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Completion Report

**Winter Creel Survey Report
for
Leech Lake
2014-2015**

by

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Walker Area Fisheries Office

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**Winter Creel Survey
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INTRODUCTION

In 1983, the Minnesota Department of Natural Resources increased its commitment to managing Leech Lake and other large lakes by establishing the Large Lake Monitoring Program (LLP). For Leech Lake, this program includes annual collection, analysis, and reporting of fish population data for monitoring long-term population trends, the development of management recommendations, and public input (Wingate and Schupp 1984).

In conjunction with annual fish surveys, angler use and harvest information is collected using creel surveys. Surveys are typically conducted two consecutive years out of every six and are used to estimate catch, harvest, and pressure statistics of the recreational fishery. Yield estimates are compared to safe harvest targets prescribed in Special Publication No. 151 (MDNR 1997). If yield estimates routinely exceed established safe target harvest levels and the population exhibits signs of biological stress (Gangl and Pereira 2003) more restrictive harvest regulations would be considered to prevent a population collapse.

While Leech Lake is well known among anglers as an exceptional multi-species fishery, most anglers target and harvest Walleye *Sander vitreus*. During the 1998-99 open water seasons, anglers averaged 1.2 million angler hours and harvested 174,000 pounds of Walleye per year (Sledge, 1999, 2000). However, several consecutive years without a large Walleye year class caused declines in overall abundance and an unbalanced population size structure; this in turn produced low levels of angler effort and harvest during the 2004-2005 open water seasons (Rivers 2005, 2006). These changes to the Walleye fishery, as well as changes in the Yellow Perch population, coincided with high Walleye and Yellow Perch harvest in the late 1990's, expanding populations of double-crested cormorants during the early 2000's, and expanding aquatic invasive species such as rusty crayfish and Eurasian water milfoil. Management action implemented in 2005 led to increases in Walleye abundance in the late-2000s and increased angler success thereafter (Schultz 2010a). These increases in Walleye abundance led to management goals being met and resulted in the 18"-26" protected slot limit (PSL) being relaxed to 20"-26", effective fishing opener 2014. In order to monitor how the relaxed PSL affected the Walleye population the MN DNR scheduled creel surveys in 2014 and winter 2015 preceding the normally scheduled surveys during 2016 and 2017.

STUDY AREA

Leech Lake (DOW # 11-0203; Lake Class 26, Schupp 1992) is located in northern Cass County, Minnesota and is within the Chippewa National Forest and the Leech Lake Indian Reservation. The lake is the third-largest entirely within State boundaries and has nearly 112,000 surface acres. In its original state, Leech Lake covered about 106,000 acres. A dam constructed on the Leech River in 1884 raised the lake level approximately two feet and increased the surface area to the present state (Wilcox 1979).

Leech Lake is located in three glacial zones and has an irregular shape with many large and small bays (Figure 1). Leech Lake varies considerably from a morphological perspective. Some large bays, such as Steamboat and Boy, display highly eutrophic water characteristics whereas other large bays, such as Walker and Kabekona, have properties more similar to

oligotrophic lakes. The main portion of the lake, like most large Minnesota Walleye lakes, is windswept and mesotrophic. Previous estimates of shoreline miles have varied, but using remote sensing technology, the estimate is 201 miles. Approximately 23 percent of the shoreline consists of a gravel-rubble-boulder mixture, nearly all of which is used by spawning Walleye (Wilcox 1979).

The diversity of the Leech Lake shoreline and substrate, as well as its extensive littoral zone, provides excellent spawning and nursery habitats for a number of species, including Percids and Esocids which dominate the fish community. Walleye, Northern Pike *Esox lucius* and Muskellunge *E. masquinongy* are the principal predators and are located throughout the lake. Although most fish species are found in every portion of the lake, the largest Walleye and Muskellunge concentrations exist in the mesotrophic areas. Northern Pike are most common in vegetated eutrophic bays. Yellow Perch *Perca flavescens* are abundant throughout the lake and are likely the primary forage for most predators. Cisco *Coregonus artedi* and Lake Whitefish *C. clupeaformis* are an important forage base for larger predators (Engstrom-Heg et al. 1986) and are typically found in the mesotrophic and oligotrophic areas. Juvenile Cisco also comprise larger proportions of predator diets when large year classes are present. Other species present in the lake include: White Sucker *Catostomus commersoni*, Burbot *Lota lota*, Rock Bass *Ambloplites rupestris*, Bowfin *Amia calva*, Shorthead Redhorse *Moxostoma macrolepidotum*, Bullheads *Ameiurus spp.*, Pumpkinseed *Lepomis gibbosus*, Bluegill *L. macrochirus*, Largemouth Bass *Micropterus salmoides*, Smallmouth Bass *M. dolomieu*, and Black Crappie *Pomoxis nigromaculatus*.

Previous summer and winter creel surveys completed on Leech Lake include Schupp (1972), Gustafson (1985, 1986), Haukos (1992, 1993), Sledge (1999, 2000), Rivers (2005, 2006), Schultz (2009, 2010a, 2010b), Vondra and Schultz (2011), Ward and Schultz (2012) and Stevens and Ward (2015). Historically, winter creel surveys have been infrequently completed on Leech Lake during the normal two out of six year creel cycle because winter angling pressure and harvest is relatively light compared to summer estimates. To date, winter surveys have been added to periodically assess large-scale changes to the winter fishery.

METHODS

A non-uniform access-based creel survey using clusters of sampling stations was conducted on Leech Lake from December 3rd, 2014 through March 24th, 2015. Similar to winter creel surveys on several other large lakes in Minnesota, access landing rates were used to estimate fishing pressure (Schultz and Vondra 2011).

Creel Strata

Sampling and data organization were stratified by day type (weekday or weekend/holiday), lake basin (western bays or main lake), period (Month), and angler type (day-trip angler, sleeper house angler, darkhouse spearer). Observed holidays included Christmas (December 25th), New Year's Day (January 1st), Martin Luther King Jr. Day (January 19th), and Presidents Day (February 16th). The International Eelpout Festival was avoided during the weekend of February 21st-22nd because it would artificially inflate pressure estimates and reduce catch statistics. Statistics were calculated using the Creel Application

Software (CAS) program developed by South Dakota Department of Game, Fish, and Parks (Soupir and Brown 2002). Statistics were calculated for each sampling period on a lake-wide and basin-specific basis.

Estimation of Angling Pressure and Catch Statistics

Angling pressure was estimated using the number of completed trip clerks observed. Instantaneous counts were calculated by multiplying the number of completed trips per access site by the average daily trip length and then dividing by the assigned access site probability to produce an instantaneous count of the number of angler parties fishing during the respective time block (P. Radomski, MN DNR, personal communication). Instantaneous counts were then input into CAS to produce fishing pressure estimates.

To obtain angler interviews, the lake was divided into 7 clusters with each cluster containing one to four sampling stations (Figure 1). These stations included resorts, marinas, and public accesses. Sampling days were randomly selected for each clerk. Initial non-uniform access probabilities were developed based on the frequency of interviews obtained at each location during the 2010-11 creel survey. After January, probabilities were based on the frequency of interviews obtained at each location during the current (2014-2015) creel survey. Changes to access probabilities were also made as ice access and travel conditions changed throughout the season. For scheduling, sampling clusters were randomly selected for each clerk based upon access probabilities. Sampling times were randomly selected with equal probability. A sampling day was divided into two periods of equal length. The sampling day was 13 hours (08:00-21:00) for the entire creel. Clerk schedules were developed each month and revisited every two weeks in order to address any changes to angler behavior.

On a scheduled sampling day each clerk sampled one cluster, visiting assigned stations in 2 hour blocks. Clerks collected information on catch, harvest, effort, and angler demographics/preferences. During interviews, clerks identified and measured as many harvested fish as time allowed and remaining harvested fish were enumerated. Species, number, and length of released fish were obtained through angler recollection. Bluegill and Pumpkinseed Sunfish were pooled as Sunfish for analysis. Individual weights for Walleye, Yellow Perch, and Northern Pike were estimated using length-weight regression formulas from the September, 2014 gillnetting survey. Fish weight for all other species was estimated using length-weight regression formulas from long-term gillnet data collected from 1983-2007.

In order estimate pressure, catch rates, harvest rates, total harvest, total catch, fish population statistics, and angler demographic/preferences, Creel Analysis Software (CAS) (Soupir and Brown 2002) was used. Targeting angler catch rates in previous creel surveys (2008-2011) were incorrectly summarized by CAS due to a programming error. This statistic has been corrected for 2008-2014 creel surveys and the methods for this correction are documented in Stevens and Ward (2015).

RESULTS

Angling Pressure

A total of 1,222 Leech Lake angling parties were interviewed from December 3rd, 2014 through March 24th, 2015 (Table 1). Of these 891 were day-trip anglers, 295 sleeper house anglers, and 36 darkhouse spearkers. The estimated total angling pressure was 647,802 angler-hours (Table 2, Figure 2). This is the highest observed winter pressure and was approximately double the 2010-2011 estimate (347,554 angler-hours; Schultz and Vondra 2011). Angling pressure from day-trip anglers was 343,977 angler-hours, 297,792 angler-hours for sleeper-trip anglers, and 6,033 angler-hours for darkhouse spearkers (Table 1).

Pressure from sleeper-trip anglers was the largest contributor to the overall increase in pressure. The increasing popularity of wheeled fish houses facilitating overnight fishing trips combined with relatively easy travel conditions during the 2014-2015 winter season was the primary driver of increased fishing pressure. Sleeper-trip angler pressure was minimal prior to the 2010-2011 creel, and in 2010-2011 sleeper-trip pressure was 75,760 angler hours (Schultz and Vondra 2010). Similarly Upper Red Lake has seen large increases in pressure driven primarily by sleeper-trip anglers during the same time period (MNDNR, unpublished data)

During the summer creel socioeconomic factors have been thought to contribute to the decline in fishing pressure from “metro” and “destination” anglers (Stevens and Ward 2015). Particularly fuel prices have been thought to be a barrier to these anglers. In first half of the 2014-2015 winter season fuel prices dropped to less than \$2.00USD per gallon (Figure 3.). This was the lowest fuel prices have been since prior to 2005.

Similar to the past four creel surveys, most (44%) anglers interviewed traveled less than 50 miles (2004-2015 range 40%-53%) (Table 15). Overall, 55% percent of angling parties were within the travel distance of a day-trip (<100 miles), 40% were from “metro” anglers (100-249 miles), while 5% of was angling parties interviewed were from destination anglers (>250 miles). Extrapolating these rates to total fishing effort, local angler effort (351,151 angler hours) and metro angler effort (258,864) doubled compared to 2010-2011 (local - 181,562 angler hours; metro – 134,225) (Table 16). Effort from destination anglers (30,787 angler hours) was similar to the past 3 winter surveys (range 19,780-31,766 angler hours).

Most anglers interviewed were Minnesota residents (91%; Table 4) and most angling parties targeted Walleye (51%) or yellow perch (43%) (Table 5, Figure 4).

Catch and Harvest

An estimated 839,670 fish, or 7.52 fish/acre, were caught in Leech Lake during the 2014-2015 winter creel season (Table 6), of which 213,644 were harvested (25.4% of total catch; 1.91 fish/acre). Most of the total catch and harvest (number of fish) was comprised of Yellow Perch (87% and 82%, respectively). The highest stratum-specific estimate of total catch (429,869 fish) and harvest (113,428) occurred during March and was comprised primarily of Yellow Perch (59% of total Yellow Perch harvest).

Total yield was estimated to be 142,693 pounds (1.28 lbs/acre; Table 7) and was similar to 2010-11 (1.13 lbs/acre; Schultz and Vondra 2011). Most of the total harvest (pounds of fish) was comprised of Yellow Perch (60%). During 2014-2015, the overall day-trip angler catch and harvest rates across all anglers were 2.076 and 0.534 fish/hour, respectively (Table 8), compared to respective rates from 2010-11 of 2.395 and 0.793 fish/hour. The overall sleeper-trip angler catch and harvest rates across all anglers were 0.404 and 0.094 fish/hour, respectively (Table 8), compared to respective rates from 2010-11 of 0.363 and 0.100 fish/hour.

