

Minnesota
F15AF00162
Study 4,
Jobs 936, 969

Completion Report
Mille Lacs Lake Creel Survey Report for
Open Water Season of 2015
And
Winter Season of 2014-2015

Brian Beyerl
Mille Lacs Area Fisheries

Table 1. Fishing regulation changes on Mille Lacs Lake, 1983-2015.....	15
Table 2. Angling effort by period, Mille Lacs Lake, winter creel season, 2014-2015.....	16
Table 3. History of winter creel harvest for selected species, Mille Lacs Lake.....	17
Table 4. History of winter creel release statistics for selected species, Mille Lacs Lake.....	19
Table 5. History of late-ice harvest, Mille Lacs Lake.....	21
Table 6. History of late-ice release, Mille Lacs Lake.....	22
Table 7. Mille Lacs angler harvest summary for the 2014-2015 fishing year.....	23
Table 8. Mille Lacs Lake angler release summary for the 2014-2015 fishing year.....	25
Table 9. Catch statistics for winter anglers, Mille Lacs Lake, 2014 - 2015.....	27
Table 10. Age length distribution of harvested Walleye, winter creel survey, Mille Lacs Lake, 2014 - 2015.....	28
Table 11. Age length distribution of released Walleye, winter creel survey, Mille Lacs Lake, 2014-2015.....	29
Table 12. Length distribution of harvested and released fish, winter creel survey, Mille Lacs Lake, 2014-2015.....	30
Table 13. Angler catch rate (fish/hr) for winter anglers, Mille Lacs Lake, 2014-2015.....	31
Table 14. Angling effort by period, Mille Lacs Lake, open water day season, 2015.....	32
Table 15. Directed pressure by period, small boats, open-water-day, Mille Lacs Lake, 2015.....	33
Table 16. Number of parties targeting different combinations of species, open-water-day, Mille Lacs Lake, 2015.....	33
Table 17. Catch statistics for boats and launches, open-water-day, Mille Lacs Lake, 2015.....	34
Table 18. History of open-water-day harvest, Mille Lacs Lake.....	35
Table 19. History of open-water-day releases, Mille Lacs Lake.....	37
Table 20. Angler catch rates (no/hr) from boats and launches, Mille Lacs Lake, 2015.....	39
Table 21. Length distribution of harvested Walleye by sampling period, Mille Lacs Lake, 2015.....	40
Table 22. Age-length distribution of harvested Walleye, open-water-day, Mille Lacs Lake, 2015.....	40
Table 23. Length distribution of released Walleye by sampling period, Mille Lacs Lake, 2015.....	40
Table 24. Age-length distribution of released Walleye, open-water-day, Mille Lacs Lake, 2015.....	41
Table 25. Sex ratio of killed Walleye by period, Mille Lacs Lake, 2015.....	42
Table 26. Length distribution of harvested fishes other than Walleye, open-water-day, Mille Lacs Lake, 2015.....	43
Table 27. Length frequency distribution of released fishes other than Walleye, open-water-day, Mille Lacs Lake, 2015.....	44

Figure 1. Winter fishing effort, Mille Lacs Lake, 1983-2015	45
Figure 2. Historical winter Walleye catch rates, Mille Lacs Lake, 1981-2015.....	46
Figure 3. Historical winter Yellow Perch catch rates, Mille Lacs Lake, 1981-2015	46
Figure 4. Historical regular winter season northern pike catch rates, Mille Lacs Lake, 1981-2015.....	47
Figure 5. Number of interviews of anglers targeting Northern Pike in summer and winter creel surveys, Mille Lacs Lake, 1999-2015. Open squares indicate non-uniform probability, access based winter creels. Closed squares show roving winter creels.....	48
Figure 6. Historical regular winter season Tullibee catch rates, Mille Lacs Lake, 1981-2015.....	48
Figure 7. Historical regular winter season Burbot catch rates, Mille Lacs Lake, 1981-2015.....	49
Figure 8. Open water fishing effort, Mille Lacs Lake, 1983-2015	49
Figure 9. Walleye directed effort at various summer Walleye catch rates, from Mille Lacs Lake from 1998 through 2015. The equation for the trend line is $\log Y = 6.20 + 0.381 \cdot \log X$ and transforms to $Y = 1,584,893 (X^{0.381})$	50
Figure 10. Catch rates for anglers targeting Walleye (WAE), Smallmouth Bass (SMB), and Northern Pike (NOP), open water day, Mille Lacs Lake, 1998-2015.....	50
Figure 11. Open water targeted effort for Walleye, Mille Lacs Lake, 1998-2015.....	51
Figure 12. Fishing effort in 2015, by period (grey bars), with median (diamonds) and minimum and maximum (error bars) effort observed from 1997 - 2014.	51
Figure 13. Targeted effort for Muskellunge (MUE), Smallmouth Bass (SMB), and Northern Pike (NOP), open water day, Mille Lacs Lake, 1998 - 2015.....	52
Figure 14. Yellow Perch targeted effort and targeted catch rate, Mille Lacs Lake, 1998-2015	52
Figure 15. Historical open-water Walleye catch rates, Mille Lacs Lake, 1981-2015.....	53
Figure 16. 2001-2015 water temperatures from a mid-lake location in Mille Lacs Lake.	53
Figure 17. Historical open-water Yellow Perch catch rates, Mille Lacs Lake, 1981-2015.....	54
Figure 18. Historical open water season Northern Pike catch rates, Mille Lacs Lake, 1981-2015.....	54
Figure 19. Muskellunge catch rate for targeting anglers, open-water-day, Mille Lacs Lake, 1991-2015	55
Figure 20. Historical open water season Smallmouth Bass catch rates, Mille Lacs Lake, 1981-2015.....	55

Introduction

Mille Lacs Lake is a large, natural Walleye *Sander vitreus* lake in east-central Minnesota. At 132,516 acres, it is the second largest lake entirely within the state's borders. Major habitat features include sand and mud flats, rocky reefs, small exposed islands and points, and sudden sand breaks along the north shore (See Bruesewitz 1996 for a brief geological history).

European settlers began harvesting fish for market purposes in the late 1800's. Modern sport fishing is probably best defined as beginning in the late 1970's with the introduction of leeches as Walleye bait (See Bruesewitz 1996 for a more complete history of fishing on Mille Lacs Lake).

Evolutions in sport fishing management included a number of special regulations. The first of these was the introduction of the early-season night closure in 1983. Also in 1983, winter spearing of Northern Pike *Esox lucius* was eliminated, but resumed for the 2014-2015 winter season. In 1985, the first special Walleye regulation was added that allowed only one of a bag limit of six Walleye to be longer than 20 inches. Since 1997, in response to 1837 Treaty litigation, Walleye and Northern Pike regulations have been revised to keep harvests below allocations (Table 1). Regulations for other species have also been revised over the years to reduce angler harvest or to maintain fishing quality (Table 1).

In 2015, the night closure was continued for the entire open water season to reduce the likelihood that Walleye harvest would exceed the Walleye safe harvest threshold, with exceptions for anglers targeting Muskellunge *Esox masquinongy* and bowfishing for roughfish. Walleye regulations for the winter season remained the same with a bag limit of two and harvest slot of 18-20 inches with one over 28 inches, with a change for the open water season to a bag of one with a harvest slot of 19 to 21 inches, and a total closure on August 3rd after the allocation was surpassed. Changes in regulations were made for other species in order to increase harvest opportunities and were effective at the start of the open-water season May 9th, 2015. The Northern Pike bag limit was increased to ten with no more than one 30 inches or greater, but two fish under 30 inches harvested had to be harvested before possession of one 30 inches or greater taken on the same day. The regulations for Smallmouth Bass *Micropterus dolomieu* and Largemouth Bass *Micropterus salmoides* were also changed. The bag limit for bass remained six Smallmouth Bass and Largemouth Bass combined with no more than one Smallmouth Bass over 18 inches, and the season ran concurrent with the Walleye season. Culling rules were changed in

September to allow sorting of Smallmouth Bass and Largemouth Bass until the possession limit was reached to entice professional bass tournaments to Mille Lacs.

Anglers target a number of other species on Mille Lacs Lake. Year-round species include Walleye, Yellow Perch *Perca flavescens*, and Northern Pike. Additional summer species include Muskellunge, and Smallmouth Bass, while Tullibee *Coregonus artedi*, Black Crappie *Pomoxis nigromaculatus*, and Burbot *Lota lota* can be important in the winter.

Methods

The open-water day survey, regular winter survey, and winter late-ice survey were all access based non-uniform probability creels (Jones 2005). The open-water night survey from the end of the night closure through the end of October was modeled based on the relative number of boats returning during the last two hours of the open-water day survey (relative activity), modified from Jones and Bruesewitz (2004). The modifications included plotting the relative activity for a given season against the ratio of night Walleye kill versus Walleye kill from years in which a night creel was conducted (1998-2003). A power function fit to the data was used to estimate the 2015 night Walleye kill based on the 2015 relative activity. Tournament results were derived from tournament reports, with 25% mortality assigned to live-released fish, and on-the-water releases estimated from interviews of tournament anglers while they were pre-fishing (Jones 2003).

Hooking mortality estimates were calculated for released Walleye and Northern Pike. Walleye release mortality was determined by using the methods of Reeves and Bruesewitz (2007), calibrated with water temperature data from hourly near-shore readings from the creel clerks. Northern Pike hooking mortality is calculated as 5.5% of the released fish and is based on studies cited by Tomcko (1997).

Dates of the surveys were 11 November 2014 through 29 March 2015 for the winter creel survey, and 09 May 2015 through 31 October 2015 for the open water season.

Age-length keys for Walleye in the winter creel were developed from data derived from otoliths taken from the 2014 fall assessment gill nets. Minimal growth in total fish length occurs during the colder water temperatures of late fall through winter making direct comparisons of winter fish lengths to fall fish lengths reasonable. Harvested and released summer Walleye age-at-length data were derived from the third

dorsal spine taken from harvested fish observed in the creel. If minimal dorsal spine data was collected for a particular length, the age-length keys were augmented with data from the fall assessment gill nets.

A subset of harvested Walleye was inspected each period by creel clerks to determine sex and maturity by inch group of harvested fish. Clerks examined the gonads of Walleye from successful anglers interviewed during the normal course of the creel as well as filleted Walleye carcasses left in gut buckets at resort cleaning houses around the lake.

Results and Discussion

Winter and Late Ice Creel Surveys

Fishing Pressure

Fishing pressure during the 2014-2015 winter creel survey was 83% of the average at almost 1,498,079 angler-hours (a-hrs). The late ice angling survey estimated slightly more than 42,000 a-hrs of fishing pressure, with the season lasting until March 29th. (Tables 2-6; Figure 1). Winter ice fishing pressure is often influenced by the timing and quality ice conditions, severity of winter weather, and economic conditions.

During the 2014-2015 winter season, fishing pressure was higher than 2013-2014 because of better and earlier ice formation (Tables 2-4). Ice formed in November with little insulating snow resulting in excellent ice conditions particularly for early ice-fishing and spearing.

Walleye

During the 2014-2015 regular winter season, anglers harvested slightly more than 1,400 Walleye weighing about 2,800 lbs and released another 86,000 Walleye that weighed 71,000 lbs (Tables 7, 8, and 9). Walleye harvest in both numbers and pounds was slightly higher than the previous winter (Tables 3). Around 50% of the harvested Walleye were age 4 and 5 largely due to the narrow harvest slot limit of 18-20 inches during the winter ice season and 19-21 during the open water season (Table 10). The vast majority of released fish were from age 2 and 3 (Table 11). Together, these two age groups comprised of 89% of the released fish and were around 87% of all the fish caught, by number (Tables 10 and 11). The Walleye catch rate increased this year to 47% of the average, up from 25% from 2014. (Tables 3 and 4).

Yellow Perch

The Yellow Perch harvest estimate for the 2014-2015 regular winter creel survey was approximately 18,078 fish weighing 3,813 lbs. Anglers released close to 52,000 Yellow Perch that weighed about 6,700 lbs (Tables 3, 4, and 9). There were 1,200 Yellow Perch harvested that weighed 419 pounds and anglers released about 9,300 Yellow Perch for a total weight of about pounds 622 for the 2015 late ice season (Tables 5, 6, and 13).

Total catch rate for Yellow Perch in the regular winter creel, decreased to 19% of the average. (Figure 3). Harvest rates in the regular winter creel continue to remain low at .01 fish/hr and have been below 0.10 fish/hr since 2002 (Table 13). Anglers showed a preference for Yellow Perch greater than 7.5 inches (Tables 12).

Northern Pike

The 2014-2015 Northern Pike winter harvest increased significantly from the previous year to 4,400 fish for about 25,400 lbs. Average weight of harvested Northern Pike was 5.8 pounds, which was slightly less than the previous year (Tables 3, 9 and 12). Northern Pike releases increased from the previous year by about 900 to 1,600 fish, and the total pounds released increased to slightly more than 8,500 lbs (Tables 4 and 9). Late ice anglers had the opportunity to harvest Northern Pike until the last weekend in March. They harvested just under 600 Northern Pike for 2,200 pounds and released 700 fish totaling about 1,800 pounds. (Tables 5 and 6). Total catch rate for the 2014-2015 winter season stayed the same as the previous year and is one of highest observed since 2004, with harvest rate and release rate both increasing (Figure 4). The number of anglers targeting Northern Pike during the 2014-2015 winter creel was the highest observed using the current access based creel format that began in 2006 (Figure 5).

Spearing was resumed in the 2014-2015 winter season after being closed since 1983. Spear-fishers benefited from ice forming early, and clear water. Spear-fishers harvested slightly more than 3,400 fish, compared to anglers taking 970 fish (Figure 21 and 22). The majority of the fish harvested by spear-fishers and anglers were between 20 inches to 30 inches for a total of about 6,700 fish, compared to about 2,300 for all other sizes. Spear-fishers also harvested approximately 1,000 fish over 30 inches

compared to only about 60 fish over 30 inches harvested by anglers. Also, the increase in spearing pressure could be due to the novelty of spearing on Mille Lacs reopening after 31 years.

Tullibee and Burbot

The number of Tullibee harvested during the 2015 winter season was approximately 3,609 fish at 4,863lbs, which was a 198% increase from the previous year. Anglers released 4,297 Tullibee that weighed 4,863lbs which increased by 312% from the 2014 season (Tables 4 and 9). Catch rate also increased from the previous year by 66%. There were 4,852 Tullibee reported harvested weighing about 5,684 pounds in the 2015 late ice season, and 3,332 released weighing 726lbs.

Burbot catch rates in the regular winter creel showed an increase of about 82% from the 2014 season (Table 9). The 2015 creel estimates indicate that the number of Burbot harvested during the regular ice season was low, with 522 fish harvested weighing about 680 lbs. (Table 3). Released fish accounted for about 5,400 individuals weighing about 4,300 lbs. (Tables 3, 4, and 9). There were no Burbot harvested during the late ice season, with 81 released for a total weight of 56lbs (Tables 5, 6, and 9). The increase in proportion of released fish to harvested fish is likely due in part to a successful promotion several years past, to have anglers release unwanted Burbot back into the lake instead of discarding them on the ice.

Black Crappie

Winter Black Crappie fishing on Mille Lacs generally centers around a population of fish located in Isle Bay. While several local anglers were familiar with a pattern of concentrated crappies feeding in the shallower drop-off region in the southwest corner of the bay during the late ice season, pressure was relatively light until successful promotion of the fishery by local businesses around 2004. When ice conditions permit, large numbers of anglers now target this specific concentration of fish, with lesser numbers of anglers also fishing the Cove Bay and Wahkon areas. Anglers did not catch any Black Crappie during the regular 2014-2015 ice fishing season. During the late-ice fishing season anglers harvested 20 Black Crappie weighing one pound each. Late-ice anglers also released about 40 Black Crappie also weighing one pound.

Open-water Creel Survey

Fishing Pressure

Fishing pressure during the 2015 open-water fishing season was well below average at 477,298 a-hrs, or 3.6 a-hrs/acre (Tables 7 and 14; Figure 8). This included 463,938 a-hrs from day anglers, 2,259 a-hrs of night effort, and 11,101 a-hrs of summer tournament fishing (Tables 7 and 14). Similar to most years, small boat anglers contributed 80% to 85% of the effort.

The vast majority of angler effort on Mille Lacs was directed toward Walleye from May 10th until the lake was closed to Walleye on August 3rd (Tables 15 and 16). As Walleye catch rates fluctuate between years, angler pressure tends to respond in a similar fashion. The 2015 Walleye catch rates by anglers targeting Walleye was approximately slightly below average, and with closure in August, angler directed effort was the lowest observed since 1998 (Figures 9-11).

While Walleye catch rates appear to be a major factor in determining total summer effort, a general downward trend in directed Walleye effort has been occurring over the last decade (Figure 11). The observation that directed Walleye effort has fallen below the predictive trend line since 2008 would indicate that another pervasive variable has been influencing anglers' decisions to fish at Mille Lacs over the last several years (Figure 9). Variables such as restrictive angling regulations, undesirable sized fish, new invasive species rules, economic conditions, a good Walleye bite elsewhere, and the timing of inclement weather, have all been suggested as causes for decreases in angler pressure for a particular year, beyond what would be expected from catch rate alone. Some of the decline observed over the last decade, particularly from 2008 to 2011, was likely due to a protracted, severe economic recession; however, weather was also likely influential in determining fishing effort during most years.

In 2015, May pressure was more than 70% below median (Figure 12). June pressure was about 50% below median levels. Early July saw a spike in pressure to 30% below average. Then late July pressure dropped to 50% of the average with decreased pressure observed for the rest of the open water season, partly due to the closure of Walleye on August 3rd through the end of the open-water season. Angling pressure levels were the lowest ever observed in the creel.

Angler pressure from Smallmouth Bass anglers increased by around 66% from the previous year (81,400 a-hrs) and was the highest level ever observed at 132,700 a-hrs. Muskellunge directed pressure has decreased slightly over the last few years and accounted for approximately 10% of effort, by a-hrs,

targeting a specific species (Figure 13). Northern Pike directed pressure decreased slightly from the previous year by 20% from the previous year (24,479 a-hrs) and was about 40% above average (Figure 13). Yellow Perch targeted effort decreased from the previous year 542 a-hrs to 221 a-hrs in 2015, and was still more than 90% below average (Figure 14). Directed effort towards perch has been declining over the last several years along with Yellow Perch catch rates (Figure 14). Targeted pressure by anglers seeking species other than Walleye accounted for approximately 53% of the total angler pressure in 2015 (Table 15).

Walleye

The 2015 open-water-day Walleye harvest was approximately 2,520 fish weighing 7,570 lbs (Tables 17 and 18). Night angler harvest was estimated at 7 Walleyes weighing 23 lbs, and permitted tournaments reported a harvest of 21 Walleyes weighing 57 lbs (Table 7). Recreational anglers released 143,600 lbs of Walleyes during the day and 390 lbs at night, while tournament anglers released 3,100 lbs (Table 8). Hooking mortality of released fish from all anglers was 20,331 lbs, and the total kill for all open water categories was 28,785 lbs (Table 7). Walleye harvest and yield decreased from the previous year and was the lowest on record (Table 18). The 2015 Walleye release numbers increased and weight decreased from the previous year due to a high catch rate of smaller fish. This was the lowest release weight observed during the open water period since 1997 when the harvest allocation was much higher so more fish were harvested than released (Table 19).

The total Walleye catch rate was 0.24 fish/hour (Table 20), and was about average (Figures 15). The Walleye catch rate for targeting anglers increased dramatically from 0.16 fish/hour in 2014 to 0.48 fish/hour in 2015 (Figure 10). Seventy-one percent of the harvested fish were distributed between the 2007 and 2011 year classes (Tables 22). The harvest slot for summer 2015 was 19-21 inches, with one over 28 inches, 79% of fish harvested were taken legally, with 10% taken one inch on either side of the harvest slot.

Walleye hooking mortality was approximately 85% of total kill by number and 70% of total kill by weight (Table 7). An estimated 22% of released Walleyes died due to hooking mortality. Water temperatures, which have a large influence on Walleye hooking mortality, were much warmer than normal

throughout much of the summer (Figure 16; Reeves and Bruesewitz 2007). Lake temperatures exceeded 70°F from the end of June through the end of August, then rose briefly above 70°F in the middle of September. The maximum daily average throughout the season was 77°F that occurred in late July. The time period when temperatures were above 70°F accounted for 92% of the hooking mortality for the season (Figures 12 and 16). Additional hooking mortality was realized through the high catch of small Walleye. Reeves and Bruesewitz (2007) showed that Walleye less than 15 inches long and greater than 24 inches long experience higher hooking mortality than Walleye between 15 and 24 inches. Seventy percent of Walleye released were less than 15 inches, with 8% greater than 24 inches in length (Table 23). Mortality of larger fish quickly adds up due to the biomass associated with each individual.

Sex ratio data suggests that 63% of the Walleye killed by recreational anglers during the 2015 fishing season were female (Table 25). Females comprised the majority of the kill for the entire season.

Yellow Perch

Yellow Perch harvest during the open-water-day periods was just under 1,300 fish weighing just over 1,000 lbs (Table 17). An additional 6,500 fish weighing 1,300 lbs were released. A total catch rate of 0.016 fish/hr was less than last year and is well below average (Figure 17). Targeted effort for Yellow Perch decreased to approximately 221 hours, and is the second lowest observed with 2013 having the lowest of 115 hours (Table 15 and Figure 14). Yellow Perch targeted catch rates decreased slightly from the previous year but were still well below average (Figure 14). An overall, general decline in targeted catch rate has been occurring since 1998.

