Fish Population Assessments of Ceded Territory Lakes in Wisconsin, Michigan and Minnesota During 2006

by

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Abstract

The Inland Fisheries Section of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) conducted fishery assessment surveys of ceded territory lakes in northern Wisconsin, Minnesota, and the upper peninsula of Michigan. Assessment crews from the U.S. Fish and Wildlife Service and the Fond du Lac, Sokaogon (Mole Lake), and St. Croix Bands assisted with spring and fall surveys.

In the spring, adult walleye (*Sander vitreus*) population estimates were conducted on 16 lakes. A total of 20,647 walleye were sampled from 10,688 acres of water during these surveys. All lakes surveyed had naturally reproducing walleye populations, and density of adult walleye averaged 4.86 (SD = 3.00, range: 0.83 to 13.05) fish per acre. In 11 of these 16 lakes, adult walleye population densities were at least 3.0 fish per acre, indicating that walleye populations were healthy.

On Mille Lacs Lake, Minnesota, assessment crews captured and tagged 1,310 northern pike as part of a tagging study conducted in cooperation with the Minnesota Department of Natural Resources. The total number tagged included 891 females, 400 males, and 19 northern pike of unknown sex. The mean length of all northern pike tagged was 29.3 inches. Assessment crews also participated in a summer gill net recapture survey and captured 108 northern pike, 12 of which had been tagged in the spring. A spring juvenile walleye survey was also conducted on Mille Lacs Lake, in which 962 walleye were caught, 931 of which were estimated to be between the ages of 1 and 4.

A summer fish community survey was conducted in Kentuck Lake, Vilas County, Wisconsin in a continuing effort to try to understand how fish community interactions may affect walleye reproduction and recruitment. A total of 1,104 fish were collected, identified to species, and catch per effort values determined.

During the fall, electrofishing surveys were conducted on 95 lakes in Wisconsin, 12 lakes in Michigan, and 1 lake in Minnesota to determine year class strength of age 0 (young of the year) and age 1 (yearling) walleye. Additional surveys were conducted on Sherman Lake, Vilas County, Wisconsin to obtain fall age 0 and age 1 population estimates. In Wisconsin, a total of 24,848 age 0 and 8,394 age 1 walleye were sampled. In addition, 683 gamefish including muskellunge (*Esox masquinongy)*, northern pike (*Esox lucius*), largemouth bass (*Micropterus salmoides*) and smallmouth bass (*M. dolomieui*) were sampled. In Michigan, a total of 5,329 age 0 and 171 age 1 walleye plus 2 gamefish were sampled during the fall. In Minnesota on Mille Lacs Lake, a total of 7,464 age 0 and 513 age 1 walleye were sampled.

Contents

Acknowledgments

The authors thank GLIFWC fisheries technicians Butch Mieloszyk and Ed White for their assistance in selecting lakes, conducting field work, providing boat maintenance, supervising crews during spring and fall survey seasons, and aging walleye spines. Fisheries aides Kris Arbuckle, Casey Bigboy, Dale Corbine, Shane Cramb, Caine Heffner, Thomas Houle, Joshua Johnson, David Moore, Billy Jo Nelis, Rick A. Nelis, David Parisien, Ron Parisien Jr., Louis Plucinski, Sam Quagon, Greg Smart, Bill Soulier, Duane Soulier, Mitch Soulier, and Charles Wiggins are thanked for operating shocking equipment, sampling fish, and maintaining boats and equipment under demanding conditions. Jennifer Krueger, Database Manager, is thanked for entering fall survey data and for producing Figures A1 and C1. Thanks also to Fond du Lac, Sokaogon (Mole Lake), St. Croix, and U.S. Fish and Wildlife Service personnel for their efforts, and to Neil Kmiecik, Biological Services Director, for editing the manuscript.

Introduction

Fishery assessment surveys of ceded territory lakes were conducted during spring, summer, and fall of 2006 by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to continue developing an understanding of spatial and temporal variability of walleye populations in ceded territory waters of northern Wisconsin, Michigan, and Minnesota. These studies add to an extensive body of information describing walleye populations and associated biological parameters. They provide information needed to update recruitment codes, set harvest quotas, and monitor the impacts of a combined tribal and sport angler fishery on the walleye resource.

Since 1989, a Memorandum of Understanding has been in effect between the U.S. Fish and Wildlife Service (USFWS) and GLIFWC. Under the 2006 agreement, USFWS provided technical support and equipment during spring and fall surveys. The St. Croix Chippewa Assessment Unit was initially equipped and funded in 1990 to conduct surveys; assistance in subsequent years was continued through a subcontract with GLIFWC. Assistance by the Sokaogon (Mole Lake) Band during the spring and fall was also provided through subcontracts with GLIFWC. Assistance was provided by the Fond du Lac Band during the spring northern pike tagging and the fall walleye recruitment survey on Mille Lacs Lake.

Methods

Spring Adult Walleye Population Estimates

Current information on adult walleye populations was collected from 16 lakes in the ceded territory of Wisconsin (Figure A1). Of these, 14 lakes had experienced tribal spearing harvest during the previous year. An adult walleye population estimate was planned for Parent Lake (Baraga County, Michigan). However, after one night of sampling, it was determined based on the condition of the walleye and water temperature that walleye spawning had already occurred, and survey efforts were discontinued.

Nine lakes in Wisconsin are GLIFWC long-term study lakes. Large (greater than 500 acres in area) long-term lakes surveyed in 2006 included Butternut Lake (Forest Co.), Squirrel Lake (Oneida Co.), Kentuck Lake (Vilas Co.), and Squaw Lake (Vilas Co.). Small (less than 500 acres in area) long-term study lakes surveyed in 2005 included Siskiwit Lake (Bayfield Co.), Bearskin Lake (Oneida Co.), Sherman Lake (Vilas Co.), and Bass-Patterson Lake (Washburn Co.). Long-term study lakes are surveyed annually or biannually to collect trend and variability information on adult walleye populations. The continuing goal is to use adult estimates and fall recruitment data from long-term study lakes to develop population models for predicting population size and assessing the accuracy of model predictions. A joint study between GLIFWC and the Wisconsin Department of Natural Resources (WDNR) was initiated in 2006 on Sherman Lake, where a target exploitation rate of 50% for walleye is being used, and harvest quotas were based on the population estimate from the previous year.

Mark and recapture data were used to calculate the adult walleye population estimate for each lake following the Peterson formula (Chapman's modification) described in Ricker (1975). A target number of adult walleye to be marked and recaptured was derived from curves that were developed by Robson and Regier (1964). These curves required an initial estimate of population size. This estimate was obtained either from a previous population estimate survey, or when none existed, from a regression formula estimate for a lake of similar size and recruitment code.

Per agreement between GLIFWC and WDNR biologists, all unknown sex fish less than 15 inches in total length were assumed to be immature fish and excluded from the calculation of adult population estimates. In lakes where spearing occurred prior to the recapture survey, an adjustment was made by reducing the marking sample by the number of marked fish speared. Also, the total number of fish speared before the first recapture run (except for walleye of unknown sex less than 15 inches) was added to the estimate.

Marking periods began soon after ice-out and electrofishing was used to capture fish in all lakes except for Kentuck Lake, where most walleye were captured over four days of fyke netting by the Mole Lake tribal assessment crew, as well as two nights of electrofishing. Seven electrofishing boats and crews were used during the season, including four from GLIFWC, one from USFWS, one from Mole Lake, and one from St. Croix. All boats in all spring electrofishing surveys conducted during 2006 had an arrangement of six umbrella dropper anodes and used pulsed DC at 60 pps. Electrofishing occurred after sunset.

During the marking period, each crew concentrated on finding and sampling walleye spawning areas. With this concentrated effort crews were able to mark the target number of walleye in one to four nights, depending upon lake size and the number of crews used.

Walleye were measured (total length in inches) and sexed (male, female, or unknown). Crews were instructed to collect a scale or spine sample from ten male fish per half-inch group between 11.0 inches and 16.9 inches, and from five fish per half-inch group for males of other sizes and females. Generally, spines were taken from fish 10 inches and larger, and scales were taken from smaller fish. Spines and scales were analyzed at a later date for age determination. On long-term study lakes, fish were tagged with yellow colored numbered Floy tags prior to release. Fish on all other lakes were given a single caudal fin notch. After being tagged or notched, fish were released away from the capture area, typically near the middle of the lake.

Recapture surveys with electrofishing equipment were conducted one or two nights after the marking period ended. Surveys covered the entire shoreline of each lake. For each fish captured, length, sex and mark, if any, were determined.

Northern Pike Tagging Study - Mille Lacs Lake

A cooperative northern pike tagging study on Mille Lacs Lake, Minnesota was begun in 2005 and completed in 2006 by GLIFWC, the Fond du Lac Band (FDL), and the Minnesota Department of Natural Resources. Data from this survey was used to generate northern pike population estimates. Assessment crews from GLIFWC and Fond du Lac used fyke nets set in

spawning locations to capture northern pike (Figure A5). Fyke nets were set from April 5 through April 13 to coincide with the northern pike spawning period, which takes place in the early spring, primarily before walleye spawning and while much of the lake is ice-covered. All newly captured northern pike were measured (total length in inches), sexed (male, female, or unknown), and their spawning condition determined. Unmarked northern pike 16 inches and larger were tagged with two individually numbered T-bar anchor tags on the left side of the fish. Northern pike smaller than 16 inches were not tagged. Tag numbers were recorded for any fish captured that had been tagged previously, as well as length, sex, and spawning condition information.

After the tagging phase, tagged and untagged northern pike were allowed to mix for about a month. As part of the recapture phase, a GLIFWC assessment crew used graded mesh gill nets to capture northern pike from May 8 through May 19. Gill nets were set at a variety of locations throughout Mille Lacs Lake, typically for about one hour, but no longer than two hours. The gill nets measured 300 feet in length by 6 feet deep and consisted of 3 panels of 100 foot graded mesh (1.5, 2.0, and 2.5 inch bar mesh). Captured northern pike were measured (total length in inches) and sexed (male, female, or unknown) by external visual inspection. Northern pike were examined for tags and tag numbers from marked fish were recorded, but no new tags were applied. The proportion of marked to unmarked fish was used to estimate abundance of northern pike in the lake (Schwarz 2006).

Spring Juvenile Walleye Survey

A juvenile walleye survey was conducted in Mille Lacs Lake, Minnesota on May 22 through May 24. The survey began approximately three weeks after the adult spawning period. Electrofishing gear was used to capture fish at night.

The entire shoreline of the lake was covered once over the three nights of the survey. Total length was recorded for each walleye captured. No walleye were tagged or given fin clips. Scale samples for fish less than 10 inches in length and spine samples for fish 10 inches in length and larger were collected for aging from a maximum of ten fish per half-inch group. Age data was used to apportion the catch by age for ages 1 through 4.

Summer Fish Community Survey

A fish community assessment survey was conducted on Kentuck Lake (Vilas Co.) from June 20 through June 23. During the survey period, one fyke net with 1 inch mesh and seven fyke nets with 3/8 inch mesh were set for four nights in the same locations as in previous years. Nets were set at night and lifted each morning. Fish were identified to species and measured. Fish were released away from shore.

Fall Recruitment Surveys

Fall electrofishing surveys were conducted in 108 ceded territory waters including 95 lakes in Wisconsin, 12 lakes in Michigan, and Mille Lacs Lake in Minnesota. Fall surveys were conducted to evaluate recruitment of age 0 (young of the year) and age 1 (yearling) walleye, and to develop data to assess whether recruitment codes were appropriate or needed to be changed. Multiple surveys were conducted on Sherman Lake (Vilas Co.) to conduct an age 0 and age 1 mark and recapture population estimate.

Electrofishing boats sampled lakes four nights per week during the approximately six-week period from September 11 through October 25. Eight assessment crews were used during the season, including four from GLIFWC, one from USFWS, and crews from the Fond du Lac, Mole Lake, and St. Croix tribes. The number of boats assigned to each lake was based upon the shoreline length to be surveyed, and whether the entire shoreline or index station segments would be surveyed. For planning purposes, it was assumed that one boat was needed for every 5-7 miles of shoreline. Index stations were sampled on 16 of the larger waters.

The primary objective of these surveys was to assess year class strength of stocked or naturally reproduced age 0 and age 1 walleye. Larger walleye and other game fish (e.g., bass, northern pike and muskellunge) were of secondary priority and collected if this effort did not detract from the collection of juvenile walleye. Panfish and other species were collected as a third priority. Results of surveys were used to determine whether lake recruitment code changes were needed. Other uses included trend analysis of important mixed fishery lakes maintained by natural reproduction, and the development of a regional perspective of annual walleye year class strength.

Electrofishing began at dusk and continued until the entire shoreline or set of index stations was sampled. Exceptions preventing the completion of a survey on a given lake included equipment problems, severe weather, and high waves. All fish collected were identified to species and length measured (total length in inches). For walleye only, a scale sample was collected from five fish per half-inch group between 5.5 and 12.0 inches to determine the length range and numbers of age 0 and age 1 walleye.

Protocols were adopted by GLIFWC in the fall of 2004 to reduce the likelihood of spreading aquatic invasive species. All equipment coming in contact with water was checked visually for aquatic invasive species each night before entering the water and again after leaving the water. Boats and trailers were pressure-washed or steam-cleaned daily. In addition, crew leaders documented any aquatic invasive species observed, and gathered information regarding signs posted at boat landings pertaining to these species.

Surveys on the following four Wisconsin lakes were conducted jointly by GLIFWC and WDNR, and the results summarized and reported by GLIFWC: Bear Lake (Barron Co.), Nelson Lake (Sawyer Co.), Lac Vieux Desert (Vilas Co.), and Long Lake (Washburn Co.). Surveys on the following five Wisconsin lakes were conducted jointly by GLIFWC and WDNR, and the results summarized and reported by WDNR: Red Cedar Lake (Barron Co., on October 17),

Pelican Lake (Oneida Co.), Balsam Lake (Polk Co.), Round Lake (Sawyer Co.), and Trout Lake (Vilas Co.). All data from these nine surveys are reflected in this report, regardless of which agency did the actual collection of fish. Several Wisconsin lakes were surveyed by both GLIFWC and WDNR where each agency generated a separate report summarizing their own data.

