

Interim Summary – Drag Lake Status 2010

Introduction

This summary focuses upon an evaluation of index netting and hydroacoustic survey data collected between 2002 and 2009. Additional data collected as part of the HHFAU program has not been considered as it is not currently available to me.

The data considered for this summary include three index netting projects conducted in 2002, 2006 and 2007. The hydroacoustic survey data consist of surveys conducted in 2004, 2005 and 2009. In each year 1 daytime and 1 nighttime survey were conducted. In 2005 and additional daytime survey was conducted.

The index netting projects provide a consistent and calibrated method to evaluate lake trout abundance and size distribution. The mesh series used in the gillnets have been evaluated with respect to selectivity (i.e. certain meshes are more efficient at catching certain sizes of lake trout.) This selectivity has been accounted for in describing the size structure of the lake trout community for fish larger than 30 cm.

The index netting also provides some qualitative measure of the relative abundance and size distribution of other fish species within the coldwater fish community associated with the lake bottom (i.e. whitefish and burbot). The index netting protocol used provides little, if any information about either the warmwater fish community (i.e. smallmouth bass or rock bass) or the pelagic fish community (i.e. lake herring).

The hydroacoustic surveys offer the potential to evaluate the abundance and size distribution species within the coldwater fish community, including lake trout, lake whitefish and lake herring. The limitation of the method is the inability to distinguish species. Evaluation of hydroacoustic data must therefore rely on companion netting to help determine the relative proportions of different species in the lake within the areas of interest (i.e. near bottom or pelagic zones). Hydroacoustic methods also do not permit the evaluation of the warmwater nearshore fish community.

Evaluation of Index Netting data

The index netting surveys conducted on Drag Lake seem to indicate an increase in lake trout numbers, and an increase in the number of lake trout within the slot limit. Table 1 provides some summary statistics for those netting data. Figures 1 through 3 represent the size distributions of lake trout caught in the index netting programs of 2002, 2006 and 2007. It is interesting and improbable that the lake trout population is seen to increase so dramatically within a year, from the 2006 to 2007 period. These data should therefore be interpreted with caution. It is more likely the true population size falls somewhere between the estimates of 2006 and 2007. The observation of so many fish within the slot limit in 2007 in figure 3 is encouraging however, and in contrast to the size distribution which was observed in 2002, figure 1.

Year	# of net sets	# lake trout sampled	Mean Fork Length (cm)	Density Estimate (#/ha > 30cm)	Population Estimate (# >30 cm)		
					Estimate	Upper	Lower
2002	36	9	35.9	1.8	1015	2177	0
2006	69	22	30.9	2.2	1240	2418	83
2007	31	55	33.8	11.1	6311	7994	4732

Table 1. Summary of index netting (SPIN) projects conducted on Drag Lake (2002, 2006, 2007) by the Haliburton Hastings Fisheries Assessment Unit.

Figure 1. Size distribution of lake trout caught in 2002 SPIN project on Drag Lake conducted by the Haliburton Hastings FAU.

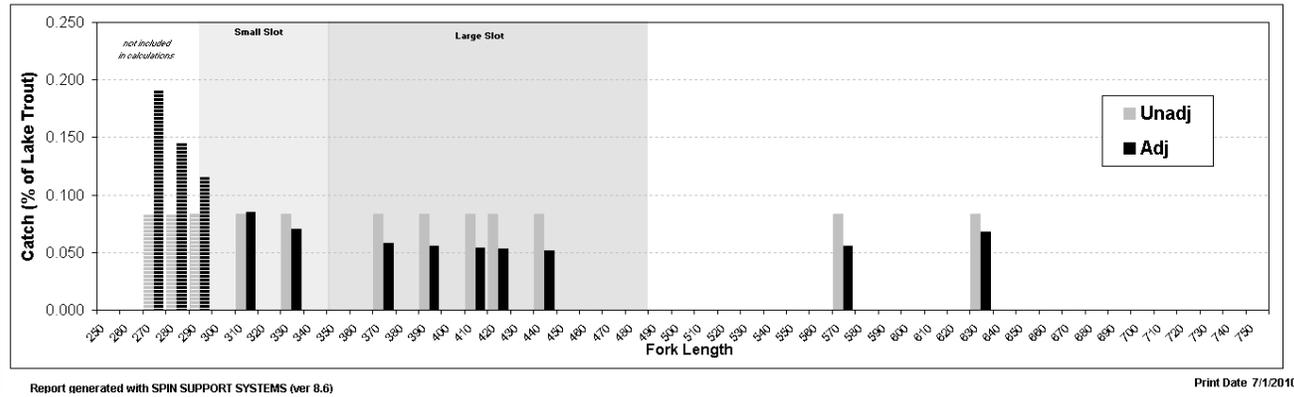


Figure 2. Size distribution of lake trout caught in 2006 SPIN project on Drag Lake conducted by the Haliburton Hastings FAU.

