with the Keweenaw, now have a cottage in Gay. John has studied mammals from bats and bobcats to sorex and voles in many exotic places e.g. Chile, Belize, and China, and now, the Keweenaw!

The students stayed at the Noblet Field station and set up large mammal monitoring station at 14 locations (2 on GLC land) in Keweenaw County. Each station was comprised of a tree-mounted camera, a flat sand track plate, a scent lure specially concocted to attract predators, and to catch fur, barbed wire encircling the camera tree. Fur can be analyzed through DNA analysis. Students also looked for other animal signs at the monitoring station locations. Always amazing to me is the biologist's interest in scat! Predator scat can tell a lot about predator behavior including diet and health. The students also surveyed plant species surrounding each monitoring station.

After two weeks, students returned to collect data and to remove the stations. No hair samples or photos were collected on GLC land. Scat collected on GLC land included that of black bear, gray wolf, coyote, and a large weasel (probably a fisher). Students used data and samples to test hypotheses related to density of predators at varying elevations, diet of various predators, and preferred predator habitat.

Such student field studies, although not a source of data that is reliable enough to actually extrapolate from, help to train future ecologists and increase our appreciation of Keweenaw natural history.

Stories Trash Tells

After picking up over 130 pounds of trash during the September shoreline clean-up at Gratiot Lake, we found ourselves reflecting on the stories that some of the items told. Some stories are of accidental losses. The ten fishing lures found bear witness to frustrated anglers fruitlessly tugging at snags or perhaps the big one that got away. Three baseball caps were presumably blown off boaters heads. The two that were in good shape reveal the travels of their owners... Maybe they belong to you? One with a pheasant on it is from the Cocktail Cage in Polar, WI... the other from Carla's displays a trout! A plastic bucket conjures up images of a small child happily playing in the sand but later distressed at the loss of the toy. Most likely fragments of building materials, and maybe even the five tires found tell stories of high lake level and beach erosion.

There are also stories of carelessness... the 55 cigarette filters, 13 cans, 27 food wrappers, 11 bait containers, and countless pieces of plastic bags. Outreach to boaters and anglers may help to reduce the amount of boating related trash--especially bait containers-- that are turning up on the shoreline.

The best story of course is the one of the caring volunteers, Al and Carol Hochstein, Jim Hay, Virginia and Dorothy Jamison, and Gina Nicholas who picked up trash at Gratiot and all of you who pick up trash from time to time on Keweenaw shoreline!

Help Protect Brockway Mountain

Many people do not know that the summit of Brockway Mountain is privately owned. Help Eagle Harbor Township and other conservation partners protect Brockway Mountain for public access in perpetuity by donating to this worthy cause. As of Nov. 7 the Township has already raised about $46,000 of the $180,000 required as match for a $500,000 Michigan Natural Resources Trust Fund Grant. The funds will cover the $680,000 cost which includes the purchase of the property and associated closing expenses. This project is part of the existing Keweenaw Coastal Wildlife Corridor (KCWC) and all donations will be restricted to the purchase of property for the KCWC Project.

Please make checks payable to:
"Eagle Harbor Township - KCWC Brockway Project"
321 Center Street
Eagle Harbor, MI 49950

For more information call the township office at 906-289-4407 or visit http://eagleharbortwp.org/

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gratiotlakeconservancy.org

Caroline A. Creevey, *Harper's Guide to Wild Flowers*, 1912, illustrated by Benjamin Lander. Courtesy of UW-Stevens Point Freckmann Herbarium website

Keweenaw Berry Only Available After September 15th!

I have spent scores of Keweenaw summers savoring fresh picked Keweenaw wild fruits in succession- strawberries, huckleberries (sometimes known as bilberries), sugar plums (which go by aliases ranging from Juneberries to serviceberries), blueberries, raspberries, blackberries, and of course "wild" apples. Only in recent years have I sought the wild cranberry.

