

Hooked on Mille Lacs Lake



Inside this issue:

- Greetings
- Clear Water
- Bass and Pike
- Field Work
- Myths and Facts
- Ice-on/Ice-off
- Sampling Sites and Gear



Trap net catch of walleye and northern pike caught and tagged in 2013. More tagging operations will be continuing this spring.



No, not an alien. This is a larval Hexagina mayfly (one of the big ones you see in June) that was observed while conducting zebra mussel SCUBA assessments. Hexaginas are an important food for a number of fish species in Mille Lacs. Photo by Tom Jones.

Published by:

Minnesota
DNR
Aitkin Area
Fisheries

1200 Minnesota Ave
Aitkin, MN 56431

218-927-3751, ext. 224

aitkin.fisheries@state.mn.us



Greetings!

By Rick Bruesewitz
Area Fisheries Supervisor

Welcome to the first issue of *Hooked on Mille Lacs Lake*, a newsletter that will highlight fish management and lake ecology.

The Aitkin Fisheries Office will publish this several times a year. Its purpose is to share lake survey results, research findings and other information that we collect and you should know. The Walker Fisheries Office has published a newsletter for a number of years. That newsletter has been a good tool for keeping the Leech Lake community up to date on fish population and other information. We aim to do the same.

Our intent is to communicate on a more frequent basis, rather than just annually. We want you to know what's going on in the lake, the work we are doing, and how we are using information we collect to improve the walleye population, which is our primary focus.

Clearly, Mille Lacs is a system under change. Much of the future con-



Another measure of change; burbot (eelpout) were once abundant in Mille Lacs, but are no longer. These cold water fish have been declining since the late 1980s. Longer, warmer summers are no friends to burbot. Photo by Tom Jones.

tent will relate to that. We'll report on spring trap-netting and electro-fishing for northern pike, walleye, muskellunge and smallmouth bass. We'll report on predator diet study findings. We'll share the results of summer zebra mussel sampling, fall fish sampling and winter creel harvest data. Individually, these updates may seem mundane. Collectively, however, they'll help paint a more clear and long-term picture of what's going on.

This and all future issues will be posted on the Aitkin Fisheries website at <http://www.dnr.state.mn.us/areas/fisheries/aitkin/index.html> ([click here.](#))

I look forward to your feedback and suggested topics for future issues, you can contact our office by email at aitkin.fisheries@state.mn.us.

Current Mille Lacs Fishing Regulations:

<http://www.dnr.state.mn.us/fishing/millelacs.html>



Clear Water

Water clarity at Mille Lacs reached a new record last year. While we have seen clear water before (1997) we can only wait and see if clarity remains above the normal range or moderates somewhat, as it has in the past. While we have expected that with the rise in zebra mussel abundance we could see a noticeable change in water clarity, we are very uncertain whether we are now seeing an effect from these invasives, or whether clarity was affected by some other hydrological event.

Increased water clarity can impact a fishery in several ways. First, it may result in walleye typically being deeper more often. Shallow rock bars where they used to be caught may no longer attract our state fish as much as they once did. Many of you may recall the “night bite” of the late 1990s. From around 1995 to 1998 anglers found walleye in the shallows primarily at night, resulting in a change in fishing pattern during those years.

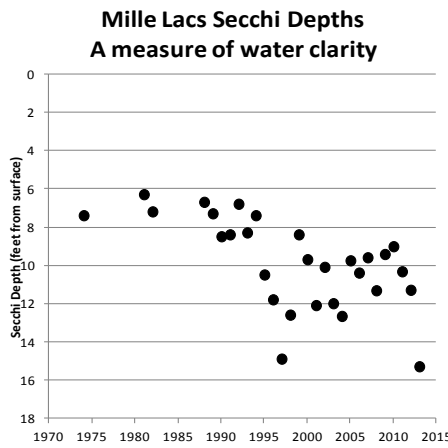
Another aspect of clear water is

Bass and Pike

While walleye abundance has been a bit lower than usual, abundance levels of bass and pike have been increasing.

Recruitment of young pike in the last two years has been the highest we’ve seen at Mille Lacs. New regulations this spring allow for greater harvest opportunities for pike. Some of these younger fish will even be over 26 inches by winter.

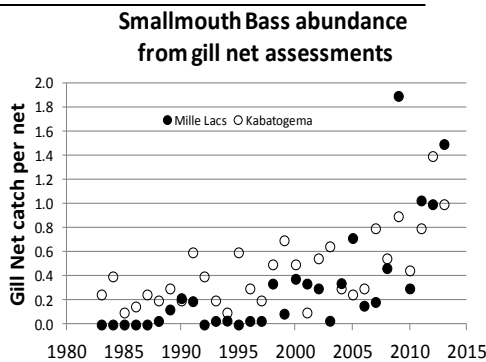
Smallmouth bass have also become much more abundant than in the past. Last year there was much debate over the decision to relax



Season average secchi disk depths at Mille Lacs Lake. Data are from MPCA and MN DNR.

that it allows vegetation to grow in deeper water. This may benefit other species more than walleye, and is something being watched very closely.

