Leech Lake Update, March 2014

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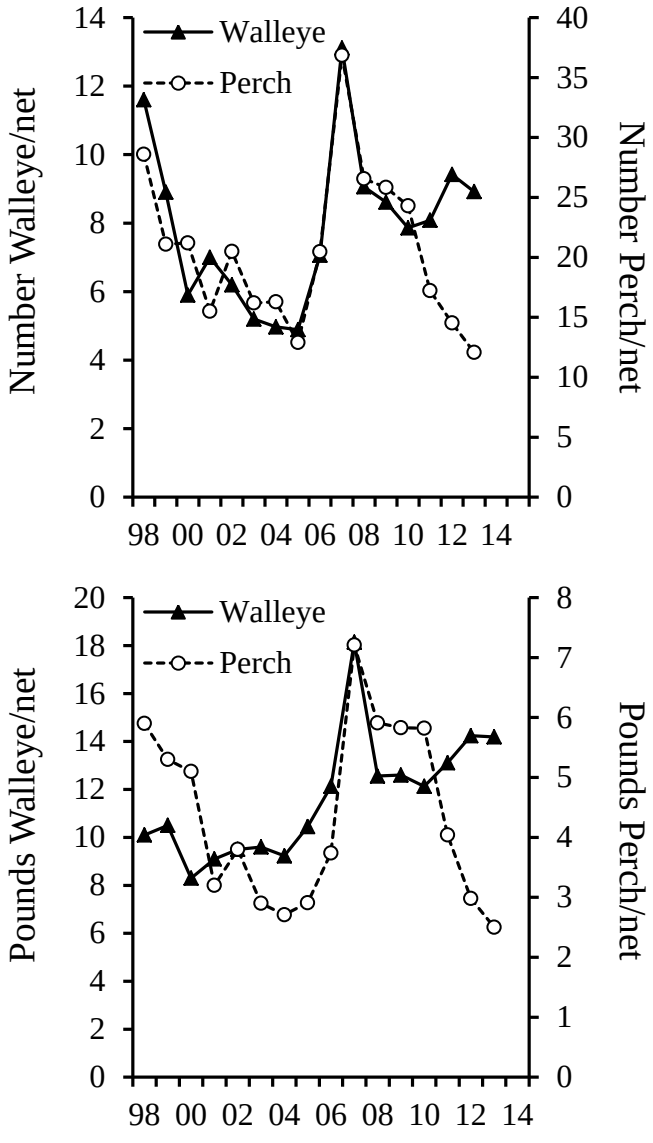
Greetings!

This update is part of a series of reports the Minnesota Department of Natural Resources (DNR) is sending to Leech Lake area resorts, businesses and others interested in DNR activities on Leech Lake. The goal of these messages is to keep you up to date with our findings and current activities on the lake. Earlier updates are available by visiting http://www.dnr.state.mn.us/areas/fisheries/walker/index.html.

Feel free to contact our office if you have any questions or comments, would like copies of previous updates not posted on the website, or if you would like to be added to the mailing list.