In part my belated awareness of the wild cranberry was due to the fact that only in recent years have I been able to remain in the Keweenaw late enough in September to witness their rosy ripening, and in part to the fact that they are by far the most energy intensive of all (except perhaps the wild strawberry) to actually harvest. Although collecting Keweenaw wild fruits does require some rather uncomfortable up-side-down acrobatics, squatting, and kneeling; cranberry gathering demands a whole new level of wilderness agility. In my case, this involves crawling about in moist boggy areas to find a scant cup (or two in a really good year) per hour. This picking posture, although unbecoming, does make me feel more akin to other four legged mammal foragers - a very nice bond to feel.

Found primarily in North America, the cranberry is a member of the heath family, as are blueberry, bilberry, and huckleberry. Two species of cranberry occur in the Keweenaw-- *Vaccinum macrocarpon* occurs in wetter spots and has larger fruits than *Vaccinum oxycoccos*. Highbush cranberry, *Viburnum trilobum*, is in the honeysuckle family and not related to the creeping varieties. All produce edible tart fruits which are attractive to wildlife. Birds especially like cranberries after they have frozen, thawed, and fermented!

The Ojibwa called this berry "mashkiigimin" and used it in a variety of foods including pemmican-- a dried mixture of deer meat and fat combined with berries. Native Americans used it to treat wounds, kidney and bladder ailments, colds, and bleeding gums. It was also used to make dyes. The fruits were also used for barter. Native Americans introduced the plant to the Pilgrims who dubbed it "craneberry" in reference to the resemblance of its flower to a crane's head in profile. The colonists found the fruit not only a tasty food, but an important medicine for ailments including blood disorders, stomach problems, and scurvy. Cranberries are high in vitamin C and anti-oxidants and are still used to prevent urinary tract infections.

Until December 31st Michigan Tax Credit for Donations to GLC Fund at KCF

The *Gratiot Lake Conservancy Fund* managed by the Keweenaw Community Foundation (KCF) is a convenient and tax effective way for Michigan residents to support GLC. Because of a change in Michigan law, it is only until the end of 2011 that Michigan Tax Credit will allow individuals giving up to $200 ($400 for couples) to a community foundation to have half of that gift amount credited against Michigan income taxes. To contribute to the *GLC Fund*, contact:

Barbara Rose, Executive Director
Keweenaw Community Foundation
236 Quincy Street
Hancock, MI 49930.
906-482-9673 mail@k-c-f.org www.k-c-f.org

Whether you donate online through the KCF website or by mail earmark your donation for the *Gratiot Lake Conservancy Fund.*

About ***Water's Edge***

***Water's Edge,* the newsletter of the Gratiot Lake Conservancy, reports Conservancy news, informs about the ecology and history of Gratiot Lake and its environs, and shares ways to improve environmental stewardship.**

Please send questions, comments, or articles to
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View issues of Water's Edge in color at

gratiotlakeconservancy.org

Marilynn Bradenburger and Sketching Nature in Watercolor Workshop students on the porch of the Noblet Field Station at Gratiot Lake

Superior Signal Articles

The November 2011 issue of the Keweenaw County Historical Society (KCHS) newsletter, *Superior Signal,* contains two must read articles with a special connection to GLC. *Jonas Bammert's Farm Fed the Copper Mining Communities* by Lee Sweitz presents the fruits of her doctoral research over the last couple of years into this subject. At the GLC members meeting in 2010, Lee presented an informative talk about the history of Bammert Farm, which was donated to GLC in 2005. GLC boardmember, Gina Nicholas's article, *The Future of Land Conservation,* is one essay in a compilation of essays entitled *Keweenaw County in the Next Half Century Visions of the Bicentennial Year of 2061* (edited by Paul Freshwater). If you are not a member of KCHS, find a friend, relative or neighbor who is - and borrow a copy!

Thank You Volunteers! Your efforts sustain our work!

Membership renewals for 2012 are now due.
For GLC Membership/Donation Form
click here!

Join our 129 Member Families. Support GLC !

Gratiot Lake Conservancy members receive a biannual newsletter, notice of special events, and an invitation to the Annual Members Meeting. Some GLC programs that have fees are discounted for members.

Donations to GLC are always welcome.

The membership year is from January 1 to December 31st, but you may join at any time. Click here to download a membership/donation form to print and send in.

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

View sample Gratiot Lake notecard photos in full color!

www.gratiotlakeconservancy.org