Walleye- Most angling parties targeted Walleye (51%; Table 5). An estimated 22,001 Walleye (26,674 lbs) were harvested during 2014-2015 at a rate of 0.034 Walleye/hour across all anglers (Table 2). An additional 46,424 Walleye were released (Table 12). Two Walleye within the 20-26 inch protected slot limit (PSL) were observed being harvested. The estimated total number and pounds of Walleye harvested in 2014-2015 was the highest observed during the winter season (Table 2).

The catch and harvest rates of Walleye by all day-trip anglers were 0.1398 fish/hour and 0.0455 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 0.1784 fish/hour and 0.0673 fish/hour, respectively (Table 9). The catch and harvest rates of Walleye by all sleeper-trip anglers were 0.0680 fish/hour and 0.0212 fish/hour, respectively (Table 8). Overall catch and harvest rates for sleeper-trip targeting anglers were 0.0627 fish/hour and 0.0234 fish/hour, respectively (Table 9). Overall, 1% of anglers targeting Walleye harvested their possession limit (Table 12).

Creel clerks measured 298 Walleye and anglers reported lengths on 1,901 more Walleye. The average harvested Walleye across the entire season was 15.3 inches and 1.2 pounds (Table 7). Lengths of Walleye caught ranged from 5-29 inches (Table 12, Figure 5). The majority of harvested fish were 12.0"-17.9". Anglers harvested 81% of fish caught in this size range. Six percent of all Walleye less than 13.0" caught by anglers were harvested. Walleye that were previously protected by the 18-26" PSL (18"-19.9") accounted for 12% of the total catch and 99% of these were harvested. Anglers harvested 6% of all Walleye caught that were longer than the PSL (≥ 26.0 "). Based on length, most harvested Walleye appear to be from the 2010 and 2011 year classes. Female Walleye from the 2007 and 2008 year classes were the youngest fish protected by the 20-26" PSL. However the majority of males up to age 8 (2006 year class and younger) were vulnerable to harvest.

Northern Pike- An estimated 5,873 Northern Pike (17,092 pounds) were harvested at a rate of 0.009 fish/hour across all anglers (Table 2). Only 3% of parties interviewed during the creel survey targeted Northern Pike, as compared to 7% during the summer (Table 5, Figure 6).

The catch and harvest rates of Northern Pike by all day-trip anglers were 0.0377 fish/hour and 0.0096 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 0.1607 fish/hour and 0.0900 fish/hour, respectively (Table 9). The catch and harvest rates of Northern Pike by all sleeper-trip anglers were 0.0201 fish/hour and 0.0061 fish/hour, respectively (Table 8). Overall catch and harvest rates for sleeper-trip targeting anglers were 0.2228 fish/hour and 0.1782 fish/hour, respectively (Table 9). Overall encounter and harvest rates for targeting darkhouse spearkers were 0.2690 fish/hour and 0.1139

fish/hour, respectively (Table 9). Overall, 6% of parties targeting Northern Pike harvested their daily limit (Table 11).

Harvested Northern Pike averaged 23.4 inches long and 2.9 pounds (Table 7). Lengths of Northern Pike caught ranged from 7 to 37 inches (Table 12, Figure 6). The percentage of Northern Pike that anglers elected to harvest for pike less than 22.0", 22-26", and greater than 26.0" was 19%, 40%, and 41%, respectively (Table 12). Despite accounting for less than 1% of total pressure (6,033 angler hours) darkhouse spearkers harvested 25% of all Northern Pike harvested longer than 27 inches.

Yellow Perch- An estimated 175,997 Yellow Perch (85,195 pounds) were harvested at a rate of 0.272 fish/hour across all anglers (Table 2). Over 40% of angling parties interviewed during the creel survey targeted Yellow Perch, as compared to 8% during the summer (Table 5, Figure 4).

The catch and harvest rates of Yellow Perch by all day-trip anglers were 1.8548 fish/hour and 0.4538 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 2.4439 fish/hour and 0.6031 fish/hour, respectively (Table 9, Figure 8). The catch and harvest rates of Yellow Perch by all sleeper-trip anglers were 0.3042 fish/hour and 0.0644 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 0.4522 fish/hour and 0.1035 fish/hour, respectively (Table 9). Overall, 2% of anglers targeting Yellow Perch harvested their daily limit (Table 11).

Catch and harvest was highest during March (Table 6) as were catch and harvest rates (Table 8, Table 9). Fifty nine percent of the total Yellow Perch harvest occurred during March. Anglers reported catching Yellow Perch that ranged in length from 5 to 15 inches (Table 2, Figure 7.). The average size of harvested fish was 9.9 inches and 0.5 pounds (Table 7). The percentage of Yellow Perch that anglers elected to harvest for perch less than 8", 8-10", and greater than 10" was 2%, 88%, and 95%, respectively (Table 12).

Burbot- An estimated 1,237 Burbot (4,032 pounds) were harvested at a rate of 0.002 fish/hour across all anglers (Table 2). The catch and harvest rates of Burbot by all day-trip anglers were 0.0067 fish/hour and 0.0018 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 0.7904 fish/hour and 0.0287 fish/hour, respectively (Table 9). The catch and harvest rates of Burbot by all sleeper-trip anglers were 0.0103 fish/hour and 0.0020 fish/hour, respectively (Table 8). Overall catch and harvest rates for sleeper-trip targeting anglers were 0.0156 fish/hour and 0.0067 fish/hour, respectively (Table 9). Anglers reported catching Burbot that ranged in length from 14 to 30 inches (Table 12.). The average size of harvested fish was 23.5 inches and 3.3 pounds (Table 7).

Bluegill/Pumpkinseed (sunfish) - An estimated 3,346 sunfish (1,764 pounds; Bluegill and Pumpkinseed combined) were harvested at a rate of 0.005 fish/hour across all anglers (Table 2). The catch and harvest rates of Sunfish by all day-trip anglers were 0.0171 fish/hour and 0.0090 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 4.5823 fish/hour and 2.3771 fish/hour, respectively (Table 9).

Catch and harvest was highest during March (Table 6) as were catch and harvest rates (Table 8, Table 9). Eighty two percent of the total Sunfish harvest occurred during March. Anglers reported catching Sunfish that ranged in length from 4 to 10 inches (Table 12). The average size of harvested fish was 8.3 inches and 0.5 pounds (Table 7). The percent of fish harvested <6.0", 6.0-7.9", 8.0-9.9" and >10.0" was 0%, 30%, 68% and 1% respectively (Table 12).

Cisco/Whitefish- An estimated 4,827 Cisco/Whitefish (7,732 pounds) were harvested at a rate of 0.008 fish/hour across all anglers (Table 2). The catch and harvest rates of Cisco/Whitefish by all day-trip anglers were 0.0156 fish/hour and 0.0140 fish/hour, respectively (Table 8). Overall catch and harvest rates for day-trip targeting anglers were 0.4244 fish/hour and 0.0442 fish/hour, respectively (Table 9). Anglers reported catching Cisco/Whitefish that ranged in length from 12 to 21 inches (Table 12).

Additional Species – An estimated 590 Black Crappie were caught, with 361 being harvested. Other species caught included Rock Bass (1,358), Largemouth Bass (23), and Muskellunge (20).

DISCUSSION

Winter pressure on Leech during 2014-2015 was the highest recorded. As expected with high pressure, harvest of most gamefish species was also the highest observed. Only harvest of Yellow Perch and Cisco/Whitefish in 2010-11 was higher than this survey. Overall catch and harvest rates were similar to past surveys for most species, however Walleye catch rates were the highest recorded (Table 14).

While winter angling pressure was nearly equal to that observed during the summer 2014 creel, a similar relationship was not observed for harvest amounts. Northern pike and Walleye harvest was nearly one third of the estimated summer harvest. Alternatively Yellow Perch winter harvest exceeded the estimated summer harvest (Summer-112,128 fish; Winter-175,997 fish) with much of the harvest taking place in the last three weeks of the season. Yellow Perch winter harvest is highly dependent on late ice conditions. In 2014-2015 late ice conditions deteriorated to an unsafe condition by the third week in March. In 2013-2014 ice conditions were fishable well into the middle of April. A six week lake ice season in 2014-2015 may have resulted in an additional 100,000 angler hours and 50,000 pounds of Yellow Perch harvest.

Similar large changes in Walleye harvest is unlikely due to the nature of the fishery. While a late ice Yellow Perch bite may last from three to six weeks depending on ice conditions, most of targeted pressure toward Walleye occurs once ice conditions are safe for full size pickup trucks and large wheeled sleeperhouses. Despite ideal weather conditions for ice formation in late November, relatively easy access, and above average Walleye catch rates, the majority of targeted Walleye pressure occurred after catch rates peaked (Dec 21st-Dec 27th, Figure 8).

Relatively safe ice conditions, easy access and ice travel conditions, and expanded private access on the south shoreline of the main basin combined with increased wheeled sleeper house usage led to a record amount of winter pressure on Leech Lake. While sleeper houses were largely responsible for the increases in total fishing pressure, day-trip anglers were the primary

driver of increased Walleye harvest. Leech day-trip anglers are primarily local (<100 miles) and despite nearly perfect access and ice travel conditions day-trip angler pressure increased only by 26%; for comparison sleeper house pressure increased by 450%. Day-trip angler pressure is not expected to increase much beyond what was observed during this survey. The observed winter pressure during 2014-2015 may represent the expected maximum unless unexpected and significant changes occur.

Due to the recently expanded scale of the winter fishery, we recommend increasing the frequency of winter creel surveys to match summer creel survey frequency is needed. However, due to the weather-dependent and thus highly variable nature of winter fisheries, alternative methods for indexing pressure should be considered during years when winter creels are not scheduled. During the time period between the last winter creel (2010-2011) and the current creel, the wheeled sleeper house industry expanded rapidly. This resulted in large increases in winter pressure on most of Minnesota's large walleye lakes (Heinrich 2013; Kennedy 2014).

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TABLES

Table 1. Creel survey sampling summary and angling pressure estimates by stratum for Leech Lake, Minnesota, December 3rd, 2014 – March 24th, 2015. Standard errors appear in parentheses.

	Stratum				
	December	January	February	March	Season
<i>Sampling Summary (Number)</i>					
Dates	Dec 3-31	Jan 1-31	February 1-28	Mar 1-24	Dec 3-Mar 24
Days in stratum	29	31	28	31	119
N Weekdays sampled	20	21	21	23	85
N Wknd/Hol sampled	9	10	9	8	36
<i>Day-Trip Anglers</i>					
N Interviews/refusals	177/0	313/0	210/0	191/0	891/0
Mean anglers/party	1.84 (0.34)	1.98 (0.34)	1.91 (0.45)	2.21 (0.39)	1.99 (0.19)
Mean trip length (h)	3.92 (0.74)	4.42 (0.74)	4.88 (1.11)	4.79 (0.89)	4.51 (0.44)
Total angler hours	47,547 (19,970)	113,136 (29,100)	83,886 (27,527)	99,366 (66,777)	343,977 (79,696)
<i>Sleeper-Trip Anglers</i>					
N Interviews/refusals	59/0	149/0	77/0	10/0	295/0
Mean anglers/party	1.88 (0.33)	2.20 (0.52)	2.06 (0.35)	3.50 (0.02)	2.30 (0.2)
Mean trip length (h)	16.80 (2.18)	27.92 (5.48)	27.32 (5.16)	23.57 (2.03)	24.04 (2.22)
Total angler hours	25,245 (10,411)	139,387 (47,761)	126,710 (62,589)	6,159 (3,192)	297,792 (79,478)
<i>Darkhouse Spearers</i>					
N Interviews/refusals	16/0	17/0	3/0	0/0	36/0
Mean anglers/party	1.35 (0.15)	1.63 (0.39)	1.00 -	- -	1.33 (0.13)
Mean trip length (h)	3.46 (0.48)	4.39 (1.19)	3.67 (0.33)	- -	3.79 (0.41)
Total angler hours	2,929 (1,215)	2,579 (1,103)	525 (494)	- -	6,033 (1,714)

Table 2. Estimated total angling pressure and total harvest statistics for the winter creel season on Leech Lake, Minnesota, 1965-2015.