Fall Age 0 and Age 1 Walleye Population Estimate

A mark-recapture age 0 and age 1 walleye population estimate was conducted during the fall on Sherman Lake (Vilas Co.). The lake was surveyed using electrofishing gear on four nights, and a temporary fin clip was used to mark all walleye less than 15 inches, although no walleye were marked the first night due to miscommunication. Crews were informed that if time permitted, they should return to areas of higher concentrations of walleye to mark additional fish, keeping a separate record of these captures.

Scale samples were collected from ten fish per half-inch group between 5.5 and 11.9 inches, and five per half-inch group between 12.0 and 14.9 inches. Scale samples were aged to determine the number of age 0 and age 1 walleye captured so that the population estimates could be calculated. Population estimates were calculated using the Petersen method.

Results and Discussion

Spring Adult Walleye Population Estimates

A total of 20,647 walleye were sampled from 10,688 acres of water during the spawning adult walleye population estimate period. Adult walleye population estimates for 16 stocks in Wisconsin (Table A1) ranged from 299 to 12,489 fish. Estimated population densities ranged from 0.83 per acre for Butternut Lake, Forest Co., to 13.05 walleye per acre for Kentuck Lake, Vilas Co. (mean = 4.86, SD = 3.00) (Figure A2).

The Report on Biological Issues (1988) listed several indicators of healthy reproducing walleye stocks agreed to by state and tribal biologists. Two indicators included: a) population density of three adult walleye per acre; and, b) the presence of five year classes of females in a sample, or three year classes in a sample of 100 females that each contribute at least 15 percent of the sample.

Eleven of the 16 lakes surveyed had recruitment codes of NR (Table A1), indicating that natural reproduction was the only source of recruitment. The remaining five lakes had recruitment codes of C-NR, indicating that some stocking occurred even though the population was sustained by natural reproduction. Eleven of these 16 lakes had walleye densities of greater than 3.0 per acre.

Male-to-female sex ratios (Table A1) were skewed in favor of males in all lakes surveyed. The reliability of these values is questionable in some lakes, however. Electrofishing may bias sampling in favor of males (Shively and Kmiecik 1991) because males spend more

time in shallow water than females during the spawning period (Colby et al. 1979), and many females are out of effective capture range except during or after spawning.

A total of 1,391 female, 18,140 male, and 1,116 unknown sex walleye were measured (Figure A3, Table A2) and a subsample aged (Figure A4). Female lengths ranged from 11.5 to 28.5 inches, male lengths ranged from 8.5 to 23.0 inches, and lengths for walleye of unknown sex ranged from 8.5 to 25.5 inches. Age-length tables were developed for subsets of female, male, and unknown sex walleye in each of the lakes sampled (Tables A3 - A18). These age-length tables by themselves are not necessarily representative of the size and age structure of the population, since spines for aging were collected according to a stratified sampling scheme. However, age-length tables reflective of the population can be developed when coupled with length-frequency data from the population estimates. Also, the age-length tables should be sufficient to detect the presence or absence of year classes. Regarding the second population health criterion, 12 of the 16 lakes had populations with at least five year classes of females in the aging sample.

Northern Pike Tagging Study - Mille Lacs Lake

A total of 1,310 northern pike were captured with fyke nets and tagged during the spring marking period of the tagging study on Mille Lacs Lake (Table A19, Figure A6). A total of 643 northern pike were tagged at Vineland Bay, more than at any other location. Nets were set at five different locations, and were set from two to nine nights at each location.

A total of 891 females, 400 males, and 19 northern pike of unknown sex were captured in fyke nets and tagged (Table A19). Females ranged from 19.4 to 45.6 inches in length with an average length of 31.3 inches, males ranged from 12.4 to 37.4 inches in length with an average length of 25.0 inches, and northern pike of unknown sex ranged from 9.0 to 31.8 inches in length with an average length of 21.6 inches (Figure A7). The mean length of all northern pike tagged was 29.3 inches.

A total of 108 northern pike were captured during the gill net recapture surveys, of which 12 had been tagged or observed during the marking period and 96 had not. Of the 108 northern pike captured, 51 were females ranging from 22.5 to 41.6 inches with a mean length of 28.9 inches, 55 were males ranging from 20.5 to 33.6 inches with a mean length of 25.8 inches, and 2 were of unknown sex of 17.7 and 23.2 inches. The mean length of all northern pike captured in the gill net survey was 27.2 inches.

Spring Juvenile Walleye Survey

During the juvenile walleye survey on Mille Lacs Lake, a total of 962 walleye were captured over 74.5 miles of shoreline (Table A20). Lengths of walleye captured ranged from 4.7 inches to 27.0 inches (Figure A8). An age-length table was developed using spines and scales collected from a subset of fish (Table A21), and used to apportion the catch by age. Catch per mile values for age 1 through 4 walleye were 5.2, 2.2, 2.9, and 2.2 per mile, respectively.

Summer Fish Community Survey

An effort to rehabilitate the walleye population of Kentuck Lake (Vilas Co.) began in 1998, and included stocking walleye in 1999 and 2000. GLIFWC has conducted annual monitoring of the fish community in this lake since 1997 (Table B1, Figure B1). These surveys may contribute to a better understanding of the reasons for the lack of natural reproduction of walleye during 13 consecutive years from 1988 through 2000. The fish community survey conducted in 2006 on Kentuck Lake caught 11 species and 1,104 fish (Table B2). The most abundant species captured was bluegill (72.9% of the fish), followed by rock bass (20.0%) and pumpkinseed (3.5%).

Fall Recruitment Surveys

Fall recruitment surveys were conducted on 108 lakes in the ceded territories of Wisconsin, Michigan and Minnesota (Figure C1, Table C2). Survey effort included 398.2 hours of electrofishing along 1,028.8 miles of shoreline resulting in the collection of 54,565 walleye.

From 98 surveys conducted on 95 lakes in Wisconsin, 344.1 hours of electrofishing along 896.2 miles of shoreline resulted in a collection of 40,256 walleye. In Michigan, 12 lakes were surveyed in 36.9 hours along 92.8 miles of shoreline, resulting in the collection of 6,255 walleye. In Mille Lacs Lake, 8,054 walleye were collected in 17.3 hours along 39.8 miles of shoreline (Table C2).

A total of 24,848 age 0 walleye were caught in Wisconsin. Age 0 walleye were caught in 90 of the 95 lakes surveyed. Over all 98 surveys, catch per effort (CPE) for age 0 walleye ranged from 0.0 to 221.0 (mean = 34.5, median = 14.8, SD = 47.0) per mile. A total of 8,394 age 1 (yearling) walleye were caught in 90 of the lakes surveyed. Over all surveys, age 1 CPE ranged from 0.0 to 84.1 (mean = 11.0, median = 5.7, SD = 14.0) yearlings per mile.

In order to gauge the relative strength of the 2006 and 2005 walleye year classes monitored in the 2006 fall surveys as age 0 and age 1 fish, plots of mean and median CPE values were generated for each year from 1986 through 2006 for all Wisconsin lakes with recruitment codes of NR or C-NR with at least 75% of the shoreline surveyed, including lakes surveyed by WDNR and including CPEs of 0.0 (Figures C2 and C3). For 1986 through 2006, the averages of the yearly mean and median age 0 CPEs are 32.9 and 18.4 per mile, respectively, and the averages of the yearly mean and median age 1 CPEs are 10.7 and 6.3 per mile, respectively. For 2006, the mean and median age 0 CPEs were 33.0 and 16.2 respectively, and the mean and median age 1 CPEs were 11.9 and 6.0 respectively.

In Michigan, 5,329 age 0 walleye were caught. Age 0 walleye were caught in 9 of the 12 lakes surveyed. Age 0 CPE ranged from 0.0 to 203.7 (mean = 23.1, median = 1.0, SD = 57.9) per mile. A total of 171 age 1 walleye were caught in 9 lakes. Age 1 CPE ranged from 0.0 to 6.1 (mean = 2.0, median = 0.8, SD = 2.1) yearlings per mile.

In Minnesota, 7,464 age 0 and 513 age 1 walleye were caught in Mille Lacs Lake, yielding CPEs of 187.5 and 12.9 per mile, respectively. Length frequencies from the survey on Mille Lacs Lake are shown in Figure C4, and results from all fall recruitment surveys conducted by GLIFWC on Mille Lacs Lake are shown in Figure C5.

Table C2 includes summaries of gamefish including muskellunge, northern pike, largemouth bass, and smallmouth bass. Various panfish and rough fish species were also collected but their numbers are not reported here. Summary statistics for NR and C-NR lakes, C-ST lakes, and NR-2 lakes in Wisconsin, Michigan and Minnesota are given in Table C3. Statistics include the average CPE, the standard deviation, the number of lakes, and the range of CPE values for all lakes and for lakes where a year class was detected. Data were plotted for each recruitment code in Figures C6 and C7.

Fall Age 0 and Age 1 Walleye Population Estimate

A total of 789 age 0 and age 1 walleye were marked during the three nights of the age 0 and age 1 population estimate on Sherman Lake. Age 0 and age 1 densities obtained from the fall population estimates calculated by the Petersen method were 24.8 and 7.0 per acre respectively (Table C4). Mean age 0 and age 1 catch per effort (CPE) values were 96.7 and 34.2 per mile respectively.

References

Colby, P. J., R. E. McNicol, and R. A. Ryer. 1979. Synopsis of biological data on walleye (*Stizostedion v. vitreum*, Mitchell 1818). Food and Agricultural Organization of the United Nations, Rome.

Report on Biological Issues. 1988. LCO et al. V. State of Wisc. August, 1988.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bulletin of the Fisheries Research Board of Canada. 382 pp.

Robson, D.S. and H.A. Regier. 1964. Sample size in Peterson mark-recapture experiments. Transactions of the American Fisheries Society 93: 215-226.

Schwarz, C.J. 2006. Analysis of the mark-recapture studies for northern pike in Mille Lacs, Minnesota: 2006 report. Work performed under contract A82526 for the Department of Natural Resources - State of Minnesota. Dated December 6, 2006.

Shively, J.D. and N. Kmiecik. 1991. Fish population assessment of ceded territory lakes in Wisconsin during 1990. Great Lakes Indian Fish and Wildlife Commission Administrative Report 91-2. Odanah, WI.

Appendix A: Spring Survey Data

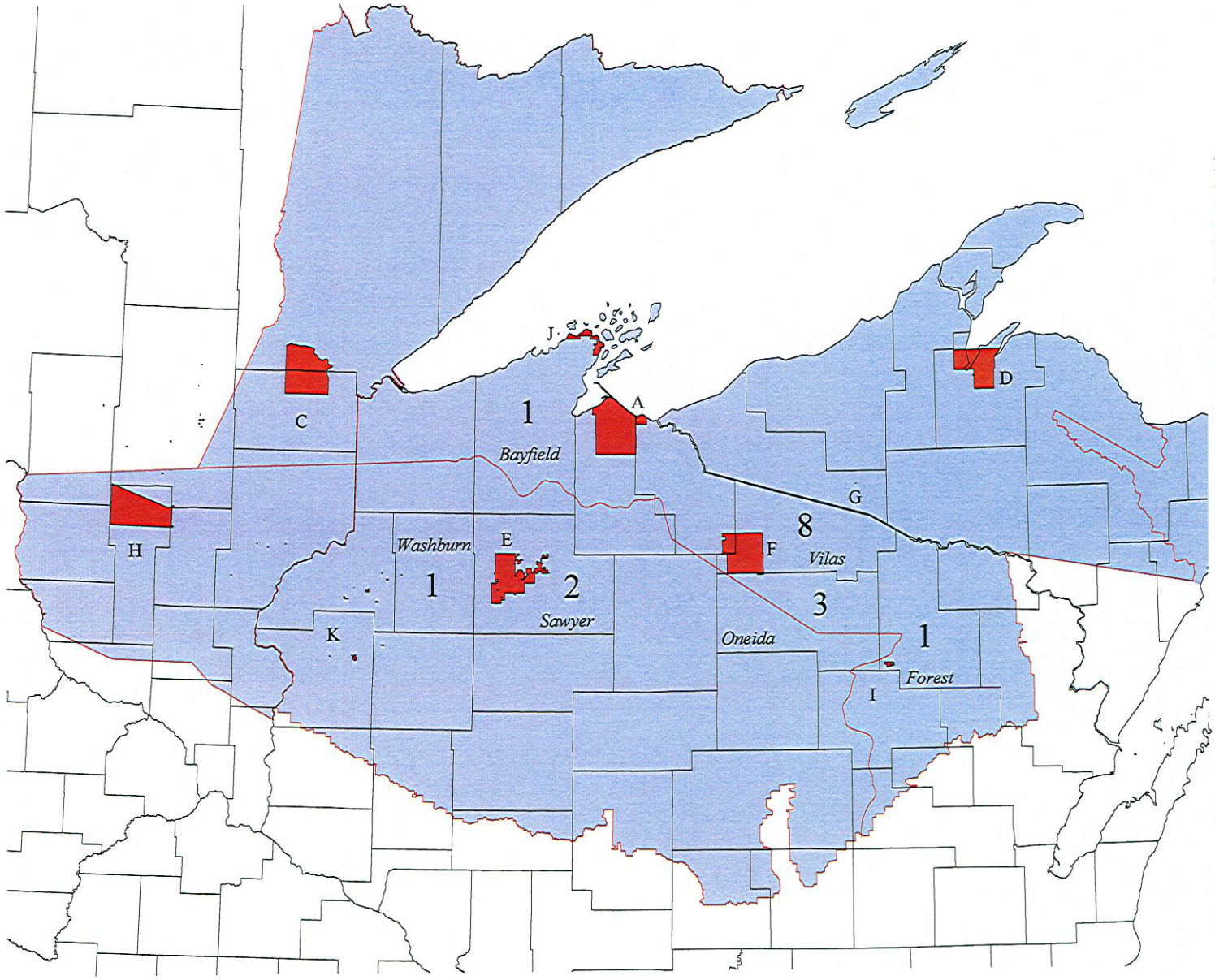


Figure A1. Ceded territory in Wisconsin, Michigan, and Minnesota with the number of lakes per county where spring adult walleye population estimates were conducted by GLIFWC during 2006.