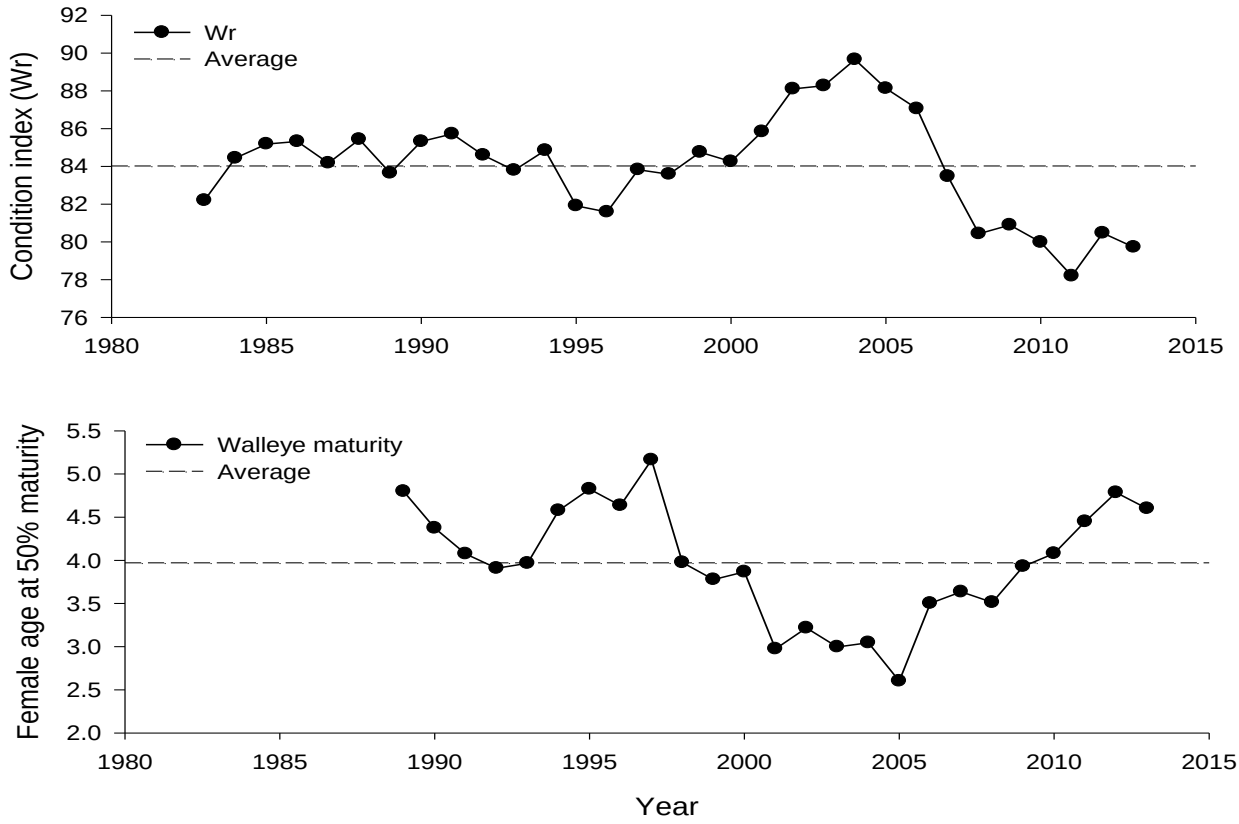
2013 survey work completed

- The annual gill netting survey was completed at 36 locations around the lake from September 9-20, 2013.
- The walleye gill net catch rate (8.9 fish/net) exceeded the management objective (8.5 fish/net) and was above the long-term average (7.7 fish/net) for the seventh consecutive year.
- Walleye abundance and biomass (lbs/net) have had an increasing trend for the past nine years.
- The yellow perch catch rate (12.1 fish/net) was below the management objective (16.2 fish/net) and decreased for the sixth consecutive year. This observation was the lowest to date since standardized sampling began in 1983.
- Yellow perch abundance and biomass (lbs/net) has declined for six consecutive years and was the lowest rate observed since standardized sampling began in 1983.



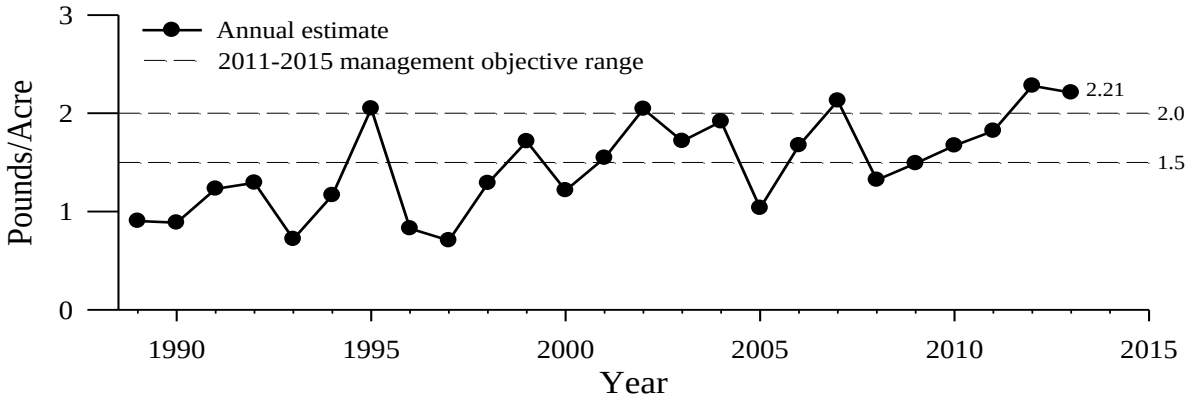
Gillnet catch rates (number and pounds/net) of walleye and yellow perch in Leech Lake, 1998-2013.