	Year									
	1965-1966	1984-1985	1990-1991	1991-1992	1992*	2004-2005	2005-2006	2010-2011	2014-2015	1965-2015 Mean
<i>Angling Pressure</i>										
Start Date		8-Dec	6-Dec	4-Dec	24-Feb	28-Dec	27-Dec	15-Dec	3-Dec	
End Date		15-Feb	15-Feb	15-Feb	10-Apr	31-Mar	31-Mar	15-Mar	24-Mar	
Angler Hours	8,418	22,279	55,889	81,829	19,788	114,932	68,442	347,554	641,769	151,211
-Darkhouse hours	50,675	17,948	17,948	18,366	No est.	No est.	No est.	15,547a	6,033	22,194
-Total hours	59,093	40,227	73,837	100,195	19,788	114,932	68,442	347,554	647,802	163,541
<i>Number of Harvested Fish</i>										
Northern pike	5,179	2,602	3,664	4,405	-	1,011	997	3,013 ^a	5,873	3,390
Burbot	55	231	1,330	957	-	446	845	491	1,237	699
Sunfish	-	-	-	2,295	-	1,608	422	824	3,346	1,699
Yellow Perch	10,298	27,720	20,454	81,017	-	20,536	47,676	224,963	175,997	76,083
Walleye	246	1,388	4,010	6,420	-	2,555	315 ¹	8,294 ¹	22,001 ²	5,654
Cisco/Whitefish	1,034	57	1,760	2,090	46,225	300	119	8,801	4,827	7,246
<i>Pounds of Harvested Fish</i>										
Northern pike	20,004	-	6,540	12,479	-	3,323	3,846	8,253 ^a	17,092	10,547
Burbot	-	-	4,602	4,698	-	1,078	2,442	1,670	4,032	3,087
Sunfish	-	-	-	1,120	-	510	155	430	1,764	796
Yellow Perch	5,149	-	9,247	27,150	-	7,734	18,784	95,701	85,195	35,566
Walleye	301	-	5,023	7,672	-	2,820	318	9,664	26,674	7,496
Cisco/Whitefish	725	-	2,166	2,575	48,912	387	180	11,175	7,732	9,232
<i>Harvest per Angler Hour (all anglers)</i>										
Northern pike	0.036	0.072	0.110	0.044	-	0.009	0.015	0.006	0.009	0.042
Burbot	0.006	0.010	0.016	0.018	-	0.004	0.012	0.004	0.002	0.009
Sunfish	-	-	-	0.029	-	0.014	0.006	0.004	0.005	0.012
Yellow Perch	1.045	1.244	0.595	1.031	-	0.179	0.697	0.643	0.272	0.713
Walleye	0.029	0.062	0.117	0.070	-	0.022	0.005	0.032	0.034	0.046
Cisco/Whitefish	0.720	0.002	0.050	0.021	2.336	0.002	0.002	0.015	0.008	0.351
<i>Harvest per Angler Hour (targeting anglers)</i>										
Northern pike	-	-	-	-	-	0.066	0.041	0.214	0.090	0.103
Burbot	-	-	-	-	-	0.016	0.061	0.000	0.029	0.026
Sunfish	-	-	-	-	-	1.773	0.366	1.120	2.377	1.409
Yellow Perch	-	-	-	-	-	0.607	1.040	1.768	0.603	1.004
Walleye	-	-	-	-	-	0.043	0.019	0.119	0.067	0.062
Cisco/Whitefish	-	-	-	-	-	1.500	0.000	9.062	0.424	2.747

* Specifically focused on cisco/whitefish fishery

¹Walleye protected by 18-26" protected slot limit

²Walleye protected by 20-26" protected slot limit

a Darkhouse spearer effort and and northern pile harvest during Feb 1 - Feb 28 was approximated based on average daily observations, by day type, during the Dec 15 - Jan 31 stratum

Table 3. Hometown distances of anglers fishing Leech Lake, Minnesota relative to Walker, MN, December 3rd, 2014-March 24th 2015.

Distance (miles)	N	Percent
0-49	1,150	45.5
50-99	246	9.7
100-149	494	19.6
150-199	400	15.8
200-249	115	4.6
250-299	32	1.3
300-349	22	0.9
350-399	15	0.6
400-449	6	0.2
450-499	21	0.8
500-5,000	24	1.0
Total	2,525	100.0

Table 4. State of residence of anglers fishing Leech Lake, Minnesota, December 3rd, 2014 – March 24th 2015.

State of Residence	N	Percent
Illinois	14	0.6
Indiana	5	0.2
Iowa	30	1.2
Minnesota	2,306	91.3
Nebraska	9	0.4
North Dakota	34	1.3
Other	60	2.4
South Dakota	8	0.3
Wisconsin	59	2.3
Total	2,525	100.0

Table 5. Frequencies (%) of species targeted by parties during each stratum for Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015

Stratum	Targeted Species							Total (%)
	Walleye	Northern pike	Yellow perch	Cisco/Whitefish	Sunfish	Burbot	Other	
December	69.0	6.0	25.0	0.0	0.0	0.0	0.0	100.0
January	59.5	2.4	37.6	0.0	0.1	0.4	0.1	100.0
February	49.5	3.7	43.8	0.6	0.4	1.7	0.4	100.0
March	1.6	0.0	84.7	5.2	5.7	0.8	2.0	100.0
Season	50.7	2.8	43.4	0.9	0.9	0.9	0.3	100.0

Table 6. Catch and harvest estimates by stratum for day-trip angler during the winter creel survey on Leech Lake, Minnesota, 2014-2015. Standard errors are in parentheses.

<i>Number Caught (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	2,432 (964)	4,442 (1,464)	3,413 (1,562)	2,684 (2,141)	12,974 (3,177)
Burbot	420 (138)	898 (306)	463 (213)	507 (372)	2,288 (544)
Sunfish spp.	-	377 (202)	674 (753)	4,847 (2,480)	5,899 (2,600)
Yellow Perch	32,295 (14,275)	111,061 (30,456)	87,765 (34,873)	406,796 (266,091)	637,994 (270,465)
Walleye	13,602 (6,753)	15,199 (4,990)	12,037 (4,546)	7,233 (5,872)	48,075 (11,210)
Cisco/Whitefish	285 (268)	168 (96)	190 (104)	4,728 (6,087)	5,371 (6,022)
Overall	49,033 (20,795)	133,213 (34,814)	104,997 (39,420)	426,846 (278,116)	714,173 (283,807)

<i>Number Harvested (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	639 (366)	1,697 (642)	862 (435)	116 (133)	3,314 (868)
Burbot	87 (47)	383 (193)	146 (98)	- (0)	617 (222)
Sunfish spp.	-	136 (94)	234 (262)	2,736 (1,276)	3,106 (1,306)
Yellow Perch	8,574 (4,179)	25,625 (7,346)	17,620 (7,668)	104,275 (71,326)	156,112 (72,233)
Walleye	5,232 (2,496)	5,314 (1,599)	3,887 (1,782)	1,200 (1,055)	15,636 (3,616)
Cisco/Whitefish	39 (34)	-	37 (40)	4,728 (6,087)	4,804 (6,015)
Overall	14,570 (6,790)	33,156 (8,979)	23,079 (9,545)	113,105 (76,530)	183,932 (77,940)

<i>Number Released (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	1,794 (641)	2,745 (960)	2,551 (1,305)	2,568 (2,125)	9,659 (2,748)
Burbot	333 (110)	514 (221)	317 (167)	507 (372)	1,671 (476)
Sunfish spp.	-	242 (146)	439 (491)	2,111 (1,381)	2,792 (1,473)
Yellow Perch	23,721 (10,505)	85,436 (23,829)	70,145 (27,688)	302,521 (195,168)	481,882 (198,834)
Walleye	8,369 (4,386)	9,885 (3,467)	8,150 (3,357)	6,034 (5,181)	32,439 (8,329)
Cisco/Whitefish	246 (266)	168 (96)	154 (95)	-	568 (298)
Overall	34,463 (14,326)	100,057 (26,467)	81,917 (30,473)	313,741 (202,135)	530,241 (206,622)

Table 6 continued. Catch and harvest estimates by stratum for sleeper-trip anglers during the winter creel survey on Leech Lake, Minnesota, 2014-2015. Standard errors are in parentheses.

<i>Number Caught (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	955 (494)	3,279 (1,249)	1,733 (908)	6 (9)	5,978 (1,622)
Burbot	926 (805)	878 (416)	1,236 (459)	16 (10)	3,059 (1,016)
Sunfish spp.	-	-	-	-	-
Yellow Perch	3,044 (1,629)	42,445 (15,816)	41,982 (27,110)	2,962 (225)	90,576 (31,443)
Walleye	3,021 (1,134)	11,008 (4,573)	6,167 (3,386)	38 (13)	20,248 (5,803)
Cisco/Whitefish	-	70 (55)	65 (45)	-	135 (71)
Overall	7,947 (3,609)	57,691 (20,005)	51,459 (30,867)	3,023 (242)	120,283 (36,974)

<i>Number Harvested (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	491 (369)	853 (371)	460 (226)	-	1,805 (570)
Burbot	123 (140)	216 (141)	258 (189)	3 (2)	601 (274)
Sunfish spp.	-	-	-	-	-
Yellow Perch	1,435 (981)	8,918 (3,304)	8,464 (5,838)	320 (42)	19,167 (6,783)
Walleye	1,084 (434)	3,168 (1,352)	2,057 (1,135)	-	6,315 (1,818)
Cisco/Whitefish	-	-	23 (25)	-	23 (25)
Overall	3,134 (1,779)	13,155 (4,444)	11,262 (7,241)	323 (42)	27,913 (8,683)

<i>Number Released (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	464 (240)	2,427 (941)	1,273 (755)	6 (9)	4,172 (1,230)
Burbot	803 (756)	662 (335)	979 (348)	13 (8)	2,457 (898)
Sunfish spp.	-	-	-	-	-
Yellow Perch	1,609 (785)	33,527 (12,906)	33,518 (21,309)	2,642 (184)	71,409 (24,937)
Walleye	1,937 (731)	7,840 (3,415)	4,109 (2,320)	38 (13)	13,932 (4,193)
Cisco/Whitefish	-	70 (55)	42 (38)	-	112 (67)
Overall	4,813 (2,045)	44,536 (15,987)	40,197 (23,683)	2,700 (202)	92,370 (28,658)

Table 6 continued. Catch and harvest estimates by stratum for darkhouse spearkers during the winter creel survey on Leech Lake, Minnesota, 2014-2015. Standard errors are in parentheses.