The ceded territory boundaries and the tribal reservation boundaries are representations and may not be the actual legally binding boundaries.

Figure A2. Estimated Adult Walleye Densities by Recruitment Code, Spring 2006

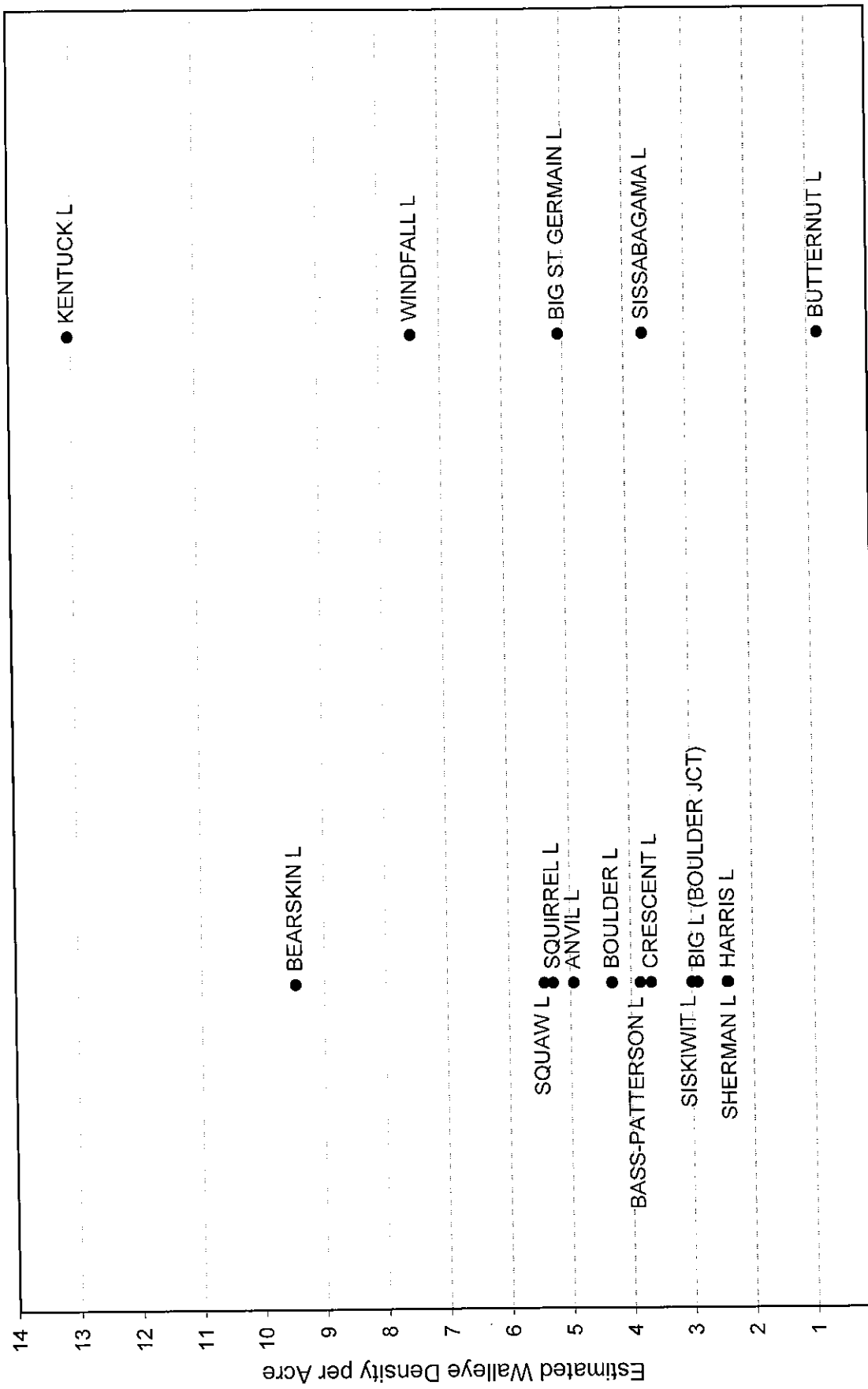


Figure A3 Length Frequency of Adult Walleye Marked

Adult Walleye Population Estimates, Spring 2006

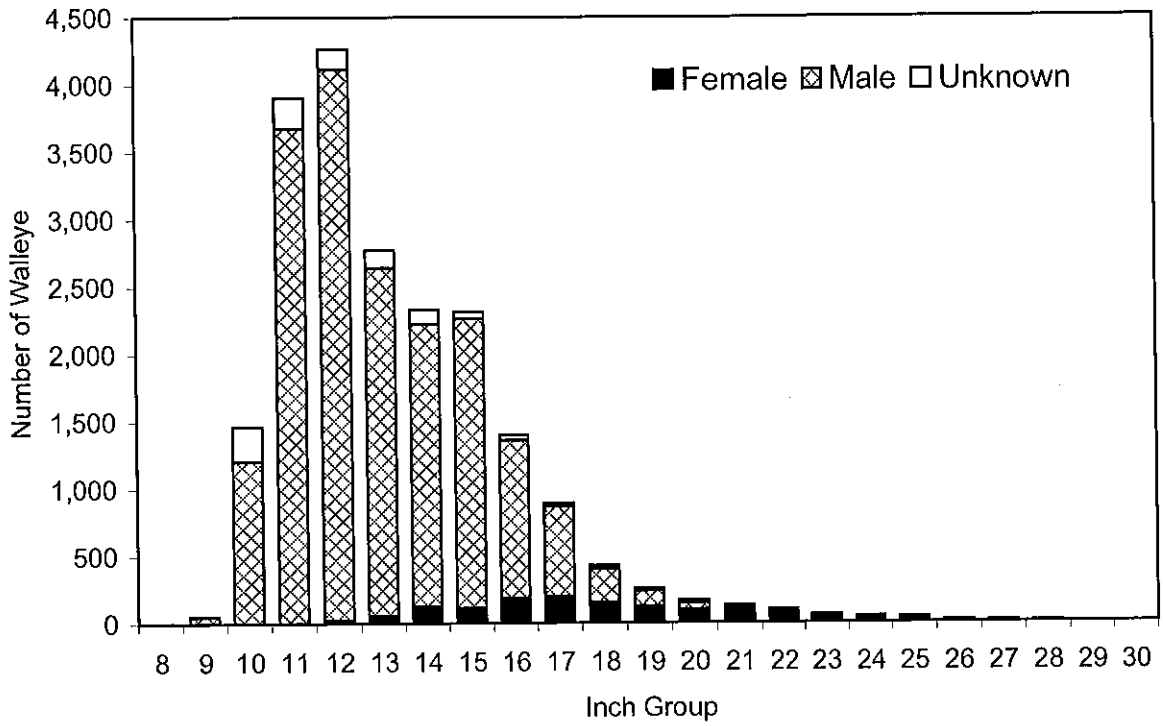


Figure A4 Age Frequency of Adult Walleye Aged

Adult Walleye Population Estimates, Spring 2006

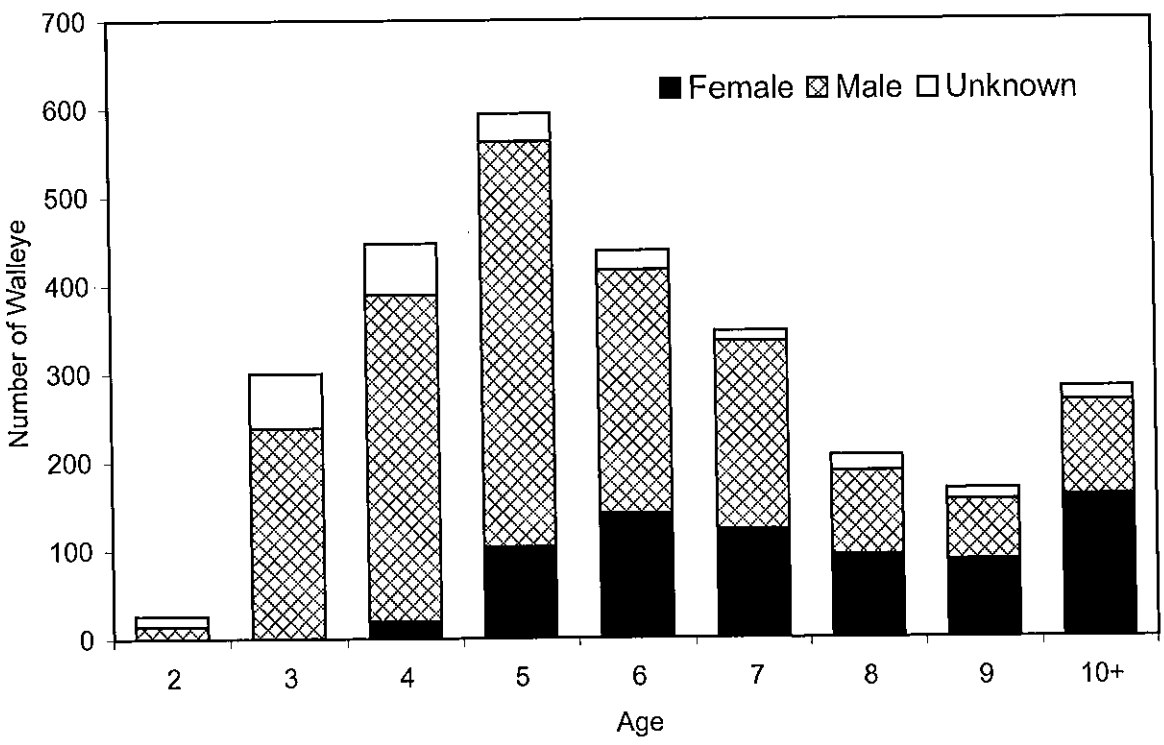


Figure A5.

2006 Northern Pike Study
Mille Lacs Lake, Minnesota
(Areas sampled by GLIFWC)

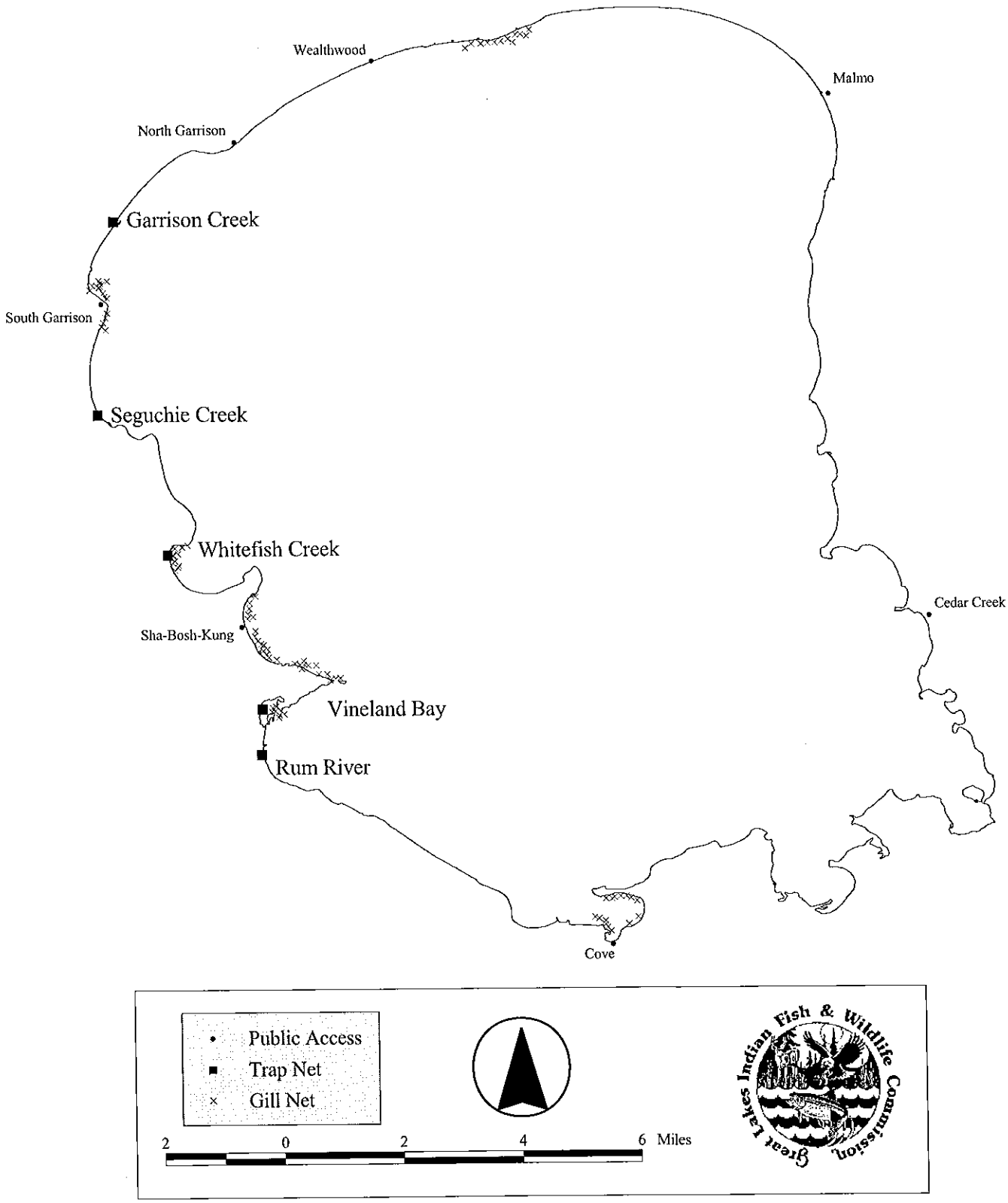


Figure A6

Northern Pike Tagged and Caught in Recapture Survey
by GLIFWC and FDL Crews in 2006 in Mille Lacs Lake
By Location