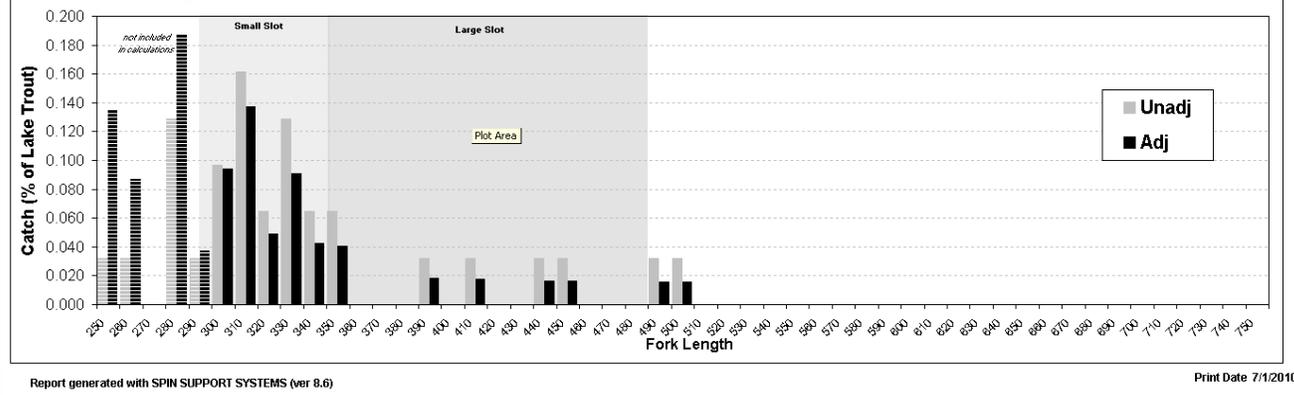
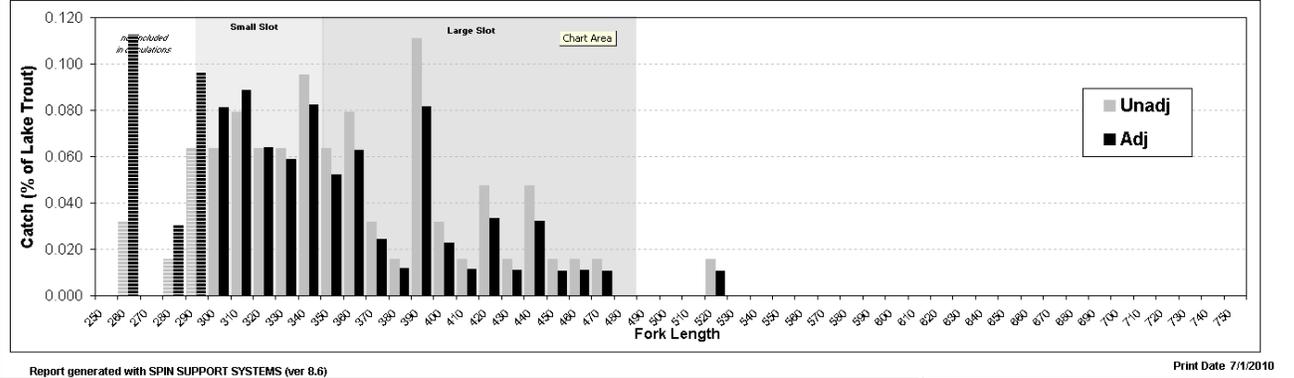
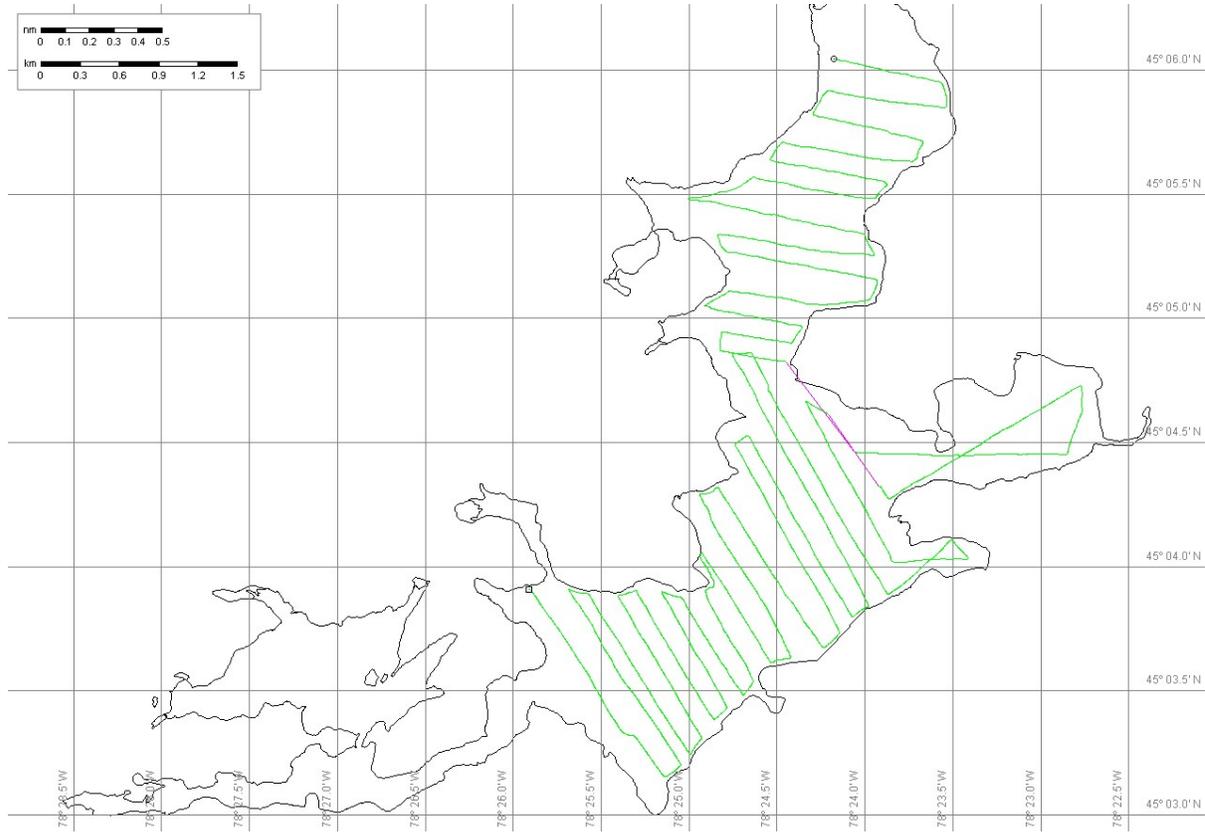