<i>Number Caught (Darkhouse Spearkers)</i>					
Species	December	January	February	March	Season
Northern Pike	683 (244)	690 (295)	38 (40)	- -	1,411 (385)
Burbot	- -	186 (127)	- -	- -	186 (127)
Sunfish spp.	77 (118)	163 (238)	- -	- -	240 (265)
Yellow Perch	1,328 (959)	1,755 (1,219)	63 (87)	- -	3,145 (1,554)
Walleye	24 (27)	78 (59)	- -	- -	102 (65)
Cisco/Whitefish	- -	16 -	- -	- -	16 -
Overall	2,112 (1,184)	3,022 (1,637)	101 (82)	- -	5,235 (2,022)

<i>Number Harvested (Darkhouse Spearkers)</i>					
Species	December	January	February	March	Season
Northern Pike	476 (191)	278 (188)	- -	- -	753 (268)
Burbot	- -	19 (14)	- -	- -	19 (14)
Sunfish spp.	77 (118)	163 (238)	- -	- -	240 (265)
Yellow Perch	718 (573)	- -	- -	- -	718 (573)
Walleye	24 (27)	26 (41)	- -	- -	50 (50)
Cisco/Whitefish	- -	- -	- -	- -	- -
Overall	1,295 (735)	505 (385)	- -	- -	1,800 (830)

<i>Number Released (Darkhouse Spearkers)</i>					
Species	December	January	February	March	Season
Northern Pike	208 (121)	412 (196)	38 (40)	- -	658 (234)
Burbot	- -	167 (113)	- -	- -	167 (113)
Sunfish spp.	- -	- -	- -	- -	- -
Yellow Perch	610 (555)	1,755 (1,219)	63 (87)	- -	2,427 (1,342)
Walleye	- -	52 (38)	- -	- -	52 (38)
Cisco/Whitefish	- -	16 -	- -	- -	16 -
Overall	817 (651)	2,517 (1,435)	101 (82)	- -	3,435 (1,578)

Table 7. Yield estimates, mean weights, and mean weights of harvested fish by stratum for day-trip anglers during the winter creel survey on Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015. Standard errors are in parentheses.

<i>Total Pounds Harvested (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	1,835 (1,048)	5,064 (2,180)	2,085 (1,303)	451 -	9,437 (2,748)
Burbot	242 -	1,070 (670)	402 (144)	- -	1,715 (685)
Sunfish spp.	- -	64 -	130 -	1,443 (783)	1,637 (783)
Yellow Perch	4,050 (2,395)	12,487 (5,580)	8,464 (5,077)	50,456 (38,180)	75,466 (38,992)
Walleye	5,392 (2,489)	6,327 (2,949)	4,798 (4,511)	1,937 (1,736)	18,457 (6,186)
Cisco/Whitefish	82 (75)	- -	77 (85)	7,157 (9,785)	7,694 (9,937)

<i>Mean Weight (pounds) of Harvested Fish (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	2.9 (2.4)	3.0 (1.7)	2.4 (2.0)	3.9 -	2.9 (1.1)
Burbot	2.8 -	2.8 (2.3)	2.7 (2.1)	- -	2.8 (1.5)
Sunfish spp.	- -	0.5 -	0.6 -	0.5 (0.4)	0.5 (0.3)
Yellow Perch	0.5 (0.4)	0.5 (0.3)	0.5 (0.4)	0.5 (0.5)	0.5 (0.3)
Walleye	1.0 (0.7)	1.2 (0.7)	1.2 (1.3)	1.6 (2.0)	1.2 (0.5)
Cisco/Whitefish	2.1 (2.7)	- -	2.1 (3.3)	1.5 (2.9)	1.6 (2.9)

<i>Mean Length (in) of Harvested Fish (Day-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	23.4 (19.2)	23.7 (13.7)	22.0 (18.8)	26.0 -	23.3 (9.4)
Burbot	22.6 -	22.5 (17.8)	22.2 (16.2)	- -	22.4 (11.9)
Sunfish spp.	- -	8.1 -	8.5 -	8.3 (6.1)	8.3 (5.4)
Yellow Perch	9.9 (7.7)	10.0 (5.2)	9.9 (7.1)	9.9 (10.0)	9.9 (6.8)
Walleye	14.6 (9.9)	15.1 (8.6)	15.5 (15.4)	17.1 (21.5)	15.2 (6.1)
Cisco/Whitefish	18.1 (23.4)	- -	18.1 (28.1)	16.1 (30.3)	16.3 (29.5)

Table 7. Yield estimates, mean weights, and mean weights of harvested fish by stratum for sleeper-trip anglers during the winter creel survey on Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015. Standard errors are in parentheses.

<i>Total Pounds Harvested (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	1,348 (2,208)	3,082 (1,623)	1,008 (554)	--	5,440 (2,796)
Burbot	429 (489)	929 (724)	822 (664)	11 (8)	2,195 (1,101)
Sunfish spp.	--	--	--	--	--
Yellow Perch	564 (585)	4,605 (3,319)	4,107 (3,258)	151 (28)	9,442 (4,693)
Walleye	1,407 (890)	3,879 (3,271)	2,868 (1,834)	--	8,162 (3,857)
Cisco/Whitefish	--	--	37 -	--	38 -

<i>Mean Weight (pounds) of Harvested Fish (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	2.7 (5.0)	3.6 (2.5)	2.2 (1.6)	--	3.0 (1.8)
Burbot	3.5 (5.6)	4.3 (4.4)	3.2 (3.5)	3.5 (3.3)	3.7 (2.5)
Sunfish spp.	--	--	--	--	--
Yellow Perch	0.4 (0.5)	0.5 (0.4)	0.5 (0.5)	--	0.5 (0.3)
Walleye	1.3 (1.0)	1.2 (1.2)	1.4 (1.2)	0.5 (0.2)	1.3 (0.7)
Cisco/Whitefish	--	--	1.6 -	--	1.6 -

<i>Mean Length (in) of Harvested Fish (Sleeper-Trip Anglers)</i>					
Species	December	January	February	March	Season
Northern Pike	23.2 (41.2)	25.3 (17.5)	21.2 (15.8)	--	23.7 (14.5)
Burbot	24.4 (39.7)	25.9 (25.2)	23.4 (25.7)	24.1 (22.9)	24.5 (16.5)
Sunfish spp.	--	--	--	--	--
Yellow Perch	9.4 (12.3)	10.1 (8.3)	9.9 (10.7)	9.8 (3.8)	10.0 (6.2)
Walleye	15.7 (11.3)	15.4 (15.4)	16.2 (13.5)	--	15.7 (9.1)
Cisco/Whitefish	--	--	16.5 -	--	16.5 -

Table 7 continued. Yield estimates, mean weights, and mean weights of harvested fish by stratum for darkhouse spearers during the winter creel survey on Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015. Standard errors are in parentheses.

<i>Total Pounds Harvested (Darkhouse Spearers)</i>						
Species	December	January	February	March	Season	
Northern Pike	1,315 (706)	899 (855)	--	--	2,214 (1,109)	
Burbot	--	122 -	--	--	122 -	
Sunfish spp.	35 -	92 -	--	--	127 -	
Yellow Perch	287 (318)	--	--	--	287 (318)	
Walleye	25 (29)	29 (47)	--	--	54 (55)	
Cisco/Whitefish	--	--	--	--	--	

<i>Mean Weight (pounds) of Harvested Fish (Darkhouse Spearers)</i>						
Species	December	January	February	March	Season	
Northern Pike	2.8 (2.0)	3.2 (3.9)	--	--	2.9 (1.9)	
Burbot	--	6.4 -	--	--	6.4 -	
Sunfish spp.	0.5 -	0.6 -	--	--	0.5 -	
Yellow Perch	0.4 (0.5)	--	--	--	0.4 (0.5)	
Walleye	1.0 (1.7)	1.1 (2.5)	--	--	1.1 (1.5)	
Cisco/Whitefish	--	--	--	--	--	

<i>Mean Length (in) of Harvested Fish (Darkhouse Spearers)</i>						
Species	December	January	February	March	Season	
Northern Pike	22.9 (20.2)	23.8 (31.4)	--	--	23.2 (17.2)	
Burbot	--	30.0 -	--	--	30.0 -	
Sunfish spp.	8.0 -	8.5 -	--	--	8.4 -	
Yellow Perch	9.4 (12.8)	--	--	--	9.4 (12.8)	
Walleye	14.8 (23.6)	15.0 (33.8)	--	--	14.9 (20.8)	
Cisco/Whitefish	--	--	--	--	--	

Table 8. Estimates of catch and harvest rates of selected species for all day-trip anglers by stratum during the winter season on Leech Lake, Minnesota, 2015.

Species	Stratum									
	December		January		February		March		Season	
<i>Catch per Angler Hour (Day-Trip Anglers)</i>										
Northern Pike	0.0512	(0.0309)	0.0393	(0.0164)	0.0407	(0.0441)	0.0270	0.0458	0.0377	0.0199
Burbot	0.0088	(0.0045)	0.0079	(0.0033)	0.0055	(0.0043)	0.0051	0.0051	0.0067	0.0023
Sunfish spp.	-	-	0.0033	(0.0020)	0.0080	(0.0094)	0.0488	0.0410	0.0171	0.0085
Yellow Perch	0.6792	(0.3964)	0.9817	(0.4461)	1.0462	(0.8666)	4.0939	3.8482	1.8548	0.9313
Walleye	0.2861	(0.1835)	0.1343	(0.0750)	0.1435	(0.0973)	0.0728	0.0768	0.1398	0.0517
Cisco/Whitefish	0.0042	(0.0055)	0.0015	(0.0012)	0.0023	(0.0034)	0.0476	0.0685	0.0156	0.0187
Overall	1.0313	(0.5903)	1.1775	(0.5347)	1.2517	(0.9884)	4.2957	4.0332	2.0762	0.9969
<i>Harvest per Angler Hour (Day-Trip Anglers)</i>										
Northern Pike	0.0134	(0.0100)	0.0150	(0.0059)	0.0103	(0.0072)	0.0012	0.0016	0.0096	0.0034
Burbot	0.0018	(0.0002)	0.0034	(0.0014)	0.0017	(0.0022)	0.0000	0.0000	0.0018	0.0008
Sunfish spp.	-	-	0.0012	(0.0009)	0.0028	(0.0033)	0.0275	0.0224	0.0090	0.0043
Yellow Perch	0.1803	(0.1090)	0.2265	(0.1051)	0.2101	(0.1329)	1.0494	1.0091	0.4538	0.2381
Walleye	0.1100	(0.0689)	0.0470	(0.0239)	0.0463	(0.0335)	0.0121	0.0130	0.0455	0.0165
Cisco/Whitefish	0.0008	(0.0010)	-	-	0.0004	(0.0002)	0.0476	0.0685	0.0140	0.0178
Overall	0.3064	(0.1855)	0.2931	(0.1343)	0.2751	(0.1695)	1.1383	1.0943	0.5347	0.2638

Table 8 continued. Estimates of catch and harvest rates of selected species for all sleeper-trip anglers by stratum during the winter season on Leech Lake, Minnesota, 2015.

Species	Stratum									
	December		January		February		March		Season	
<i>Catch per Angler Hour (Sleeper-Trip Anglers)</i>										
Northern Pike	0.0378	(0.0418)	0.0235	(0.0192)	0.0137	(0.0120)	0.0010	0.0016	0.0201	0.0108
Burbot	0.0367	(0.0341)	0.0063	(0.0057)	0.0098	(0.0065)	0.0026	0.0022	0.0103	0.0052
Sunfish spp.	-	-	-	-	-	-	-	-	-	-
Yellow Perch	0.1206	(0.0860)	0.3045	(0.2049)	0.3313	(0.2751)	0.4810	0.2658	0.3042	0.1492
Walleye	0.1197	(0.2261)	0.0790	(0.0714)	0.0487	(0.0570)	0.0062	0.0045	0.0680	0.0449
Cisco/Whitefish	-	-	0.0005	(0.0004)	0.0005	(0.0004)	-	-	0.0005	0.0003
Overall	0.3148	(0.4050)	0.4139	(0.2901)	0.4061	(0.3715)	0.4909	0.2697	0.4039	0.2107
<i>Harvest per Angler Hour (Sleeper-Trip Anglers)</i>										
Northern Pike	0.0195	(0.0243)	0.0061	(0.0049)	0.0036	(0.0025)	0.0000	0.0000	0.0061	0.0031
Burbot	0.0049	(0.0059)	0.0016	(0.0021)	0.0020	(0.0018)	0.0005	0.0004	0.0020	0.0014
Sunfish spp.	-	-	-	-	-	-	-	-	-	-
Yellow Perch	0.0568	(0.0423)	0.0640	(0.0465)	0.0668	(0.0589)	0.0519	0.0238	0.0644	0.0332
Walleye	0.0429	(0.0823)	0.0227	(0.0228)	0.0162	(0.0174)	0.0000	0.0000	0.0212	0.0143
Cisco/Whitefish	-	-	-	-	0.0002	(0.0002)	-	-	0.0001	0.0001
Overall	0.1241	(0.1596)	0.0944	(0.0728)	0.0889	(0.0805)	0.0524	0.0225	0.0937	0.0502

Table 8 continued. Estimates of catch (encounter rates of Northern Pike) and harvest rates of selected species for all darkhouse spearkers by stratum during the winter season on Leech Lake, Minnesota, 2015.