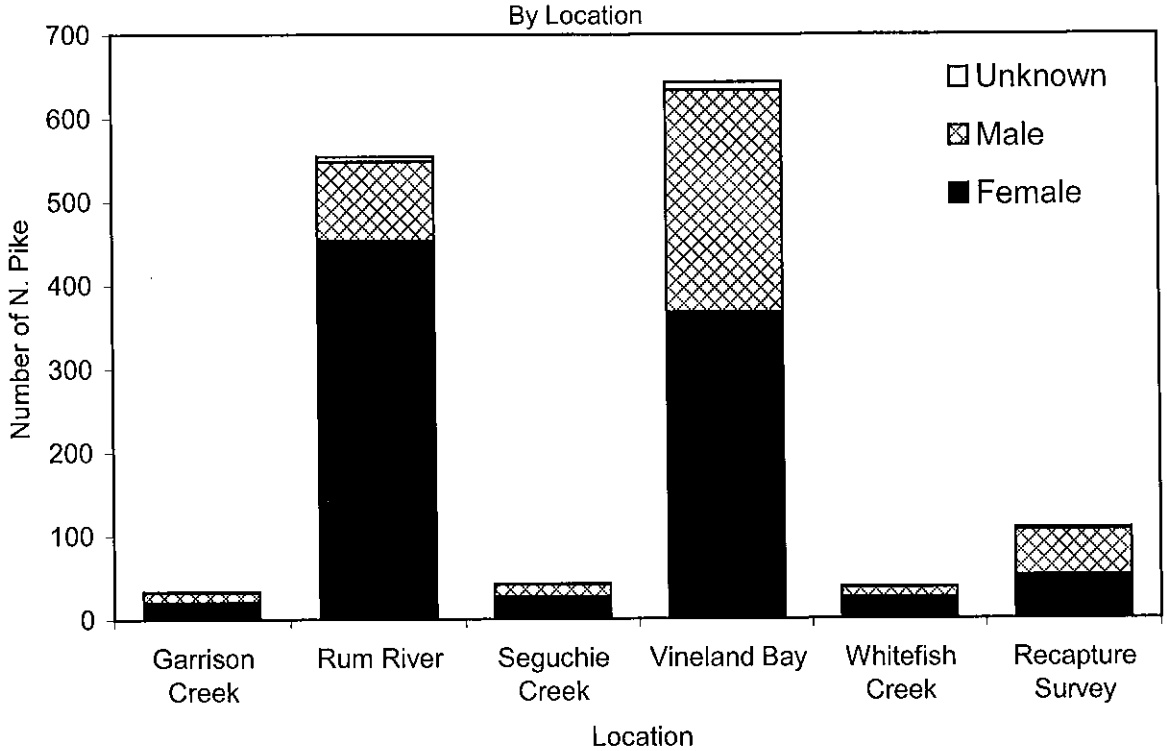


Figure A7

Northern Pike Tagged and Caught in Recapture Survey
by GLIFWC and FDL Crews in 2006 in Mille Lacs Lake
By Inch Group

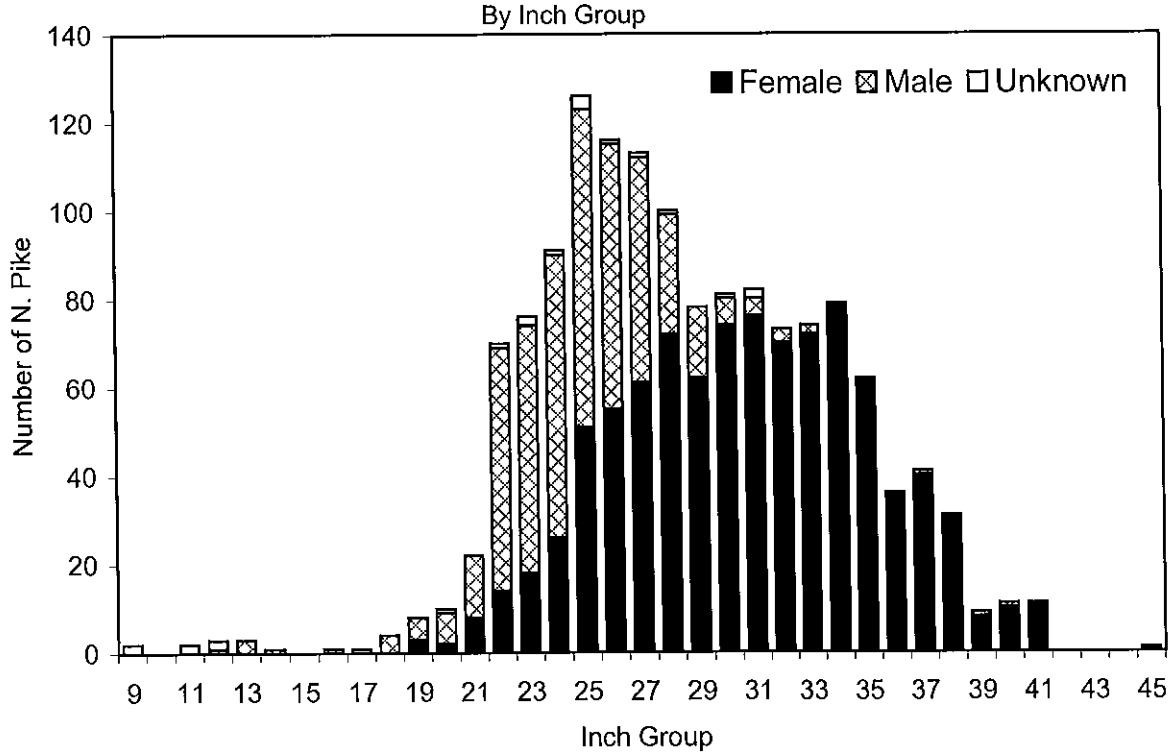


Figure A8

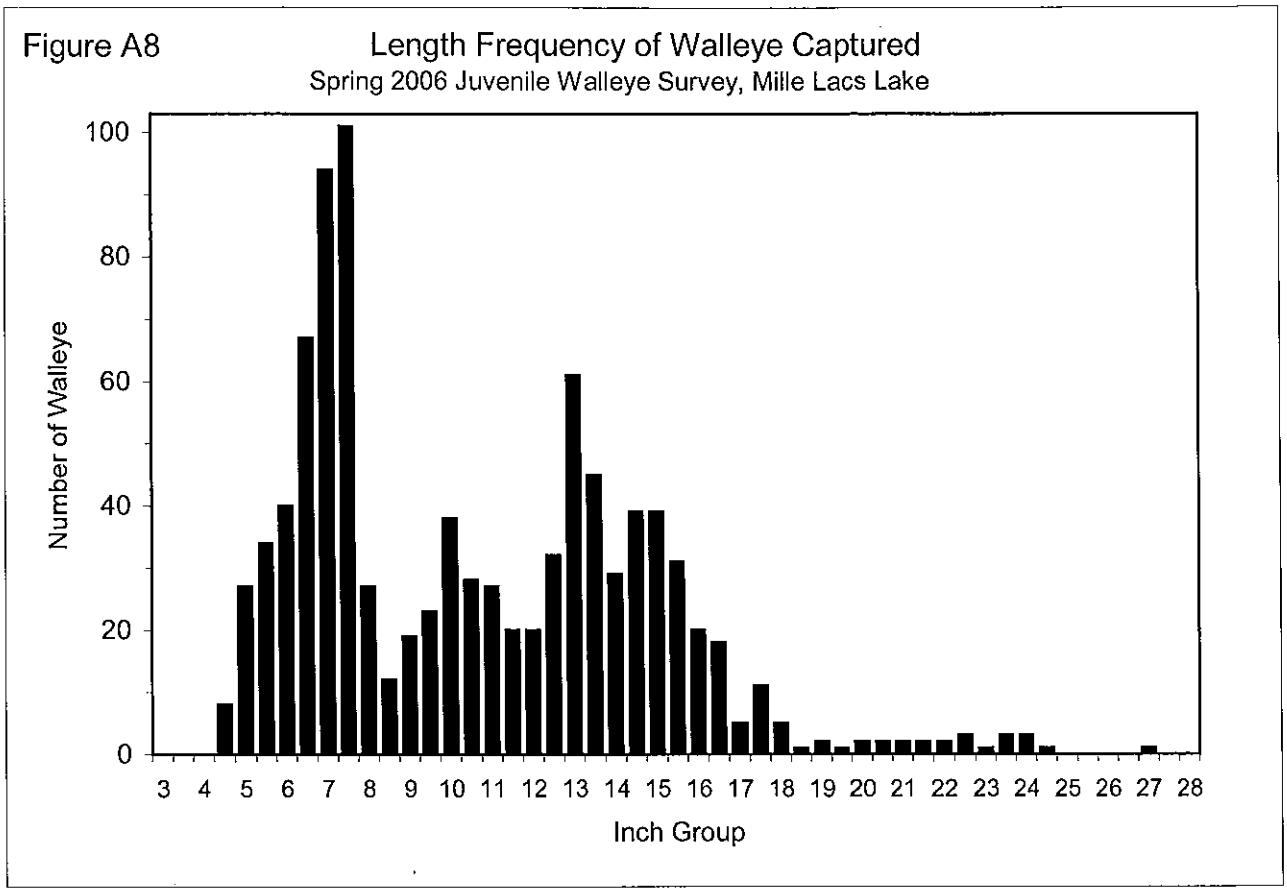

Length Frequency of Walleye Captured
Spring 2006 Juvenile Walleye Survey, Mille Lacs Lake
Number of Walleye
0
20
40
60
80
100
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Inch Group

Table A1. Spring 2006 Adult Population Estimates Conducted by GLIFWC

State	County	Lake	Surface Area (Acres)	2006 Walleye Code	Population Estimate	Coefficient of Variation (%)	Density	Marking Gear*	Recapture Gear*	Fin clip applied**	Male: female sex ratio***
WI	BAYFIELD	SISKIWIT L	330	NR	988	13.1	2.99	E	E	YF	14:1
WI	FOREST	BUTTERNUT L	1,292	C-NR	1,073	15.1	0.83	E	E	YF	5:1
WI	ONEIDA	BEARSKIN L	400	NR	3,787	6.4	9.47	E	E	YF	15:1
WI	ONEIDA	CRESCENT L	612	NR	2,242	5.9	3.66	E	E	BCN	31:1
WI	ONEIDA	SQUIRREL L	1,317	NR	6,957	6.2	5.28	E	E	YF	21:1
WI	SAWYER	SISSABAGAMA L	719	C-NR	2,651	38.6	3.69	E	E	BCN	4:1
WI	SAWYER	WINDFALL L	102	C-NR	762	9.9	7.47	E	E	BCN	10:1
WI	VILAS	ANVIL L	380	NR	1,880	6.6	4.95	E	E	BCN	14:1
WI	VILAS	BIG L (BOULDER JCT)	835	NR	2,428	6.7	2.91	E	E	BCN	16:1
WI	VILAS	BIG ST GERMAIN L	1,617	C-NR	8,203	17.2	5.07	E	E	BCN	15:1
WI	VILAS	BOULDER L	524	NR	2,255	6.9	4.30	E	E	BCN	10:1
WI	VILAS	HARRIS L	507	NR	1,220	7.4	2.41	E	E	BCN	19:1
WI	VILAS	KENTUCK L	957	C-NR	12,489	4.3	13.05	E/F	E	BCN, YF	11:1
WI	VILAS	SHERMAN L	123	NR	299	16.9	2.43	E	E	YF	7:1
WI	VILAS	SQUAW L	785	NR	4,256	9.7	5.42	E	E	YF	15:1
WI	WASHBURN	BASS-PATTERSON L	188	NR	722	18.2	3.84	E	E	YF	17:1

*Gear used: E = electrofishing, F = fyke netting
** BCN = bottom caudal notch, YF = numbered yellow floy tag
***Sex ratio is calculated for walleye sampled during marking and recapture runs but excludes recaptured fish

Table A2. Lengths of Walleye Collected During Spring 2006 Adult Walleye Population Estimates

STATE	COUNTY	LAKE	NUMBER SAMPLED				FEMALE		MALE		UNKNOWN	
			FEMALE	MALE	UNKNOWN	TOTAL	MINIMUM LENGTH	MAXIMUM LENGTH	MINIMUM LENGTH	MAXIMUM LENGTH	MINIMUM LENGTH	MAXIMUM LENGTH
WI	BAYFIELD	SISKIWIT L	27	374	83	484	14.0	19.0	11.5	17.5	10.0	17.5
WI	FOREST	BUTTERNUT L	88	427	7	522	17.5	26.5	10.0	22.0	10.0	21.5
WI	ONEIDA	BEARSKIN L	89	1,355	120	1,564	12.5	26.5	10.0	20.0	10.0	16.5
WI	ONEIDA	CRESCENT L	31	971	15	1,017	14.5	26.0	9.0	19.0	9.5	16.0
WI	ONEIDA	SQUIRREL L	137	2,897	48	3,082	12.5	26.0	9.0	23.0	10.0	20.0
WI	SAWYER	SISSABAGAMA L	87	387	103	577	17.0	27.0	10.0	22.0	10.0	25.5
WI	SAWYER	WINDFALL L	37	373	74	484	13.0	26.5	10.0	17.0	10.0	16.5
WI	VILAS	ANVIL L	65	878	21	964	15.5	24.5	10.5	20.0	11.5	20.5
WI	VILAS	BIG L (BOULDER JCT)	65	1,042	102	1,209	12.0	28.0	9.5	19.0	10.0	22.0
WI	VILAS	BIG ST GERMAIN L	143	2,139	20	2,302	16.5	28.0	11.0	21.5	14.0	20.5
WI	VILAS	BOULDER L	94	930	73	1,097	12.0	26.0	9.0	19.5	10.0	19.0
WI	VILAS	HARRIS L	37	688	46	771	15.5	27.0	8.5	21.5	10.0	20.5
WI	VILAS	KENTUCK L	379	4,161	45	4,585	12.0	28.5	9.5	22.0	8.5	21.0
WI	VILAS	SHERMAN L	20	146	123	289	14.5	24.5	10.0	22.0	10.0	22.0
WI	VILAS	SQUAW L	78	1,140	136	1,354	11.5	27.5	10.0	16.0	10.0	14.5
WI	WASHBURN	BASS-PATTERSON L	14	232	100	346	15.0	27.0	10.5	20.5	10.0	21.5
OVERALL			1,391	18,140	1,116	20,647	11.5	28.5	8.5	23.0	8.5	25.5

