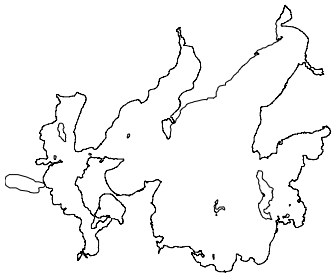
Leech Lake Update 1/10/2008
Walker Area Fisheries Office
07316 State Hwy. 371 NW
Walker, MN 56484
218-547-1683



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.

Leech Lake Fisheries Management Forum

- The DNR met with stakeholder representatives in Walker on December 17, 2007. The purpose of this meeting was to update groups on the current status of the Leech Lake fishery and the various projects that have been undertaken in recent years, findings of these projects thus far, and anticipated management actions for 2008.
- Below is a very brief synthesis of some of the topics covered. The documents for all items will be available at http://www.dnr.state.mn.us/areas/fisheries/walker/index.html.

Current Status of the Fishery (MN DNR)

- The 2005 and 2006 year classes of walleye are large and are the primary source of near-record high gillnet catch rates and improved fishing quality in Leech Lake. These fish have been and should continue to provide quality fishing in Leech Lake.
- Catch rates of the 2007 walleye year class were below average in the trawl catch. However, relatively high numbers of these age-0 walleye were caught during the gillnet survey; this is indicative of fast growth and bodes well for winter survival. Therefore, the potential exists for a third consecutive walleye year class of at least average strength.
- The protective slot implemented to protect mature female walleye has had a positive effect on the population. The abundance of mature females in Leech Lake is also at a record high, which translates to an increased capacity for a self-sustaining walleye fishery. All of these mature fish were produced from wild stock.
- Yellow perch production in 2007, indexed using trawl catch rates of young-of-year perch, was also high. This has been the fuel for continued fast walleye growth.
- Yellow perch catch rates in gillnet sets also increased. This is because a number of fish produced earlier are now large enough to be effectively captured in gillnets. The proportion of perch longer than 10 inches in 2007 gillnet sets was 6%., The percentage of yellow perch over 10 inches is anticipated to increase in coming years as smaller perch continue to grow.
- In 2007, 7.46 million walleye fry were stocked into Leech Lake. The proportion of marked (stocked) young-of-year walleye in a sample of 378 fish collected throughout the summer was 22.8%. The estimated hatch rate for Leech Lake walleye in 2007 was 0.54% and is the highest observed since experimental stockings began in 2005. From 2005-2007, Leech Lake has exhibited hatch rates similar to those observed on Red Lake using similar study design. These results indicate good walleye survival from the egg stage to the fry stage in Leech Lake.

Double-Crested Cormorant Control (Leech Lake DRM - Presentation by John Ringle)

- Under the direction of the Leech Lake Band of Ojibwe, USDA Wildlife Services culled 2,754 cormorants on Leech Lake in 2007. An additional 30 cormorant eggs were removed from tern nesting sites.
- A total of 563 cormorant nests were present on Leech Lake this summer and is near the current management goal of 500 nests.
- Small yellow perch have been the most common component of cormorant diets. The effects of the Leech Lake cormorant population on the walleye fishery are currently being evaluated.
- Final results of the diet study are due in August 2008 and will be used to determine the appropriate cormorant population level that Leech Lake can support without having adverse effects on the recreational fishery.
- A copy of the 2007 LLDRM report is available at: http://www.lldrm.org/corm.html.

Rusty Crayfish Research (BSU - Presentation by Craig Jarnot)

- In laboratory and field experiments, rusty and native crayfishes preyed on walleye eggs at similar rates, indicating that both species will consume walleye eggs when they are available.
- Walleye hatch rates on Leech Lake were very similar to those observed on Red Lake, a lake with excellent natural walleye reproduction and no rusty crayfish. Preliminary data does not suggest rusty crayfish are having a detrimental effect on walleye reproduction in Leech Lake
- Field and laboratory trials will be repeated in 2008 with minor adjustments to the sampling design. A final report will be available June 30, 2008.

Stocking and Genetics – (University of Minnesota - Presentation by Dr. Loren Miller)

- The Leech Lake, Woman Lake/Boy River, and Cutfoot/Lake Winnibigoshish walleye populations all show genetic differentiation, which means all three populations have unique characteristics on the genetic level.
- The Woman Lake/Boy River population is more similar to the Leech Lake population than the Cutfoot/Lake Winnibigoshish strain. This infers that when a stocking source must be selected, the Woman Lake strain is preferred because of its genetic similarity.
- When mixing fish populations, as number of populations (or strains) that are mixed together increases, the likelihood for adverse genetic consequences also increases by removing the natural selection process and potentially leading to outbreeding depression.
    - The natural selection process (passing on the traits that allowed an individual to hatch and survive to sexual maturity) is essential for a population to adapt to changes on the genetic level; this is why different strains of a species exist.
    - Outbreeding depression is the reduced fitness of subsequent generations produced by mating distinct strains that are too genetically dissimilar. Outbreeding depression can be expressed as reduced reproductive success, growth, or survival, and these adverse effects are often not apparent until the second or later generations.
- Leech Lake will be stocked with 20 million Woman Lake/Boy River strain walleye fry in 2008. The Cutfoot/Lake Winnibigoshish strain will be used only if a shortage occurs with the Woman Lake strain.

If you have questions or comments, please contact:

Doug Schultz (doug.schultz@dnr.state.mn.us)
or
Harlan Fierstine (harlan.fierstine@dnr.state.mn.us)