Species	Stratum					Season	
	December	January	February	March			
<i>Catch per Angler Hour (Darkhouse Spearkers)</i>							
Northern Pike	0.2334 (0.1639)	0.2674 (0.2539)	0.0720 (0.1015)	- -		0.2339	0.1308
Burbot	- -	0.0722 (0.0580)	- -	- -		0.0309	0.0227
Sunfish spp.	0.0263 (0.0419)	0.0632 (0.0960)	- -	- -		0.0398	0.0454
Yellow Perch	0.4533 (0.5633)	0.6804 (0.8947)	0.1200 (0.2003)	- -		0.5214	0.4523
Walleye	0.0083 (0.0100)	0.0302 (0.0263)	- -	- -		0.0169	0.0118
Cisco/Whitefish	- -	0.0063 ---	- -	- -		0.0027	---
Overall	0.7212 (0.6948)	1.1715 (1.4953)	0.1920 (0.2390)	- -		0.8677	0.6726
<i>Harvest per Angler Hour (Darkhouse Spearkers)</i>							
Northern Pike	0.1624 (0.1201)	0.1077 (0.1765)	- -	- -		0.1249	0.0963
Burbot	- -	0.0074 (0.0064)	- -	- -		0.0032	0.0026
Sunfish spp.	0.0263 (0.0419)	0.0632 (0.0960)	- -	- -		0.0398	0.0454
Yellow Perch	0.2452 (0.2710)	- -	- -	- -		0.1190	0.1140
Walleye	0.0083 (0.0100)	0.0100 (0.0166)	- -	- -		0.0083	0.0085
Cisco/Whitefish	- -	- -	- -	- -		- -	- -
Overall	0.4421 (0.4101)	0.1958 (0.4086)	- -	- -		0.2983	0.2753

Table 9. Estimates of catch and harvest rates of selected species for day-trip targeting anglers by stratum during the winter season on Leech Lake, Minnesota, 2014-2015.

Species	Stratum									
	December		January		February		March		Season	
<i>Catch per Angler Hour (Day-Trip Anglers)</i>										
Northern Pike	0.2946	0.0807	0.2353	0.2768	0.1140	0.0530	2.8493	0.4574	0.1607	0.0460
Burbot	-	-	0.0769	-	0.0522	0.0368	4.5722	0.6438	0.7904	0.6399
Sunfish spp.	-	-	8.0000	-	4.3810	-	4.2796	0.7193	4.5823	0.5704
Yellow Perch	1.6007	0.1783	1.2214	0.2062	1.6988	0.2051	0.2210	0.0935	2.4439	0.4102
Walleye	0.2351	0.0365	0.1419	0.0321	0.1935	0.0304	0.4650	0.2377	0.1784	0.0199
Cisco/Whitefish	-	-	-	-	-	-	-	-	0.4244	0.2126
Overall	-	-	-	-	-	-	-	-	-	-
<i>Harvest per Angler Hour (Day-Trip Anglers)</i>										
Northern Pike	0.1339	0.1071	0.2353	0.2768	0.0702	0.0408	0.0000	0.0000	0.0900	0.0372
Burbot	-	-	0.0769	-	0.0261	0.0287	2.4265	0.4709	0.0287	0.0192
Sunfish spp.	-	-	5.0000	-	1.5238	-	1.0661	0.1886	2.3771	0.4269
Yellow Perch	0.4675	0.0730	0.3056	0.0583	0.3560	0.0662	0.1768	0.1013	0.6031	0.1029
Walleye	0.1008	0.0171	0.0483	0.0111	0.0652	0.0197	0.4650	0.2377	0.0673	0.0091
Cisco/Whitefish	-	-	-	-	-	-	-	-	0.4244	0.2126
Overall	-	-	-	-	-	-	-	-	-	-

Table 9 continued. Estimates of catch and harvest rates of selected species for sleeper-trip targeting anglers by stratum during the winter season on Leech Lake, Minnesota, 2014-2015.

Species	Stratum									
	December		January		February		March		Season	
<i>Catch per Angler Hour (Sleeper-Trip Anglers)</i>										
Northern Pike	0.2222	---	0.2236	---	-	-	-	-	0.2228	0.0007
Burbot	-	-	0.0347	---	0.0143	0.0084	-	-	0.0156	0.0079
Sunfish spp.	-	-	-	-	-	-	-	-	-	-
Yellow Perch	0.2256	0.0779	0.4806	0.0574	0.5084	0.1521	0.2688	0.1026	0.4522	0.0696
Walleye	0.1009	0.0190	0.0600	0.0078	0.0516	0.0078	-	-	0.0627	0.0064
Cisco/Whitefish	-	-	-	-	-	-	-	-	-	-
Overall	-	-	-	-	-	-	-	-	-	-
<i>Harvest per Angler Hour (Sleeper-Trip Anglers)</i>										
Northern Pike	0.2222	---	0.1118	---	-	-	-	-	0.1782	0.0529
Burbot	-	-	0.0347	---	0.0048	0.0045	-	-	0.0067	0.0046
Sunfish spp.	-	-	-	-	-	-	-	-	-	-
Yellow Perch	0.0852	0.0461	0.1160	0.0157	0.1128	0.0323	0.0427	0.0094	0.1035	0.0155
Walleye	0.0388	0.0056	0.0221	0.0012	0.0193	0.0030	-	-	0.0234	0.0017
Cisco/Whitefish	-	-	-	-	-	-	-	-	-	-
Overall	-	-	-	-	-	-	-	-	-	-

Table 9 continued. Estimates of catch (encounter rates for Northern Pike) and harvest rates of selected species for targeting darkhouse spearkers by stratum during the winter season on Leech Lake, Minnesota, 2014-2015.

Species	Stratum									
	December		January		February		March		Season	
<i>Catch per Angler Hour (Darkhouse Spearkers)</i>										
Northern Pike	0.2604	0.0799	0.2723	0.0748	0.2813	0.2654	--	--	0.2690	0.0529
Burbot	--	--	--	--	--	--	--	--	--	--
Sunfish spp.	--	--	--	--	--	--	--	--	--	--
Yellow Perch	1.8723	1.0824	1.4381	0.2321	--	--	--	--	1.5175	0.2866
Walleye	--	--	--	--	--	--	--	--	--	--
Cisco/Whitefish	--	--	--	--	--	--	--	--	--	--
Overall	--	--	--	--	--	--	--	--	--	--
<i>Harvest per Angler Hour (Darkhouse Spearkers)</i>										
Northern Pike	0.1771	0.0704	0.0908	0.0326	--	--	--	--	0.1139	0.0368
Burbot	--	--	--	--	--	--	--	--	--	--
Sunfish spp.	--	--	--	--	--	--	--	--	--	--
Yellow Perch	0.8511	0.4974	--	--	--	--	--	--	0.1556	0.1717
Walleye	--	--	--	--	--	--	--	--	--	--
Cisco/Whitefish	--	--	--	--	--	--	--	--	--	--
Overall	--	--	--	--	--	--	--	--	--	--

Table 10. Percent of all angling parties who harvested a given number of fish by stratum from Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015.

Species/stratum	Number Harvested per Angler						
Northern Pike	N	0	0.1-0.9	1.0-1.9	2.0-2.9	3	
December	252	89%	4%	4%	2%	1%	
January	479	87%	7%	4%	1%	1%	
February	290	90%	6%	3%	1%	0%	
March	201	100%	0%	0%	0%	0%	
Season	1,222	90%	5%	3%	1%	0%	
Yellow Perch	N	0	0.1-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20
December	252	79%	15%	5%	2%	0%	0%
January	479	65%	23%	6%	3%	2%	1%
February	290	64%	24%	6%	3%	1%	1%
March	201	41%	29%	14%	10%	6%	4%
Season	1,222	63%	23%	7%	4%	2%	1%
Walleye	N	0	0.1-0.9	1.0-1.9	2.0-2.9	3.0-3.9	4
December	252	62%	13%	15%	5%	4%	1%
January	479	68%	11%	13%	5%	1%	1%
February	290	74%	8%	10%	4%	2%	1%
March	201	99%	0%	0%	1%	0%	0%
Season	1,222	73%	9%	11%	4%	2%	1%

Northern pike: 3 fish in possession, 1 fish over 30 inches allowed in possession (statewide regulation).

Yellow perch: 20 fish daily, 40 in possession, no length limit (statewide regulation).

Walleye: 4 fish in possession, 20-26 inch PSL, 1 fish over 26 inches allowed in possession (special regulation).

Table 11. Percent of targeting angling parties who harvested a given number of fish by stratum from Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015.

Species/stratum		Number Harvested per Angler					
Northern Pike	N	0	0.1-0.9	1.0-1.9	2.0-2.9	3	
December	22	50%	9%	18%	14%	9%	
January	20	40%	25%	20%	10%	5%	
February	12	75%	8%	17%	0%	0%	
March	0	0%	0%	0%	0%	0%	
Season	54	52%	15%	19%	9%	6%	
Yellow Perch	N	0	0.1-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20
December	78	55%	24%	15%	5%	0%	0%
January	256	55%	30%	8%	4%	1%	2%
February	176	48%	34%	10%	5%	2%	2%
March	178	34%	26%	16%	11%	8%	4%
Season	688	48%	29%	11%	6%	3%	2%
Walleye	N	0	0.1-0.9	1.0-1.9	2.0-2.9	3.0-3.9	4
December	212	56%	15%	17%	6%	5%	1%
January	418	64%	12%	15%	6%	1%	1%
February	207	66%	11%	14%	6%	2%	1%
March	2	0%	0%	0%	100%	0%	0%
Season	839	62%	13%	15%	6%	2%	1%

Northern pike: 3 fish in possession, 1 fish over 30 inches allowed in possession (statewide regulation).

Yellow perch: 20 fish daily, 40 in possession, no length limit (statewide regulation).

Walleye: 4 fish in possession, 20-26 inch PSL, 1 fish over 26 inches allowed in possession (special regulation).

Table 13. Observed length-frequency distribution of fish harvested and released for Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015.