Table A3

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Siskiwit Lake, Bayfield County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10						2			1																							3	3	
11								1	2		1																					2	2	4
12								3			8	4		3																	14	4	18
13											4			15																	19		19
14											4		3	9			8														21		24
15													3	1		1	9			2											12		16
16														1		3	2			1			1								5		8
17													1			4				1			1								2		7
18																																		
19																						1									1			1
20																																		
21																																		
22																																		
23																																		
24																																		
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS						2		4	3		17	4	7	29		8	19			4		1	2							16	75	9	100

Number of female year classes: 3 Number of male year classes: 6

Table A4

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Butternut Lake, Forest County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10						1		2	2																							2	3	5
11								4			7																					11		11
12											13			7																	20		20
13											1			19																	20		20
14														16			2														18		18
15																	4			1											5		5
16														2			5			5											12		12
17													1				1			5			1			2					1	9		10
18																2			2	1			3			3			2		4	9		13
19																1			6	2		2							7		9	9		18
20																			3			5							7		8	7		15
21																1			2			5			3				3		11	3		14
22																									1			8	1		9	1		10
23																									2			5			7			7
24																												4			4			4
25																									1			1			2			2
26																												2			2			2
27																																		
28																																		
29																																		
30																																		
TOTALS						1		6	2		21		1	44		4	12		13	14		12	4		7	5		20	20		57	126	3	186

Number of female year classes: 6 Number of male year classes: 8

Table A5

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Bearskin Lake, Oneida County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10					1			18																								19		19
11								6			13			2																		21		21
12										1	18			2																	1	20		21
13										2	4		3	15			3														5	22		27
14													6	3		1	20														7	23		30
15										1			5	1		6	4			8											12	13		25
16													3		1	4			1	3	1		2			1					8	6	2	16
17																			1				2								1	2		3
18																2															2			2
19																			2												2			2
20																																		
21																						1									1			1
22																						1									1			1
23																						1									2			2
24																						1							1		2			2
25																													1		1			1
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS					1			24		4	35		17	23	1	13	27		4	11	1	4	4			1		3			45	126	2	173

Number of female year classes: 6 Number of male year classes: 8

Table A6

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Crescent Lake, Oneida County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9						2		4																								4	2	6
10								8																								8		8
11								15			1																					16		16
12								6			7																					13		13
13											9			6																		15		15
14											8			9																		17		17
15														9			6			1												16		16
16													1				4			3			6			2			3		1	18		19
17													1				1			1			1			1			1		1	5		6
18																										1			1			2		2
19																													1			1		1
20																																		
21																																		
22																												1			1			1
23																																		
24																																		
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS						2		33			25		2	24			11			5			7			4		1	6		3	115	2	120

Number of female year classes: 2 Number of male year classes: 8

Table A7

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Squirrel Lake, Oneida County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9							6																								6		6
10							14	1																							14	1	15
11							10			5	1		4	1		1															20	2	22
12										7			9			2															18		18
13										2			12			4				1											19		19
14													3			1	8			6											1	17		18
15															1		4		1	4			3			3			1		1	15	1	17
16																1	1	1					3								1	4	1	6
17																			2			1							1	1	3	1	1	5
18																						1			1			1	1		3	1		4
19																												1			1			1
20																									3			1			4			4
21																									2			2			4			4
22																						1			1			6			8			8
23																												6			6			6
24																												1			1			1
25																												1			1			1
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS								30	1		14	1		28	2	2	20	1	3	11		3	6		7	3		19	3	1	34	115	6	155

Number of female year classes: 5 Number of male year classes: 8

Table A8

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Sissabagama Lake, Sawyer County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10						1		2	10																							2	11	13
11								1	1			4																				1	5	6
12											1			2	1																	3	1	4
13											5			7	1																	12	1	13
14											1			3	1		12			4												20	1	21
15														2			5	1		11			1									19	1	20
16																	4			4			8			3						19		19
17																	2	2		5			1		1	4	1		1		1	13	3	17
18																			2	1	4	3	2	1	1	1	1		2	1	6	6	7	19
19																	2			1		1	2	6	4	3			4		5	12	6	23
20																			1	1	1	2		4	2		1	2	6		7	7	6	20
21																								1	3		5	6	2		9	2	6	17
22																						1			3		3	6		4	10		7	17
23																									3			5		4	8		4	12
24																									1			9		3	10		3	13
25																												9		1	9		1	10
26																												1			1			1
27																												3			3			3
28																																		
29																																		
30																																		
TOTALS						1		3	11		7	4		14	3		25	3	3	27	5	7	14	12	18	11	11	41	15	13	69	116	63	248

Number of female year classes: 4 Number of male year classes: 8

Table A9

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Windfall Lake, Sawyer County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10								4																								4		4
11								14			6																					20		20
12								2			14			3						1												20		20
13													3	7		2	10		1	3											6	20		26
14													2	2		6	7		2	5		1	3			2					11	19		30
15													3	1		3	1		3	5			6		1	7			1		10	21		31
16																			1	1		2	2			4			4		3	11		14
17																						1				1			4		1	5		6
18																						1						1			2			2
19																									1						1			1
20																																		
21																																		
22																												2			2			2
23																																		
24																									1						1			1
25																																		
26																												1			1			1
27																																		
28																																		
29																																		
30																																		
TOTALS								20			20		8	13		11	18		7	15		5	11		3	14		4	9		38	120		158

Number of female year classes: 6 Number of male year classes: 8

Table A10

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Anvil Lake, Vilas County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10								3																								3		3
11								12	1		4																					16	1	17
12									1		14	1		5																		19	2	21
13									1		3	1		20																		23	2	25
14														10	1		7			1	1											18	2	20
15													2	1		1	5		1	12			1								4	19		23
16													1		1	3	6	2	3	4	1		6			1			2		7	19	4	30
17													2			5		1	1	1		1	2	1		1			6		9	10	2	21
18																1		1	5			2	2	1		1	1		9		8	12	3	23
19																1			4			3		1	1			1	2		10	2	1	13
20																					1				1			5	1		6	1	1	8
21																									2						2			2
22																												4			4			4
23																																		
24																												2			2			2
25																														1			1	1
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS								15	3		21	2	5	36	2	11	18	4	14	18	3	6	11	3	4	3	1	12	20	1	52	142	19	213

Number of female year classes: 6 Number of male year classes: 8

Table A11

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Big Lake (Boulder Jct), Vilas County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9					2																											2		2
10								8	4		2	1																				10	5	15
11								2			20	7		1																		23	7	30
12											5			19	4																	24	4	28
13														19	4		2	1				1									1	21	5	27
14											1		3	7		2	8		1	2			1								6	19		25
15																1	6			10			2								1	18		19
16																2	2			4		1				1					3	7		10
17																			1			2				2			1		3	3		6
18																2			1						1						4			4
19																																		
20																									1						1			1
21																									1					1	1		1	2
22																									1						1			1
23																																		
24																																		
25																												1			1			1
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS					2			10	4		28	8	3	46	8	7	18	1	3	16		4	3		4	3		1	1	1	22	127	22	171

Number of female year classes: 6 Number of male year classes: 9

Table A12

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Big St. Germain Lake, Vilas County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11								1																								1		1
12								5			1			2																		8		8
13								1			16			6																		23		23
14												1		20			3															23	1	24
15														7			8			5			1									21		21
16													1	2	3	1	5	2	1	7	1		3			2					3	19	6	28
17													2			4			1	1		1	4		2	6					10	11		21
18																5		1	9	1		3	1		2	5		1	3		20	10	1	31
19																			9			7			4	1		1	8		21	9		30
20																			1			7			7			3	10		18	10		28
21																						2			7				3		9	3		12
22																									7			2			9			9
23																									1			6	1		7	1		8
24																												4			4			4
25																												9			9			9
26																												4			4			4
27																												3			3			3
28																												3			3			3
29																																		
30																																		
TOTALS								7			17	1	3	37	3	10	16	3	21	14	1	20	9		30	14		36	25		120	139	8	267

Number of female year classes: 6 Number of male year classes: 8

Table A13

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Boulder Lake, Vilas County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10						2		15			3																					18	2	20
11								7	1		13																					20	1	21
12									2	2	14	1		6																	2	20	3	25
13										7	4	1	7	9	1		6														14	19	2	35
14										1		4	5	8		2	10			2											8	20	4	32
15													6	1		4	8		3	12		1	3								14	24		38
16													1			6			5	5			2			1					12	8		20
17													1			2			4	1		3		1		3					10	4	1	15
18													1			1			2			1			1			2			8			8
19																					1				2				1		2	1	1	4
20																						1									1			1
21																												1			1			1
22																												1			1			1
23																																		
24																												1			1			1
25																																		
26																												1			1			1
27																																		
28																																		
29																																		
30																																		
TOTALS						2		22	3	10	34	6	21	24	1	15	24		14	20	1	6	5	1	3	4		6	1		75	134	14	223

Number of female year classes: 7 Number of male year classes: 8

Table A14

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Harris Lake, Vilas County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8					1																											1		1
9																																		
10					2	1		8																								10	1	11
11								11			9			1																		21		21
12											7			13																		20		20
13														20																		20		20
14														5			14						1									20		20
15																	2		1	17			2								1	21		22
16																			2			1	7								3	7		10
17													1			2						5	1			1			1		8	3		11
18																			2							1			1		2	2		4
19																						1									1			1
20																						1									1			1
21																									3			1	1		4	1		5
22																						1			1			1			3			3
23																									1						1			1
24																												6			6			6
25																												4			4			4
26																												1			1			1
27																												1			1			1
28																																		
29																																		
30																																		
TOTALS					3	1		19			16		1	39		2	16		5	17		9	11		5	2		14	3		36	126	1	163

Number of female year classes: 6 Number of male year classes: 9

Table A15

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Kentuck Lake*, Vilas County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10					1			1			3			3																		8		8
11								3	1		14			1																		18	1	19
12								5			13	2		1			1														20	2	22
13								1			4			12			3		1											1	20		21
14								1		2		1	3	9		2	6	1		4										7	20	2	29
15													3	3		5	10		1	7										9	20		29
16													2	4		7	5		2	11			1							11	21		32
17													2	3		4	2		4	5										10	10		20
18													2	1		5			3											10	1		11
19														1		6			3	1		1								10	2		12
20													1			2			4			2								9			9
21																3			1							1					4	1		5
22																																		
23																						1									1			1
24																									1						1			1
25																			1			1									2			2
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS					1			11	1	2	34	3	13	38		34	27	1	20	28		5	1		1	1					75	141	5	221

*Age 8 male walleye could represent a fish transferred to Kentuck Lake from Butternut Lake during gamete collection for stocking in 1999 and 2000.

Number of female year classes: 6 Number of male year classes: 8

Table A16

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Sherman Lake, Vilas County, Wisconsin

INCH	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
GROUP	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10					6	3		6	9																						12	12	24
11								12	10																						12	10	22
12									1		17	7																			17	8	25
13											14	9		5	1																19	10	29
14										1	4	1		7	3															1	11	4	16
15														3	1		1														4	1	5
16													1				1			2				1						1	3	1	5
17													1																		1			1
18																							1									1		1
19																			2												2			2
20																1			2			1									4			4
21																			1												1			1
22																						1				1					1	1		2
23																																		
24																						1									1			1
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS					6	3		18	20	1	35	17	2	15	5	1	2		5	2		3	1	1		1					12	80	46	138

Number of female year classes: 5 Number of male year classes: 8

Table A17

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Squaw Lake, Vilas County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10					1			13			3																					17		17
11										1	20			1																	1	21		22
12										1	7		8	16		1															10	23		33
13													9	15		2	5														11	20		31
14													2	2		8	5		1				2								11	9		20
15																5	1		4	3			2		1						10	6		16
16																	1		1			5									6	1		7
17																1									1						2			2
18																						2			1						3			3
19																			1												1			1
20																									2			1			3			3
21																																		
22																						1									1			1
23																																		
24																																		
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS					1			13		2	30		19	34		17	12		7	3		8	4		5			1			59	97		156

Number of female year classes: 7 Number of male year classes: 7

Table A18

Number of Walleye Aged by Sex and Length From Spring 2006 Adult Population Estimate
Bass-Patterson Lake, Washburn County, Wisconsin

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7																																		
8																																		
9																																		
10								1	7		1	1																				2	8	10
11								2	6			4																				2	10	12
12											7	2																				7	2	9
13									1		6	4		6	1			1														12	7	19
14											2			6	2		3	1														11	3	14
15												1		3	1	1	7	2		2											1	12	4	17
16															2	1		2		4			2								1	6	4	11
17													1			1	1	2		1	1					1			1		2	4	3	9
18															1	1		1	1							1			1		2	2	2	6
19																1				1									1		1	2			3
20																			2								1		1		2	1	1	4
21																								1									1	1
22																													1		1			1
23																																		
24																													1		1			1
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS								3	14		16	12	1	15	7	5	11	9	3	8	1		2	1		2	1	2	4		11	61	45	117