Lastly, and maybe most importantly, is that clear water is often related to a decrease in productivity, related to the lack of plankton capturing the energy of the sun. If productivity is less now than in the past, then the production of walleye may be less, too. Think about it this way, the habitat of any organism often governs the amount of that organism. If part of the habitat in Mille Lacs becomes unavailable due to clearer water, then there might be fewer walleye than in the past.



regulations for smallies. Just like on most of the big lakes, anglers just don’t keep large numbers of bass. While anglers caught almost 75,000 smallies last summer at Mille Lacs, they harvested only 1,800 fish—that’s about 2%.

Please note that the objectives of

Field work in 2014

- Spring trap-netting and electrofishing for northern pike, walleye, musky and small-mouth bass—in that order.
- Continued monthly collection of samples for bioenergetics/diet study (pike, bass, and walleye).
- Tribal harvest monitoring
- Short-term gill-netting in May and early June to look for recaptures of fish marked or tagged in spring.
- Angler creel survey beginning on the season opener.
- Bi-weekly and monthly water and zooplankton/veliger sampling May thru September.
- August diving to sample zebra mussels (in cooperation with DNR Ecological & Water Resources).
- Fall large lake fish sampling (electrofishing, trawl, forage gill nets, standard and pike gill nets.)



DNR staff with northern pike they sampled from one of Mille Lacs' tributary streams.

the new regulations this year are to offer greater harvest opportunity, not to drive down the populations.

Interestingly, Lake Kabatogema has also been seeing a similar increase in smallmouth bass.

Myths and Facts surrounding Mille Lacs

Myths are nothing new to Mille Lacs.

Myth 1: For decades Mille Lacs has been surrounded by myths that range from rather silly Loch Ness Monster stories, to the most common belief that when anglers catch fish there must be a lot of fish in the lake—and vice versa. While the former needs no explanation, the issue of the walleye bite is quite interesting.

Fact 1: Walleye catch rates are mainly dependent upon two things - walleye abundance, and forage (yes, weather does play a role, too). Anglers can have good fishing even under lower abundance if forage is low enough. On the other hand even when walleye abundance is high, the bite can be off. As an example, consider this winter and last. While the abundance has changed little from then until now, angler catch rates this year were 1/20th what they were last winter. This is due to new forage, which were perch from an abundant 2013 year class.

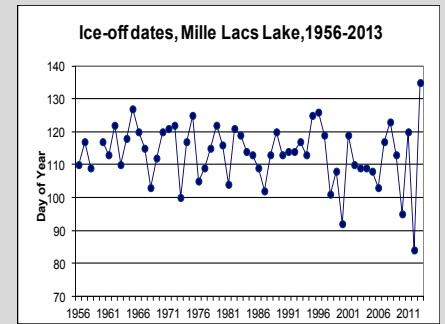


Mille Lacs spawner dripping with eggs.

Myth 2: Stocking has been suggested as a solution to boost the population at Mille Lacs. People have seen the success at Red Lake and ask, “Why not stock Mille Lacs?”

Fact 2: While Mille Lacs spawning stock is currently low relative to the 1986-2013 time frame, it still has more pounds of spawners per acre than most of the large lakes in Minnesota. We know that it is adequate because annual electrofishing assessments indicate very high abundance levels for young-of-the-year walleye in September, which indicates there was good reproduction in the spring.

Ice-on/Ice-off



Historical ice-off dates for Mille Lacs. Data from MN DNR and UMN

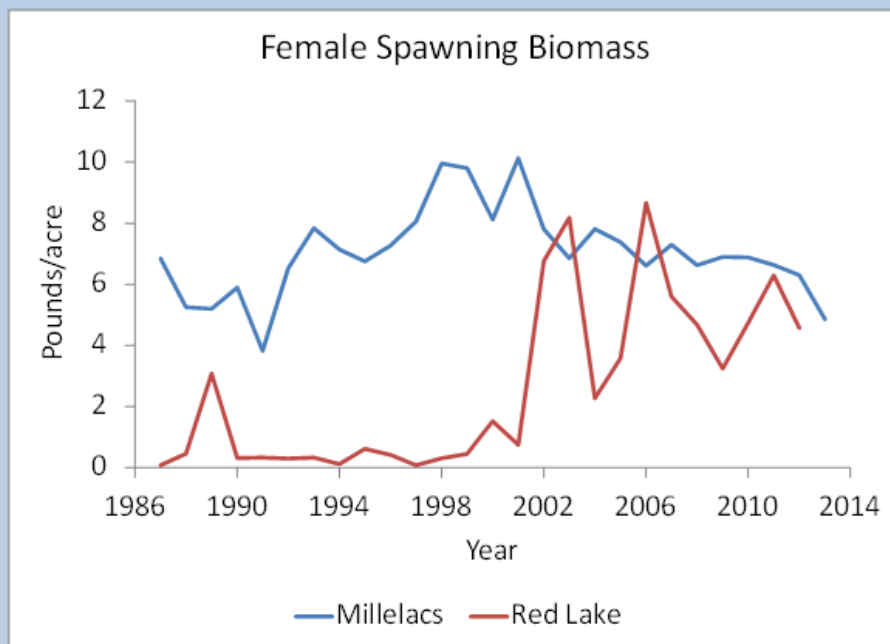
Anyone want to take a guess for ice-off this year? While ice-off has been occurring slightly earlier over the decades, what has really changed has been the variability. We all recognize the havoc to people caused by such late ice-outs as last year, but you have to wonder what the fish “think” of the changes. Note that day 110 on the graphic is April 20.