Figure 2. Size distribution of lake trout caught in 2007 SPIN project on Drag Lake conducted by the Haliburton Hastings FAU.



Evaluation of Hydroacoustic Survey Data

The hydroacoustic surveys consisted of daytime and nighttime surveys over the whole lake. A map showing a typical survey path is shown in figure 4.



Previous surveys on both Drag Lake and other lakes seem to suggest that lake trout are more detectable by acoustic methods during the nighttime surveys, lake herring also are more detectable at nighttime as they become disaggregated at night resulting in a more uniform distribution across the lake. The following discussion of the acoustic data therefore only pertains to nighttime surveys.

Observations

The acoustic data also seem to indicate a trend in increasing lake trout and lake herring numbers. The numbers of fish detected which were larger than 40 cm increased between the 2004 and 2009 surveys, as did the numbers of fish detected below 40 cm, presumably largely lake herring.

The analysis of the acoustic data is not complete, however it should be shortly. Once finalized I will pass the quantitative information along to you to share with the cottage association.

Baitfish

One of the more serious threats facing native lake trout populations is the invasion of exotic and non-native species such as rock bass, bythotrephes or rainbow smelt. A common method of introduction is through the use of bait from lakes outside the watershed being fished. I've put together a list of the common cyprinid (minnow species found in Drag Lake along with some photos. It is generally safest to obtain bait from local dealers. A good site which talks about invasive species in general is the OFAH's Invasive Species site (www.invadingspecies.com)

Common cyprinid species of Drag Lake

Golden Shiner



Common Shiner



Fathead Minnow