Table A19

Northern Pike Surveys by GLIFWC and FDL Crews in Mille Lacs Lake During 2006

	Fyke Net Marking Surveys																								Gill Net Recapture Surveys May 8-12, 15-19											
	Garrison Creek April 5-7				Rum River April 5-13				Seguchie Creek April 5-6				Vineland Bay April 6-13				Whitefish Creek April 5-7				Total				Unmarked Fish				Marked Fish				Total			
Inch Group	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total	F	M	U	Total
9															2	2							2	2												
10																																				
11											1	1			1	1							2	2												
12														1	2	3						1	2	3												
13		1		1										2		2						3		3												
14														1		1						1		1												
15																																				
16														1		1						1		1												
17																											1	1							1	1
18		2		2		1		1		1		1										4		4												
19	3	1		4		1		1						3		3					3	5		8												
20	1		1	2									1	6		7					2	6	1	9		1		1						1		1
21	1			1	2	1		3	1	2		3	4	11		15					8	14		22												
22	2	2		4	4	10		14		2		2	7	33	1	41		2		2	13	49	1	63	1	6		7					1	6		7
23		1		1	10	9	1	20	1	1		2	4	37		41	2	2		4	17	50	1	68	1	4	1	6		2		2	1	6	1	8
24		2		2	10	10		20		2		2	14	38	1	53		1		1	24	53	1	78	2	10		12		1		1	2	11		13
25		1		1	27	16	1	44	1	3		4	18	44	1	63	1		1	2	47	64	3	114	4	8		12					4	8		12
26	1			1	23	11	1	35	2	3		5	20	38		58	2	2		4	48	54	1	103	6	5		11	1	1		2	7	6		13
27	1	2		3	25	16		41		1		1	25	25	1	51	1	3		4	52	47	1	100	8	4		12	1			1	9	4		13
28	1			1	23	11		34	2			2	34	9	1	44	2			2	62	20	1	83	7	7		14	3			3	10	7		17
29					29	5		34	2			2	27	8		35	2			2	60	13		73	2	3		5					2	3		5
30	1			1	33	2	1	36	2			2	32	1		33	2	2		4	70	5	1	76	4	1		5					4	1		5
31	1			1	41	1	2	44	2			2	29	2		31	2			2	75	3	2	80		1		1	1			1	1	1		2
32	1			1	38			38	2			2	23	3		26	2			2	66	3		69	3			3	1			1	4			4
33	1			1	37	1		38	1			1	31			31	1			1	71	1		72	1	1		2					1	1		2
34					40			40	5			5	29			29	4			4	78			78					1			1	1			1
35	1			1	37			37	1			1	21			21	1			1	61			61	1			1					1			1
36	2			2	18			18	2			2	14			14					36			36												
37	1			1	19			19	2			2	14	1		15	3			3	39	1		40	1			1					1			1
38	1			1	21			21					9			9					31			31												
39					4			4					4	1		5					8	1		9												
40					7			7					3	1		4					10	1		11												
41	1			1	4			4					4			4					9			9	2			2					2			2
42																																				
43																																				
44																																				
45					1			1													1			1												
Total	20	12	1	33	453	95	6	554	26	15	1	42	367	266	10	643	25	12	1	38	891	400	19	1,310	43	51	2	96	8	4	0	12	51	55	2	108

Table A20 Spring 2006 Juvenile Walleye Survey Conducted by GLIFWC on Mille Lacs Lake, Minnesota

Miles Surveyed	Hours Surveyed	Total Walleye Caught	Estimated Number of Walleye Caught by Age					Catch per Mile by Age			
			Age 1	Age 2	Age 3	Age 4	Age 5+/ Unaged	Age 1	Age 2	Age 3	Age 4
74.5	26.2	962	387	166	217	161	31	5.2	2.2	2.9	2.2

Table A21

Number of Walleye Aged by Sex and Length From Spring 2006 Juvenile Walleye Survey
Mille Lacs Lake, Mille Lacs County, Minnesota

INCH GROUP	AGE 1			AGE 2			AGE 3			AGE 4			AGE 5			AGE 6			AGE 7			AGE 8			AGE 9			AGE 10+			TOTAL			
	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	F	M	U	ALL
3																																		
4																																		
5																																		
6																																		
7			8																														8	8
8			3			11																											14	14
9																																		
10						23			2																								25	25
11						16			10																								26	26
12									20																								20	20
13									3																								3	3
14									4			4																					8	8
15												8																					8	8
16												6																					6	6
17												4																					4	4
18															2																		2	2
19																																		
20																																		
21																																		
22																																		
23																																		
24																																		
25																																		
26																																		
27																																		
28																																		
29																																		
30																																		
TOTALS			11			50			39			22			2																		124	124

Appendix B: Summer Survey Data

Table B1. Fish Community Surveys, Kentuck Lake, Vilas County, Wisconsin, 1983-2006

Net Sets: 8 trap nets for 4 nights*

Year	Summary	Black Crappie	Bluegill	Golden Shiner	Largemouth Bass	Muskellunge	Pumpkin-seed	Rock Bass	Smallmouth Bass	Walleye	White Sucker	Yellow Perch
1983	Total	78	2		1	3	13		24	105		96
	Catch/Net	2.44	0.06		0.03	0.09	0.41		0.75	3.28		3.00
1984*	Total	75			3				77	86		8
	Catch/Net	3.12			0.12				3.12	3.50		0.33
1996	Total	3,080	1,014	156	282	5	3,768	2	215	3	60	90
	Catch/Net	96.25	31.69	4.88	8.81	0.16	117.75	0.06	6.72	0.09	1.88	2.81
1997	Total	440	2,936	8	0	0	1,198	1	161	0	16	56
	Catch/Net	13.75	91.75	0.25	0.00	0.00	37.44	0.03	5.03	0.00	0.50	1.75
1998	Total	556	12,142	40	5	1	1,778	6	101	1	9	32
	Catch/Net	17.38	379.44	1.25	0.16	0.03	55.56	0.19	3.16	0.03	0.28	1.00
1999	Total	59	3,379	29	2	0	385	12	49	0	7	28
	Catch/Net	1.84	105.59	0.91	0.06	0.00	12.03	0.38	1.53	0.00	0.22	0.88
2000	Total	36	2,782	33	0	1	186	8	23	6	16	6
	Catch/Net	1.13	86.94	1.03	0.00	0.03	5.81	0.25	0.72	0.19	0.50	0.19
2001	Total	4	1,857	12	0	0	432	22	60	5	22	6
	Catch/Net	0.13	58.03	0.38	0.00	0.00	13.50	0.69	1.88	0.16	0.69	0.19
2002	Total	17	1,348	7	0	0	250	29	60	6	36	2
	Catch/Net	0.55	43.48	0.23	0.00	0.00	8.06	0.94	1.94	0.19	1.16	0.06
2003	Total	10	275	5	1	0	150	106	50	7	76	3
	Catch/Net	0.31	8.59	0.16	0.03	0.00	4.69	3.31	1.56	0.22	2.38	0.09
2004	Total	5	33	6	2	1	25	190	24	5	18	2
	Catch/Net	0.16	1.03	0.19	0.06	0.03	0.78	5.94	0.75	0.16	0.56	0.06
2005	Total	3	85	15	3	0	21	234	14	31	9	5
	Catch/Net	0.09	2.66	0.47	0.09	0.00	0.66	7.31	0.44	0.97	0.28	0.16
2006	Total	1	805	2	0	3	39	221	23	4	1	3
	Catch/Net	0.03	25.16	0.06	0.00	0.09	1.22	6.91	0.72	0.13	0.03	0.09

* Incomplete data available from 1984 survey, which was conducted in June. It appears that 24 or 25 nets were set during this survey. One net did not fish properly during the 2002 survey, so catch/net data was based on 31 successful lifts. Surveys in 1997 and 1999 - 2002 were conducted by GLIFWC. Surveys in 1983, 1984, 1996 and 1998 were conducted by the Wisconsin Department of Natural Resources. Some species with minimal catch may not be reported in the summary above.

Figure B1

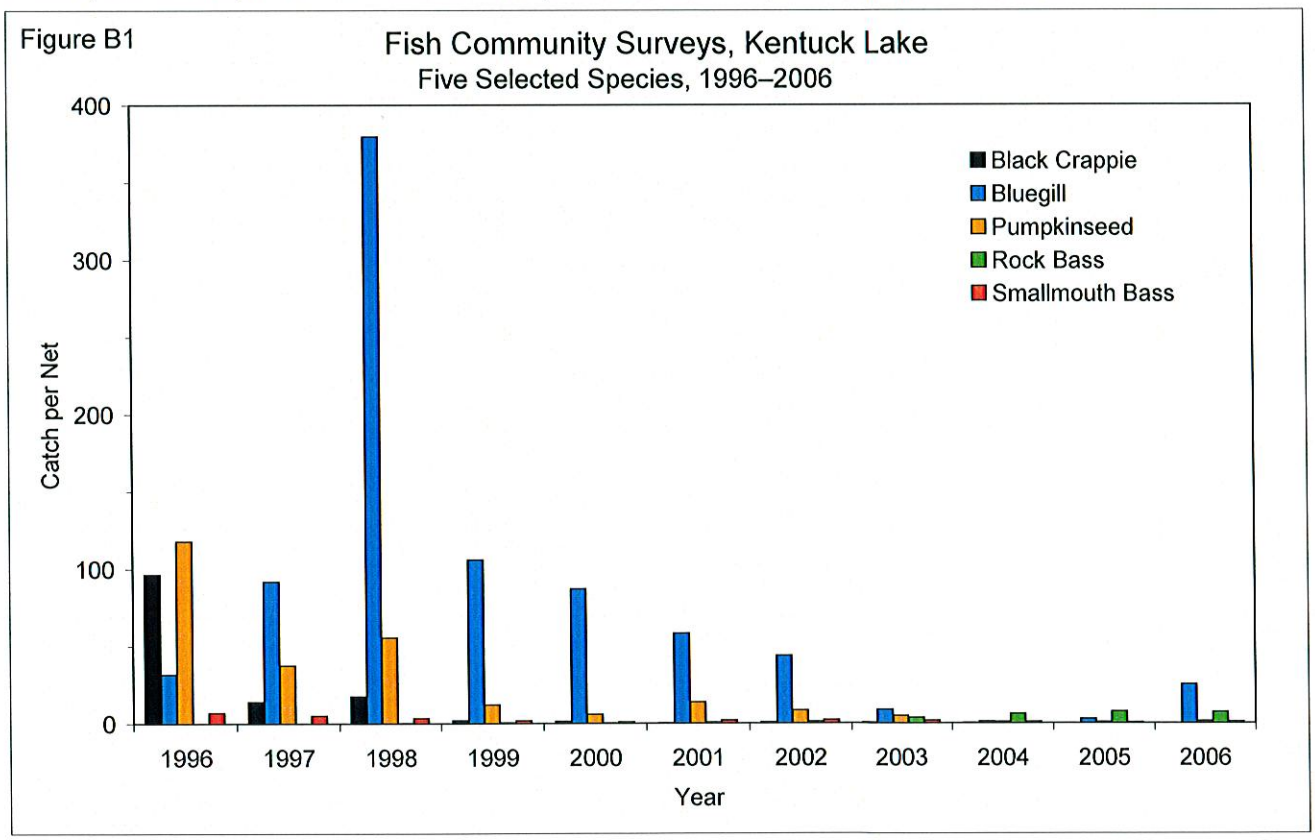


Table B2

Summer 2006 Fish Community Survey, Kentuck Lake, Vilas County, Wisconsin

Net Sets: 8 fyke nets and 4 nights Area: 957 acres Dates: June 20 – June 23, 2006

Inch Group	Bluegill	Black Crappie	Common Shiner	Golden Shiner	Muskellunge	Pumpkin-seed	Rock Bass	Smallmouth Bass	Walleye	White Sucker	Yellow Perch
2.0-2.4	85						3				
2.5-2.9	178						35				1
3.0-3.4	28					2	6				
3.5-3.9	37					4	6				2
4.0-4.4	18					4	12	2			
4.5-4.9	11					2	5	3			
5.0-5.4	13						2				
5.5-5.9	13					1	5				
6.0-6.4	18			1		1	13	2			
6.5-6.9	20					2	22		1		
7.0-7.4	20		1			7	13	1			
7.5-7.9	6		1	1		9	18				
8.0-8.4	8					5	27	1			
8.5-8.9	2	1				1	32	1			
9.0-9.4						1	17				
9.5-9.9							5				
10.0-10.4								1			
10.5-10.9											
11.0-11.4											
11.5-11.9								1			
12.0-12.4									2		
12.5-12.9								4			
13.0-13.4									1		
13.5-13.9								2			
14.0-14.4								1			
14.5-14.9								1			
15.0-15.4								1			
15.5-15.9								1			
16.0-16.4											
16.5-16.9											
17.0-17.4											
17.5-17.9								1			
18.0-18.4											
18.5-18.9										1	
19.0-31.9											
32.0-32.9					1						
33.0-33.9											
34.0-34.9											
35.0-35.9											
36.0-36.9											
37.0-37.9											
38.0-38.9					1						
39.0-39.9											
40.0-40.9					1						
41.0-41.9											
42.0-42.9											
Unmeasured	348										
Total Catch	805	1	2	2	3	39	221	23	4	1	3
Catch/Net	25.16	0.03	0.06	0.06	0.09	1.22	6.91	0.72	0.13	0.03	0.09
Perc. of Total	72.9%	0.1%	0.2%	0.2%	0.3%	3.5%	20.0%	2.1%	0.4%	0.1%	0.3%
Mean Length	3.7	8.9	7.4	6.9	36.8	6.5	6.4	10.3	11.1	18.5	3.4