Consistent harvest of Yellow Perch during most open water periods of the summer creel, even in periods with no measured directed effort, indicates incidental harvest of Yellow Perch is occurring from anglers throughout the summer (Table 7 and 15). Anglers tend to keep a majority of Yellow Perch at lengths greater than nine inches (Tables 26 and 27).

Northern Pike

The 2015 open water harvest of Northern Pike was approximately 2,300 fish weighing 6,623 lbs, with an average weight of 2.9 lbs. Anglers also released 8,500 Northern Pike weighing approximately 34,100 lbs (Table 17). Hooking mortality accounted for an additional kill of 1,900 lbs for the open water season.

Northern Pike catch decreased by about 3% from the previous year, despite a 43% increase in directed pressure (Tables 18 and 19; Figure 13). The decrease in total catch is likely due to targeted catch rates below average at 0.217 fish/hour (Tables 18).

Northern Pike yield decreased slightly from the previous year, but was still the second highest observed since 2001 (Table 18). The Northern Pike bag limit was increased to ten with no more than one 30 inches or greater, but two fish under 30 inches harvested had to be harvested before the possession of one 30 inches or greater taken on the same day. Approximately 98% of harvested fish were less than 30 inches in length (Table 26). Ten fishing parties observed by the creel took more Northern Pike than the statewide bag limit of three and 3 interviewed parties took a bag limit of ten or more.

Muskellunge

In 2008, Muskellunge targeted catch rates dropped sharply to the lowest levels ever observed on Mille Lacs (Figure 19). Catch rates remained depressed for the following two years before recovering in 2011 to the highest level observed since 2001. Targeted catch rate declined again in 2012 and are still low with 2015 catch rates very similar to 2011. Low catch rates prompted a decline in targeted effort that began in 2009 and has continued through 2015 (Figure 13). Muskellunge effort was observed throughout the entire Muskellunge open season, but the contribution of Muskellunge anglers to total pressure was significant only in October, when about one third of the fishing effort was from anglers targeting Muskellunge (Table 15). The 2015 Muskellunge season opened June 6th and closed December 1st. Mille Lacs Lake had a late season surge by Muskellunge anglers due to a warm fall that kept the lake ice free until the middle of December.

No Muskellunge harvest was observed during the open water creel. Approximately 400 muskies with a combined weight of almost 10,000 lbs were reported as released (Tables 17 – 19). There were no Muskellunge reported in the creel over the 54 inch minimum required for harvest, the largest fish reported

was 45 inches (Tables 1 and 27). However, local newspapers reported three trophy sized Muskellunge caught and released in November, which is after the Mille Lacs creel season. The largest was 57 inches in total length, followed by a 56 in and a 55 inch fish. While catch rates have fluctuated greatly since 2008, population size appears to be similar (Jensen 2014).

Smallmouth Bass

During the 2015 open water creel survey, anglers harvested more than 5,000 Smallmouth Bass and released slightly more than 82,000 Smallmouth Bass (Table 17), which was a 17% increase from last year and the highest total catch ever observed for this species on Mille Lacs (Tables 18 and 19). Directed effort and catch rate was the highest observed (Figures 10 and 13). While the effort was a new record, it is important to note that Smallmouth Bass effort accounted for close to almost one-third of the total open water effort largely due to the dramatic decrease in Walleye anglers, especially after the close of the Walleye season in August (Table 15). Directed pressure by Smallmouth Bass anglers accounted for over forty-five percent of the total pressure from August 1st through the end of September, the peak of the targeted pressure was in the latter half of September that accounted for nearly 57% of the total pressure. Total angler catch rates for Smallmouth Bass were the highest ever observed, suggesting that non-targeting angler by-catch may also have been high (Figure 20). Anglers released approximately 94% of all Smallmouth Bass caught (Table 17).

In 2015, a bag limit of 6 with one over 18 inches was implemented for Mille Lacs Smallmouth Bass in order to maintain what was already regarded as a trophy fishery, while increasing harvest opportunity (Table 1). Trophy status for Smallmouth Bass is generally regarded as 20 inches (Anderson and Gutreuter 1983). In 2014, anglers reported 144 harvested and 6,990 released Smallmouth Bass that would qualify as trophy fish, combined this was 8% of all Smallmouth Bass caught (Tables 26 and 27). Eighty-four percent of the harvest observed were fish measuring less than 18 inches.

Acknowledgments

Steve Lawrence, Lori Erjavec, Kelsey Zimpel, Mariah Valiant, and Jesse Hidde collected creel survey data.

References

- Anderson, R. O. and S. J. Gutreuter. 1983. Length, weight, and associated structural indices. Pages 283-300 in L. A. Nielsen and D. L. Johnson, editors. Fisheries techniques. American Fisheries Society, Bethesda, Maryland.
- Bruesewitz, R. E. 1996. Completion Report: Mille Lacs Lake creel survey report for the open water season 1994 and 1995 and winter of 1994 and 1995. Minnesota Department of Natural Resources.
- Jensen, E. J. 2014. Completion Report: Large lake assessment report for Mille Lacs Lake 2012. Minnesota Department of Natural Resources, St. Paul
- Jensen, E. J. 2013. Completion Report: Large lake assessment report for Mille Lacs Lake 2011. Minnesota Department of Natural Resources, St. Paul.
- Jensen, E. J. 2012. Completion Report: Mille Lacs Lake creel survey report for the open water season 2010 and winter season of 2009 and 2010. Minnesota Department of Natural Resources
- Jones T. S. 2003. Outline of calculation of tournament mortality *in* 1837 Ceded Territory Fisheries Committee meeting: 2003 fishing year. Minnesota Department of Natural Resources, St. Paul.
- Jones, T. S. 2005. Creel survey design for the open water and ice angling seasons at Mille Lacs Lake, 2005. Minnesota Department of Natural Resources, St. Paul.
- Jones, T. S. and R. E. Bruesewitz. 2004. A model for estimating unsurveyed kill of Walleye from night angling on Mille Lacs Lake *presented to* Minnesota 1837 Ceded Territory Fishery Committee, 14 July, 2004.
- Reeves. K. A. and R. E. Bruesewitz. 2007. Factors influencing the hooking mortality of Walleyes caught by recreational anglers on Mille Lacs, Minnesota. North American Journal of Fisheries Management. 27:443-452.
- Tomcko, C. M. 1997. A review of Northern Pike *Esox lucius* hooking mortality. Minnesota Department of Natural Resources Fish Management Report 32.

Table 1. Fishing regulation changes on Mille Lacs Lake, 1962-2015.

Year	Species	Limit	Regulation
1962	Northern Pike		No Harvest
1963	Northern Pike		Harvest allowed under normal state-wide regulations
1983	All		Early Season Night Closure
	Northern Pike		No Spearing
1985	Walleye	6	Only 1 over 20"
1994	Northern Pike	3	1 over 30"
1997	Walleye	6	15" minimum, 1 over 20"
1998	Northern Pike	3	26"-36" protected slot, 1 over 36"
1999	Walleye	6	14"-20" harvest slot, 1 over 26"
2000	Walleye	6	14"-18" harvest slot, 1 over 28"
	Smallmouth Bass	1	21" minimum
2001	Walleye	6	16"-20" harvest slot, 1 over 28" June 5, 16" to 18" harvest slot June 30, 16"-18" harvest slot, 1 over 30" December 1, 14"-18" harvest slot, 1 over 28"
2002	Walleye	4	14"-16" harvest slot, 1 over 28"
	Northern Pike	3	24"-36" protected slot, 1 over 36"
2003	Walleye	4	17"-28" protected slot, 1 over 28"
	Tullibee	10	No Sport Netting
	All Spp		No Culling Allowed
2004	Walleye	4	20"-28" protected slot, 1 over 28" except July 16 - Nov 30, 22"-28" protected slot, 1 over 28"
2005	Walleye		Same as 2004
2006	Walleye		Same as 2004
2007	Muskellunge	1	48" mimimum
	Walleye	4	Started same as 2004 July 9, 14-16 HS, 1 over 28 December 1, 20"-28" protected slot, 1 over 28"
2008	Walleye	4	18"-28" protected slot, only 1 over 28"
2009	Walleye	4	Same as 2008
2010	Walleye	4	Same as 2008 July 15 - Nov 30, 20"-28" protected slot, 1 over 28"
2011	Walleye	4	Same as 2008
	Northern Pike	3	27"-40" protected slot, 1 over 40"
2012	Walleye	4	17"-28" protected slot, only 1 over 28"
2013	Walleye	2	18"-20" Harvest slot, only 1 over 28"
	Northern Pike	3	33"-40" protected slot, 1 over 40"
	Smallmouth Bass	6	17"-20" protected slot, 1 over 20"
2014	All		Open water night closure from 10 pm to 6 am. Rescinded July 21.
	Walleye	2	Same as 2013
	Northern Pike	10	One over 30", season runs through last Sunday in March. Winter spearing allowed but spearing runs concurrent with walleye season
	Smallmouth Bass	6 comb.	One over 18". Season runs concurrent with walleye.
	Largemouth Bass	6 comb.	Season runs concurrent with walleye.
2015	All		Open water night closure from 10 pm to 6 am except after June 7 anglers could target Muskellunge and bowfish for roughfish.
	Walleye	2	Winter: 18"-20" Harvest slot, only 1 over 28"
		1	Summer: 19"-21" Harvest slot, only 1 over 28". Closure on August 3.
	Northern Pike	10	Winter same as 2014. Summer: two fish under 30" needed to be harvested the same day before a fish >30" could be harvested.
	Smallmouth Bass	6 comb.	same as 2014, but beginning in September, culling was permitted up until a possession limit was reached.
	Largemouth Bass	6 comb.	

Table 2. Angling effort by period, Mille Lacs Lake, winter creel season, 2014-2015

Period	Angler Trips		Angler Hours	
	Estimate	SE	Estimate	SE
Regular Ice Season				
Nov 29 - Dec 16	8,302	683	59,306	6,421
Dec 17 - Jan 19	31,401	3,909	741,915	109,400
Jan 20 - Feb 22	33,034	3,852	696,858	95,947
Late Ice Season				
Feb 23 - Mar 29	5,256	908	42,067	8,388
Regular Ice	72,737	5,530	1,498,079	145,655
Total Season	77,993	5,604	1,540,146	145,896

Table 3. History of winter creel harvest for selected species, Mille Lacs Lake

	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2007-08	2006-07	2005-06	2004-05	2003-04	2002-03	2001-02	2000-01	1999-00	1998-99	1997-98	1996-97	1995-96	1994-95
Total angler hours	1,486,322	732,363	2,092,302	1,613,470	1,780,370	1,819,780	1,524,100	1,796,382	2,023,917	2,204,569	994,794	911,501	956,574	1,354,453	1,811,516	1,443,334	1,913,432	2,251,309	2,034,505	2,350,296	1,948,847
Total harvest (N)																					
Tullibee	3,609	1,245	1,747	3,304	43,054	11,586	2,286	56	269	272	535	238	1,265	1,197	5,693	3,329	27,362	45,612	24,917	80,026	56,903
Northern pike	4,400	358	241	605	207	102	57	0	0	96	267	286	690	1,156	660	684	2,429	3,597	1,680	2,582	2,516
Burbot	522	49	141	484	216	130	953	673	2,349	7,750	2,863	1,684	910	6,951	9,774	7,091	14,536	47,820	19,813	38,651	62,398
Yellow perch	18,078	3,813	9,069	58,085	125,782	49,045	41,890	63,737	118,536	202,348	21,206	33,651	29,702	86,748	366,656	385,193	450,260	503,396	332,190	342,839	325,298
Walleye	1,451	185	15,974	37,481	25,692	23,379	9,538	5,590	36,549	55,165	9,735	1,738	1,877	33,918	8,681	13,714	27,199	21,670	21,903	43,550	36,330
Total harvest (lbs.)																					
Tullibee	4,863	1,691	2,071	2,580	40,694	8,030	3,005	26	195	335	508	296	1,297	1,273	4,466	2,570	20,256	31,952	16,547	53,433	44,893
Northern pike	25,398	2,214	984	2,655	2,818	288	785	0	0	291	684	2,827	4,759	6,532	2,775	2,077	11,515	17,133	8,561	9,143	10,086
Burbot	678	17	154	286	123	170	1,235	1,033	3,562	9,505	3,192	1,684	1,315	11,785	17,370	12,164	25,366	67,724	27,639	47,273	72,819
Yellow perch	7,742	1,275	5,596	27,809	53,154	22,467	23,927	35,470	58,916	93,908	9,120	17,049	14,520	41,129	167,298	135,520	156,921	197,065	117,945	119,119	121,077
Walleye	2,856	470	17,782	39,908	23,977	22,099	10,760	7,005	58,446	66,079	9,272	3,192	2,604	45,639	16,879	27,355	63,553	48,077	37,635	60,081	42,753
Harvest/angler hour																					
Tullibee	0.0024	0.0017	0.0008	0.0020	0.0242	0.0064	0.0015	0.0000	0.0001	0.0001	0.0005	0.0003	0.0013	0.0009	0.0031	0.0023	0.0143	0.0203	0.0122	0.0340	0.0292
Northern pike	0.0030	0.0005	0.0001	0.0004	0.0001	0.0001	0.0000	0.0000	0.0000	0.0004	0.0003	0.0003	0.0007	0.0009	0.0004	0.0005	0.0013	0.0016	0.0008	0.0011	0.0013
Burbot	0.0004	0.0001	0.0001	0.0003	0.0001	0.0001	0.0006	0.0004	0.0012	0.0035	0.0029	0.0018	0.0010	0.0051	0.0054	0.0049	0.0076	0.0212	0.0097	0.0164	0.0320
Yellow perch	0.0122	0.0052	0.0043	0.0360	0.0706	0.0270	0.0275	0.0355	0.0586	0.0918	0.0213	0.0369	0.0311	0.0640	0.2024	0.2669	0.2353	0.2236	0.1633	0.1459	0.1669
Walleye	0.0010	0.0003	0.0076	0.0232	0.0144	0.0128	0.0063	0.0031	0.0181	0.0250	0.0098	0.0019	0.0020	0.0250	0.0048	0.0095	0.0142	0.0096	0.0108	0.0185	0.0186
Average weight (lbs.)																					
Tullibee	1.35	1.36	1.19	0.78	0.95	0.69	1.31	0.46	0.72	1.23	0.95	1.24	1.03	1.06	0.78	0.77	0.74	0.70	0.66	0.67	0.79
Northern pike	5.77	6.18	4.08	4.39	13.61	2.82	13.77	--	--	3.03	2.56	9.88	6.90	5.65	4.20	3.04	4.74	4.76	5.10	3.54	4.01
Burbot	1.30	0.35	1.09	0.59	0.57	1.31	1.30	1.53	1.52	1.23	1.11	1.00	1.45	1.70	1.78	1.72	1.75	1.42	1.39	1.22	1.17
Yellow perch	0.43	0.33	0.62	0.48	0.42	0.46	0.57	0.56	0.50	0.46	0.43	0.51	0.49	0.47	0.46	0.35	0.35	0.39	0.36	0.35	0.37
Walleye	1.97	2.54	1.11	1.06	0.93	0.95	1.13	1.25	1.60	1.20	0.95	1.84	1.39	1.35	1.94	1.99	2.34	2.22	1.72	1.38	1.18

*Harvest and effort estimates for winters 1981-82 and 1982-83 are underestimates.

Table 3. Continued.

	1993-94	1992-93	1991-92	1990-91	1989-90	1988-89	1987-88	1986-87	1985-86	1984-85	1983-84	1982-83*	1981-82*	1980-81	1976-77	1962-63	1961-62
Total angler hours	1,439,913	1,929,401	2,536,941	2,147,125	2,825,792	1,955,349	1,175,543	1,645,741	1,781,537	1,853,342	1,275,191	543,666	453,960	2,012,753	1,714,424	1,098,112	503,282
Total harvest (N)																	
Tullibee	81,068	31,115	10,978	20,548	1,451	6,042	1,814	8,713	15,762	17,977	No Data	4,125	1,876	21,563			
Northern pike	1,193	282	2,305	879	3,158	3,794	713	1,613	1,043	2,276	1,725	655	1,708	2,714	5,871	closed	closed
Burbot	24,576	28,278	35,076	13,970	57,824	24,618	23,867	78,735	59,476	20,015	20,583	4,352	10,383	86,290			
Yellow perch	118,331	57,201	243,688	238,805	425,574	431,062	254,180	324,423	1,006,840	1,081,866	252,203	52,890	82,157	486,991	222,484	64,719	
Walleye	9,376	19,183	64,938	53,540	96,543	49,860	63,045	31,589	9,503	40,237	53,945	18,040	13,980	59,640	130,682	125,775	31,599
Total harvest (lbs.)																	
Tullibee	62,592	21,968	8,581	16,027	1,097	5,439	1,472	7,842	14,186	16,179	No Data	4,125	1,238	10,768			
Northern pike	5,620	1,938	9,066	3,428	12,474	19,729	5,562	4,678	4,381	8,649	6,038	1,951	6,525	10,313	21,723		
Burbot	29,490	31,741	42,080	11,455	58,946	27,080	27,308	78,735	71,371	24,738	35,000	4,352	10,383	86,290			
Yellow perch	42,179	20,188	95,629	76,418	200,020	215,531	121,581	162,212	503,420	540,933	126,102	19,427	31,220	154,767	117,472	45,303	
Walleye	13,771	30,067	101,736	59,429	143,164	84,762	70,610	45,563	13,304	76,450	80,918	20,635	16,776	77,532	153,682	233,972	62,341
Harvest/angler hour																	
Tullibee	0.0563	0.0161	0.0043	0.0096	0.0005	0.0031	0.0015	0.0053	0.0088	0.0097	--	0.0076	0.0041	0.0107	--	--	--
Northern pike	0.0008	0.0001	0.0009	0.0004	0.0011	0.0019	0.0006	0.0010	0.0006	0.0012	0.0014	0.0012	0.0038	0.0013	0.0034	--	--
Burbot	0.0171	0.0147	0.0138	0.0065	0.0205	0.0126	0.0203	0.0478	0.0334	0.0108	0.0161	0.0080	0.0229	0.0429	--	--	--
Yellow perch	0.0822	0.0296	0.0961	0.1112	0.1506	0.2205	0.2162	0.1971	0.5652	0.5837	0.1978	0.0973	0.1810	0.2420	0.1298	0.0589	--
Walleye	0.0065	0.0099	0.0256	0.0249	0.0342	0.0255	0.0536	0.0192	0.0053	0.0217	0.0423	0.0332	0.0308	0.0296	0.0762	0.1145	0.0628
Average weight (lbs.)																	
Tullibee	0.77	0.71	0.78	0.78	0.76	0.90	0.81	0.90	0.90	0.90	--	1.00	0.66	0.50	--	--	--
Northern pike	4.71	6.87	3.93	3.90	3.95	5.20	7.80	2.90	4.20	3.80	3.50	2.98	3.82	3.80	3.70	--	--
Burbot	1.20	1.12	1.20	0.82	1.02	1.10	1.14	1.00	1.20	1.24	1.70	1.00	1.00	1.00	--	--	--
Yellow perch	0.36	0.35	0.39	0.32	0.47	0.50	0.48	0.50	0.50	0.50	0.50	0.37	0.38	0.32	0.53	0.70	--
Walleye	1.47	1.57	1.57	1.11	1.48	1.70	1.12	1.44	1.40	1.90	1.50	1.14	1.20	1.30	1.18	1.86	1.97

Table 4. History of winter creel release statistics for selected species, Mille Lacs Lake.

	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09	2007-08	2006-07	2005-06	2004-05	2003-04	2002-03	2001-02	2000-01	1999-00
Total angler hours	1,486,322	732,363	2,092,302	1,613,470	1,780,370	1,819,780	1,524,100	1,796,382	2,023,917	2,204,569	994,794	911,501	956,574	1,354,453	1,811,516	1,443,334
Total release (N)																
Tullibee	4,297	1,041	1,109	934	33,835	20,570	10,234	785	436	474	629	564	194	145	1,749	1,835
Northern pike	1,600	691	2,686	1,534	1,053	478	884	571	883	838	753	1,031	1,127	1,818	1,715	1,913
Burbot	5,397	1,552	1,937	3,946	2,309	683	15,971	6,077	11,755	24,677	3,928	2,781	2,096	7,989	7,568	9,272
Yellow perch	51,416	56,086	30,796	139,243	223,139	281,431	191,572	144,741	227,529	332,965	52,213	181,853	57,703	57,274	270,311	583,604
Walleye	83,735	6,566	96,743	78,953	44,445	30,387	43,876	10,700	55,893	33,431	17,674	5,917	14,205	96,097	17,185	9,491
Total release (lbs.)																
Tullibee	4,330	1,351	1,352	820	30,145	10,553	6,769	331	491	483	741	547	230	235	1,527	1,303
Northern pike	8,538	3,652	18,523	12,863	6,188	2,530	5,966	3,572	6,465	7,444	4,860	5,536	6,851	11,398	7,901	9,392
Burbot	4,330	883	2,337	5,229	1,683	925	14,947	6,351	15,494	32,424	3,791	1,909	2,090	13,169	12,109	16,526
Yellow perch	6,728	3,698	2,808	14,240	29,795	26,230	12,072	10,917	23,095	38,888	8,313	11,678	4,459	7,332	37,051	65,012
Walleye	68,990	14,371	343,259	171,523	61,752	29,836	43,415	18,393	149,080	104,583	12,749	9,142	32,669	211,398	46,338	20,016
Release/angler hour																
Tullibee	0.0029	0.0014	0.0005	0.0006	0.0190	0.0113	0.0067	0.0004	0.0002	0.0002	0.0006	0.0006	0.0002	0.0001	0.0010	0.0013
Northern pike	0.0011	0.0009	0.0013	0.0010	0.0006	0.0003	0.0006	0.0003	0.0004	0.0004	0.0008	0.0011	0.0012	0.0013	0.0009	0.0013
Burbot	0.0036	0.0021	0.0009	0.0024	0.0013	0.0004	0.0105	0.0034	0.0058	0.0112	0.0039	0.0031	0.0022	0.0059	0.0042	0.0064
Yellow perch	0.0346	0.0766	0.0147	0.0863	0.1253	0.1547	0.1257	0.0806	0.1124	0.1510	0.0525	0.1995	0.0603	0.0423	0.1492	0.4043
Walleye	0.0563	0.0090	0.0462	0.0489	0.0250	0.0167	0.0288	0.0060	0.0276	0.0152	0.0178	0.0065	0.0148	0.0709	0.0095	0.0066
Average weight (lbs.)																
Tullibee	1.01	1.30	1.22	0.88	0.89	0.51	0.66	0.42	1.13	1.02	1.18	0.97	1.19	1.62	0.87	0.71
Northern pike	5.34	5.29	6.90	8.39	5.88	5.29	6.75	6.26	7.32	8.88	6.45	5.37	6.08	6.27	4.61	4.91
Burbot	0.80	0.57	1.21	1.33	0.73	1.35	0.94	1.05	1.32	1.31	0.97	0.69	1.00	1.65	1.60	1.78
Yellow perch	0.13	0.07	0.09	0.10	0.13	0.09	0.06	0.08	0.10	0.12	0.16	0.06	0.08	0.13	0.14	0.11
Walleye	0.82	2.19	3.55	2.17	1.39	0.98	0.99	1.72	2.67	3.13	0.72	1.55	2.30	2.20	2.70	2.11

Table 4. Continued.