Next issue (July):

- More Myths and Facts: *What's with those scars on bass foreheads?*
- Observations from spring work.
- What's in a fishery model?
- The bite
- Predator diets
- Water birds

Please send your suggested topics for future issues to: aitkin.fisheries@state.mn.us



Spawning stock biomass estimates for Mille Lacs and Red Lakes.

Standard Mille Lacs Lake Sampling Sites and Gear

Gill nets with graduated meshes are used to sample the adult fish populations.

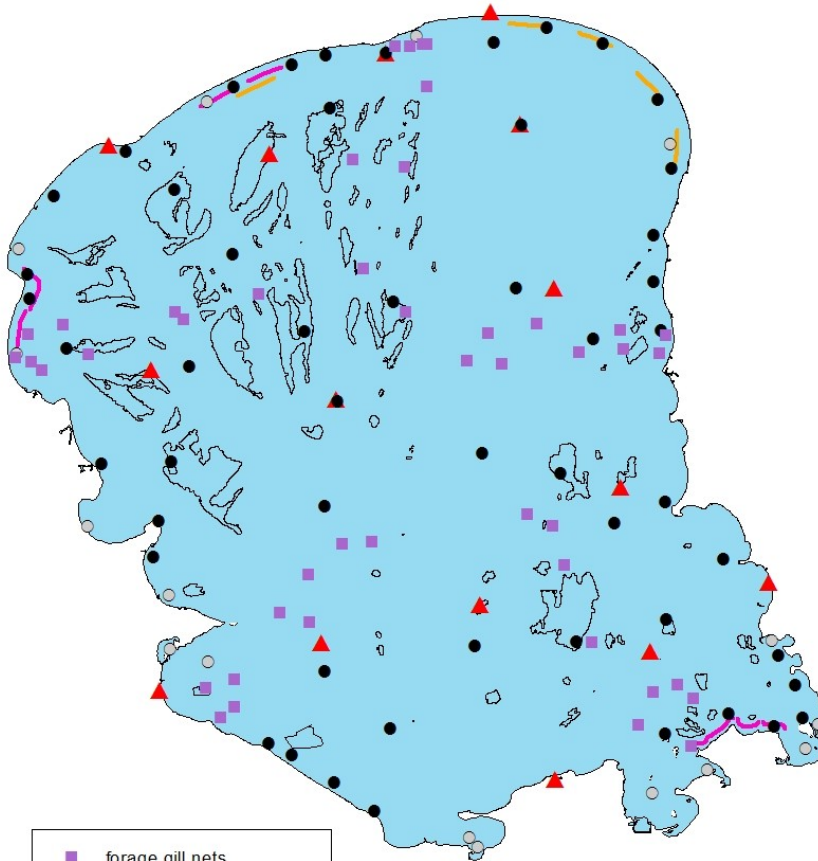
They are set overnight in September, and the samples are brought back to the area headquarters for analysis. Edible fish are donated to a variety of charities.



Fine-mesh vertical gill nets are used to index the abundance of the smaller forage species such as young of the year perch, tullibee, and shiners.



This past winter gill nets were fished under the ice to collect samples for the diet study.



- forage gill nets
- standard gill net
- pike gill net
- ▲ water quality/zooplankton
- electrofishing transects
- trawl transects

Different methods of sampling are used in multiple areas across Mille Lacs, as depicted in the above map.



Trap nets are used primarily in spring to capture fish for tagging. They are most effective for northern pike, walleye, and musky.



Sometimes gill nets are used over very short periods of time (15 minutes to an hour) so that the samples can be released un-harmed.



Electrofishing is used to collect samples of walleye for tagging in spring, as well as annually since 1991, to assess the reproduction of walleye in September, and as another measure of forage.

Trawling involves towing a large funnel like net behind a large boat. Tows are made typically for five or 10 minutes, and are used mainly to capture smaller fish.



Annually, three creel survey clerks interview up to 8,000 anglers to determine catch information. In addition to collecting the fish information, they also count the number of boats landing along specific stretches of shoreline.