Appendix C: Fall Recruitment Survey Data

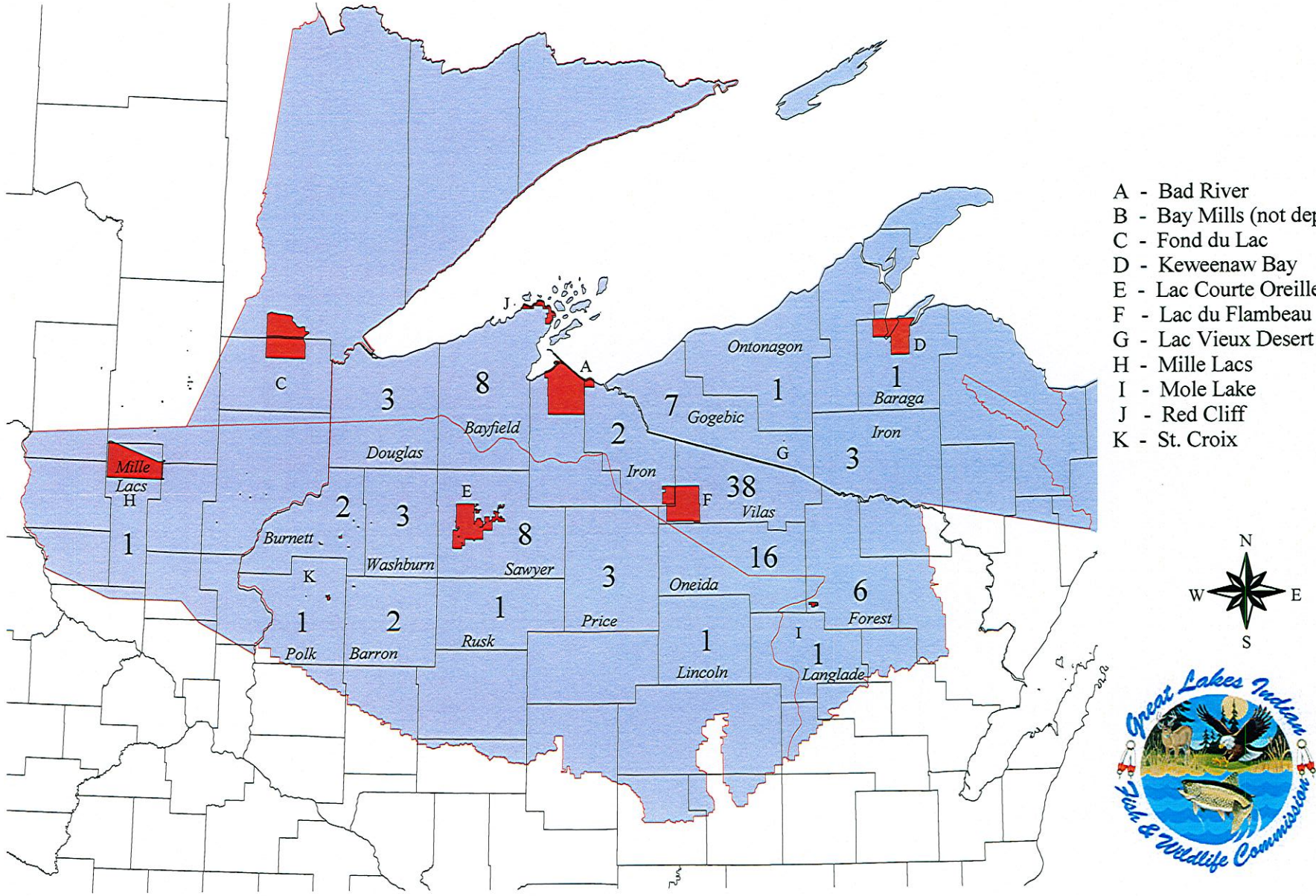


Figure C1. Ceded territory in Wisconsin, Michigan, and Minnesota with the number of lakes per county where fall electrofishing surveys were conducted by GLIFWC during 2006.

The ceded territory boundaries and the tribal reservation boundaries are representations and may not be the actual legally binding boundaries.

Figure C2 Means of Age 0 and Age 1 Walleye CPEs in Wisconsin

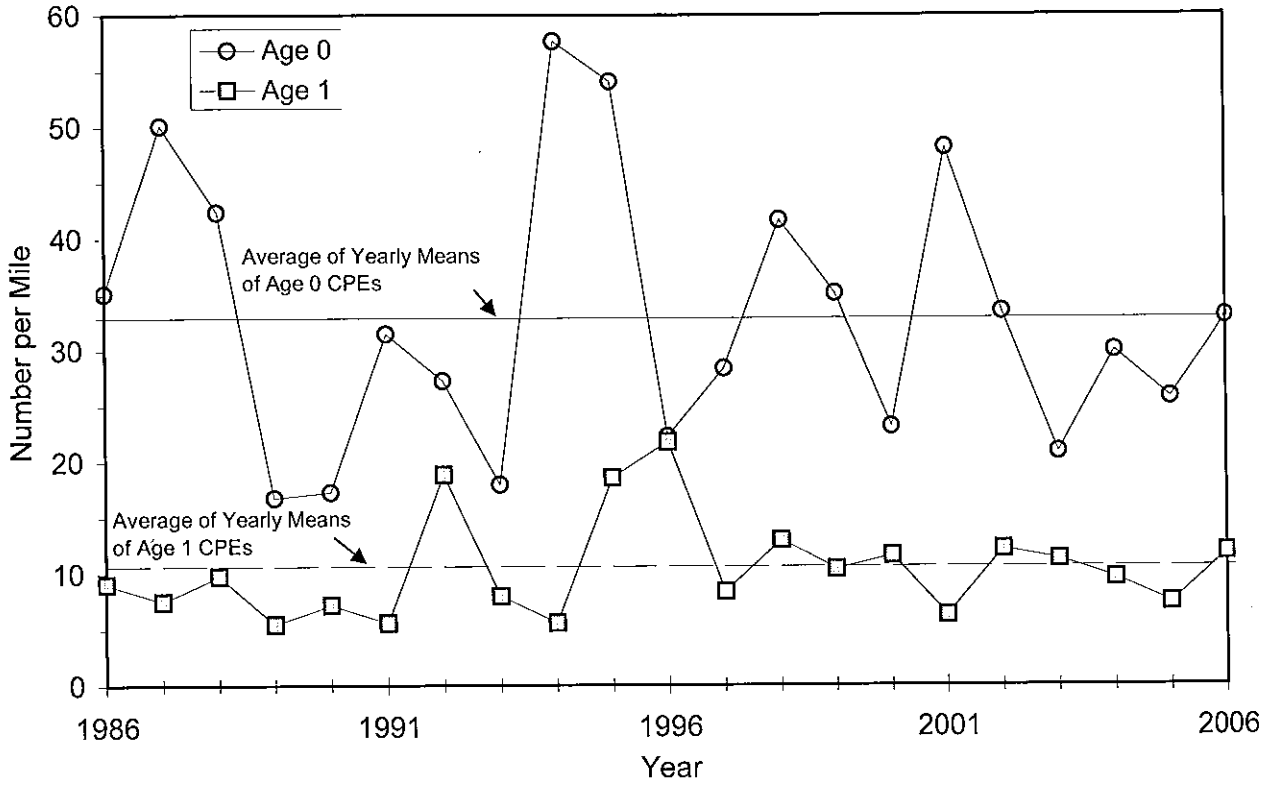
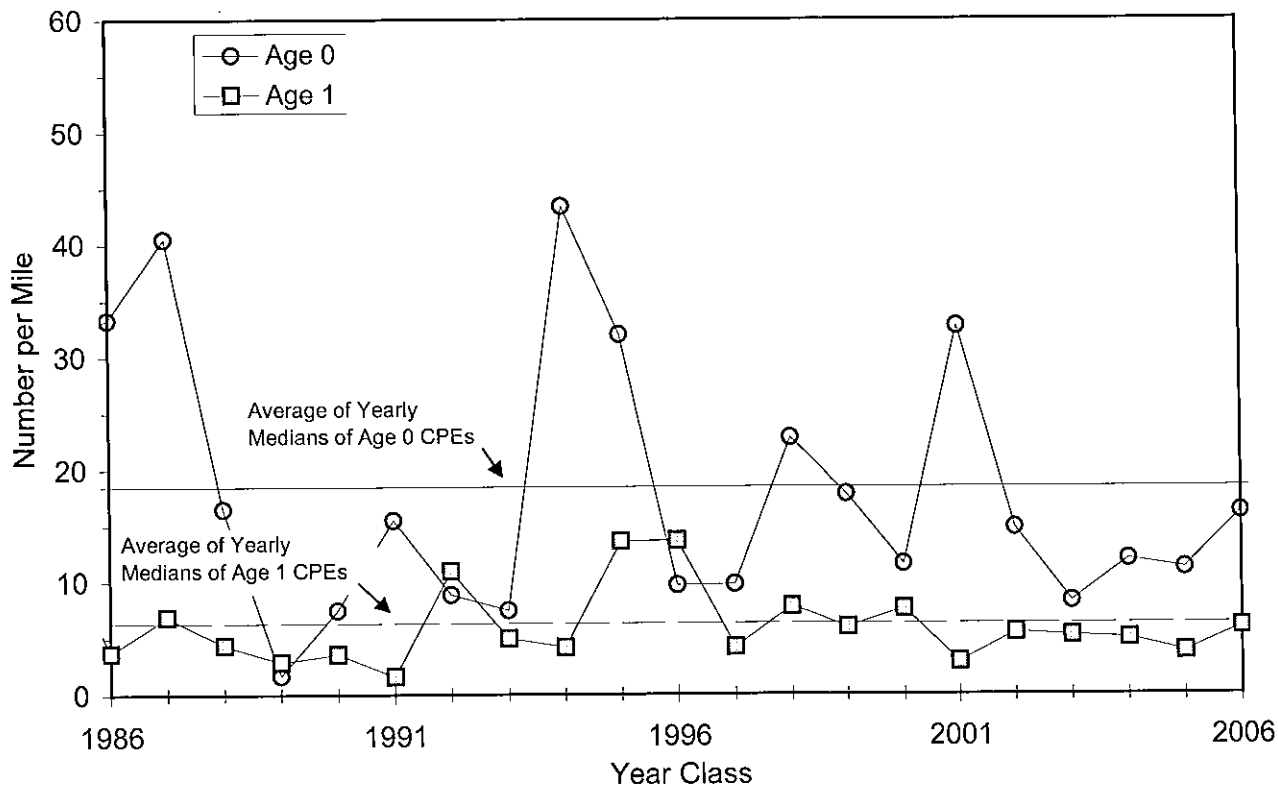


Figure C3 Medians of Age 0 and Age 1 Walleye CPEs in Wisconsin



Data represents NR and C-NR lakes in Wisconsin with at least 75% of the shoreline surveyed, and includes Wisconsin DNR data and all cases with CPEs of 0.

Figure C4

Length Frequency of Walleye Captured

Fall 2006 Walleye Recruitment Survey, Mille Lacs Lake

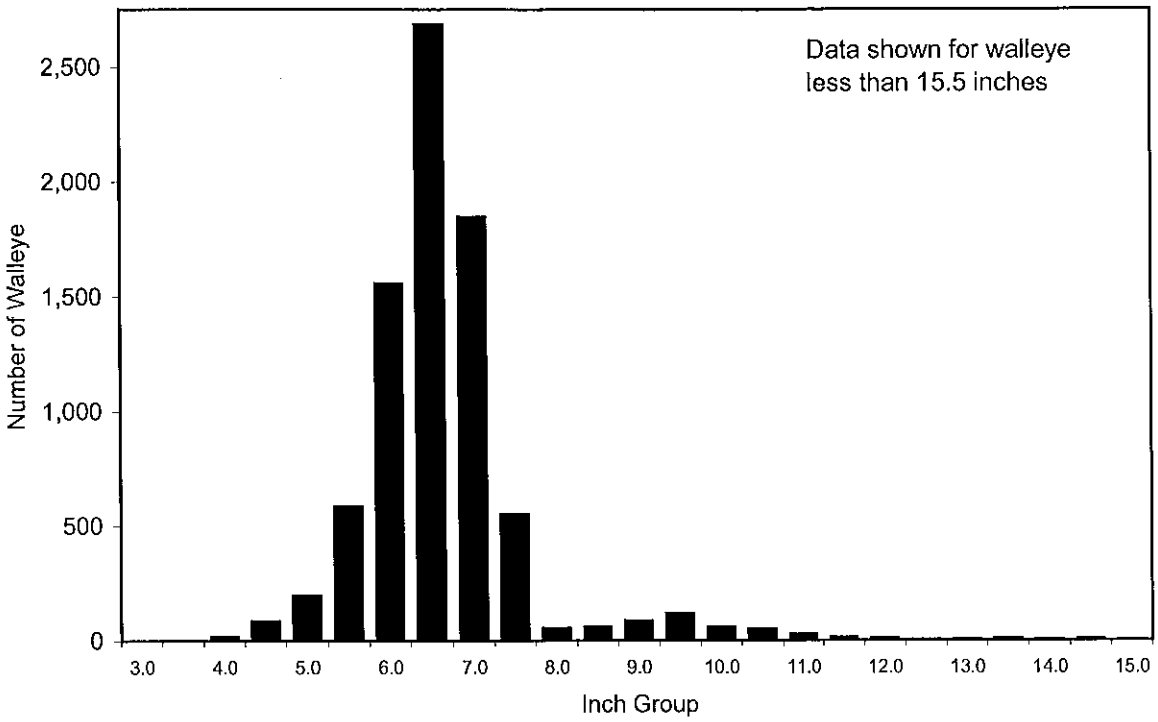


Figure C5 Mille Lacs Lake Fall Walleye CPEs from GLIFWC Surveys

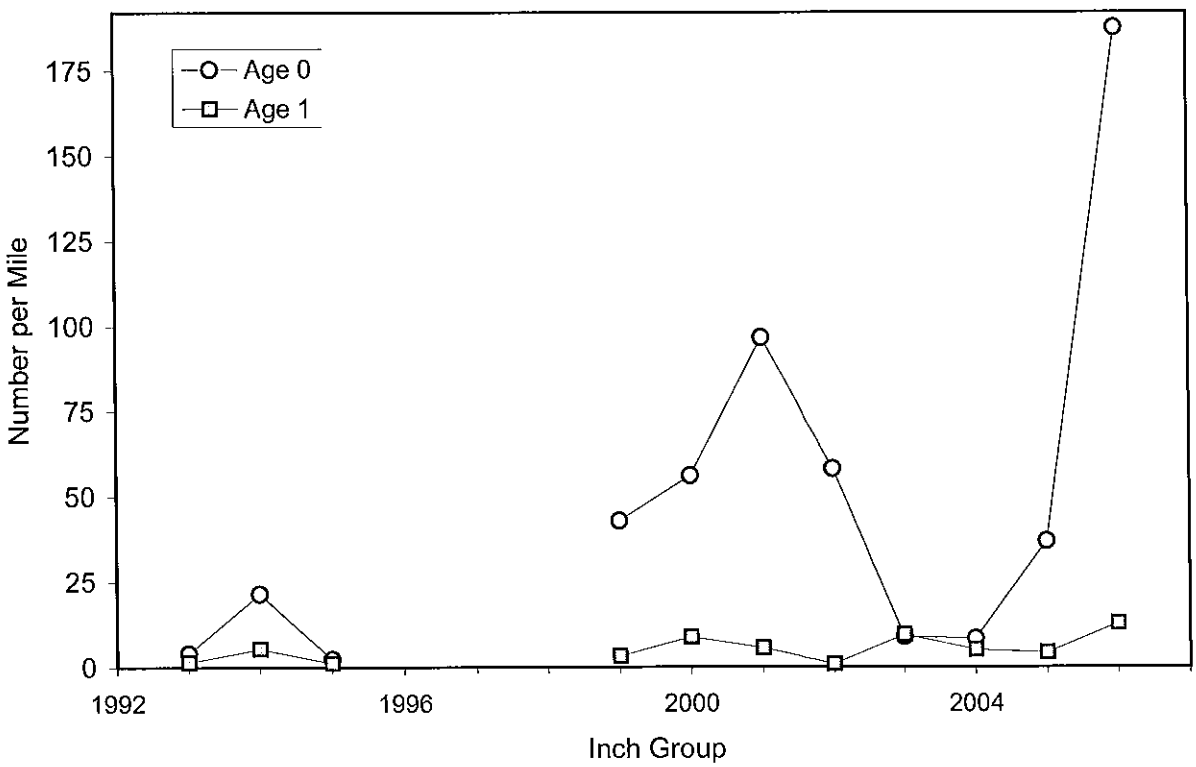


Figure C6. Age 0 CPE By Code for GLIFWC 2006 Recruitment Surveys

(X is the mean for each code, + is the median.)