	1998-99	1997-98	1996-97	1995-96	1994-95	1993-94	1992-93	1991-92	1990-91	1989-90	1988-89	1987-88	1986-87
Total angler hours	1,813,432	2,251,309	1,654,066	2,350,296	1,948,867	1,439,660	1,929,400	2,536,941	2,146,821	2,825,792	1,955,348	1,175,542	1,645,742
Total release (N)													
Tullibee	16,312	10,751	7,357	33,792									
Northern pike	2,549	1,212	645	439									
Burbot	14,003	26,730	8,590	15,918									
Yellow perch	1,048,689	1,007,133	554,018	581,091	222,440	83,379	37,320	143,552	113,882				
Walleye	15,384	13,920	13,173	18,451	35,496	5,575	13,227	7,509	19,169	228,391	31,752	28,250	56,871
Total release (lbs.)													
Tullibee	12,759	8,601	4,591	26,732									
Northern pike	16,305	6,039	2,780	881									
Burbot	23,107	43,329	12,230	18,147									
Yellow perch	103,264	106,508	41,512	52,229	20,269	6,159	2,252	14,507	13,533				
Walleye	17,991	12,164	14,857	8,819	9,776	1,786	3,154	4,176	13,723	79,834	9,506	15,832	47,949
Release/angler hour													
Tullibee	0.0090	0.0048	0.0044	0.0144	--	--	--	--	--	--	--	--	--
Northern pike	0.0014	0.0005	0.0004	0.0002	--	--	--	--	--	--	--	--	--
Burbot	0.0077	0.0119	0.0052	0.0068	--	--	--	--	--	--	--	--	--
Yellow perch	0.5783	0.4474	0.3349	0.2472	0.1141	0.0579	0.0193	0.0566	0.0530	--	--	--	--
Walleye	0.0085	0.0062	0.0080	0.0079	0.0182	0.0039	0.0069	0.0030	0.0089	0.0808	0.0162	0.0240	0.0346
Average weight (lbs.)													
Tullibee	0.78	0.80	0.62	0.79	--	--	--	--	--	--	--	--	--
Northern pike	6.40	4.98	4.31	2.01	--	--	--	--	--	--	--	--	--
Burbot	1.65	1.62	1.42	1.14	--	--	--	--	--	--	--	--	--
Yellow perch	0.10	0.11	0.07	0.09	0.09	0.07	0.06	0.10	0.12	--	--	--	--
Walleye	1.17	0.87	1.13	0.48	0.28	0.32	0.24	0.56	0.72	0.35	0.30	0.56	0.84

Table 5. History of late-ice harvest, Mille Lacs Lake.

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1990	
Number of Days	37	7	21	21	35	23	29	51	23	30	46	43	35	44	55	26	28	28	37	34	45	49	
Total angler hours	42,067	686	16,831	44,814	106,181	84,287	68,472	51,591	27,029	70,130	60,365	80,493	43,461	45,849	122,411	13,657	62,635	21,293	81,516	91,932	58,197	110,650	
Total harvest (N)																							
Tullibee	4,852	0	377	877	18,730	9,025	2,096	145	446	328	4,705	312	386	1,144	46,641	25	5,224	1,468	35,919	39,733	42,940	7,491	
Northern Pike	583	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Burbot	0	0	0	0	0	0	150	0	0	0	226	32	59	208	960	193	3,344	1,191	1,258	2,041	2,228	2,445	
Bl. Crappie	20	0	61	5,520	160	324	8,341	3,461	0	409	585	5,545	0	0	0	32	0	0	0	0	0	0	
Yellow perch	1,200	0	753	3,623	34,509	21,675	18,767	15,728	15,005	48,026	30,232	37,951	20,860	17,464	76,663	25,257	77,135	31,392	76,114	108,233	64,850	115,994	
Walleye	20	0	0	0	0	0	0	0	0	0	0	78	0	12	0	0	7	0	0	0	0	0	
Total harvest (lbs.)																							
Tullibee	5,684	0	376	688	14,124	7,358	2,404	78	431	294	3,851	296	409	1,072	35,239	23	4,211	1,093	19,340	19,866	26,194	4,420	
Northern Pike	2,202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Burbot	0	0	0	0	0	0	107	0	0	0	376	30	73	440	1,831	417	6,094	2,138	2,206	3,633	3,008	3,545	
Bl. Crappie	20	0	32	4,392	113	382	5,814	1,846	0	308	559	5,383	0	0	0	32	0	0	0	0	0	0	
Yellow perch	419	0	389	1,681	14,528	12,140	9,551	7,590	7,473	22,416	13,797	23,897	9,537	7,713	33,548	9,983	27,331	13,127	23,832	34,634	21,400	46,398	
Walleye	7	0	0	0	0	0	0	0	0	0	0	40	0	6	0	0	12	0	0	0	0	0	
Harvest/angler hour																							
Tullibee	0.1153	0	0.0224	0.0196	0.1764	0.1071	0.0306	0.0028	0.0165	0.0047	0.0779	0.0039	0.0089	0.0250	0.3810	0.0018	0.0834	0.0689	0.4406	0.4322	0.7378	0.0677	
Northern Pike	0.0139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Burbot	0	0	0	0	0	0	0.0022	0	0	0	0.0037	0.0004	0.0014	0.0045	0.0078	0.0141	0.0534	0.0559	0.0154	0.0222	0.0383	0.0221	
Bl. Crappie	0.0005	0	0.0036	0.1232	0.0015	0.0038	0.1218	0.0671	0	0.0058	0.0097	0.0689	0	0	0	0.0023	0	0	0	0	0	0	
Yellow perch	0.0285	0	0.0447	0.0808	0.3250	0.2572	0.2741	0.3049	0.5551	0.6848	0.5008	0.4715	0.4800	0.3809	0.6263	1.8494	1.2315	1.4743	0.9337	1.1773	1.1143	1.0483	
Walleye	0.0005	0	0	0	0	0	0	0	0	0	0.0010	0	0.0003	0	0	0.0001	0	0	0	0	0	0.0000	
Average weight (lbs.)																							
Tullibee	1.17	--	1.00	0.78	0.75	0.82	1.15	0.54	0.97	0.90	0.82	0.95	1.06	0.94	0.76	0.92	0.81	0.74	0.54	0.50	0.61	0.59	
Northern Pike	3.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Burbot	--	--	--	--	--	--	0.71	--	--	--	1.66	0.94	1.24	2.12	1.91	2.16	1.82	1.80	1.75	1.78	1.35	1.45	
Bl. Crappie	1.00	--	0.52	0.80	0.71	1.18	0.70	0.53	--	0.75	0.96	0.97	--	--	1.00	--	--	--	--	--	--	--	
Yellow perch	0.35	--	0.52	0.46	0.42	0.56	0.51	0.48	0.50	0.47	0.46	0.63	0.46	0.44	0.44	0.40	0.35	0.42	0.31	0.32	0.33	0.40	
Walleye	0.35	--	--	--	--	--	--	--	--	--	--	0.51	--	0.50	--	--	1.71	--	--	--	--	--	

Table 6. History of late-ice release, Mille Lacs Lake.

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Total angler hours	42,067	686	16,831	44,814	106,181	84,287	68,472	51,591	27,029	70,130	60,365	80,493	43,461	45,849	122,411	13,657	62,635	21,293	81,516	91,932	58,179
Total release (N)																					
Tullibee	3,332	0	0	183	12,589	7,256	3,323	39	142	421	2,425	19	212	124	2,960	68	1,255	672	1,845	4,495	5,149
Northern pike	707	0	0	159	93	0	75	118	29	25	18	144	10	646	0	40	284	50	0	57	0
Burbot	81	0	0	0	0	0	623	114	172	799	195	285	120	243	1,435	173	551	1,325	1,258	1,080	579
Black Crappie	41	0	0	1,049	93	442	4,936	4,752	0	0	702	0	0	0	0	0	0	0	0	0	0
Yellow perch	9,305	0	4,784	19,458	90,594	121,323	65,007	40,512	14,600	96,899	97,625	102,365	33,847	17,274	56,767	41,482	93,028	48,447	82,244	145,833	36,998
Walleye	360	0	563	364	995	1,062	780	180	1,987	1,753	3,475	824	668	2,087	837	160	726	181	212	650	1,762
Total release (lbs.)																					
Tullibee	726	0	0	201	8,634	2,586	2,578	6	123	357	2,146	15	224	72	2,604	61	901	666	797	2,158	1,545
Northern pike	1,841	0	0	536	300	0	602	830	96	103	169	474	68	2,859	0	233	2,109	31	0	236	0
Burbot	56	0	0	0	0	0	1,338	124	218	1,447	300	447	207	465	2,170	393	1,090	2,206	657	2,030	626
Black Crappie	39	0	0	323	58	73	2,572	1,563	0	0	184	0	0	0	0	0	0	0	0	0	0
Yellow perch	622	0	445	1,469	9,009	9,730	3,039	2,614	2,129	8,940	10,907	7,350	2,781	1,918	6,546	4,926	8,088	5,055	5,653	13,125	2,960
Walleye	637	0	1,260	969	1,791	1,977	2,770	477	2,017	2,938	1,923	1,226	1,067	4,959	2,604	316	902	358	199	1,021	1,603
Release/angler hour																					
Tullibee	0.0792	0	0	0.0041	0.1186	0.0861	0.0485	0.0008	0.0053	0.0060	0.0402	0.0002	0.0049	0.0027	0.0242	0.0050	0.0200	0.0316	0.0226	0.0489	0.0885
Northern pike	0.0168	0	0	0.0035	0.0009	0	0.0011	0.0023	0.0011	0.0004	0.0003	0.0018	0.0002	0.0141	0	0.0029	0.0045	0.0023	0	0.0006	0
Burbot	0.0019	0	0	0	0	0	0.0091	0.0022	0.0064	0.0114	0.0032	0.0035	0.0028	0.0053	0.0117	0.0127	0.0088	0.0622	0.0154	0.0117	0.0100
Black Crappie	0.0010	0	0	0.0234	0.0009	0.0052	0.0721	0.0921	0	0	0.0116	0	0	0	0	0	0	0	0	0	0
Yellow perch	0.2212	0	0.2842	0.4342	0.8532	1.4394	0.9494	0.7853	0.5402	1.3817	1.6172	1.2717	0.7788	0.3768	0.4637	3.0374	1.4852	2.2753	1.0089	1.5863	0.6359
Walleye	0.0086	0	0.0335	0.0081	0.0094	0.0126	0.0114	0.0035	0.0735	0.0250	0.0576	0.0102	0.0154	0.0455	0.0068	0.0117	0.0116	0.0085	0.0026	0.0071	0.0303
Average weight (lbs.)																					
Tullibee	0.218	--	--	1.098	0.686	0.356	0.776	0.154	0.866	0.848	0.885	0.789	1.057	0.581	0.880	0.897	0.718	0.991	0.432	0.480	0.300
Northern pike	2.604	--	--	3.371	3.226	--	8.027	7.034	3.310	4.120	9.389	3.292	6.800	4.426	--	5.825	7.426	0.620	--	4.140	--
Burbot	0.691	--	--	--	--	--	2.148	1.088	1.267	1.811	1.538	1.568	1.725	1.914	1.512	2.272	1.978	1.665	0.522	1.880	1.081
Black Crappie	0.951	--	--	0.308	0.624	0.165	0.521	0.329	--	--	0.262	--	--	--	--	--	--	--	--	--	--
Yellow perch	0.067	--	0.093	0.075	0.099	0.080	0.047	0.065	0.146	0.092	0.112	0.072	0.082	0.111	0.115	0.119	0.087	0.104	0.069	0.090	0.080
Walleye	1.769	--	2.238	2.662	1.800	1.862	3.551	2.650	1.015	1.676	0.553	1.488	1.597	2.376	3.111	1.975	1.242	1.978	0.939	1.571	0.910

Table 7. Mille Lacs angler harvest summary for the 2014-2015 fishing year.

	Pressure Angler-hrs	Walleye						Northern Pike						Tullibee		Burbot			
		Harvest		Hooking Mortality		Angler Kill		Yellow Perch		Harvest		Hooking Mortality		Angler Kill		no	lbs	no	lbs
		no	lbs	no	lb	no	lbs	no	lbs	no	lbs	no	lb	no	lbs				
Winter, Dec	25,880	0	0	0	0	0	0	1,109	271	1,223	6,974	0	0	1,223	6,974	0	0	0	0
*adjustment for missed creel	25,880	0	0	0	0	0	0	1,109	271	1,223	6,974	0	0	1,223	6,974	0	0	0	0
Winter, Jan	737,704	881	1,783	10	9	891	1,792	7,208	3,502	530	3,539	0	0	530	3,539	994	1,333	467	583
Winter Feb	696,858	570	1,073	10	7	580	1,080	8,652	3,698	1,424	7,911	0	0	1,424	7,911	2,615	3,530	55	95
Spring ice	42,067	20	7	0	0	20	7	1,200	419	583	2,202	0	0	583	2,202	4,852	5,684	0	0
May Opener-31	92,955	841	2,653	98	203	939	2,856	0	0	539	1,525	38	118	577	1,643	0	0	0	0
June 1-15	74,441	936	2,654	689	1,222	1,625	3,876	37	49	551	1,818	75	258	626	2,076	0	0	0	0
June 16-30	74,002	137	416	2,208	3,058	2,345	3,474	289	309	464	1,304	108	382	572	1,686	0	0	0	0
July 1-15	95,790	622	2,074	6,267	10,416	6,889	12,490	758	584	317	854	102	434	419	1,288	0	0	0	0
July 16-31	44,057	225	593	5,724	4,335	5,949	4,928	44	34	117	443	46	130	163	573	0	0	0	0
August 1-15	36,137	0	0	512	416	512	416	0	0	664	1,991	19	66	683	2,057	0	0	0	0
August 16-31	17,359	0	0	32	37	32	37	44	16	319	1,147	29	189	348	1,336	0	0	0	0
September 1-15	18,785	0	0	33	73	33	73	0	0	243	718	20	76	263	794	0	0	0	0
September 16-30	10,412	0	0	17	40	17	40	0	0	55	233	36	225	91	458	0	0	0	0
October 1-31						0	0					0	0	0	0				
Winter Tournaments	38,514	2	5	0	0	2	5	169	105	2	18	0	0	2	18	63	91	8	15
Summer Tournaments	11,101	21	57	277	461	298	518					0	0	0	0	0	0	0	0
Unsurveyed Night	2,259	7	23	42	54	50	77							0	0				
All Ice Fishing	1,566,903	1,473	2,868	20	16	1,493	2,884	19,447	8,266	4,985	27,618	0	0	4,985	27,618	8,524	10,638	530	693
Open Water Day Creel	463,938	2,761	8,390	15,580	19,800	18,341	28,190	1,172	992	3,269	10,033	473	1,879	3,742	11,912	0	0	0	0
Other Open Water	13,360	28	79	319	515	348	594	0	0	0	0	0	0	0	0	0	0	0	0
Year Total	2,044,201	4,262	11,337	15,919	20,331	20,182	31,669	20,619	9,258	8,254	37,651	473	1,879	8,727	39,530	8,524	10,638	530	693
Allocation							28,600		135,000					50,000		No SHL		No SHL	

Table 7. Continued.

	Muskellunge		Smallmouth Bass		Largemouth Bass		Rock Bass		Pumpkinseed		Bluegill		Black Crappie		Carp		Bullhead	
	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs
Winter Dec																		
Winter Jan																		
Winter Feb															55	1,219		
Spring ice													20	20				
May 15-31			877	1,741			78	55										
June 1-15			803	1,984			112	93							252	4,828		
June 16-30			512	995			38	30										
July 1-15			776	1,395			154	122										
July 16-31			122	495														
August 1-15			758	1,322														
August 16-31			414	669														
September 1-15			590	693														
September 16-30			137	332														
October 1-31																		
Summer Tournaments																		
Unsurveyed Night																		
All Ice Fishing	0	0	0	0	0	0	0	0	0	0	0	0	20	20	55	1,219	0	0
Open Water Day Creel	0	0	4,989	9,626	0	0	382	300	0	0	0	0	0	0	252	4,828	0	0
Other Open Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Year Total	0	0	4,989	9,626	0	0	382	300	0	0	0	0	20	20	307	6,047	0	0

Table 8. Mille Lacs Lake angler release summary for the 2014-2015 fishing year.

	Pressure	Walleye		Yellow Perch		Northern Pike		Tullibee		Burbot	
	Angler-hrs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs
Winter Dec	25,880	148	625	5,464	711	225	648	0	0	7	5
*adjustment for missed creel	25,880	148	625	5,464	711	225	648	0	0	7	5
Winter Jan	737,704	40,753	37,149	20,962	2,282	816	4,509	1,125	638	3,415	2,679
Winter Feb	696,858	42,686	30,591	19,526	3,024	334	2,733	3,172	2,320	1,968	1,641
Spring ice	42,067	360	637	9,305	622	707	1,841	3,332	726	81	56
May Opener-31	92,955	14,541	28,841	247	60	694	2,141	0	0	0	0
June 1-15	74,441	15,701	25,697	452	72	1,367	4,692	0	0	0	0
June 16-30	74,002	18,663	22,830	459	157	1,956	6,950	0	0	0	0
July 1-15	95,790	30,691	43,571	2,573	411	1,850	7,894	0	0	0	0
July 16-31	44,057	22,975	16,431	683	233	843	2,364	0	0	0	0
August 1-15	36,137	2,961	2,479	990	122	344	1,203	0	0	0	0
August 16-31	17,359	956	966	263	74	526	3,438	0	0	0	0
September 1-15	18,785	551	962	591	65	357	1,389	0	0	0	0
September 16-30	10,412	875	1,828	27	7	657	4,088	0	0	0	0
October 1-31	0										
Winter Tournaments	38,514	2,080	1,681	20	12	1	9	10	14	6	18
Summer Tournaments	11,101	3,053	3,062								
Unsurveyed Night	2,259	293	390								
All Ice Fishing	1,566,903	86,175	71,308	60,741	7,362	2,308	10,388	7,639	3,698	5,484	4,404
Open Water Day Creel	463,938	107,914	143,605	6,285	1,201	8,594	34,159	0	0	0	0
Other Open Water	13,360	3,346	3,452	0	0	0	0	0	0	0	0
Year Total	2,044,201	197,435	218,365	67,026	8,563	10,902	44,547	7,639	3,698	5,484	4,404

Table 8. Continued.

