

**Cass Lake Public Information Meeting  
March 24, 2016**

➤ MN Large Lake Program overview

Minnesota's Large Lake Program, established in 1983, consists of annual sampling of the state's 10 largest walleye lakes (Cass is the smallest lake in the program). Sampling efforts include trawling and electrofishing to sample young-of-year and forage fishes as well as annual gill net assessments each September that target adult fish. The Program also includes creel surveys that gather angler catch and harvest information for two consecutive years in every six year period. In addition to these surveys, the zooplankton community (i.e., bottom of the food chain) is sampled throughout the open-water period and water chemistry data are collected annually each August. Intensive sampling provides powerful long-term datasets that help managers stay apprised of the status of important game and forage fish species populations as well as angler success.

➤ Cass Lake walleye and yellow perch updates

**Walleye.-** Adult walleye abundance (14.6 fish/gill net) is currently slightly above the long-term average of 12.8 fish/gill net. The population is largely comprised of fish from strong year classes produced in 2006, 2008, 2011, and 2013. Walleye spawning stock biomass (SSB), which is pounds of sexually mature female fish in the population, in 2015 (1.38 lbs/acre) was near average (1.47 lbs/acre). Examining the strength of year classes produced by various levels of SSB is how we typically determine how much SSB we need to sustain the population. However, due to walleye fry stocking in connected waters (e.g., Lake Andrusia, Kitchi, Big and Little Rice) the relationship between SSB and year class strength is less clear and thus we don't have a lot of context for whether the current level of SSB is producing adequate wild fry to sustain the population. Total annual mortality, which is the percentage of the population that dies each year from a combination of natural mortality and angler harvest, is high (55 to 60% for fish over 14 inches). However at this point, the population is continuing to turn over as fish from new year classes enter the population to replace those lost to mortality. Overall the walleye population in Cass Lake is in good shape and the future is bright with a number of strong year classes in the population, most notably the record-high 2013 year class which should begin to reach keeper size this summer.

**Yellow Perch.-** The perch population in Cass Lake in 2015 (33.3 fish/gill net) is at below average abundance (47.0 fish/gill net) and the catch rate of fish over 9 inches (1.6 fish/gill net) was the lowest recorded during the Large Lake Program. The low catch rate of fish over 9 inches is due to poor 'recruitment' of fish to larger sizes since 2008 (i.e., few fish are reaching these sizes). The record low catch rate of these fish comes just a few years after record high abundance of fish over 9 inches (2009 = 12.3 fish/gill net) which makes the current low abundance of these desirable-sized fish two even more pronounced. We are not sure why perch recruitment has been so low since 2008, but it is likely a combination of harvest and natural mortality. There is currently one strong year class of perch in the population (2011) and they average 8.5 inches long, so these fish will begin to reach desirable sizes this summer. We hope to see increased perch recruitment over the next few years and that the recent pattern of poor recruitment won't persist much longer. If it were to persist, there would be two options to consider that would improve the recruitment of perch to larger sizes: reduce predator abundance (i.e., walleye) to alleviate natural mortality or reduce the perch bag limit. At this point, we believe the best course of action is to take a wait-and-see approach and ride out the population fluctuations.

#### ➤ Cass Lake creel survey results

**Walleye.-** The bulk of walleye harvested by anglers right now belong to the 2011 and 2008 year classes. The record-high 2013 year class will begin to contribute to angler harvest this summer and walleye catch and harvest rates should remain good, or even improve, over the next couple of years. Walleye harvest rates during creel survey years have been relatively stable since the early 1990s, and are currently near the top of the range observed since that time. The size of harvested fish has also improved over time and currently the average size is about 1.3 pounds. The shift to fishing after dark for walleye has complicated creel analyses and makes comparison to historical surveys difficult. Efforts to capture night fishing pressure and harvest in 2014 and 2015 through a volunteer angler survey card were successful in gathering preliminary information as to the extent of this fishery. Anglers fishing after dark expended about 25,000 angler hours and harvested approximately 8,000 pounds of walleye in 2014 and 12,500 pounds in 2015. These harvests represent 38 to 46% of daytime harvest and accounted for approximately 30% of total walleye harvest in each of those years. We want to thank the resorts who participated in the voluntary angler catch card survey that helped collect useful information from outside our normal creel survey hours.

**Yellow Perch.-** Yellow perch harvest has declined markedly since the implementation of the current bag/possession limit of 20 fish daily and 40 in possession in 2001. However, perch harvest has been stable at about 22,500 pounds during creel survey years since that regulation

change. Anglers are highly selective for the largest available perch, which is likely contributing to low abundance of fish over 9 inches.

### ➤ Big Lake Creek walleye egg take operation

The Big Lake Creek (BLC) walleye egg take site is one of 8-10 such locations used to collect eggs for the statewide walleye production and stocking program. BLC is one of the smaller sites with an annual quota around 200 quarts, providing about 5% of approximately 4,000 quarts needed statewide. However, this egg source is extremely important locally providing all of the walleye fry and fingerling production needed to stock the lakes in the Upper Mississippi watershed. And, because hatch rates (percent of eggs that survive to produce fry) are so much better in a controlled walleye hatchery the number of fry returned to the parent lake (Lake Andrusia) is considerably more than would have been produced naturally. This is a win/win for the Cass Chain and the entire Upper Mississippi Watershed.

### ➤ Cass Chain walleye movement study

This year the fry normally stocked back into Lake Andrusia will be marked with oxytetracycline (OTC) which will allow the stocked fish to be differentiated from the wild fish during subsequent sampling. Sampling young-of-year fish throughout the Cass Lake Chain in fall 2016 and examining the fish for an OTC mark will allow us to detect movement of stocked fry throughout their first growing season. We will also compare the average size of fish from each lake as well as marked versus unmarked fish to detect any possible density-dependent effects (i.e., slow growth) due to the high stocking density of put-back fry into Lake Andrusia. This may also provide some insight as to when the fish distributed with slow growth (i.e., small fish) indicating that they likely remained in Andrusia at a high density for some time before subsequently distributing and faster growth suggesting they distributed right away and were able to avoid the high density competition.

Stocking marked fry in 2016 also sets up phase 2 of the movement study when we sample the entire Cass Lake Chain with our coordinated gill net assessment in 2019. We can then detect movement of fish stocked into Lake Andrusia during spring 2016 by age 3, which is just prior to reaching sexual maturity and about the time they reach keeper size. We know from previous tagging studies that once they reach sexual maturity the fish move throughout the Chain, but this study will allow us to learn more about juvenile movement throughout the Chain.

## ➤ Pike Bay walleye management

The Pike Bay management plan was revised in 2010 to use annual walleye fry stocking in place of a very aggressive and expensive walleye fingerling stocking program. The objective was to provide equal or improved walleye densities from a more efficient fry stocking program. Initial fry stocking success was monitored annually by fall electrofishing and contingency fingerling stocking was programmed if two consecutive fry stocking events failed. During the recent five year evaluation period two of the five fry stocking events were very successful, providing excellent recruitment of young walleyes. Contingency fingerling stocking was used once following apparent fry failures in 2011 and 2012. The 2016 population assessment using standard experimental gill nets showed an improvement in walleye abundance from this stocking regime. Annual walleye fry stocking, with the fingerling stocking contingency, will be continued through the next scheduled assessment in 2019.