Estimated Number Harvested (H) and Released (R)						
TL (inches)	Northern Pike		Burbot		Sunfish	
	H	R	H	R	H	R
<4.00	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
4.00-4.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	15 (42%)
5.00-5.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	18 (50%)
6.00-6.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
7.00-7.99	- (0%)	1 (0%)	- (0%)	- (0%)	12 (30%)	1 (3%)
8.00-8.99	- (0%)	- (0%)	- (0%)	- (0%)	17 (43%)	- (0%)
9.00-9.99	- (0%)	- (0%)	- (0%)	- (0%)	10 (25%)	1 (3%)
10.00-10.99	- (0%)	1 (0%)	- (0%)	2 (1%)	1 (3%)	1 (3%)
11.00-11.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
12.00-12.99	- (0%)	4 (1%)	- (0%)	- (0%)	- (0%)	- (0%)
13.00-13.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
14.00-14.99	- (0%)	18 (4%)	1 (2%)	1 (1%)	- (0%)	- (0%)
15.00-15.99	1 (1%)	13 (3%)	2 (4%)	5 (3%)	- (0%)	- (0%)
16.00-16.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
17.00-17.99	4 (2%)	46 (10%)	- (0%)	15 (10%)	- (0%)	- (0%)
18.00-18.99	- (0%)	2 (0%)	2 (4%)	- (0%)	- (0%)	- (0%)
19.00-19.99	4 (2%)	15 (3%)	3 (6%)	- (0%)	- (0%)	- (0%)
20.00-20.99	33 (17%)	146 (33%)	3 (6%)	27 (17%)	- (0%)	- (0%)
21.00-21.99	15 (8%)	2 (0%)	3 (6%)	- (0%)	- (0%)	- (0%)
22.00-22.99	31 (16%)	68 (15%)	5 (10%)	7 (4%)	- (0%)	- (0%)
23.00-23.99	9 (5%)	1 (0%)	2 (4%)	- (0%)	- (0%)	- (0%)
24.00-24.99	33 (17%)	47 (11%)	12 (24%)	20 (13%)	- (0%)	- (0%)
25.00-25.99	32 (16%)	42 (9%)	7 (14%)	44 (28%)	- (0%)	- (0%)
26.00-26.99	5 (3%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
27.00-27.99	13 (7%)	16 (4%)	4 (8%)	30 (19%)	- (0%)	- (0%)
28.00-28.99	3 (2%)	- (0%)	1 (2%)	- (0%)	- (0%)	- (0%)
29.00-29.99	4 (2%)	8 (2%)	- (0%)	- (0%)	- (0%)	- (0%)
30.00-30.99	5 (3%)	11 (2%)	6 (12%)	4 (3%)	- (0%)	- (0%)
31.00-31.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
32.00-32.99	2 (1%)	4 (1%)	- (0%)	- (0%)	- (0%)	- (0%)
33.00-33.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
34.00-34.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
35.00-35.99	- (0%)	1 (0%)	- (0%)	- (0%)	- (0%)	- (0%)
36.00-36.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
37.00-37.99	1 (1%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
38.00-38.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
39.00-39.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
≥40.00	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
Total (N)	195 (100%)	446 (100%)	51 (100%)	155 (99%)	40 (100%)	36 (100%)

Table 13 continued. Observed length-frequency distribution of fish harvested and released for Leech Lake, Minnesota, December 3rd, 2014-March 24th 2015.

Estimated Number Harvested (H) and Released (R)						
TL (inches)	Yellow Perch		Walleye		Cisco/Whitefish	
	H	R	H	R	H	R
<4.00	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
4.00-4.99	- (0%)	641 (8%)	- (0%)	- (0%)	- (0%)	- (0%)
5.00-5.99	4 (0%)	4,723 (61%)	- (0%)	11 (1%)	- (0%)	- (0%)
6.00-6.99	- (0%)	40 (1%)	- (0%)	- (0%)	- (0%)	- (0%)
7.00-7.99	182 (8%)	2,184 (28%)	2 (0%)	107 (9%)	- (0%)	- (0%)
8.00-8.99	193 (8%)	25 (0%)	1 (0%)	1 (0%)	- (0%)	- (0%)
9.00-9.99	678 (28%)	96 (1%)	3 (0%)	60 (5%)	- (0%)	- (0%)
10.00-10.99	1,036 (43%)	69 (1%)	14 (2%)	320 (28%)	- (0%)	- (0%)
11.00-11.99	94 (4%)	4 (0%)	13 (2%)	6 (1%)	- (0%)	- (0%)
12.00-12.99	207 (9%)	2 (0%)	78 (12%)	102 (9%)	- (0%)	9 (53%)
13.00-13.99	3 (0%)	- (0%)	30 (4%)	- (0%)	- (0%)	- (0%)
14.00-14.99	- (0%)	- (0%)	83 (12%)	9 (1%)	- (0%)	- (0%)
15.00-15.99	1 (0%)	- (0%)	173 (26%)	10 (1%)	- (0%)	2 (12%)
16.00-16.99	- (0%)	- (0%)	55 (8%)	- (0%)	- (0%)	- (0%)
17.00-17.99	- (0%)	- (0%)	136 (20%)	4 (0%)	1 (33%)	5 (29%)
18.00-18.99	- (0%)	- (0%)	31 (5%)	- (0%)	2 (67%)	- (0%)
19.00-19.99	- (0%)	- (0%)	48 (7%)	1 (0%)	- (0%)	- (0%)
20.00-20.99	- (0%)	- (0%)	2 (0%)	80 (7%)	- (0%)	1 (6%)
21.00-21.99	- (0%)	- (0%)	- (0%)	6 (1%)	- (0%)	- (0%)
22.00-22.99	- (0%)	- (0%)	- (0%)	221 (19%)	- (0%)	- (0%)
23.00-23.99	- (0%)	- (0%)	- (0%)	6 (1%)	- (0%)	- (0%)
24.00-24.99	- (0%)	- (0%)	- (0%)	99 (9%)	- (0%)	- (0%)
25.00-25.99	- (0%)	- (0%)	- (0%)	83 (7%)	- (0%)	- (0%)
26.00-26.99	- (0%)	- (0%)	1 (0%)	3 (0%)	- (0%)	- (0%)
27.00-27.99	- (0%)	- (0%)	- (0%)	10 (1%)	- (0%)	- (0%)
28.00-28.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
29.00-29.99	- (0%)	- (0%)	- (0%)	1 (0%)	- (0%)	- (0%)
30.00-30.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
31.00-31.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
32.00-32.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
33.00-33.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
34.00-34.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
35.00-35.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
36.00-36.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
37.00-37.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
38.00-38.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
39.00-39.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
40.00-40.99	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)	- (0%)
Total (N)	2,398 (100%)	7,784 (100%)	670 (100%)	1,140 (100%)	3 (100%)	17 (100%)

¹Bold font denotes walleye protected by length limit.

Table 14. Catch rates of selected species during winter creel on Leech Lake, Minnesota, 2004-2015.

	2004-2005	2005-2006 ^a	2010-2011 ^a	2014-2015 ^b	2004-2014 Mean
<i>Catch per Angler Hour (all anglers)</i>					
Northern pike	0.0128	0.0221	0.0082	0.0377	0.0202
Burbot	0.0050	0.0179	0.0060	0.0067	0.0089
Yellow Perch	0.7173	2.5589	2.5753	1.8548	1.9266
Walleye	0.0378	0.0125	0.0744	0.1398	0.0661
Cisco/Whitefish	0.0040	0.0022	0.0398	0.0156	0.0154
<i>Catch per Angler Hour (targeting anglers)</i>					
Northern pike	0.0798	0.0493	0.0353	0.1607	0.0813
Burbot	0.0160	0.1195	0.5977	0.7904	0.3809
Yellow Perch	2.3132	4.0329	3.0585	2.4439	2.9621
Walleye	0.0781	0.0233	0.1299	0.1784	0.1024
Cisco/Whitefish	1.5000	-	3.3523	0.4244	1.7589

^a18-26" protected slot limit

^b20-26" protected slot limit

Table 15. Percentage of total angler effort by hometown distance category for winter creel on Leech Lake, Minnesota, 2004-2015.

Angler Group	Hometown Distance	2004-2005	2005-2006	2010-2011	2014-2015
<i>Angling Pressure</i>					
Local	0-99	46%	59%	52%	55%
Metro	100-249	37%	37%	39%	40%
Desination	>250	25%	29%	9%	5%

Table 16. Angler effort by hometown distance category for winter creel on Leech Lake, Minnesota, 2004-2015.

Angler Group	Hometown Distance	2004-2005	2005-2006	2010-2011	2014-2015
<i>Angling Pressure</i>					
Local	0-99	52,524	40,449	181,562	358,151
Metro	100-249	42,410	25,529	134,225	258,864
Desination	>250	28,963	19,780	31,766	30,787

FIGURES

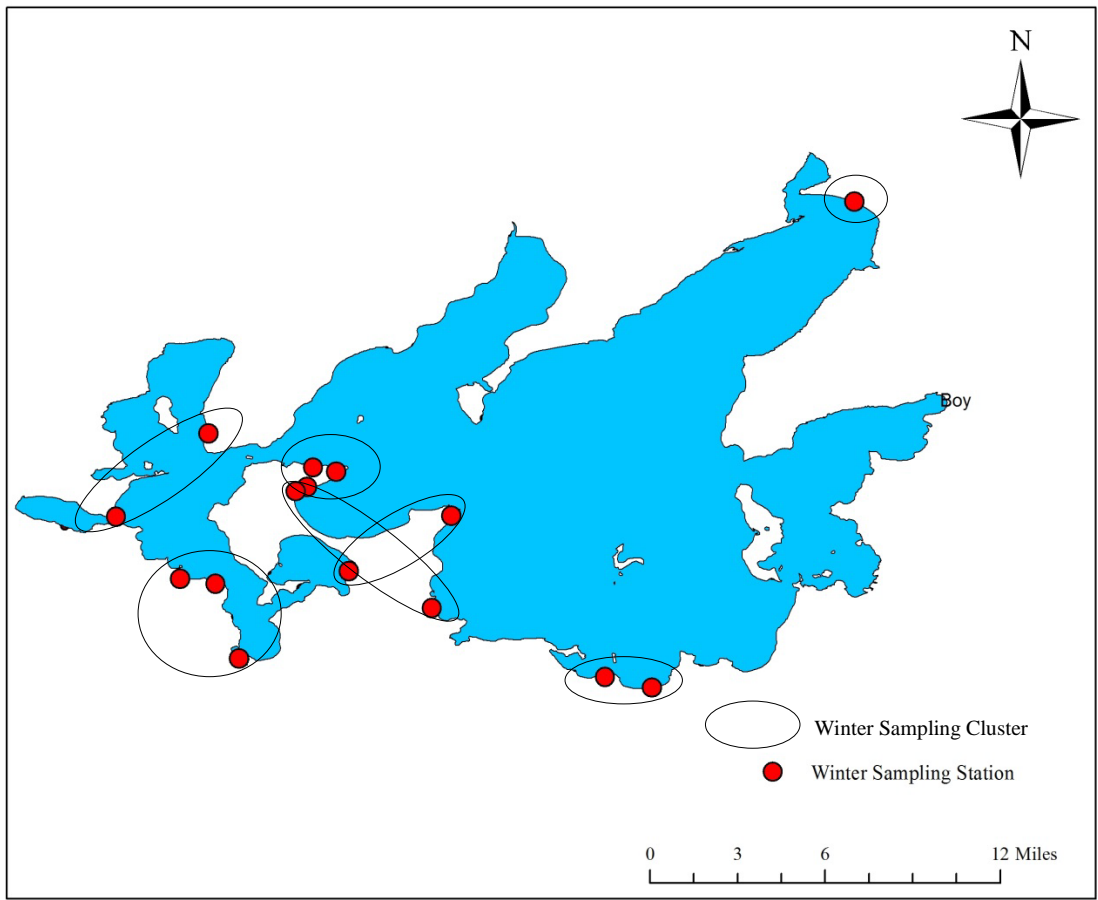


Figure 1. Winter creel survey sampling clusters (circles) and stations (dots) on Leech Lake, Minnesota.