	Muskellunge		Smallmouth Bass		Largemouth Bass		Rock Bass		Pumpkinseed		Bluegill		Black Crappie		Bullhead	
	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs	no	lbs
Winter Dec																
Winter Jan																
Winter Feb																
Spring ice			20	135	75	182	20	17					41	39		
May Opener-31	158	3,215	20,882	68,225	534	1,553	674	549			83	15	194	58		
June 1-15	84	1,713	16,436	44,235	346	619	1,505	1,268			2,205	244				
June 16-30	121	3,935	6,331	13,767	1,051	2,609	956	659			38	15				
July 1-15	42	1,057	14,815	27,717	1,993	4,829	1,067	630			308					
July 16-31			2,307	3,437												
August 1-15			5,073	10,789	543	1,540	124	85								
August 16-31			2,486	4,477	44	106										
September 1-15			2,025	3,510	360	671	617	340								
September 16-30			3,781	7,177			164	123								
October 1-31																
Winter Tournaments																
Summer Tournaments																
Unsurveyed Night																
All Ice Fishing	0	0	20	135	75	182	20	17	0	0	0	0	41	39	0	0
Open Water Day Creel	405	9,920	74,136	183,334	4,871	11,927	5,107	3,654	0	0	2,634	274	194	58	0	0
Other Open Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Year Total	405	9,920	74,156	183,469	4,946	12,109	5,127	3,671	0	0	2,634	274	235	97	0	0

Table 9. Catch statistics for winter anglers, Mille Lacs Lake, 2014 - 2015

	Harvest (N)		Yield (lbs)		Mean Weight (lbs)	Released (N)		Weight Released (lbs)		Mean Weight (lbs)
	Estimate	SE	Estimate	SE		Estimate	SE	Estimate	SE	
Regular Ice										
Bowfin	457	416	2,790	2,446	6.1	0	0	0	0	
Tullibee	3,607	1,504	4,860	1,973	1.3	4,290	1,244	2,953	838	0.7
Northern Pike	3,175	706	18,409	4,734	5.8	1,374	437	7,884	3,575	5.7
Muskellunge	0	0	0	0		0	0	0	0	
White Sucker	0	0	0	0		93	94	249	253	2.7
Common Carp	55	55	1,219	1,231	22.2	0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	522	231	677	296	1.3	5,375	1,104	4,314	979	0.8
Bluegill	0	0	0	0		0	0	0	0	
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	0	0	0	0		0	0	0	0	
Rock Bass	0	0	0	0		0	0	0	0	
Largemouth Bass	0	0	0	0		0	0	0	0	
Smallmouth Bass	0	0	0	0		0	0	0	0	
Walleye	1,507	421	3,058	905	2.0	83,643	9,590	68,668	9,081	0.8
Yellow Perch	16,930	4,270	8,134	1,911	0.5	45,897	13,722	6,011	1,843	0.1
Late Ice										
Bowfin	0	0	0	0		0	0	0	0	
Tullibee	4,852	1,581	5,684	1,875	1.2	3,332	1,291	726	287	0.2
Northern Pike	583	250	2,202	977	3.8	707	447	1,841	1,134	2.6
Muskellunge	0	0	0	0		0	0	0	0	
White Sucker	0	0	0	0		34	37	43	47	1.3
Common Carp	0	0	0	0		0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	0	0	0	0		81	51	56	40	0.7
Bluegill	0	0	0	0		0	0	0	0	
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	20	21	20	20	1.0	41	41	39	42	1.0
Rock Bass	0	0	0	0		20	21	17	17	0.9
Largemouth Bass	0	0	0	0		75	56	182	137	2.4
Smallmouth Bass	0	0	0	0		20	21	135	137	6.8
Walleye	20	21	7	7	0.4	360	130	637	363	1.8
Yellow Perch	1,200	648	419	228	0.3	9,305	3,860	622	262	0.1
Combined										
Bowfin	457	416	2,790	2,446	6.1	0	0	0	0	
Tullibee	8,459	2,183	10,544	2,722	1.2	7,622	1,792	3,679	886	0.5
Northern Pike	3,758	749	20,611	4,834	5.5	2,081	625	9,725	3,751	4.7
Muskellunge	0	0	0	0		0	0	0	0	
White Sucker	0	0	0	0		127	101	292	257	2.3
Common Carp	55	55	1,219	1,231	22.2	0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	522	231	677	296	1.3	5,456	1,106	4,370	979	0.8
Bluegill	0	0	0	0		0	0	0	0	
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	20	21	20	20	1.0	41	41	39	42	1.0
Rock Bass	0	0	0	0		20	21	17	17	0.9
Largemouth Bass	0	0	0	0		75	56	182	137	2.4
Smallmouth Bass	0	0	0	0		20	21	135	137	6.8
Walleye	1,527	421	3,065	905	2.0	84,003	9,591	69,305	9,088	0.8
Yellow Perch	18,130	4,319	8,553	1,924	0.5	55,202	14,254	6,633	1,861	0.1

Table 10. Age length distribution of harvested Walleye, winter creel survey, Mille Lacs Lake, 2014 - 2015.

Total Length	AGE											
	0	1	2	3	4	5	6	7	8	9	10+	
8.0 -8.4												
8.5 -8.9												
9.0 -9.4												
9.5 -9.9												
10.0 -10.4			114									
10.5 -10.9			20									
11.0 -11.4												
11.5 -11.9												
12.0 -12.9												
13.0 -13.9				55								
14.0 -14.9												
15.0 -15.9				46		9						
16.0 -16.9												
17.0 -17.9												
18.0 -18.9					321	321	87	117	58			
19.0 -19.9					27	80	40	54	94			27
20.0 -20.9						3		21	17			17
21.0 -21.9												
22.0 -22.9												
23.0 -23.9												
24.0 -24.9												
25.0 -25.9												
26.0 -26.9												
27.0 -27.9												
28.0 -28.9												
29.0 -29.9												
30.0 -30.9												
TOTAL	0	0	134	101	348	414	128	191	169	0		44

Table 11. Age length distribution of released Walleye, winter creel survey, Mille Lacs Lake, 2014-2015.

Total L	AGE											
	0	1	2	3	4	5	6	7	8	9	10+	
3.0 -3.4												
3.5 -3.9												
4.0 -4.4												
4.5 -4.9												
5.0 -5.4		55										
5.5 -5.9												
6.0 -6.4		1,159										
6.5 -6.9		59										
7.0 -7.4		348	174									
7.5 -7.9												
8.0 -8.4			2,778									
8.5 -8.9												
9.0 -9.4			2,051									
9.5 -9.9												
10.0 -10.4			28,784									
10.5 -10.9			55									
11.0 -11.4			3,836									
11.5 -11.9												
12.0 -12.9			11,052	16,579								
13.0 -13.9				4,534								
14.0 -14.9				3,243								
15.0 -15.9				1,263		253						
16.0 -16.9				208	312	208	104					
17.0 -17.9					359	140		20	20	20		
18.0 -18.9					33	33	9	12	6			
19.0 -19.9					6	19	9	13	22			6
20.0 -20.9						1		7	6			6
21.0 -21.9							34	86	69	17		172
22.0 -22.9								153	92	307		981
23.0 -23.9								26	78	130		493
24.0 -24.9										158		1,633
25.0 -25.9												615
26.0 -26.9												825
27.0 -27.9												427
28.0 -28.9												55
29.0 -29.9												
30.0 -30.9												
31.0 -31.9												
TOTAL	0	1,621	48,730	25,827	710	653	157	317	292	631		5,213

Table 12. Length distribution of harvested and released fish, winter creel survey, Mille Lacs Lake, 2014-2015.

Length class (inches)	Tullibee		Northern Pike		Burbot		Yellow Perch		Walleye	
	H	R	H	R	H	R	H	R	H	R
< 3.5								2,982		
3.5 -3.9										
4.0 -4.4								2,796		
4.5 -4.9										
5.0 -5.4								3,821		70
5.5 -5.9										
6.0 -6.4		409				70	902	24,882		767
6.5 -6.9							347			70
7.0 -7.4						70	1,457	4,380		488
7.5 -7.9	86							2,220		
8.0 -8.4		817				558	2,706	5,219		2,997
8.5 -8.9	86						1,804			
9.0 -9.4						140	1,804	699		2,300
9.5 -9.9							833			
10.0 -10.4		477				489	1,249	885	167	29,972
10.5 -10.9							139			70
11.0 -11.4							486	47		3,973
11.5 -11.9							208			
12.0 -12.9	86	545				1,187	2,498	93		26,417
13.0 -13.9	86	477		39		279	278	93	84	4,600
14.0 -14.9	773	409		39		489				2,788
15.0 -15.9	1,804	613		79	87	140			84	1,743
16.0 -16.9	344	340	54	118	87	628				836
17.0 -17.9	86	204	27			140				558
18.0 -18.9	258		54	196	174	140			670	70
19.0 -19.9			27						419	70
20.0 -20.9			188	79	87	768			84	
21.0 -21.9			215			70				349
22.0 -22.9			188	79	87	70				1,533
23.0 -23.9			404	79		70				558
24.0 -24.9			350	79		70				1,603
25.0 -25.9			296	79						697
26.0 -26.9			296	39						697
27.0 -27.9			161	39						349
28.0 -28.9			108	118						70
29.0 -29.9			27	39						
30.0 -30.9			135	79						
31.0 -31.9			54							
32.0 -32.9			81	79						
33.0 -33.9			27	39						
34.0 -34.9			81							
35.0 -35.9										
36.0 -36.9			108							
37.0 -37.9			27							
38.0 -38.9			27							
39.0 -39.9			54							
> 40.0			188	79						
TOTAL	3,607	4,290	3,175	1,374	522	5,375	16,930	45,897	1,507	83,643

Table 13. Angler catch rate (fish/hr) for winter anglers, Mille Lacs Lake, 2014-2015.

	Day		
	Harvest Rate	Release Rate	Total Catch Rate
Regular Ice			
Bowfin	0.00031	0	0.00031
Tullibee	0.00241	0.00286	0.00527
Northern Pike	0.00212	0.00092	0.00304
Muskellunge	0	0	0
White Sucker	0	0	0
Common Carp	0.00004	0	0.00004
Bullhead spp.	0	0	0
Burbot	0.00035	0.00359	0.00394
Bluegill	0	0	0
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0	0	0
Rock Bass	0	0	0
Largemouth Bass	0	0	0
Smallmouth Bass	0	0	0
Walleye	0.00101	0.05583	0.05684
Yellow Perch	0.01130	0.03064	0.04194
Late Ice			
Bowfin	0	0	0
Tullibee	0.11534	0.07921	0.19455
Northern Pike	0.01386	0.01681	0.03067
Muskellunge	0	0	0
White Sucker	0	0.00081	0.00081
Common Carp	0	0	0
Bullhead spp.	0	0	0
Burbot	0	0.00193	0.00193
Bluegill	0	0	0
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0.00048	0.00097	0.00145
Rock Bass	0	0.00048	0.00048
Largemouth Bass	0	0.00178	0.00178
Smallmouth Bass	0	0.00048	0.00048
Walleye	0.00048	0.00856	0.00903
Yellow Perch	0.02853	0.22120	0.24972
Combined			
Bowfin	0.00030	0	0.00030
Tullibee	0.00549	0.00495	0.01044
Northern Pike	0.00244	0.00135	0.00379
Muskellunge	0	0	0
White Sucker	0	0.00008	0.00008
Common Carp	0.00004	0	0.00004
Bullhead spp.	0	0	0
Burbot	0.00034	0.00354	0.00388
Bluegill	0	0	0
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0.00001	0.00003	0.00004
Rock Bass	0	0.00001	0.00001
Largemouth Bass	0	0.00005	0.00005
Smallmouth Bass	0	0.00001	0.00001
Walleye	0.00099	0.05454	0.05553
Yellow Perch	0.01177	0.03584	0.04761

Table 14. Angling effort by period, Mille Lacs Lake, open water day season, 2015.

Period	Angler Trips		Angler Hours	
	Estimate	SE	Estimate	SE
May 9 - May 31				
Boats	18,118	2,142	83,290	10,476
Launches	2,369	483	9,666	2,106
Combined	20,488	2,195	92,955	10,686
June 1 - Jun 15				
Boats	13,769	1,551	62,773	7,399
Launches	2,827	236	11,668	992
Combined	16,595	1,568	74,441	7,465
June 16 - June 30				
Boats	12,283	1,585	57,338	7,869
Launches	3,887	626	16,583	3,086
Combined	16,170	1,704	73,921	8,452
July 1 - July 15				
Boats	17,013	1,984	80,993	10,261
Launches	3,546	497	15,431	2,653
Combined	20,559	2,045	96,424	10,598
July 16 - July 31				
Boats	8,563	981	36,176	4,437
Launches	1,942	563	7,881	2,224
Combined	10,506	1,131	44,057	4,963
Aug 1 - Aug 15				
Boats	6,268	940	27,191	4,632
Launches	2,129	436	8,946	1,919
Combined	8,396	1,036	36,137	5,014
Aug 16 - Aug 31				
Boats	3,801	934	15,570	3,821
Launches	838	130	3,591	529
Combined	4,638	943	19,162	3,858
Sep 1 - Sep 15				
Boats	4,533	1,004	17,140	3,962
Launches	374	19	1,644	47
Combined	4,906	1,004	18,785	3,962
Sep 16 - Sep 31				
Boats	2,254	537	10,064	2,504
Launches	82	22	347	28
Combined	2,336	537	10,412	2,504
Oct 1 - Oct 31				
Boats	3,784	1,004	17,700	4,971
Launches	113	15	450	42
Combined	3,896	1,004	18,150	4,971
Total Season				
Boats	90,384	4,297	408,235	20,836
Launches	18,106	1,205	76,208	5,558
Combined	108,490	4,462	484,443	21,564

Table 15. Directed pressure by period, small boats, open-water-day, Mille Lacs Lake, 2015.

Day Parties											
Primary Species Sought	May 10-31	June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30	Oct 1-31	
Walleye	133 65.5%	115 59.6%	89 63.6%	84 50.0%	68 65.4%	11 16.2%	1 2.5%	0 0.0%	0 0.0%	1 2.4%	
Yellow Perch	0 0.0%	0 0.0%	1 0.7%	0 0.0%	0 0.0%	0 0.0%	1 2.5%	0 0.0%	0 0.0%	0 0.0%	
Northern Pike	6 3.0%	9 4.7%	7 5.0%	9 5.4%	5 4.8%	7 10.3%	6 15.0%	5 16.1%	6 18.8%	10 24.4%	
Muskellunge	0 0.0%	6 3.1%	9 6.4%	12 7.1%	14 13.5%	17 25.0%	11 27.5%	7 22.6%	7 21.9%	15 36.6%	
Smallmouth Bass	59 29.1%	53 27.5%	28 20.0%	53 31.5%	10 9.6%	27 39.7%	19 47.5%	15 48.4%	17 53.1%	13 31.7%	
Miscellaneous	5 2.5%	10 5.2%	6 4.3%	10 6.0%	7 6.7%	6 8.8%	2 5.0%	4 12.9%	2 6.3%	2 4.9%	
Total	203	193	140	168	104	68	40	31	32	41	

Day Pressure (angler-hours)															
Primary Species Sought	May 10-31	June 1-15	June 16-30	July 1-15	July 16-31	Aug 1-15	Aug 16-31	Sept 1-15	Sept 16-30	Oct 1-31	Season Totals				
Walleye	47,961 57.6%	36,936 58.8%	37,528 65.5%	37,843 46.7%	25,520 70.5%	2,626 9.7%	2,029 13.0%	0 0.0%	0 0.0%	145 0.8%	190,588 46.7%				
Yellow Perch	0 0.0%	0 0.0%	105 0.2%	0 0.0%	0 0.0%	0 0.0%	117 0.8%	0 0.0%	0 0.0%	0 0.0%	221 0.1%				
Northern Pike	3,749 4.5%	1,940 3.1%	2,492 4.3%	3,158 3.9%	1,786 4.9%	2,153 7.9%	1,337 8.6%	3,006 17.5%	1,544 15.3%	3,312 18.7%	24,479 6.0%				
Muskellunge	0 0.0%	1,874 3.0%	3,199 5.6%	6,729 8.3%	3,610 10.0%	7,606 28.0%	4,391 28.2%	3,390 19.8%	2,549 25.3%	7,473 42.2%	40,823 10.0%				
Smallmouth Bass	29,862 35.9%	19,905 31.7%	11,217 19.6%	28,143 34.7%	3,295 9.1%	12,609 46.4%	7,101 45.6%	8,581 50.1%	5,723 56.9%	6,300 35.6%	132,737 32.5%				
Miscellaneous	1,718 2.1%	2,117 3.4%	2,797 4.9%	5,120 6.3%	1,964 5.4%	2,197 8.1%	595 3.8%	2,162 12.6%	248 2.5%	469 2.7%	19,386 4.7%				
Total	83,290	62,773	57,338	80,993	36,176	27,191	15,570	17,140	10,064	17,700	408,235				

Table 16. Number of parties targeting different combinations of species, open-water-day, Mille Lacs Lake, 2015.

Primary Targeted Species	Secondary Targeted Species					
	Walleye	Yellow Perch	Northern Pike	Muskellunge	Smallmouth Bass	Other
Walleye	430	5	13	5	48	3
Yellow Perch		2				
Northern Pike	5	2	43	11	8	1
Muskellunge	3		17	80	3	2
Smallmouth Bass	24	1	16	6	224	30
Other	1				5	47

Table 17. Catch statistics for boats and launches, open-water-day, Mille Lacs Lake, 2015.

	Harvest (N)		Yield (lbs)		Mean Weight (lbs)	Released (N)		Weight Released (lbs)		Mean Weight (lbs)
	Estimate	SE	Estimate	SE		Estimate	SE	Estimate	SE	
Boats										
Bowfin	42	42	379	382	9.0	76	55	800	591	10.5
Tullibee	0	0	0	0		0	0	0	0	
Northern Pike	2,255	690	6,623	2,030	2.9	8,502	1,113	34,114	4,754	4.0
Muskellunge	0	0	0	0		542	176	12,264	4,142	22.6
White Sucker	0	0	0	0		0	0	0	0	
Common Carp	252	255	4,828	4,888	19.2	0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	0	0	0	0		0	0	0	0	
Bluegill	0	0	0	0		2,632	1,577	312	172	0.1
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	0	0	0	0		194	199	58	60	0.3
Rock Bass	422	217	320	173	0.8	4,980	1,112	3,564	766	0.7
Largemouth Bass	0	0	0	0		4,848	1,075	11,869	2,743	2.4
Smallmouth Bass	4,549	995	8,355	1,747	1.8	80,826	8,556	208,032	25,165	2.6
Walleye	2,518	411	7,569	1,277	3.0	96,444	8,441	134,408	12,672	1.4
Yellow Perch	1,066	399	926	341	0.9	4,946	1,423	967	268	0.2
Launches										
Bowfin	0	0	0	0		0	0	0	0	
Tullibee	0	0	0	0		0	0	0	0	
Northern Pike	1,079	365	3,760	1,354	3.5	314	104	1,431	797	4.6
Muskellunge	0	0	0	0		0	0	0	0	
White Sucker	20	0	62	50	3.1	0	0	0	0	
Common Carp	0	0	0	0		0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	0	0	0	0		0	0	0	0	
Bluegill	0	0	0	0		0	0	0	0	
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	0	0	0	0		0	0	0	0	
Rock Bass	0	0	0	0		103	98	74	70	0.7
Largemouth Bass	0	0	0	0		0	0	0	0	
Smallmouth Bass	618	262	1,665	685	2.7	1,264	463	2,504	891	2.0
Walleye	591	275	1,362	548	2.3	11,947	2,591	10,277	2,342	0.9
Yellow Perch	194	107	125	72	0.6	1,595	522	325	127	0.2
Combined										
Bowfin	42	42	379	382	9.0	76	55	800	591	10.5
Tullibee	0	0	0	0		0	0	0	0	
Northern Pike	3,334	780	10,383	2,440	3.1	8,816	1,118	35,545	4,821	4.0
Muskellunge	0	0	0	0		542	176	12,264	4,142	22.6
White Sucker	20	0	62	50	3.1	0	0	0	0	
Common Carp	252	255	4,828	4,888	19.2	0	0	0	0	
Bullhead spp.	0	0	0	0		0	0	0	0	
Burbot	0	0	0	0		0	0	0	0	
Bluegill	0	0	0	0		2,632	1,577	312	172	0.1
Pumpkinseed	0	0	0	0		0	0	0	0	
Hybrid Sunfish	0	0	0	0		0	0	0	0	
Black Crappie	0	0	0	0		194	199	58	60	0.3
Rock Bass	422	217	320	173	0.8	5,083	1,116	3,638	770	0.7
Largemouth Bass	0	0	0	0		4,848	1,075	11,869	2,743	2.4
Smallmouth Bass	5,167	1,029	10,020	1,877	1.9	82,090	8,569	210,536	25,181	2.6
Walleye	3,109	495	8,931	1,390	2.9	108,391	8,829	144,685	12,887	1.3
Yellow Perch	1,260	413	1,051	349	0.8	6,541	1,516	1,292	297	0.2

Table 18. History of open-water-day harvest, Mille Lacs Lake.