- The walleye condition factor (relative plumpness; below, top panel) has remained below average for seven years, while maturity rates (below, bottom panel) have been slowing. Reduced condition (thinner) and maturing at older ages both reflect population responses to steadily increasing walleye density and decreasing yellow perch abundance.



Walleye regulation review

- Management plan criteria stated that exceedence of the spawner stock biomass objective range of 1.5-2.0 pounds/acre for two consecutive would initiate consideration for relaxing the 18-26"protected slot limit (PSL). Criteria were met and the DNR proceeded as outlined.

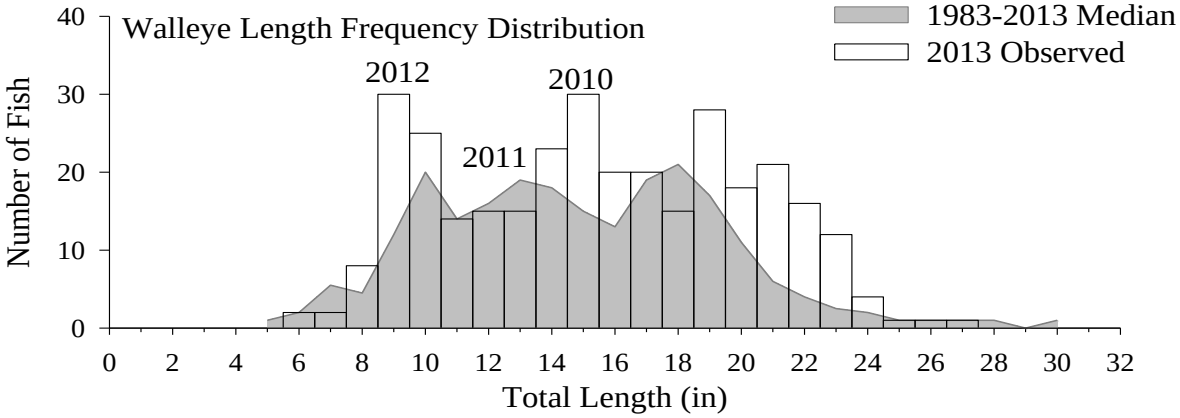


Estimated biomass (lbs/acre) of mature female walleye in Leech Lake, 1989-2013. Horizontal lines depict the management objective range of 1.5-2.0 lbs/acre.

- The 18-26” protected slot limit (PSL) regulation on walleye was reviewed during fall 2013 and DNR proposed modifying the regulation to a 20-26” PSL for the 2014 season. Public input was solicited during October, 2013 and the majority of comments supported this change. A new walleye regulation will be effective on May 10, 2014 (20-26” PSL, 4 fish in possession, 1 over 26” allowed in possession). If estimates of mature female walleye biomass fall below 1.5 pounds/acre for two consecutive years, the DNR will consider a more protective regulation.
- To monitor changes in fishing pressure and harvest resulting from the new regulation, creel surveys are scheduled from May through September 2014 and December 2014 -March 2015. Anglers can expect to encounter creel clerks at public accesses and resorts. Your cooperation with the brief survey is appreciated and provides valuable information for managing the fishery.

2014 fishing outlook

- Another good fishing season is expected on Leech Lake. At the beginning of the 2014 season, walleye produced during 2010 will be 15-17” long, the 2011 year class will be 13-15” long, and the 2012 fish will be 11-13” long. Anglers targeting walleye are usually most successful until mid-June and again during September and October.
- With the new regulation, approximately 25% of the walleye caught by anglers will be protected; the 18-26” PSL in place since 2005 protected about 30-35% of fish caught.