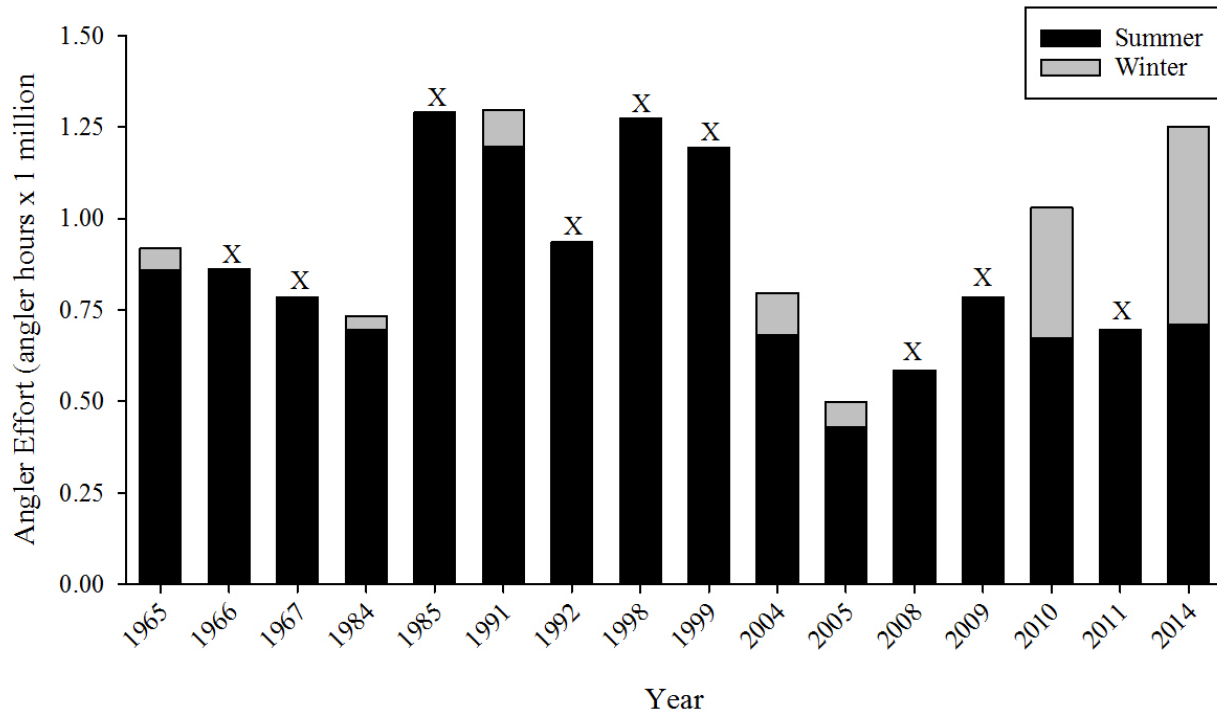


Figure 2. Total fishing pressure (angler-hours x 1,000) by Leech Lake anglers throughout the summer and winter seasons, 1965-2015 (X denotes year's winter surveys were not conducted in conjunction with summer survey).

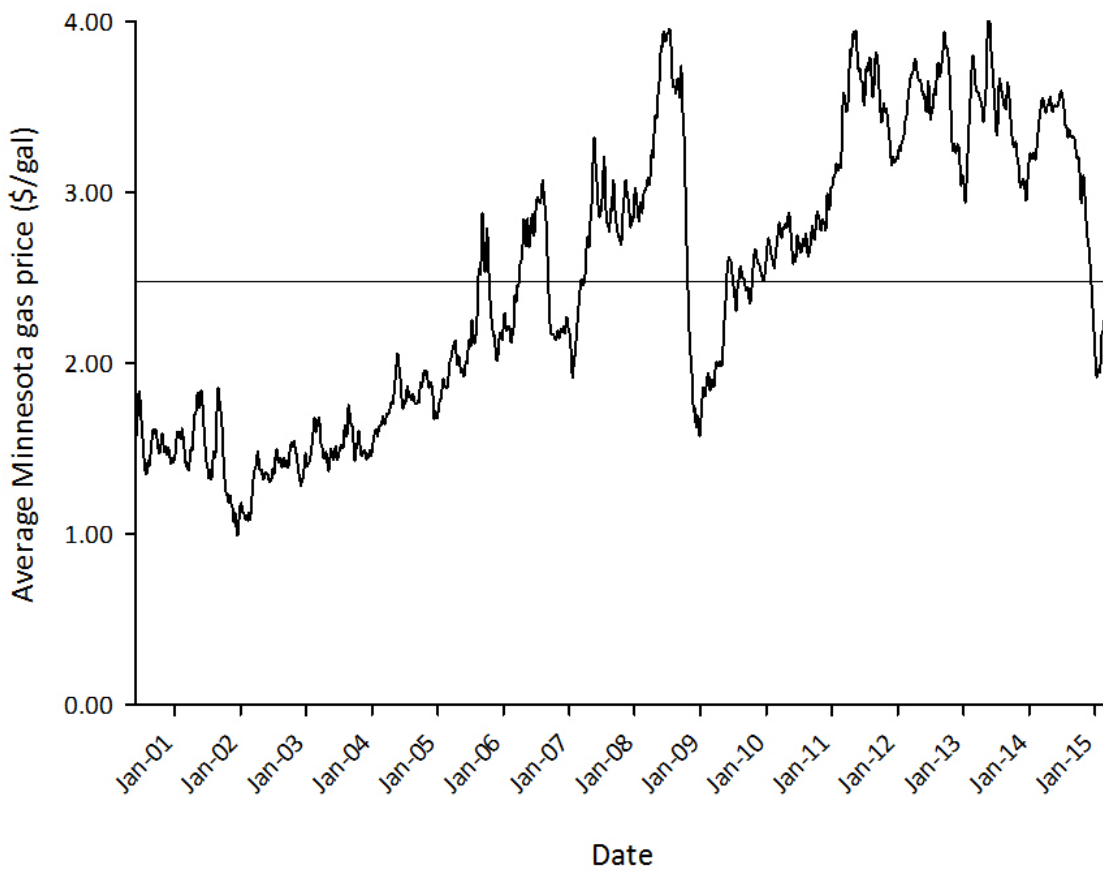


Figure 3. Weekly price (\$) per gallon of regular gasoline in Minnesota, January 2001 – January 2015 (EIA 2015). The horizontal line depicts the 10-year average.

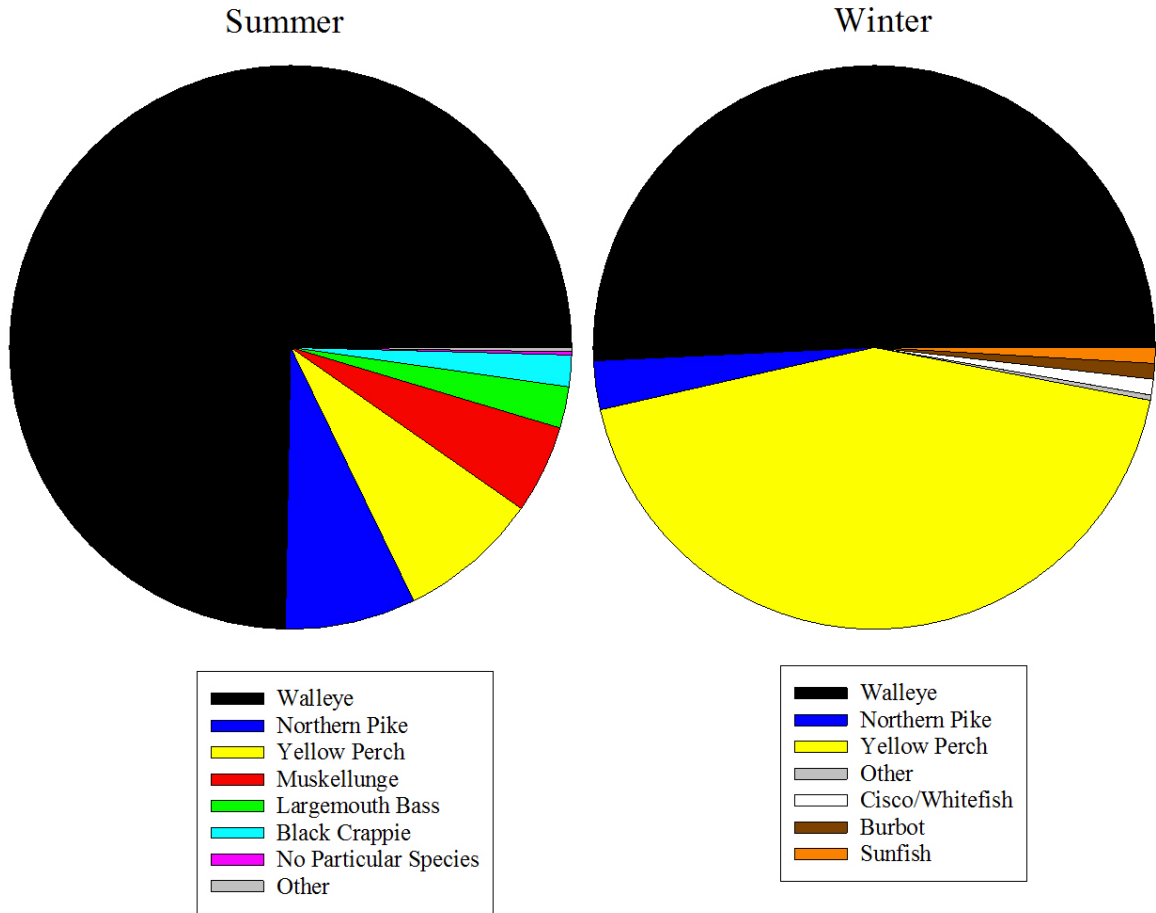


Figure 4. Mean distribution of species targeted by angling parties interviewed during summer and winter creel surveys on Leech Lake, 2014-2015.

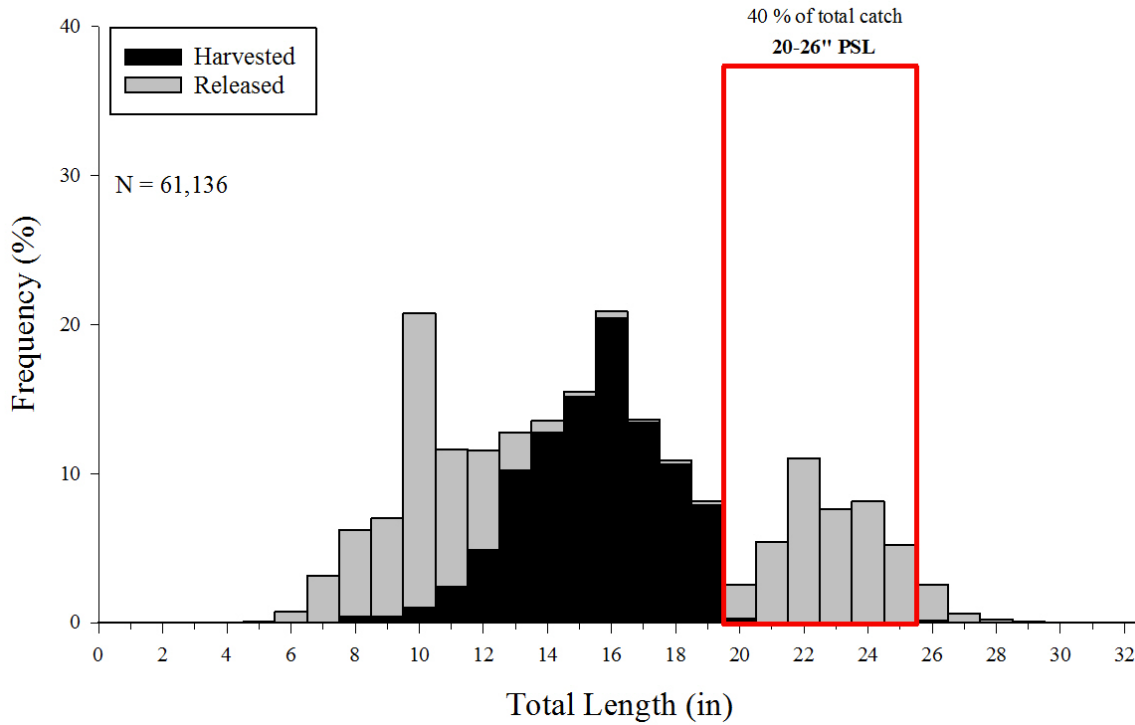


Figure 5. Length frequency distribution (% of observed catch) of harvested and released Walleye on Leech Lake, MN during 2014-2015 winter creel. Red box indicates protected slot limit (20"-26").