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
Total angler-hrs	485,507	597,472	821,464	1,418,891	1,159,925	1,263,034	1,037,565	969,034	1,528,270	1,427,552	1,106,170	977,789	1,149,577	1,697,442	1,543,737	1,284,719	1,601,228	1,278,635	1,337,429
Total harvest (N)																			
Northern Pike	3,347	3,496	1,353	1,266	923	574	268	649	1,262	412	503	1,116	1,451	1,654	3,945	3,012	1,417	2,008	2,736
Muskellunge	0	0	0	0	0	0	0	0	0	0	80	36	62	63	66	167	0	0	-
Carp	252	297	0	0	172	0	0	405	1,987	0	137	0	0	0	858	0	1,015	0	147
Bullhead	0	0	0	0	0	0	0	0	16	96	0	0	0	0	0	0	0	0	177
Burbot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Rock Bass	382	614	143	1,097	417	488	0	628	268	449	123	604	0	880	181	1,959	895	1,216	4,589
Sunfish	0	44	0	1,074	0	557	401	821	1,042	3,880	0	381	316	2,131	1,860	2,017	347	420	415
Smallmouth Bass	5,178	3,782	1,847	334	340	560	545	86	296	77	432	168	80	281	202	205	681	742	478
Largemouth Bass	0	105	67	205	46	0	211	82	121	0	0	0	0	0	0	0	0	0	48
Black Crappie	0	0	233	191	0	40	0	709	1,657	95	0	0	0	38	0	682	0	0	104
Yellow Perch	1,260	2,631	1,374	9,674	33,112	43,131	16,620	12,394	39,368	64,805	48,067	30,417	14,199	10,705	51,251	138,178	123,807	123,261	90,579
Walleye	3,119	4,269	24,878	105,972	125,299	154,609	73,915	41,950	154,263	200,354	117,977	27,835	19,775	87,030	88,848	92,426	250,805	119,267	112,021
Total harvest-lbs																			
Northern Pike	10,417	14,292	5,829	4,103	3,091	2,795	1,081	3,359	5,272	3,185	2,235	4,196	3,997	6,216	12,878	11,609	6,968	8,191	14,398
Muskellunge	0	0	0	0	0	0	0	0	0	0	2,882	626	3,216	1,659	2,757	4,770	0	0	-
Carp	4,828	5,845	0	0	2,736	0	0	7,460	26,050	0	1,248	0	0	0	18,824	0	14,644	0	1,467
Bullhead	0	0	0	0	0	0	0	0	56	121	0	0	0	0	0	0	0	0	177
Burbot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Rock Bass	300	510	172	696	313	418	0	457	189	324	91	384	0	637	104	1,058	557	808	3,240
Sunfish	0	17	0	264	0	142	45	326	435	1,581	0	175	103	390	509	514	144	92	166
Smallmouth Bass	10,034	8,863	4,718	1,112	1,744	1,647	1,172	342	799	120	963	437	173	459	267	419	1,859	1,538	583
Largemouth Bass	0	219	166	361	104	0	288	54	193	0	0	0	0	0	0	0	0	0	53
Black Crappie	0	0	360	166	0	64	0	533	1,188	50	0	0	0	37	0	363	0	0	73
Yellow Perch	1,051	1,868	886	5,153	15,669	20,240	10,042	5,686	19,958	33,030	22,326	18,427	7,841	4,602	22,975	58,544	53,498	48,729	34,036
Walleye	8,945	10,080	57,230	123,552	154,874	185,869	92,846	49,740	247,688	288,315	146,566	59,676	28,601	102,410	172,855	141,020	454,921	244,970	236,050

Table 18. Continued

	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1977	1976	1962	1961
Total angler-hrs	1,903,488	1,430,657	1,326,534	1,942,424	2,314,115	1,650,544	1,667,618	1,673,018	1,987,526	1,524,464	1,259,828	949,479	1,104,993	945,080	692,252	751,049	1,121,548	1,005,313	631,925	732,685
Total harvest (N)																				
Northern Pike	5,013	2,937	1,847	2,124	4,387	3,989	8,782	4,858	4,506	7,690	4,368	3,741	8,394	3,363	2,546	5,490	6,853	3,355	closed	1,017
Muskellunge	-	62	-	21	-	-	159	135	-	-	-	-	-	-	-	-	-	-	-	-
Carp	387	-	-	-	79	-	630	-	-	967	65	427	-	195	62	-	-	-	-	-
Bullhead	-	-	-	-	126	144	146	426	-	-	111	143	543	201	378	468	-	-	-	-
Burbot	83	74	-	-	-	-	-	-	-	-	-	-	-	27	100	-	-	-	-	-
Rock Bass	1,429	2,244	4,543	2,012	3,473	3,391	2,412	2,517	1,818	1,173	1,000	2,074	1,389	1,718	1,032	1,145	-	-	-	-
Sunfish	54	-	97	-	81	96	88	-	387	-	111	4,562	234	341	277	-	-	-	-	-
Smallmouth Bass	333	403	842	1,073	2,577	1,337	1,050	1,593	850	650	283	514	62	132	33	52	-	-	-	-
Largemouth Bass	-	-	-	-	-	-	-	113	-	-	-	94	97	-	-	-	-	-	-	-
Black Crappie	579	-	125	466	2,737	1,102	1,255	-	338	752	111	-	87	223	49	2,861	-	-	-	-
Yellow Perch	70,955	58,672	62,760	32,431	34,792	115,341	44,971	116,787	57,962	30,214	51,365	50,705	31,950	93,188	51,072	61,280	75,321	52,704	25,319	15,749
Walleye	333,758	193,109	130,832	271,133	616,202	326,022	285,131	221,679	427,775	219,989	167,735	85,233	236,338	251,242	122,300	152,968	276,630	198,507	166,638	188,985
Total harvest-lbs																				
Northern Pike	24,157	11,513	7,047	10,647	19,392	19,932	40,810	23,977	24,106	37,101	27,785	17,409	26,447	12,213	10,989	17,665	35,483	16,350	closed	4,605
Muskellunge	-	1,237	-	420	-	-	2,387	1,375	-	-	-	-	-	-	-	-	-	-	-	-
Carp	3,870	-	-	-	785	-	6,296	-	-	15,402	931	4,958	-	1,742	648	-	-	-	-	-
Bullhead	-	-	-	-	126	144	109	426	-	-	100	167	509	298	382	497	-	-	-	-
Burbot	167	112	-	-	-	-	-	-	-	-	-	-	-	41	200	-	-	-	-	-
Rock Bass	1,049	1,683	3,039	1,461	2,601	2,543	1,809	1,426	1,110	793	730	1,375	1,006	1,286	1,351	961	-	-	-	-
Sunfish	16	-	48	-	32	38	44	-	128	-	33	2,281	117	149	146	-	-	-	-	-
Smallmouth Bass	349	403	902	1,180	2,839	1,460	1,050	1,709	1,033	1,174	501	452	93	290	83	78	-	-	-	-
Largemouth Bass	-	-	-	-	-	-	-	113	-	-	-	113	122	-	-	-	-	-	-	-
Black Crappie	347	-	86	297	1,376	827	941	-	381	863	393	-	44	158	10	2,146	-	-	-	-
Yellow Perch	31,019	28,259	29,559	15,075	17,198	48,411	20,745	56,949	32,795	16,018	33,556	31,504	16,346	48,716	24,394	27,393	38,904	28,375	21,773	14,644
Walleye	557,910	302,088	175,862	471,365	977,228	400,336	368,498	345,331	572,889	340,997	296,479	99,435	366,452	285,466	148,372	193,890	397,412	342,285	289,950	339,386

Table19. History of open-water-day releases, Mille Lacs Lake.

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Total angler-hrs	485,507	597,472	821,464	1,418,891	1,159,925	1,263,034	1,037,565	969,034	1,528,270	1,427,552	1,106,170	977,789	1,149,577	1,697,442
Total Release (N)														
Bowfin	0	0	120	108	0	0	0	139	0	125	0	42	0	0
Tullibee	0	0	0	113	34	0	0	0	53	0	0	0	49	0
Northern Pike	8,841	9,067	14,702	17,354	13,179	9,368	3,882	6,290	12,250	10,110	6,414	16,751	14,385	14,047
Muskellunge	544	337	574	569	1,347	529	454	364	1,662	1,559	1,415	1,784	1,441	1,504
White Sucker	0	0	0	0	0	0	0	0	0	0	0	53	140	71
Carp	0	0	0	57	0	0	0	0	0	0	0	0	0	47
Bullhead	0	0	0	0	0	0	0	73	80	244	0	291	78	0
Burbot	0	76	42	0	0	42	504	91	65	199	137	96	153	342
Rock Bass	0	6,657	5,611	9,724	11,022	16,699	9,612	10,811	9,427	7,682	15,812	18,413	6,999	6,532
Sunfish	2,634	446	161	1,578	1,106	2,212	2,002	3,155	1,245	8,854	252	2,503	353	396
Smallmouth Bass	82,206	71,044	72,915	65,988	50,574	47,732	33,344	35,803	32,103	33,373	15,229	18,729	31,871	20,411
Largemouth Bass	4,869	4,487	5,236	4,105	2,963	3,514	3,895	3,197	3,524	2,930	777	833	3,174	2,007
Black Crappie	194	30	0	876	0	508	0	953	1,617	55	210	0	246	0
Yellow Perch	6,551	12,427	17,133	10,866	75,446	149,471	43,563	52,870	120,639	108,799	114,438	89,412	48,800	16,644
Walleye	108,565	66,694	214,920	447,318	252,682	184,782	146,660	95,660	311,646	240,916	130,387	58,414	114,013	1,186,278
Total Release (lbs)														
Bowfin			589	822	0	0	0	929	0	599	0		0	0
Tullibee	0	0	0	52	21	0	0	0	55	0	0	0	30	0
Northern Pike	35,645	41,326	75,471	88,608	70,233	46,674	20,438	34,253	84,186	60,890	38,248	87,243	80,623	66,305
Muskellunge	12,308	6,786	13,565	17,823	28,305	12,303	10,640	5,542	37,945	32,280	37,904	45,127	33,641	28,472
White Sucker			0	0	0	0	0	0	0	0	0	0	0	0
Carp			0	864	0	0	0	0	0	0	0	0	0	602
Bullhead	0	0	0	0	0	0	0	114	126	450	0	311	198	0
Burbot	0	0	19	0	0	9	462	31	75	215	70	49	124	377
Rock Bass	3,654	4,519	3,947	5,950	8,233	11,658	6,247	7,747	7,041	5,127	10,285	11,388	4,429	4,196
Sunfish	312	169	39	252	186	284	187	551	102	2,131	93	317	70	40
Smallmouth Bass	210,781	188,284	225,972	171,651	129,304	117,189	77,922	92,559	78,270	94,941	33,946	43,117	84,298	49,236
Largemouth Bass	11,921	10,847	11,366	10,127	6,232	7,102	8,197	5,498	6,140	5,468	1,374	1,339	6,619	4,043
Black Crappie	58	59	0	219	0	641	0	1,173	555	6	63	0	48	0
Yellow Perch	1,298	2,665	2,350	3,029	14,053	22,911	7,822	5,972	18,874	18,237	18,692	13,665	7,297	3,500
Walleye	144,865	171,458	754,140	1,570,884	754,556	534,393	382,912	302,797	1,200,098	961,521	261,615	171,804	488,490	3,414,850

Table 19. Continued.

	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985
Total angler-hrs	1,543,737	1,284,719	1,601,228	1,278,635	1,337,429	1,903,488	1,430,657	1,326,534	1,942,424	2,314,115	1,650,544	1,667,618	1,673,018	1,987,526	1,524,464	1,259,828	949,479
Total Release (N)																	
Bowfin	109	158	69	0	0	0	62	41									
Tullibee	0	0	0	0	81	431	122	200									
Northern Pike	22,624	18,160	8,665	3,662	5,084	6,712	5,138	1,937	2,815	3,869	2,920	12,392					
Muskellunge	2,176	2,133	1,412	685	1,029	1,059	590	846	729	791	599	791					
White Sucker	0	0	37														
Carp	0	0	0	0	0	0	0	0									
Bullhead	191	156	210	254	252	664	74	97	228								
Burbot	419	41	773	895	170	1,515	2,777	681	798								
Rock Bass	9,799	21,517	8,962	20,494	18,251	21,845	22,303	30,651	42,313	23,093	23,470	9,206					
Sunfish	6,595	13,948	333	5,863	659	237	0	0	287								
Smallmouth Bass	26,677	9,435	4,905	3,084	2,921	4,520	2,408	896	2,076	4,181	2,005	2,925					
Largemouth Bass	2,360	1,118	476	190	543	446	675	0	51								
Black Crappie	61	197	0	0	0	497	109	311	113								
Yellow Perch	90,769	318,487	442,204	549,105	212,269	279,213	224,195	124,482	54,803	72,661	208,827	90,407					
Walleye	417,340	177,098	190,974	80,975	107,096	137,617	118,630	79,030	158,715	126,332	106,406	674,131	185,764	311,235	471,659	178,568	42,293
Total Release (lbs)																	
Bowfin																	
Tullibee	0	0	0	0													
Northern Pike	112,579	90,628	47,859	15,184													
Muskellunge	42,021	10,175	23,812	8,702													
White Sucker	0	0															
Carp	0	0	0	0													
Bullhead	165	234	605	184													
Burbot	805	34	1,689	727													
Rock Bass	5,667	11,669	5,142	10,804													
Sunfish	459	1,379	159	246													
Smallmouth Bass	63,919	21,341	10,797	6,749													
Largemouth Bass	3,643	1,300	694	172													
Black Crappie	12	74		0													
Yellow Perch	20,055	47,011	61,382	77,096													
Walleye	1,157,891	518,713	399,994	94,764	133,592	171,829	84,087	32,595	87,722	166,267	101,587	343,838	151,613	269,709	242,305	61,259	18,661

Table 20. Angler catch rates (no/hr) from boats and launches, Mille Lacs Lake, 2015.

	Day		Total Catch Rate
	Harvest Rate	Release Rate	
Boats			
Bowfin	0.000103	0.000186	0.000289
Tullibee	0	0	0
Northern Pike	0.005524	0.020826	0.026350
Muskellunge	0	0.001328	0.001328
White Sucker	0	0	0
Common Carp	0.000617	0	0.000617
Bullhead spp.	0	0	0
Burbot	0	0	0
Bluegill	0	0.006447	0.006447
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0	0.000475	0.000475
Rock Bass	0.001034	0.012199	0.013233
Largemouth Bass	0	0.011876	0.011876
Smallmouth Bass	0.011143	0.197989	0.209132
Walleye	0.006168	0.236246	0.242414
Yellow Perch	0.002611	0.012116	0.014727
Launches			
Bowfin	0	0	0
Tullibee	0	0	0
Northern Pike	0.014159	0.004120	0.018279
Muskellunge	0	0	0
White Sucker	0.000262	0	0.000262
Common Carp	0	0	0
Bullhead spp.	0	0	0
Burbot	0	0	0
Bluegill	0	0	0
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0	0	0
Rock Bass	0	0.001352	0.001352
Largemouth Bass	0	0	0
Smallmouth Bass	0.008109	0.016586	0.024696
Walleye	0.007755	0.156768	0.164523
Yellow Perch	0.002546	0.020930	0.023475
Combined			
Bowfin	0	0.000157	0.000244
Tullibee	0	0	0
Northern Pike	0.006882	0.018198	0.025080
Muskellunge	0	0.001119	0.001119
White Sucker	0.000041	0	0.000041
Common Carp	0.000520	0	0.000520
Bullhead spp.	0	0	0
Burbot	0	0	0
Bluegill	0	0.005433	0.005433
Pumpkinseed	0	0	0
Hybrid Sunfish	0	0	0
Black Crappie	0	0.000400	0.000400
Rock Bass	0.000871	0.010492	0.011364
Largemouth Bass	0.000000	0.010007	0.010007
Smallmouth Bass	0.010666	0.169452	0.180118
Walleye	0.006418	0.223743	0.230161
Yellow Perch	0.002601	0.013502	0.016103

Table 21. Length distribution of harvested Walleye by sampling period, Mille Lacs Lake, 2015.

Total length (inches)	May 11- 31	June 1 -15	June 16 - 30	July 1 - 15	July 16 - 31	Aug 1 - 15	Aug 16 - 31	Sep 1 - 15	Sep 15 - 30	Oct 1 - 31	Season Total
4 -4.9	0	0	0	0	0	0	0	0	0	0	0
5 -5.9	0	0	0	0	0	0	0	0	0	0	0
6 -6.9	0	0	0	0	0	0	0	0	0	0	0
7 -7.9	0	0	0	0	0	0	0	0	0	0	0
8 -8.9	0	0	0	0	0	0	0	0	0	0	0
9 -9.9	0	0	0	0	0	0	0	0	0	0	0
10 -10.9	0	0	0	0	0	0	0	0	0	0	0
11 -11.9	0	0	124	0	0	0	0	0	0	0	124
12 -12.9	0	0	62	0	0	0	0	0	0	0	62
13 -13.9	0	0	0	0	0	0	0	0	0	0	0
14 -14.9	0	0	0	0	0	0	42	0	0	0	42
15 -15.9	0	0	0	14	0	0	42	0	0	0	56
16 -16.9	0	0	0	0	0	0	0	0	0	0	0
17 -17.9	0	37	0	0	0	0	0	0	0	0	37
18 -18.9	0	115	0	42	0	0	0	0	0	0	157
19 -19.9	474	297	82	168	210	0	0	0	0	0	1,231
20 -20.9	325	420	15	383	0	0	0	0	0	0	1,143
21 -21.9	0	65	73	0	15	0	0	0	0	0	153
22 -22.9	0	0	0	0	0	0	0	0	0	0	0
23 -23.9	0	0	0	0	0	0	0	0	0	0	0
24 -24.9	0	0	0	0	0	0	0	0	0	0	0
25 -25.9	0	0	0	0	0	0	0	0	0	0	0
26 -26.9	0	0	31	0	0	0	0	0	0	0	31
27 -27.9	0	0	0	0	0	0	0	0	0	0	0
28 -28.9	42	0	0	42	0	0	0	0	0	0	84
29 -29.9	0	0	0	0	0	0	0	0	0	0	0
30 -30.9	0	0	0	0	0	0	0	0	0	0	0
31 -31.9	0	0	0	0	0	0	0	0	0	0	0
	841	934	387	649	225	0	84	0	0	0	3,120

Table 22. Age-length distribution of harvested Walleye, open-water-day, Mille Lacs Lake, 2015.

Total length (inches)	0	1	2	3	4	5	6	7	8	9	10+	Total
5 -5.9												0
6 -6.9												0
7 -7.9												0
8 -8.9												0
9 -9.9												0
10 -10.9												0
11 -11.9			124									124
12 -12.9			25	37								62
13 -13.9												0
14 -14.9			38	4								42
15 -15.9			14	40		2						56
16 -16.9												0
17 -17.9					24	9		1	1	1		37
18 -18.9					56	56	15	20	10			157
19 -19.9					103	308	154	205	359		103	1,231
20 -20.9						67		403	336		336	1,143
21 -21.9							14	35	28	7	70	153
22 -22.9												0
23 -23.9												0
24 -24.9												0
25 -25.9												0
26 -26.9											31	31
27 -27.9												0
28 -28.9											84	84
29 -29.9												0
30 -30.9												0
31 -31.9												0
Total	0	0	201	81	182	442	183	665	734	8	623	3,120

Table 23. Length distribution of released Walleye by sampling period, Mille Lacs Lake, 2015.

Total length (inches)	May 11 - 31	June 1 - 15	June 16 - 30	July 1 - 15	July 16 - 31	Aug 1 - 15	Aug 16 - 31	Sep 1 - 15	Sep 15 - 30	Oct 1 - 31	Season Total
<5.0	0	0	0	0	0	0	0	0	0	0	0
5 -5.9	0	0	0	0	0	0	0	0	0	0	0
6 -6.9	155	90	41	0	166	0	0	0	0	0	452
7 -7.9	0	99	0	0	0	0	0	0	0	0	99
8 -8.9	1,088	709	354	366	387	120	42	0	0	0	3,066
9 -9.9	199	294	310	850	0	75	0	0	0	0	1,728
10 -10.9	2,549	2,420	3,827	4,450	5,888	515	132	77	64	0	19,922
11 -11.9	163	450	2,198	3,170	2,091	183	0	0	0	0	8,255
12 -12.9	2,335	3,661	5,516	7,429	7,516	587	382	232	128	34	27,820
13 -13.9	407	500	1,207	4,531	2,995	603	221	0	55	0	10,519
14 -14.9	218	937	492	1,555	1,128	402	76	0	28	46	4,882
15 -15.9	756	749	1,044	1,078	1,303	134	34	77	0	64	5,239
16 -16.9	428	821	753	576	130	46	76	0	128	97	3,055
17 -17.9	879	922	125	944	378	29	14	0	255	32	3,578
18 -18.9	1,041	957	373	802	221	91	34	0	0	111	3,630
19 -19.9	122	28	38	94	100	0	0	0	0	0	382
20 -20.9	329	65	38	290	0	46	0	0	0	64	832
21 -21.9	642	325	204	176	66	46	0	128	0	46	1,633
22 -22.9	611	426	150	352	188	41	0	0	0	0	1,768
23 -23.9	879	651	389	826	66	46	0	0	128	0	2,985
24 -24.9	520	744	509	853	117	0	0	0	91	64	2,898
25 -25.9	559	296	538	1,210	84	0	49	0	0	0	2,736
26 -26.9	440	370	459	714	66	0	0	0	0	0	2,049
27 -27.9	221	186	98	366	51	0	0	37	0	0	959
28 -28.9	0	0	0	42	33	0	0	0	0	0	75
29 -29.9	0	0	0	0	0	0	0	0	0	0	0
30 -30.9	0	0	0	0	0	0	0	0	0	0	0
31 -31.9	0	0	0	0	0	0	0	0	0	0	0
32 -32.9	0	0	0	0	0	0	0	0	0	0	0
	14,541	15,700	18,663	30,674	22,974	2,964	1,060	551	877	558	108,562

Table 24. Age-length distribution of released Walleye, open-water-day, Mille Lacs Lake, 2015.