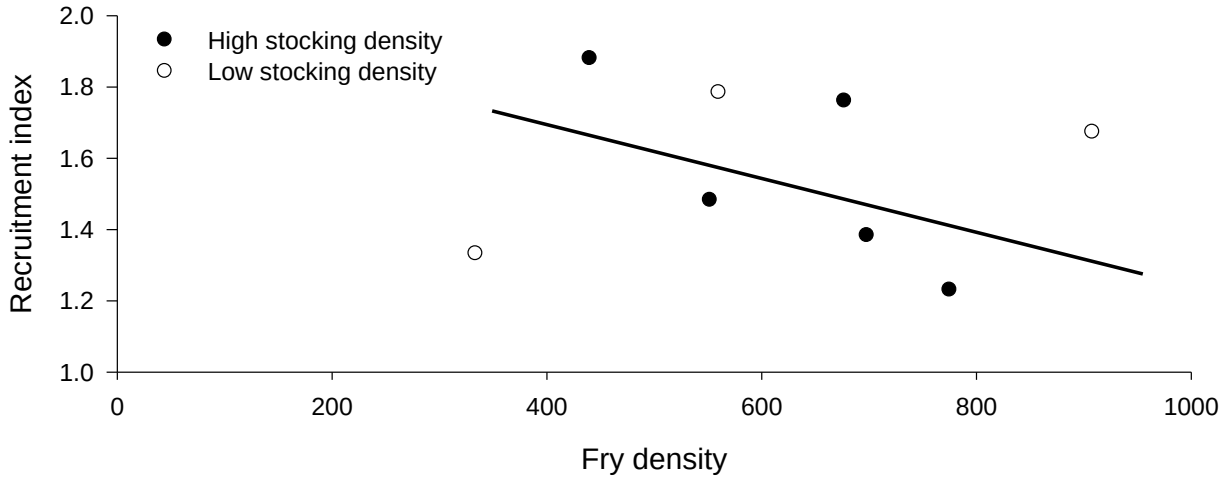
Length-frequency distribution of walleye sampled with experimental gillnets in Leech Lake, 2013. The 2010-12 year classes are indicated, as is the 1983-2013 median.

- Quality fishing opportunities for species other than walleye are also present on Leech Lake. The northern pike population continues to be good, with about 25% of pike sampled with survey nets in 2013 being 24” or larger. Musky fishing was good in 2013 and similar opportunities should continue in 2014.
- The size quality of yellow perch continues to be good, with about one third of fish sampled being 8” or longer. Abundance of yellow perch, however, has reached a historical low and anglers can expect to work harder to reach a limit this season.

- Spring electrofishing surveys indicated good numbers of largemouth bass and bluegills in Boy, Headquarters, Steamboat, and Shingobee bays. Thirty-six percent of bass sampled were 15" or longer, while 30% of bluegills sampled were 8" or larger. The average size of black crappie sampled in the spring electrofishing survey was 10.3" with fish up to 15" observed. Statewide regulations apply for all species on Leech Lake other than walleye.