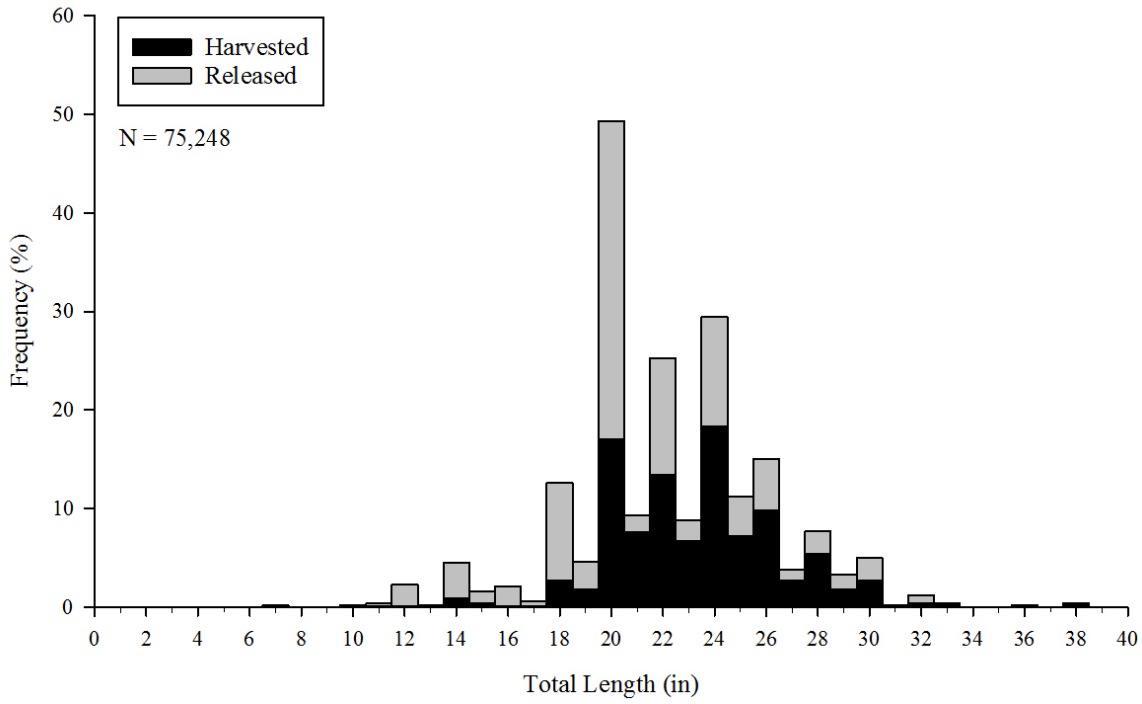


Figure 6. Length frequency distribution (% of observed catch) of harvested and released Northern Pike on Leech Lake, MN during 2014-2015 winter creel.

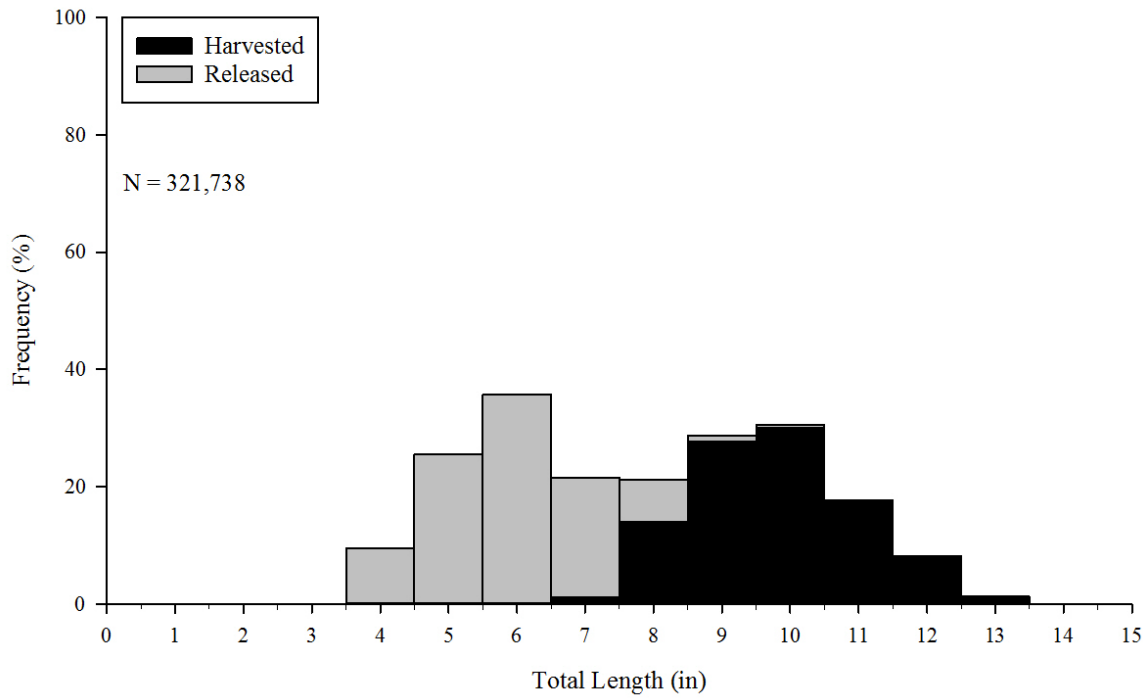


Figure 7. Length frequency distribution (% of observed catch) of harvested and released Yellow Perch on Leech Lake, MN during 2014-2015 winter creel.

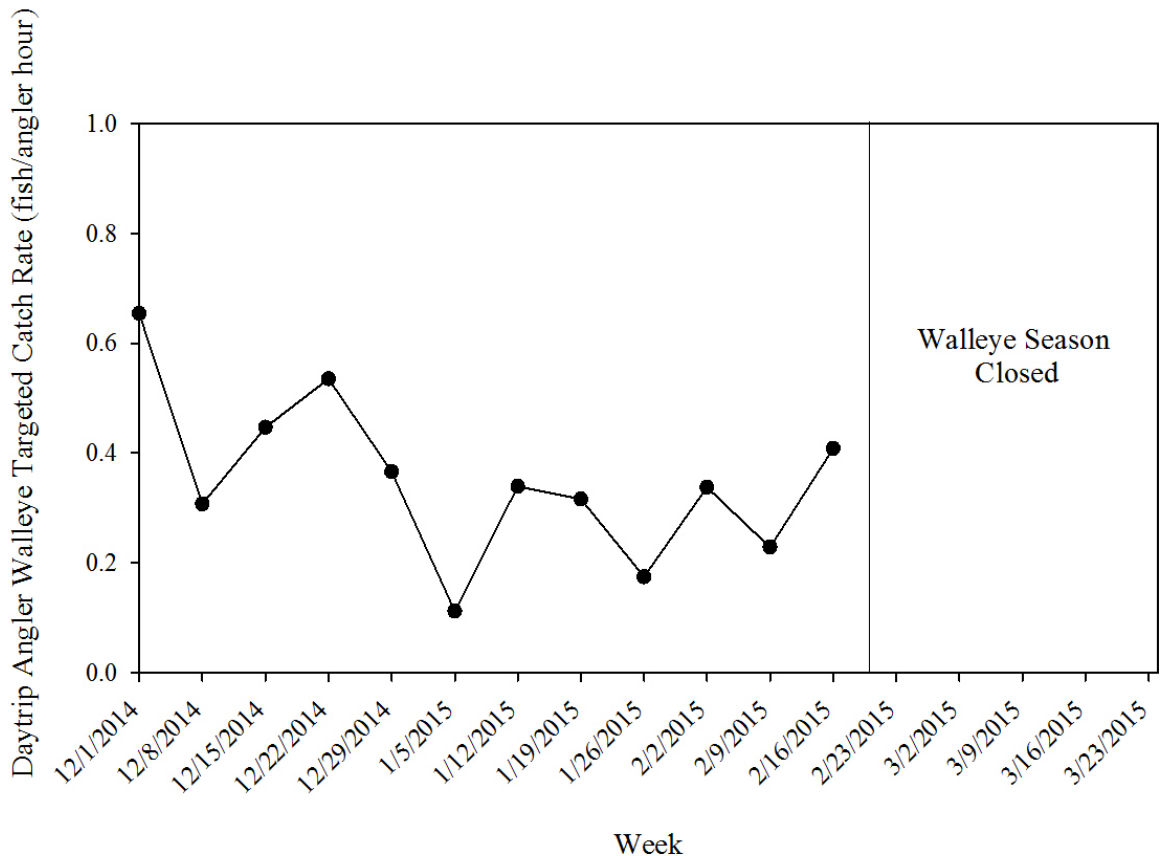


Figure 8. Weekly day-trip angler targeted catch rate on Leech Lake, MN during 2014-2015 winter creel.



**Minnesota Department of Natural Resources
Section of Fisheries**



Creel Survey Summary for Leech Lake, Minnesota

Fish Management Area: Walker

Year Surveyed: December 3rd, 2014 – March 24th 2015

Angling Pressure

Angler-hours	647,802
Angler-hours/acre	5.81
Anglers/party	Daytrip-1.99; Sleeper House- 2.30; Darkhouse- 1.33
Mean Trip Length (h)	Daytrip-4.51; Sleeper House- 24.04; Darkhouse- 3.79

Catch (number)

Harvest (number)

Harvest (pounds)

Species	Catch (number)		Harvest (number)		Harvest (pounds)	
	Total N	N/acre	Total N	N/acre	Total lbs.	lbs./acre
Bowfin	-	-	-	-	-	-
Bullhead spp.	-	-	-	-	-	-
Northern Pike	20,362	0.18	5,873	0.05	17,092	0.15
Muskellunge	-	-	-	-	-	-
Burbot	5,533	-	1,237	0.01	4,032	0.04
Rock bass	1,360	0.01	-	-	-	-
Sunfish spp.	6,138	0.06	3,346	0.03	1,764	0.02
Smallmouth Bass	-	-	-	-	-	-
Largemouth bass	23	0.00	-	-	-	-
Black Crappie	590	0.01	362	0.00	205	0.00
Yellow Perch	731,715	6.56	175,997	1.58	85,195	0.76
Walleye	68,425	0.61	22,001	0.20	26,674	0.24
Cisco/Whitefish	5,523	0.05	4,827	0.04	7,732	0.07
						-
All species	839,670	7.52	213,644	1.91	142,693	1.28

Catch Rate (fish/hour)

Harvest Rate (fish/hour)

Species	Angler Type		Angler Type	
	Daytrip	Sleeper House	Daytrip	Sleeper House
	Bowfin	-	-	-
Bullhead spp.	-	-	-	-
Northern Pike	0.038	0.020	0.010	0.006
Muskellunge	-	<0.001	-	-
Burbot	0.007	0.010	0.002	0.002
Rock Bass	0.003	0.001	-	0.492
Sunfish spp.	0.017	-	0.009	-
Smallmouth Bass	-	-	-	-
Largemouth Bass	-	-	-	-
Black Crappie	0.001	-	0.001	-
Yellow Perch	1.855	0.304	0.454	0.064
Walleye	0.140	0.068	0.046	0.021
Cisco/Whitefish	0.016	0.001	0.014	<0.001

Creel Survey Summary for Leech Lake, Minnesota

Length Frequency Summary for the estimated number of fish harvested (inch groups)

Species	0.0-4.9	5.0-8.9	9.0-12.9	13.0-16.9	17.0-20.9	21.0-24.9	25.0-29.9	≥30.0
Bowfin	-	-	-	-	-	-	-	-
Bullhead spp.	-	-	-	-	-	-	-	-
Northern Pike	-	-	-	30	1,235	2,650	1,717	241
Muskellunge	-	-	-	-	-	-	-	-
Burbot	-	-	14	86	580	534	291	146
Rock Bass								
Sunfish spp.	-	2,426	920	-	-	-	-	-
Smallmouth Bas	-	-	-	-	-	-	-	-
Largemouth Bas	-	-	-	-	-	-	-	-
Black Crappie	-	121	241	-	-	-	-	-
Yellow Perch	-	27,816	147,888	294	-	-	-	-
Walleye	-	99	3,546	11,198	7,126	-	33	-
Cisco/Whitefish	-	-	2,066	-	4,827	-	-	-

Comments:

Citation: Stevens, T.C. and M. C. Ward. 2015. Winter Creel Survey for Leech Lake, 2014-2015. Minnesota Department of Natural Resources, Section of Fisheries, Study 4, Job 935.