Total length (inches)	0	1	2	3	4	5	6	7	8	9	10+	Total
3 -3.9												0
4 -4.9												0
5 -5.9												0
6 -6.9		452										452
7 -7.9		66	33									99
8 -8.9		162	2,904									3,066
9 -9.9		75	1,653									1,728
10 -10.9		296	19,627									19,922
11 -11.9			8,255									8,255
12 -12.9			11,946	15,874								27,820
13 -13.9			879	9,640								10,519
14 -14.9			500	4,382								4,882
15 -15.9			103	4,314		822						5,239
16 -16.9				1,024	1,016	677	339					3,055
17 -17.9				198	2,154	856		138	116	116		3,578
18 -18.9				45	1,283	1,261	351	472	219			3,630
19 -19.9					32	96	48	64	111		32	382
20 -20.9				6	44	70	6	260	223		223	832
21 -21.9					35	69	152	367	280	64	665	1,633
22 -22.9						5	5	189	104	345	1,119	1,768
23 -23.9							8	134	343	502	1,999	2,985
24 -24.9								7		242	2,649	2,898
25 -25.9											2,736	2,736
26 -26.9											2,049	2,049
27 -27.9											959	959
28 -28.9											75	75
29 -29.9												0
30 -30.9												0
31 -31.9												0
32 -32.9												0
Total	0	1,051	45,900	35,483	4,563	3,856	908	1,631	1,396	1,270	12,506	108,562

Table 25. Sex ratio of killed Walleye by period, Mille Lacs Lake, 2015.

length (in)	Winter		Period 1		Period 2		Period 3		Period 4		Period 5		Period 6		Period 7		Period 8		Period 9		Period 10		Total				
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	Combined		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
6	0	0	0	0	3	9	3	10	0	0	45	45	0	0	0	0	0	0	0	0	0	0	0	55	68	123	
6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	12	
7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	60	0	75	0	127	45	112	11	27	0	0	0	0	0	0	0	0	59	425	484		
8.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
9	0	0	0	0	0	20	0	54	0	252	0	0	10	10	0	0	0	0	0	0	0	0	11	356	366		
9.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	
10	0	0	0	0	101	34	417	139	848	283	1064	725	69	47	4	3	4	3	1	1	0	0	2,657	1,307	3,964		
10.5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	4	-	
11	0	0	0	0	7	14	90	179	233	466	228	328	15	21	0	0	0	0	0	0	0	0	607	1,069	1,676		
11.5	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	-	
12	0	0	0	0	142	0	578	0	1404	0	1037	691	58	39	7	5	8	5	2	1	0	0	3,429	785	4,215		
13	0	0	0	0	11	6	75	38	515	257	208	416	30	60	2	4	0	0	0	1	0	0	892	827	1,719		
14	0	0	1	0	16	13	23	19	133	111	124	93	31	23	1	1	0	0	0	0	0	0	349	276	625		
15	0	0	0	3	12	9	0	83	0	158	188	47	14	3	1	0	3	1	0	0	0	0	231	324	555		
16	0	0	1	1	13	9	34	24	48	33	3	19	1	5	0	2	0	0	2	0	0	0	107	100	207		
17	0	0	1	2	19	44	3	7	39	91	29	35	2	2	0	0	0	0	2	2	0	0	100	194	294		
18	0	0	2	2	71	71	0	28	102	51	14	24	4	7	0	1	0	0	0	0	0	0	205	194	399		
19	0	0	325	149	78	220	53	32	30	137	68	159	0	0	0	0	0	0	0	0	0	0	588	738	1,326		
20	0	0	257	69	422	0	12	5	213	213	0	0	3	2	0	0	0	0	0	0	0	0	963	308	1,271		
21	0	0	3	0	76	0	52	7	19	9	20	8	5	2	0	0	4	2	0	0	0	0	189	30	219		
22	0	0	3	0	13	2	12	2	31	31	32	8	5	1	0	0	0	0	0	0	0	0	102	47	149		
23	0	0	5	0	24	2	39	4	147	13	11	4	6	2	0	0	0	0	2	1	0	0	248	28	276		
24	0	0	4	0	35	0	63	0	188	0	31	0	0	0	0	0	0	0	2	0	0	0	343	-	343		
25	0	0	5	0	17	0	79	0	307	0	26	0	0	0	2	0	0	0	0	0	0	0	461	-	461		
26	0	0	4	0	25	0	80	0	211	0	23	0	0	0	0	0	0	0	0	0	0	0	365	-	365		
27	0	0	3	0	16	0	21	0	127	0	21	0	0	0	0	0	4	0	0	0	0	0	203	-	203		
28	0	0	0	0	0	0	0	0	60	0	16	0	0	0	0	0	0	0	0	0	0	0	80	-	80		
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	3	613	228	1,106	518	1,639	707	4,656	2,234	3,234	2,715	262	250	18	14	23	10	10	7	-	-	12,256	7,086	19,342		
SexRatio	61%	39%	73%	27%	68%	32%	70%	30%	68%	32%	54%	46%	51%	49%	55%	45%	69%	31%	57%	43%	-	-	63%	37%			

Table 26. Length distribution of harvested fishes other than Walleye, open-water-day, Mille Lacs Lake, 2015.

Total length (inches)	Rock Bass	Bowfin	Northern Pike	Common Carp	Smallmouth Bass	Yellow Perch	Common Carp
3.0 -3.4							
3.5 -3.9							
4.0 -4.4							
4.5 -4.9							
5.0 -5.4							
5.5 -5.9							
6.0 -6.4							
6.5 -6.9							
7.0 -7.4							
7.5 -7.9							
8.0 -8.4	38					61	
8.5 -8.9	38					92	
9.0 -9.4	77					31	
9.5 -9.9	77				36	92	
10.0 -10.4	77				72	215	
10.5 -10.9	77				36	92	
11.0 -11.4	38				179	123	
11.5 -11.9					323	154	
12.0 -12.9					502	307	
13.0 -13.9					789	92	
14.0 -14.9					1,005		
15.0 -15.9					789		
16.0 -16.9			62		179		
17.0 -17.9					431		
18.0 -18.9			93		466		
19.0 -19.9			340		215		
20.0 -20.9			309		108		
21.0 -21.9			370		36		
22.0 -22.9			401				
23.0 -23.9			401				
24.0 -24.9			401				
25.0 -25.9			216				
26.0 -26.9			247				
27.0 -27.9			123				
28.0 -28.9			216				
29.0 -29.9		42	93				
30.0 -30.9			62	56			56
31.0 -31.9							
32.0 -32.9							
33.0 -33.9				28			28
34.0 -34.9				28			28
35.0 -35.9							
36.0 -36.9				56			56
37.0 -37.9				84			84
38.0 -38.9							
39.0 -39.9							
40.0 -40.9							
41.0 -41.9							
42.0 -42.9							
Total	422	42	3,334	252	5,167	1,260	252

Table 27. Length frequency distribution of released fishes other than Walleye, open-water-day, Mille Lacs Lake, 2015.

Total length (inches)	Bowfin	Northern Pike	Muskellunge	Black Crappie	Bluegill	Rock Bass	Largemouth Bass	Smallmouth Bass	Yellow Perch
<3.4									91
3.5 -3.9									
4.0 -4.4					61				243
4.5 -4.9									
5.0 -5.4					1,694	39			1,065
5.5 -5.9									
6.0 -6.4					787	155		561	639
6.5 -6.9									
7.0 -7.4					61	349		112	1,278
7.5 -7.9									
8.0 -8.4				194	30	854		1,234	1,521
8.5 -8.9									
9.0 -9.4						931		224	1,187
9.5 -9.9									
10.0 -10.4						1,901		2,392	304
10.5 -10.9									
11.0 -11.4						388		860	61
11.5 -11.9									
12.0 -12.9						310		8,859	122
13.0 -13.9						39	126	4,673	30
14.0 -14.9		227				116	211	9,420	
15.0 -15.9		76					548	10,803	
16.0 -16.9		76					759	9,158	
17.0 -17.9		189					970	9,158	
18.0 -18.9		643					1,602	11,588	
19.0 -19.9		227					337	6,056	
20.0 -20.9		1,286					253	5,607	
21.0 -21.9		227					42	1,196	
22.0 -22.9		1,324						112	
23.0 -23.9		378						75	
24.0 -24.9		1,173							
25.0 -25.9		530							
26.0 -26.9		416							
27.0 -27.9		114	39						
28.0 -28.9	38	341	39						
29.0 -29.9		114							
30.0 -30.9		341							
31.0 -31.9		76							
32.0 -32.9		151							
33.0 -33.9									
34.0 -34.9	38	114							
35.0 -35.9		151	39						
36.0 -36.9		151							
37.0 -37.9		114							
38.0 -38.9		76							
39.0 -39.9		114							
40.0 -40.9		114							
41.0 -41.9			77						
42.0 -42.9		38	39						
43.0 -43.9			39						
44.0 -44.9		38	77						
45.0 -45.9			116						
46.0 -46.9									
47.0 -47.9			39						
48.0 -48.9			39						
49.0 -49.9									
> 50									
Total	76	8,816	542	194	2,632	5,083	4,848	82,090	6,541

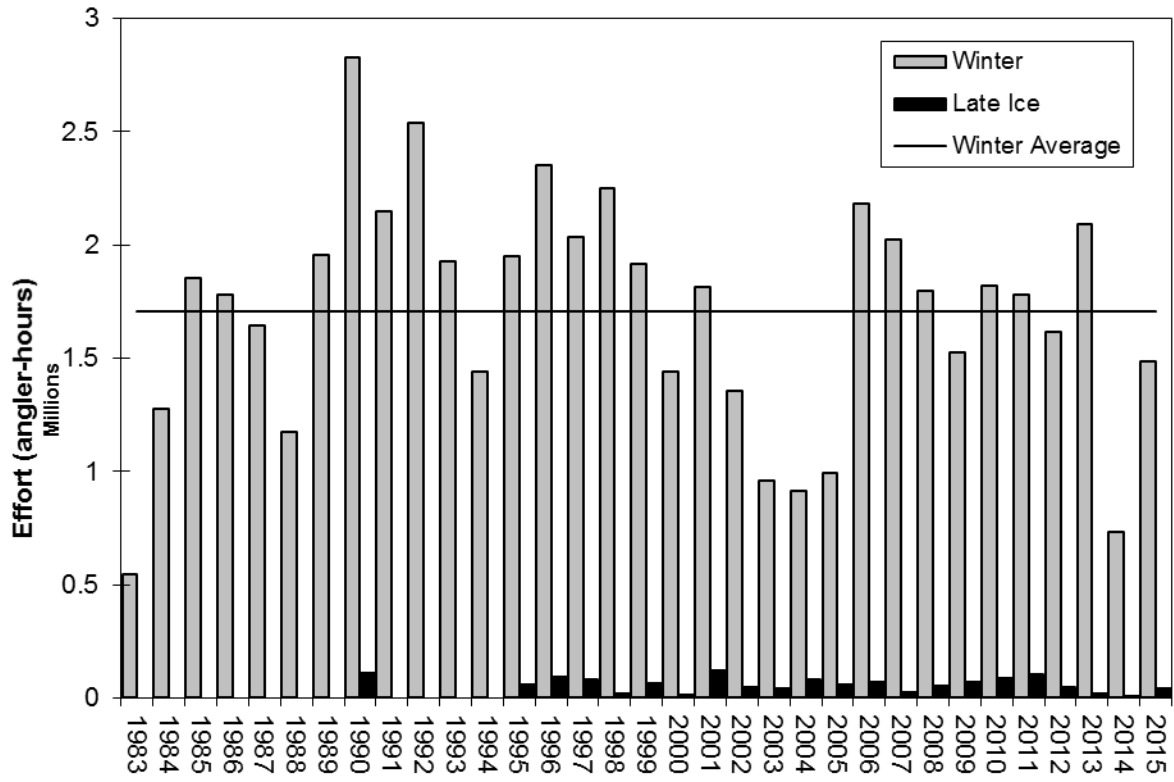


Figure 1. Winter fishing effort, Mille Lacs Lake, 1983-2015

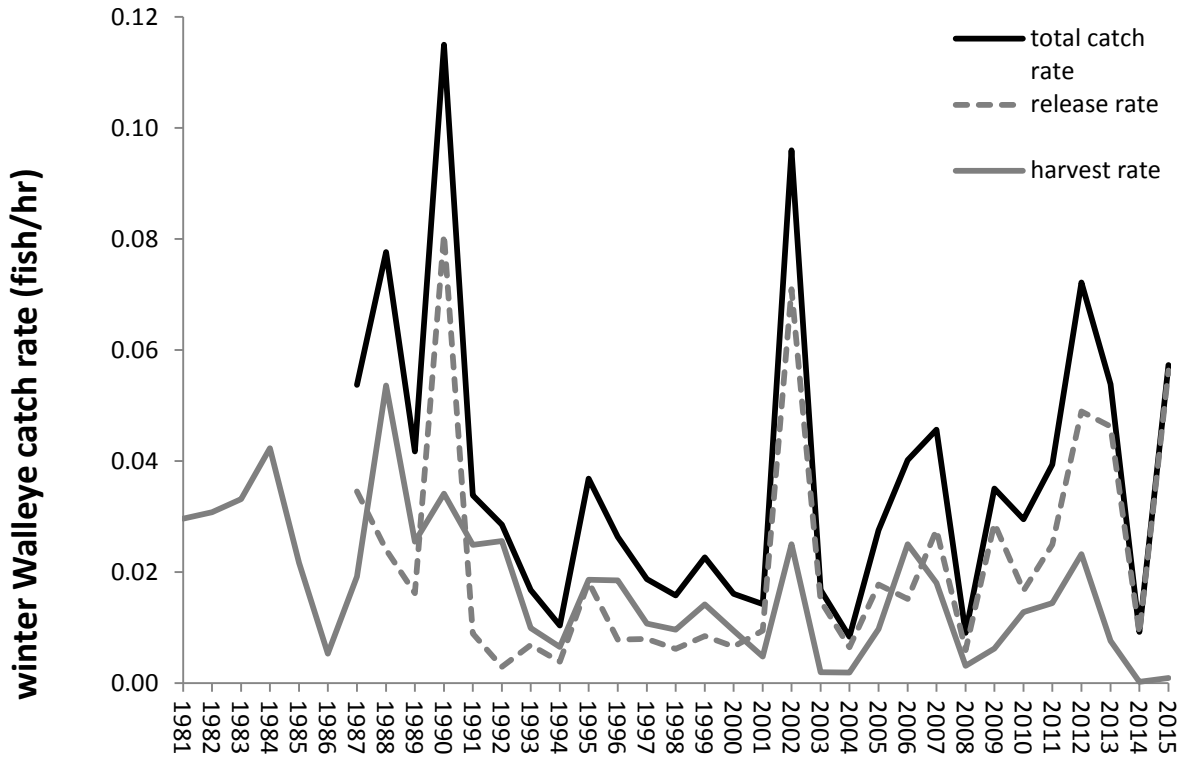


Figure 2. Historical winter Walleye catch rates, Mille Lacs Lake, 1981-2015.

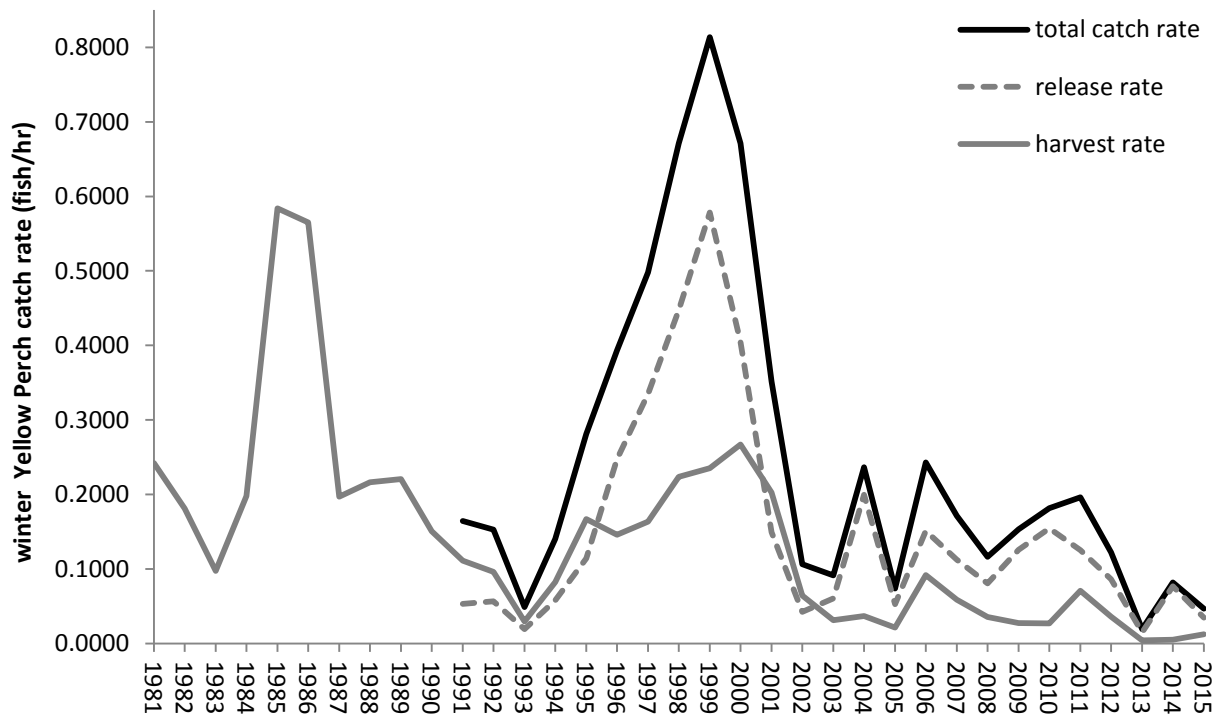


Figure 3. Historical winter Yellow Perch catch rates, Mille Lacs Lake, 1981-2015.

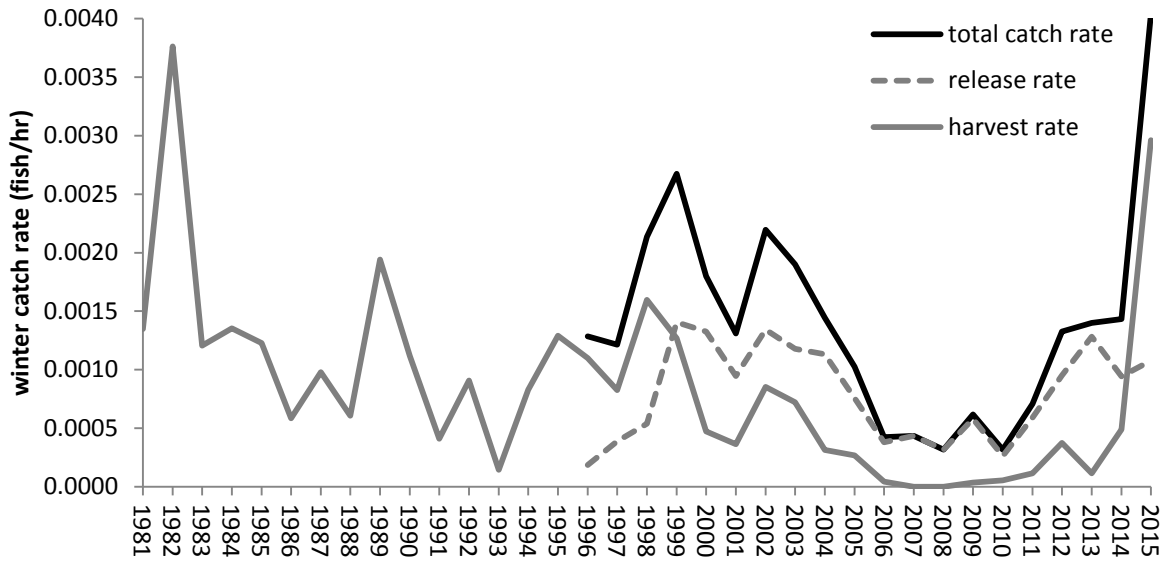


Figure 4. Historical regular winter season Northern Pike catch rates, Mille Lacs Lake, 1981-2015.

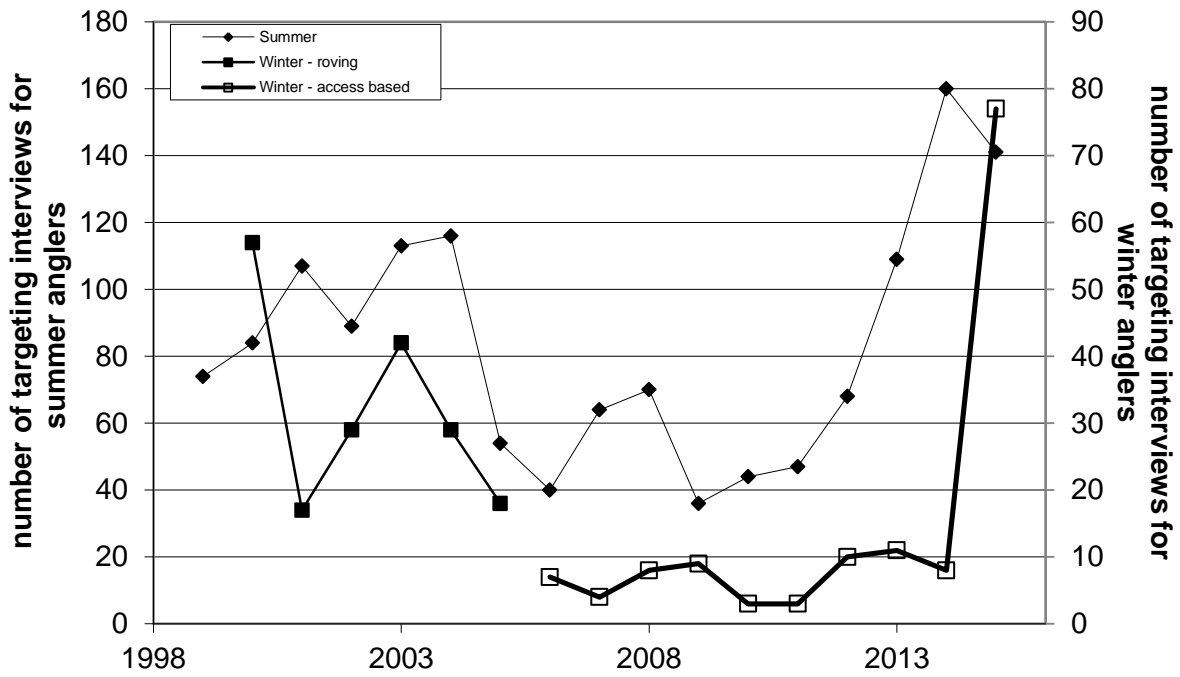


Figure 5. Number of interviews of anglers targeting Northern Pike in summer and winter creel surveys, Mille Lacs Lake, 1999-2015. Open squares indicate non-uniform probability, access based winter creels. Closed squares show roving winter creels.

