Leech Lake Update 6/25/2007

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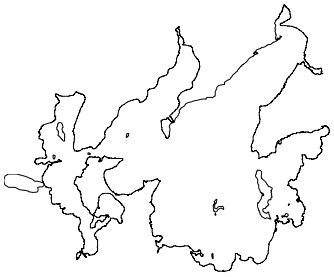


Greetings!
This update is part of a series of reports the Minnesota Department of Natural Resources (DNR) is sending to Leech Lake area resorts, businesses and others interested in DNR activities on Leech Lake. The goal of these messages is to keep you up to date with our findings and current activities on the lake. All 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, or if you would like to be added to the mailing list.

Fishing

- Fishing reports from Leech Lake resorts, guides, and other anglers have been good overall. Anglers are catching walleyes and yellow perch of preferred sizes in all areas of the lake.
- Walleyes in the large, fast-growing 2005 year class, most of which were produced naturally, are approaching 15 inches in length.
- Fishermen have also been catching and releasing many walleyes over 20 inches. These fish accounted for about 40% of all walleyes collected during the DNR's annual gillnet survey in September 2006.

Enforcement

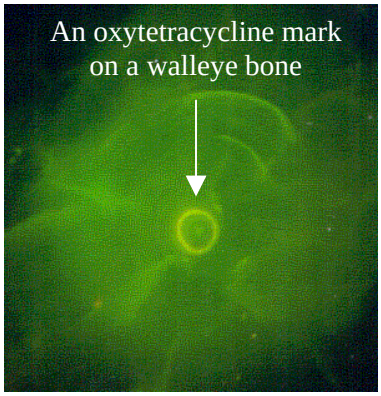
- Early reports from conservation officers indicated some angler compliance problems with the current walleye regulation (possession limit of four [4] walleye, all walleye from 18 to 26 inches must be immediately returned to the water, with only one [1] walleye over 26 inches allowed in a possession limit).
- Special regulations protect larger fish necessary for successful reproduction while ensuring a quality fishery for everybody to enjoy.
- To report a violation, call **Minnesota TIP (Turn In Poachers) 1-800-652-9093**

Double-crested cormorants

- The Leech Lake Band of Ojibwe, Division of Resource Management, in cooperation with the USDA Wildlife Services and the DNR, culled nearly 2,400 birds this spring.
- The preliminary goal of 500 nesting pairs on Leech Lake has been reached.
- Spring aerial counts estimated a total number of 3,500 birds using Leech Lake. That number is down from about 4,250 birds during spring 2005 and 7,150 during spring 2004.
- Diet study birds will continue to be collected during the summer and fall of 2007, but birds will no longer be taken for control purposes this year.

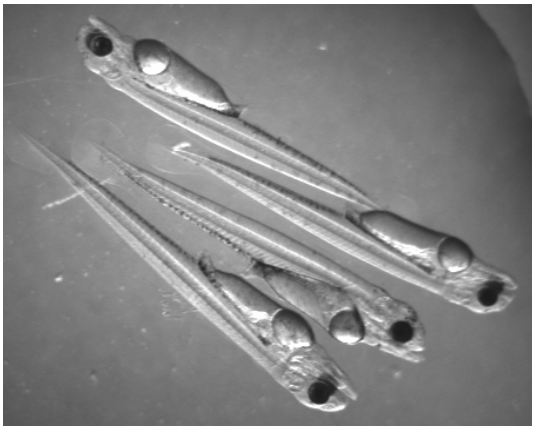
Stocking

- Approximately 7.47 million walleye fry were stocked into Leech Lake this spring.
- Fry were marked with oxytetracycline, an antibiotic that leaves a fluorescent mark on bones.
- By stocking marked fry, biologists can estimate the number of wild fry produced in 2007 as we continue evaluating walleye reproduction in Leech Lake.



Did you know…

The number of fish surviving through their first year and beyond varies substantially on an annual basis. "Recruitment variability", as it is referred to by biologists, can be caused by a number of factors ranging from environmental effects to competition and predation. In many systems, water temperatures during spring are an important factor influencing the recruitment of several species. Steadily increasing temperatures following ice-out can result in shorter incubation periods and bountiful zooplankton blooms, food necessary for early growth and development of newly hatched fish (see 4-day old walleye at right). Cold fronts and spring rains during the reproductive period can disrupt spawning activities, extend incubation time and increase egg mortality, and alter the delicate timing for food availability, all of which result in poorer survival.



Even more interesting is the link between food sources and recruitment. Growth of age-0 fish has a strong influence on the number of young fish that become adults. Predation and winter mortality can remove the smaller, slower-growing individuals from a year class. Fast-growing fish can shift their diet from zooplanton to larger prey sooner, thereby escaping predation windows more quickly while building energy reserves for their first winter. Food availability also affects recruitment through an offspring's parents. Increased size and condition, or plumpness, of spawning females can be key traits that positively influence fry survival.

Unfortunately, factors affecting recruitment do not act independently, nor are the patterns perfectly clear. In Wisconsin's Escanaba Lake[1], analysis of data collected consistently over a 50-year period found that abundance of age-0 walleye tended to be lower in years when adult walleye and yellow perch density were high, suggesting possible predation and/or competition for limited forage, and when May water temperatures were highly variable, which could disrupt timing between fry hatch zooplankton blooms. While the relationships were not perfect, this study provided valuable insights into the mechanisms driving recruitment variability in freshwater fish communities. It also highlighted the utility of long-term data sets and consistent data collection methods. Furthermore, this study established a baseline for future comparisons as potential changes to this lake can occur, such as exotic species introductions, increased shoreline development, and climate warming.

[1]Hansen et al. 1998. Factors affecting recruitment of walleyes in Escanaba Lake, Wisconsin, 1958-1996. North American Journal of Fisheries Management 18:764-774.

If you have questions or comments, please contact:

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