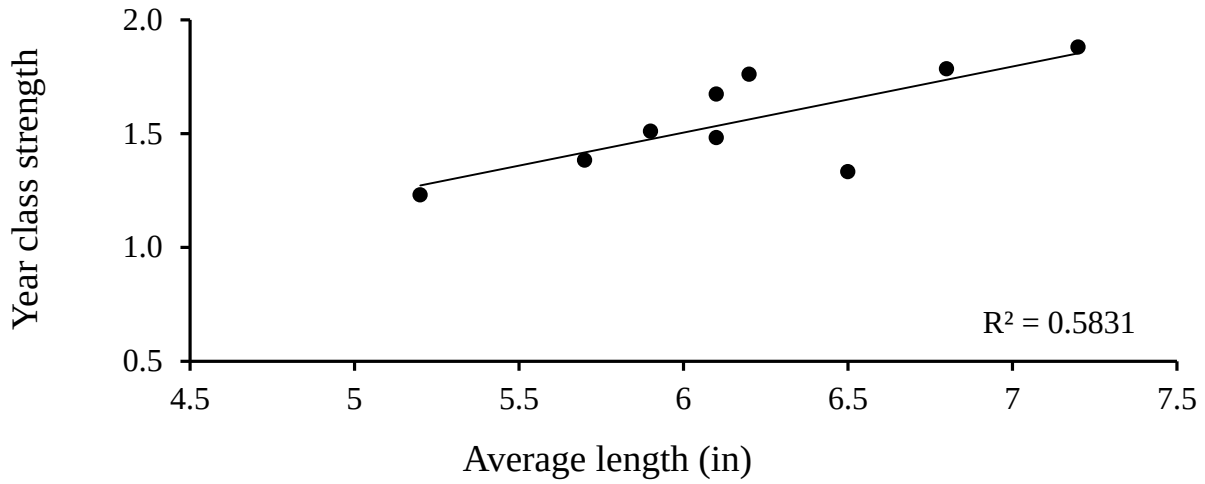
Walleye fry stocking

- Approximately 7.5 million (OTC-marked) were stocked in 2013. The proportion of young-of-year sampled throughout 2013 that were marked was 23.3% (2005-13 range of 14-86%). Hatch rates of naturally produced eggs were determined to be 0.38% in 2013 (2005-13 range of 0.12-0.89%). Stocking rates have been either 7.5 or 20-22.5 million fry per year from 2005 through 2013.
- Walleye stockings (7.5 vs. 20-22.5 million fry) have resulted in similar numbers of walleye recruiting to the fishery. This is because recruitment, or the relative number of fish in any year class that reach age-3 and will be harvestable sizes the following year, decreases as total walleye fry density increases above 600 fry/littoral acre (acres < 15 feet deep).



Total walleye fry density (fry/littoral acre) estimated with OTC marking and the resulting year class strength index at Leech Lake, 2005-2012. Wild fry production in 2014 is projected to be 434 fry/LA; stocking 7.5 million fry will add 129 fry/LA.

- Lower recruitment despite higher initial fry density is the result of increased competition, meaning more mouths are competing for the same amount of food throughout the year. A tradeoff with increasing fry density is slowing growth rates of age-0 walleye. This is important because growth during the first year is critical to survival during the first winter – larger fish have a higher probability of surviving and eventually reaching the fishery. Consequently, the risk of doing harm by stocking excess fry is that 1) it reduces fitness and recruitment potential for the entire year class because the entire group is growing more slowly, and 2) fish that do not survive to recruit to the fishery must still consume prey until they die, prey that could otherwise be available to maintain fish more likely to survive and reach the fishery.



The average length (in) of young-of-year walleye sampled by electrofishing in mid-September and the resulting walleye year class strength in Leech Lake, 2005-2012.

- On March 5, 2014 the DNR met with the Leech Lake Advisory Committee for an annual update meeting to discuss results from the 2013 surveys and sampling and stocking plans for 2014. The 2014 programmed walleye fry stocking of 22.0 million was discussed, and the majority of the group agreed with DNR's recommendation for a reduced stocking of 7.5 million walleye fry. Similar to other stockings, the 7.5 million walleye fry stocked into Leech Lake this spring will be marked with OTC to build on existing work. Stocking totals for both 2012 and 2013 were 7.5 million fry, respectively.
- If you have any questions regarding the stocking proposals, please contact Doug Schultz, Walker Area Fisheries Supervisor (doug.w.schultz@state.mn.us).
- Zooplankton were sampled monthly at five locations lakewide from mid-May through mid-October. The overall number of zooplankton species sampled was high compared to lakes within the region, with 19 species identified. No spiny waterflea or zebra mussel veligers were found in any of the 2013 samples.
- DNR Division of Ecological and Water Resources spent 1,881 hours conducting 5,228 inspections among Shingobee, Federal Dam, Walker City Park, Stony Point, Erickson's Landing, Sugar Point, and Sucker Bay accesses in 2013. Preliminary 2014 plans include a similar schedule; however, new infestations within Cass County could result in schedule adjustments.

2014 survey plans

- 2014 survey plans include sampling juvenile walleye and perch via seining in July, trawling in August, and electrofishing in September, and conducting our annual lakewide gill net survey in mid-September. Zooplankton will be sampled monthly from May through October.
- If you would like to volunteer next year to assist with any of the assessments just described, please contact: Matt Ward (matt.ward@state.mn.us) Large Lake Specialist at 218-547-1683.