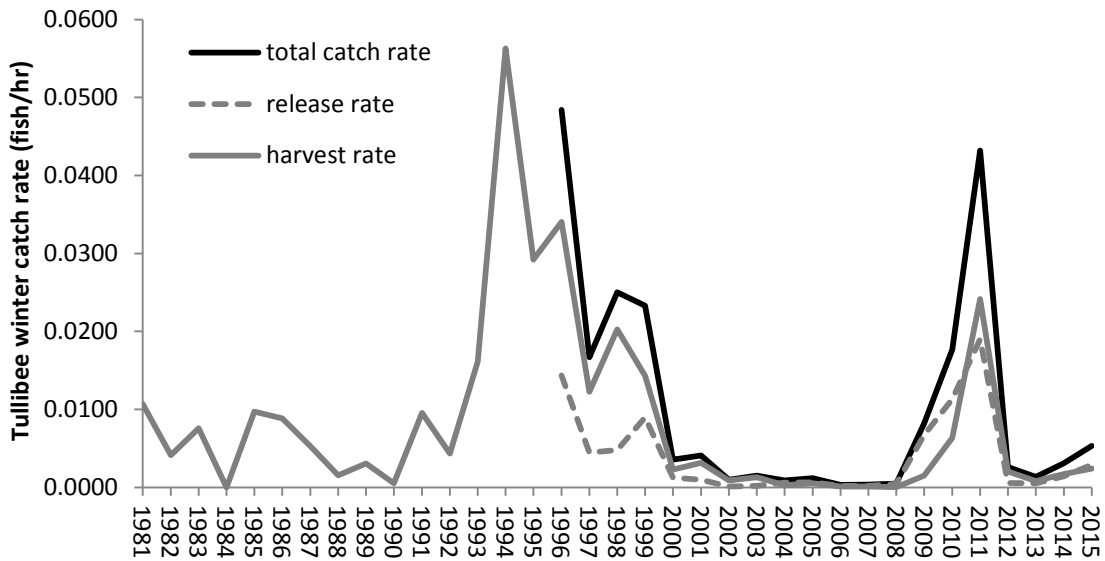


Figure 6. Historical regular winter season Tullibee catch rates, Mille Lacs Lake, 1981-2015.

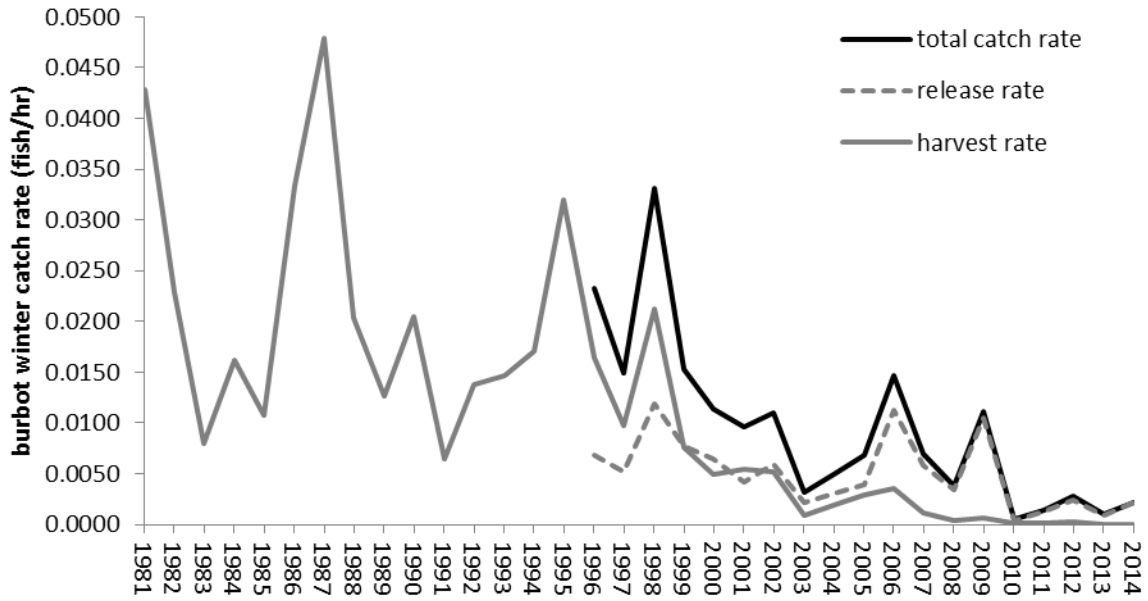


Figure 7. Historical regular winter season Burbot catch rates, Mille Lacs Lake, 1981-2014.

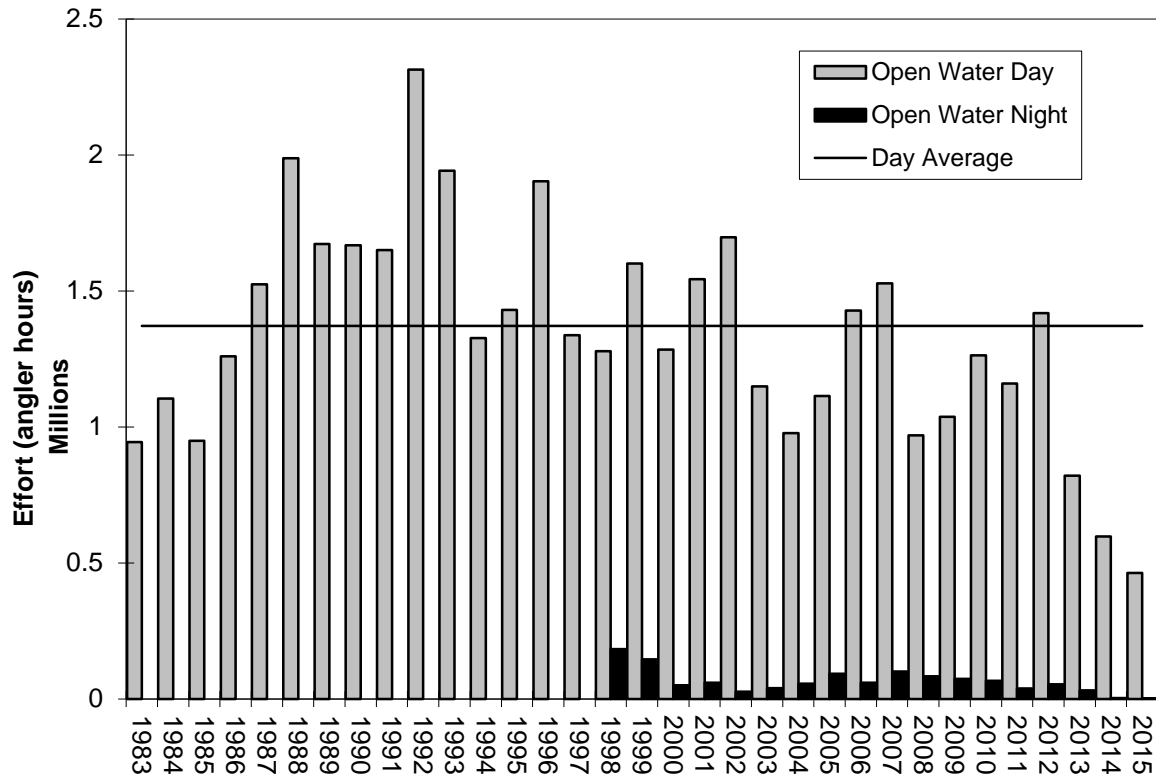


Figure 8. Open water fishing effort, Mille Lacs Lake, 1983-2015.

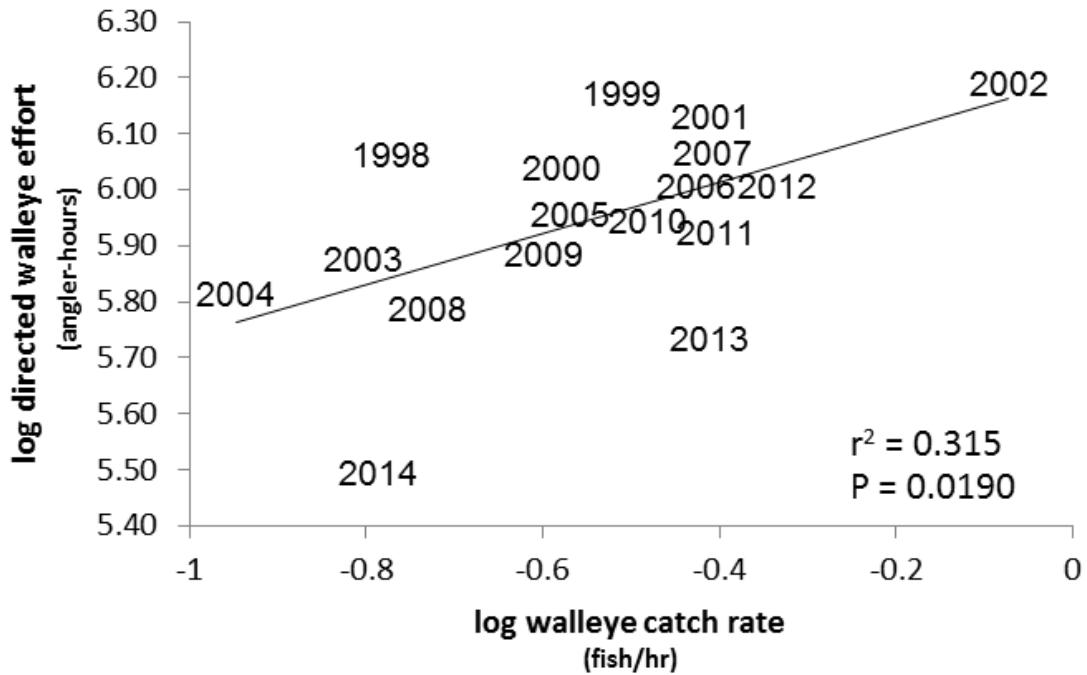


Figure 9. Walleye directed effort at various summer Walleye catch rates, from Mille Lacs Lake from 1998 through 2014. The equation for the trend line is $\log Y = 6.2 + 0.458 \cdot \log X$ and transforms to $Y = 1,584,893 (X^{0.381})$

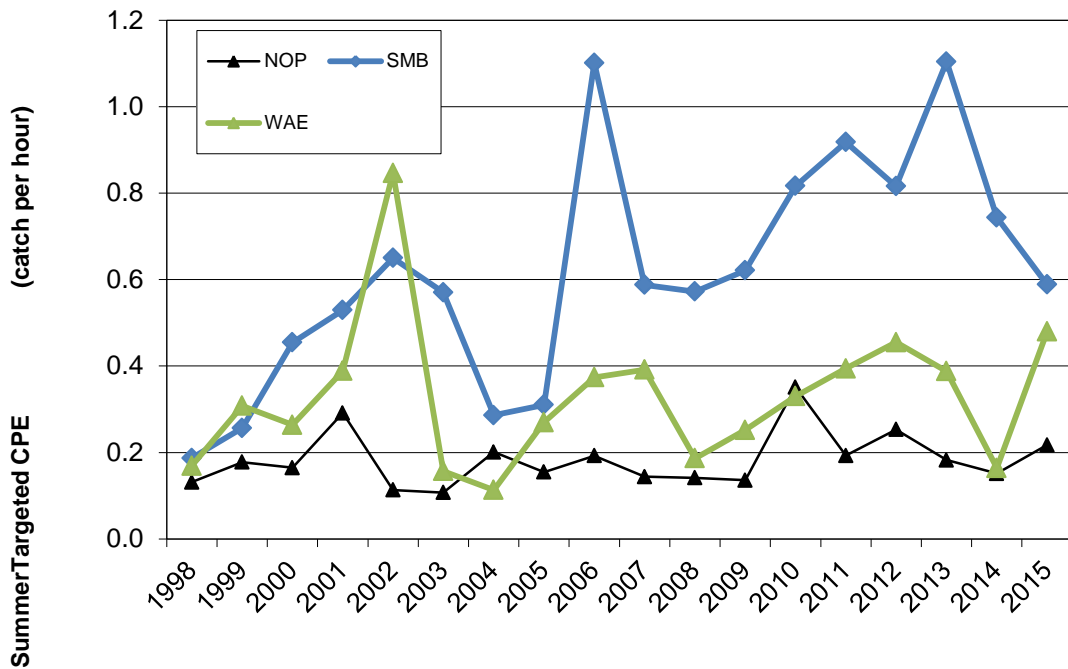


Figure 10. Catch rates for anglers targeting Walleye (WAE), Smallmouth Bass (SMB), and Northern Pike (NOP), open water day, Mille Lacs Lake, 1998-2015.

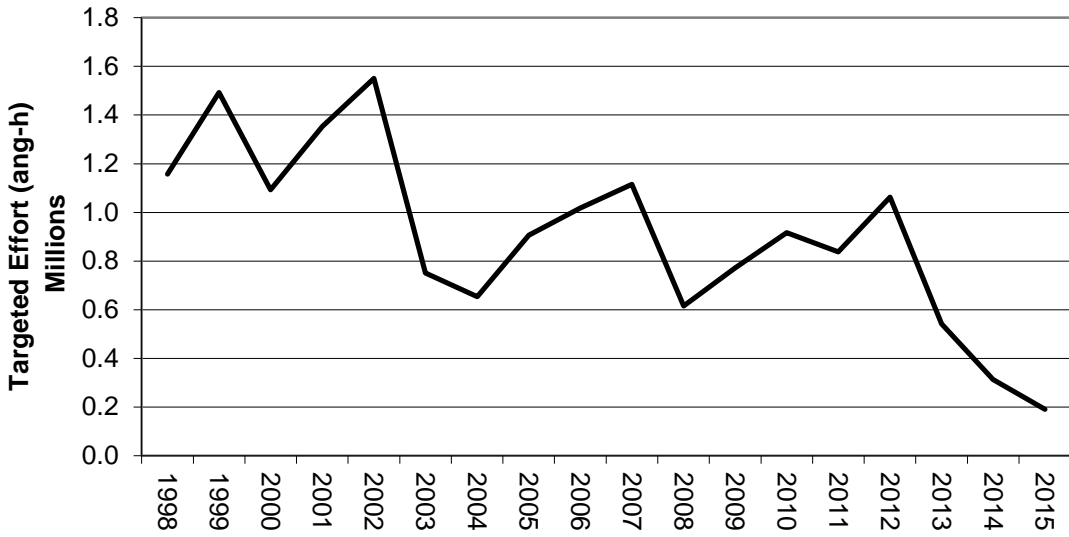


Figure 11. Open water targeted effort for Walleye, Mille Lacs Lake, 1998-2015.

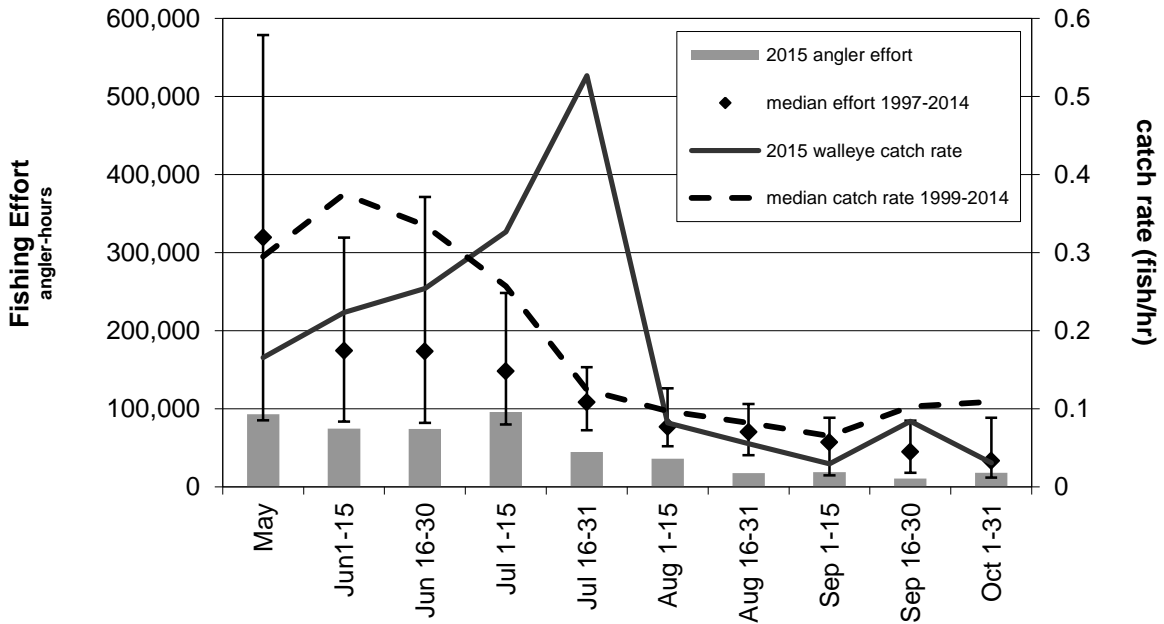


Figure 12. Fishing effort in 2014, by period (grey bars), with median (diamonds) and minimum and maximum (error bars) effort observed from 1997 - 2014. The dashed line represents median catch rate observed from 1999 - 2014.

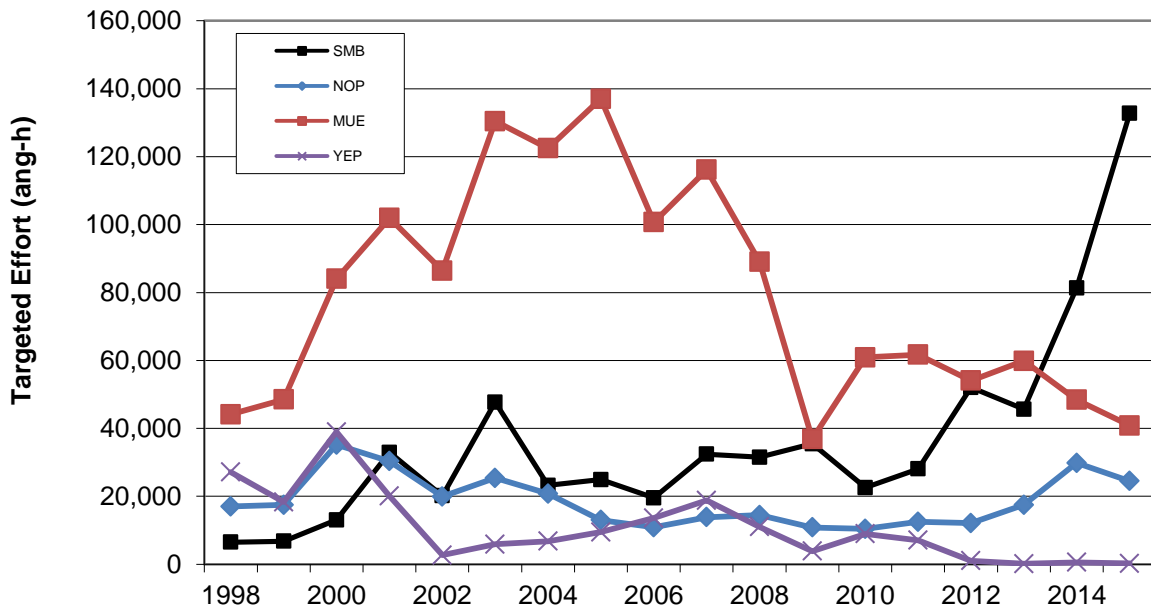


Figure 13. Targeted open water effort for Muskellunge (MUE), Smallmouth Bass (SMB), and Northern Pike (NOP), Yellow Perch (YEP) open water day, Mille Lacs Lake, 1998 - 2015.

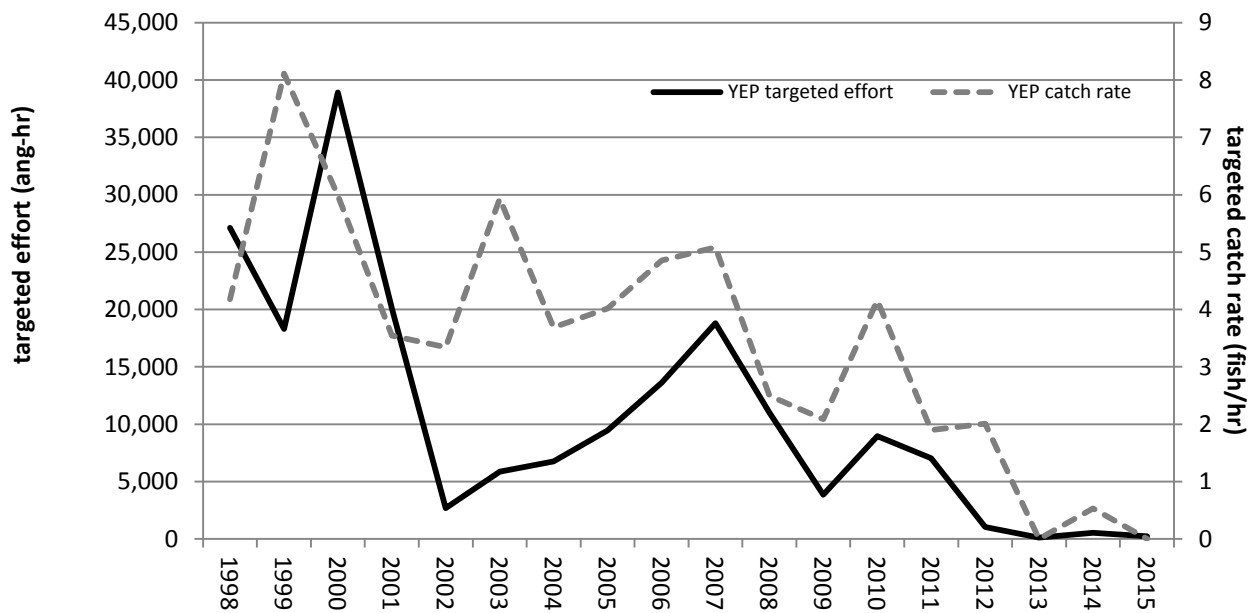


Figure 14. Yellow Perch targeted open water effort and targeted catch rate, Mille Lacs Lake, 1998-2015.

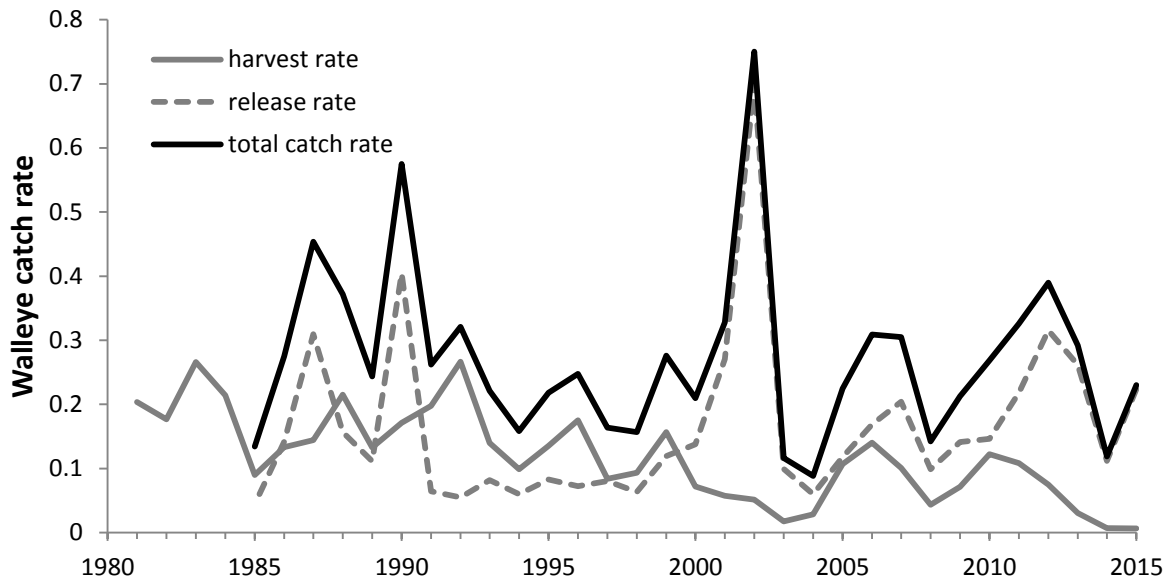


Figure 15. Historical open-water Walleye catch rates, Mille Lacs Lake, 1981-2015.

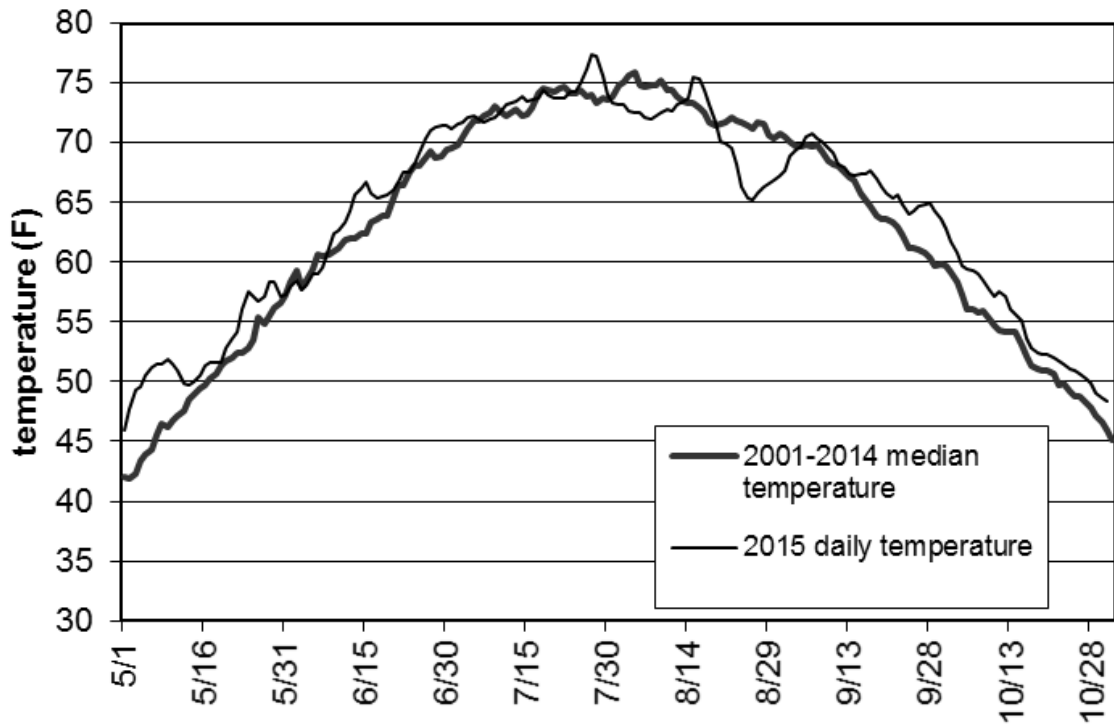


Figure 16. 2001-2014 water temperatures from a mid-lake location in Mille Lacs Lake.

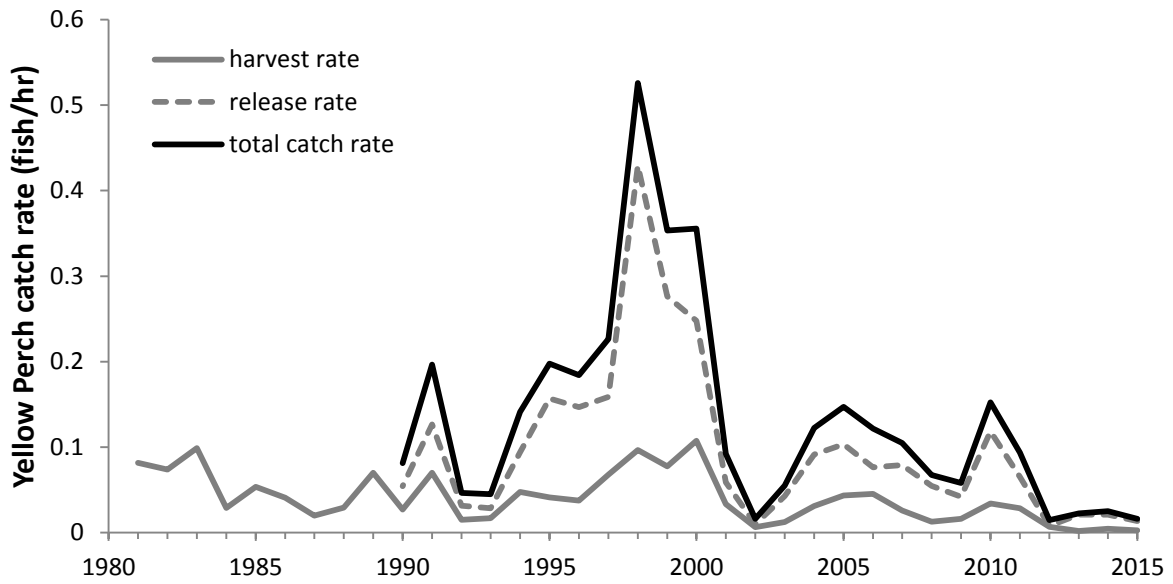


Figure 17. Historical open-water Yellow Perch catch rates, Mille Lacs Lake, 1981-2015.

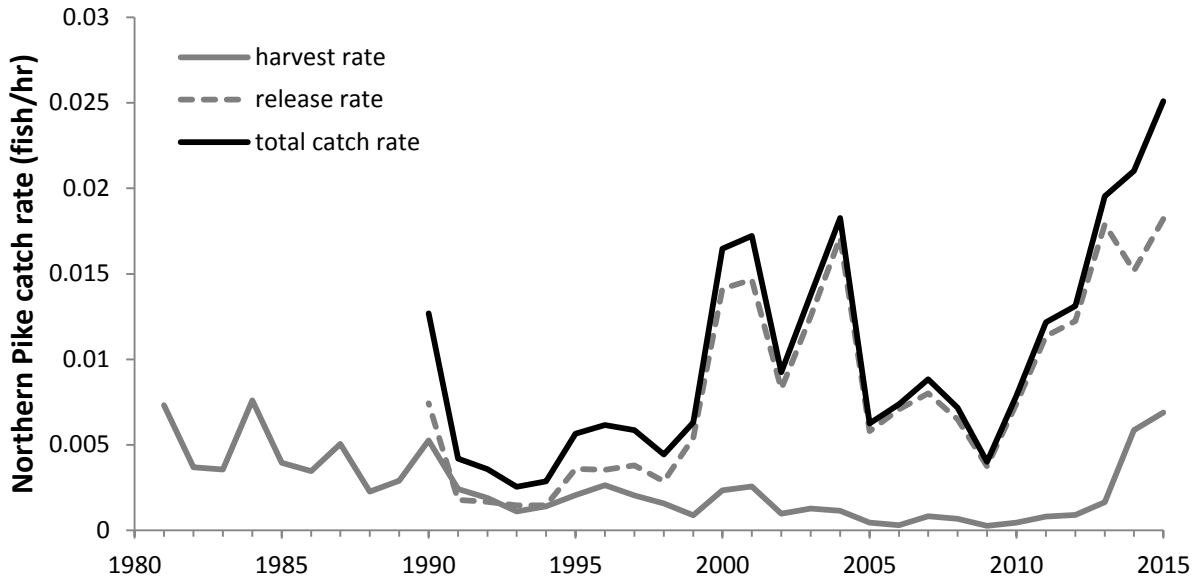


Figure 18. Historical open water season Northern Pike catch rates, Mille Lacs Lake, 1981-2015.

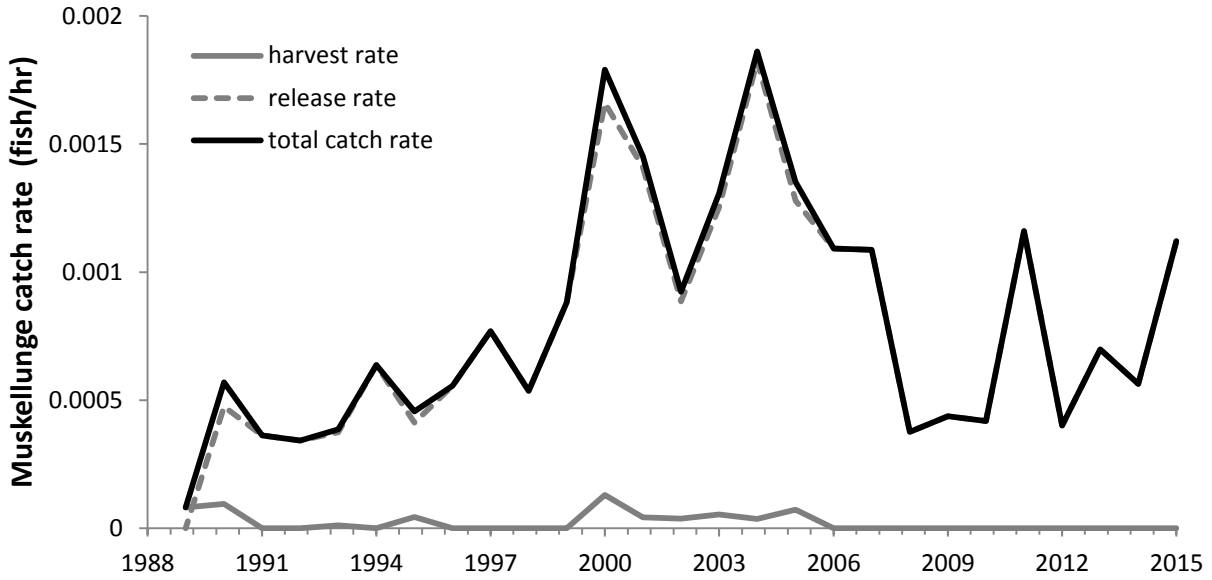


Figure 19. Muskellunge catch rate for targeting anglers, open-water-day, Mille Lacs Lake, 1991-2015.

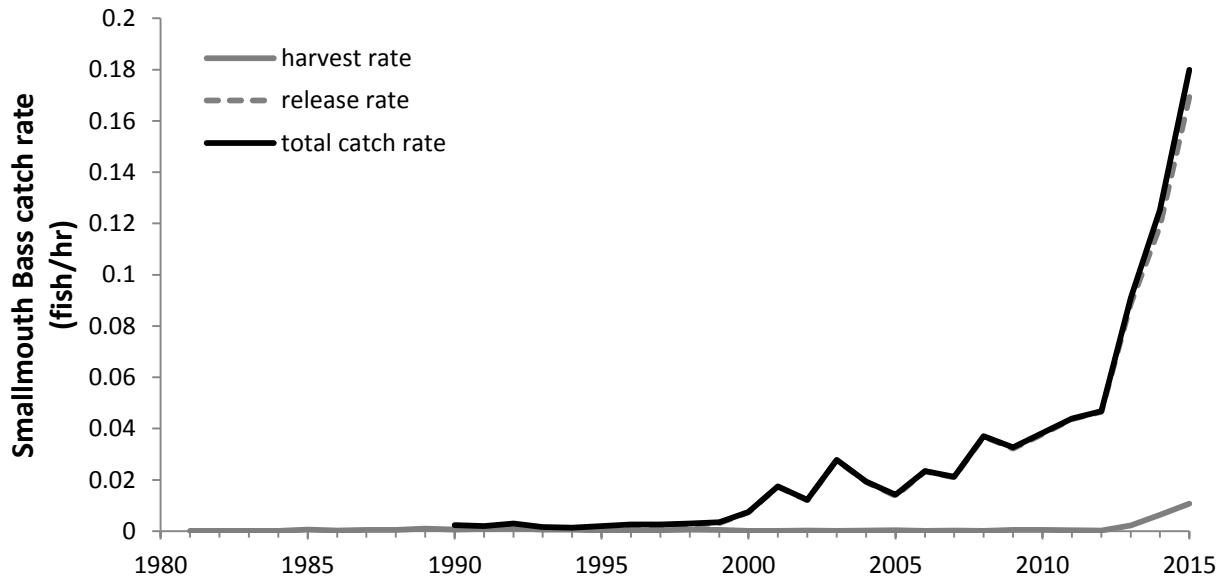


Figure 20. Historical open water season Smallmouth Bass catch rates, Mille Lacs Lake, 1981-2015.

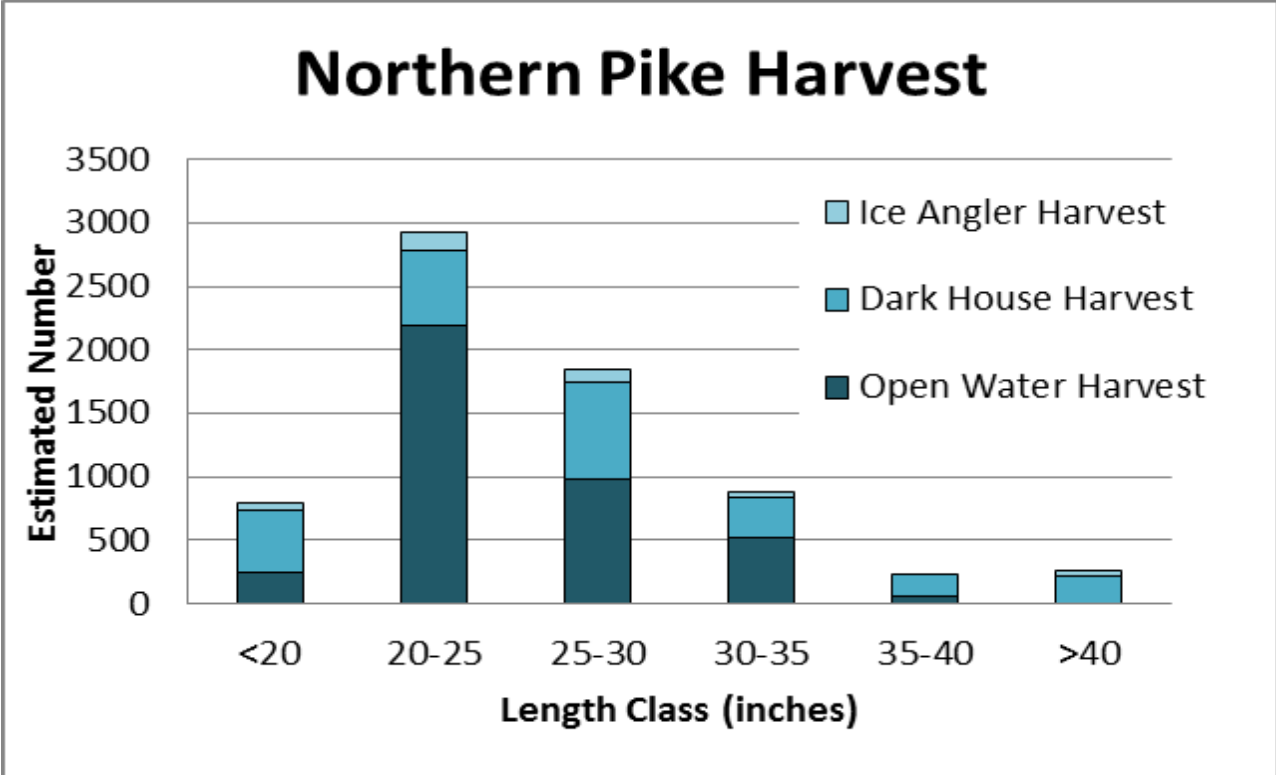


Figure 21. Northern Pike harvest, Mille Lacs Lake, 2014-2015

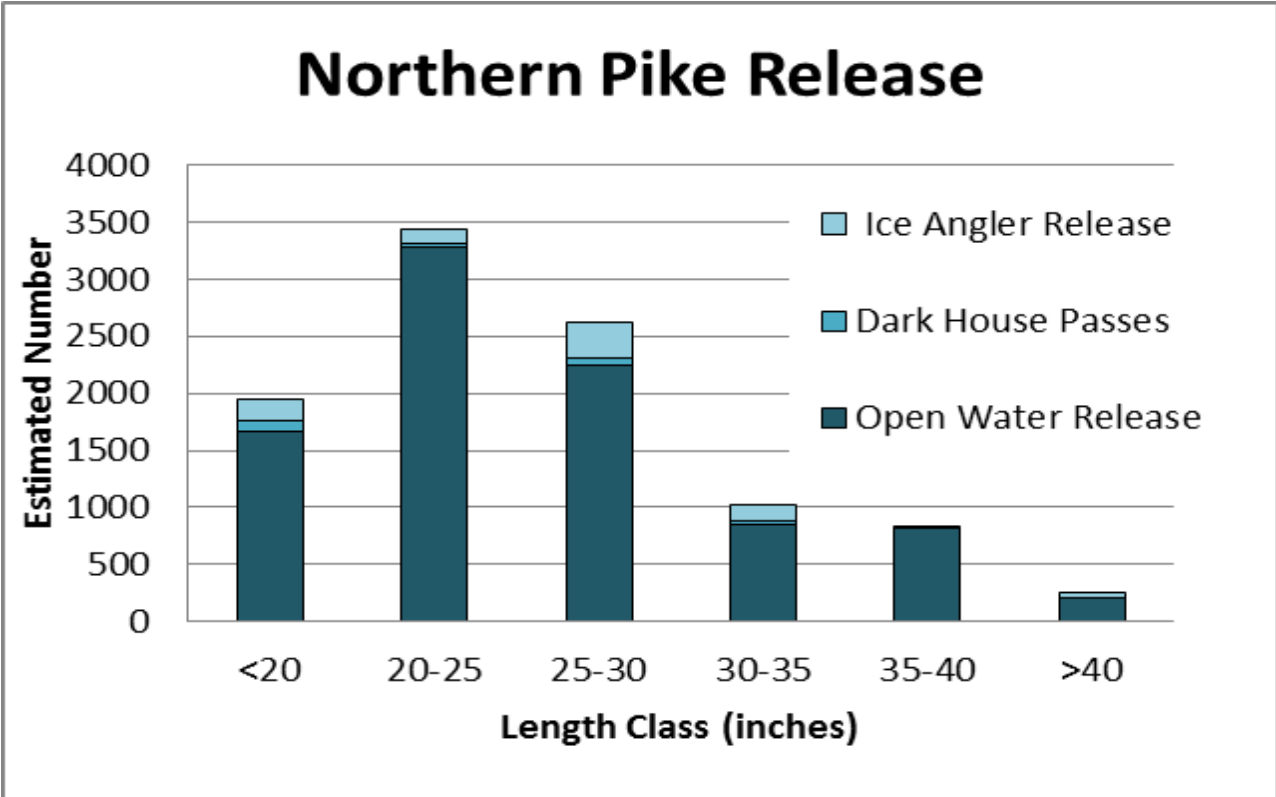


Figure 22. Northern Pike release, Mille Lacs Lake, 2014-2015

Completion Report:

Mille Lacs Lake Creel Survey Report for Open Water Seasons of 2015
And Winter Seasons of 2014-2015

Prepared by: Brian Beyerl, Fisheries Specialist

Approved by: _____
Brad Parsons, Regional Fisheries Approval Date

Funded under Federal Aid by the Sport Fish Restoration Act to Minnesota, F11AF00322