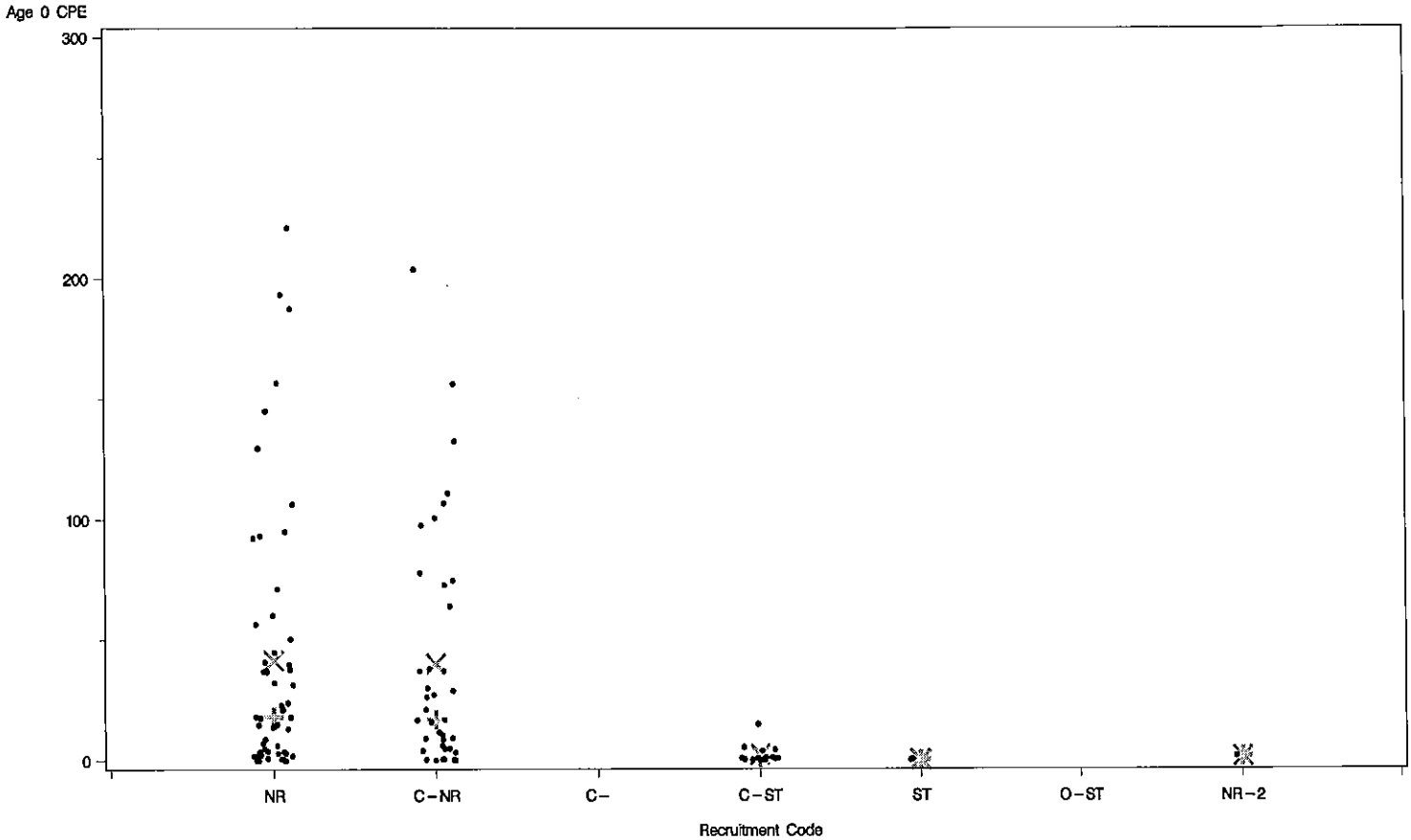


Figure C7. Age 1 CPE By Code for GLIFWC 2006 Recruitment Surveys

(X is the mean for each code, + is the median.)

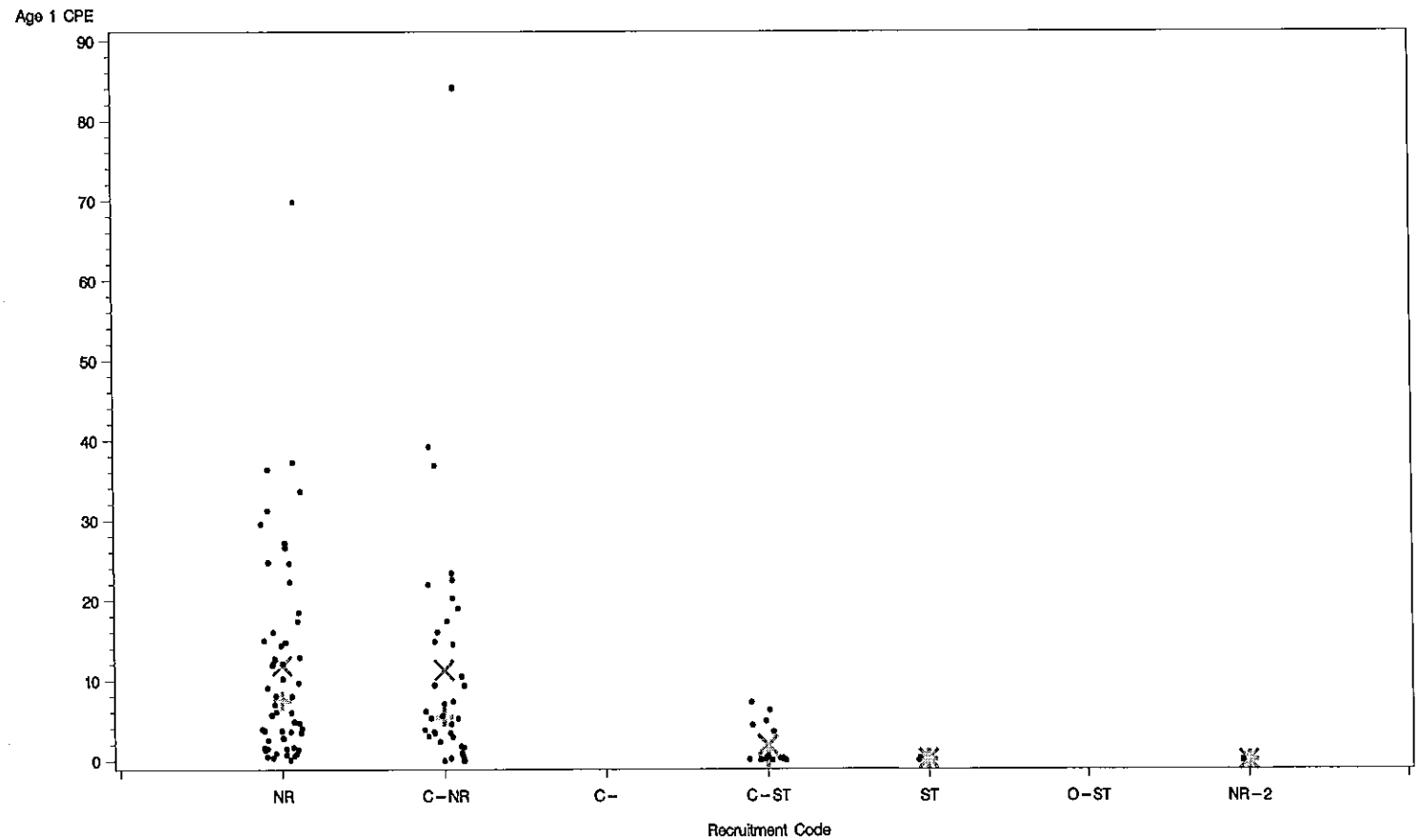


Table C1. Description of Walleye Recruitment Source Codes.

Code		Recruitment Code Description
NR	=	Natural reproduction provides the only source of recruitment to the adult population and is consistent enough to result in an adult population with multiple year-classes present.
NR-2	=	Natural reproduction provides the only source of recruitment to the population, but adult density is low, presumably resulting from weak or inconsistent year-classes.
C-NR	=	Natural reproduction is sufficient to sustain the adult population, but stocking occurs for non-biological reasons and may or may not augment the adult population (e.g., NR lakes stocked back with fry after spawn collection, NR lakes stocked by lake associations).
C-	=	Natural reproduction and stocking provide more or less equal recruitment to the population, or the relative contributions of natural reproduction and stocking are not understood well enough to make an accurate judgement as to the dominant source.
C-ST	=	Stocking provides the dominant source of recruitment to the adult population but natural reproduction occurs and may augment the adult population to a lesser extent (e.g., NR-2 lakes that are stocked to produce greater abundance).
ST	=	Stocking provides the only source of recruitment to the adult population. If stocking is regular then the adult population may consist of multiple year-classes; if irregular, then the population may consist of one or two year-classes with perhaps only large fish.
REM	=	Absence of recruitment to the adult population due to discontinued stocking or habitat changes has resulted in a remnant population of adults; the stock will disappear at some point in the future.
O-ST	=	Stocking provides the only source of recruitment to the population in an attempt to establish an adult population, but survey data is either not available or indicates that adult density is less than 0.5 per acre.
O	=	Walleye are not present.

Table C2. Fall 2006 Walleye Recruitment Surveys Conducted by GLIFWC

WISCONSIN		Surface Area	2006 Walleye	Date	Age 0	Age 0 Wall-	Age 0 Min	Age 0 Max	Age 0 Mean	Age 1	Age 1 Wall-	Age 1 Min	Age 1 Max	Age 1 Mean	Total Wall-	Miles	Shore	Hours	Temp-	Other Species			
County	Lake	(Acres)	Code	Surveyed	CPE	eye	Length	Length	Length	CPE	eye	Length	Length	Length	eye	Surveyed	Miles	Surveyed	erature	MUE	NOP	LMB	SMB
BARRON	BEAR L	1,358	C-ST	10/16	0.6	9	6.0	7.8	6.7	0.1	2	8.7	9.8	9.3	26	14.9	14.9	4.87	49		44	9	
BARRON	RED CEDAR L	1,841	C-NR	10/17	8.8	92	3.9	7.7		4.6	48	7.9	10.1		419	10.5	15.9	5.80	51				
BAYFIELD	BUSKEY BAY	100	NR	9/25	0.0	0				1.7	4	7.1	9.4	7.9	6	2.4	2.4	0.88	60				
BAYFIELD	HART L	259	NR	9/25	2.9	10	6.2	6.7	6.4	4.9	17	7.0	7.8	7.2	29	3.5	3.5	1.19	60				
BAYFIELD	L MILLICENT	183	NR	9/25	0.0	0				1.3	5	7.1	7.9	7.4	5	3.8	3.8	1.21	60				
BAYFIELD	L OWEN	1,323	C-NR	9/12	0.3	6	5.2	6.1	5.8	0.6	13	8.2	10.4	9.3	27	21.9	24.0	8.76	65				1
BAYFIELD	MIDDLE EAU CLAIRE L	902	C-NR	9/11	106.8	822	3.6	7.8	5.0	7.4	57	8.0	10.8	9.5	956	7.7	11.0	4.14	64				
BAYFIELD	NAMEKAGON L	3,227	NR	10/23	1.6	48	4.8	7.3	6.1	1.6	48	7.5	10.4	9.0	184	30.2	43.6	8.93	42				
BAYFIELD	SISKIWIT L	330	NR	9/18	14.8	59	3.5	7.6	6.0	1.5	6	9.6	10.4	10.1	98	4.0	4.0	1.90	57				
BAYFIELD	UPPER EAU CLAIRE L	996	C-NR	9/11	37.1	412	5.1	7.5	6.0	3.1	34	7.6	10.1	9.0	455	11.1	11.1	3.52	64			2	
BURNETT	BIG MCKENZIE L	1,185	C-ST	10/2	0.7	5	6.5	8.8	7.5	0.1	1	11.1	11.1	11.1	10	7.1	7.1	2.76	62		7	22	
BURNETT	YELLOW L	2,287	C-NR	10/4	9.3	52	5.2	8.7	7.0	1.8	10	7.9	11.6	9.6	88	5.6	7.9	2.36	58				
DOUGLAS	L NEBAGAMON	914	C-NR	9/13	9.1	98	4.5	7.9	6.5	3.6	39	8.7	11.2	10.3	183	10.8	10.8	4.26	69				
DOUGLAS	LOWER EAU CLAIRE L	802	C-NR	9/11	156.3	1,219	3.1	8.9	5.1	1.7	13	7.8	10.7	9.3	1,274	7.8	7.8	2.95	64				
DOUGLAS	WHITEFISH L	832	NR	10/5	18.1	125	4.7	7.8	7.4	3.8	26	6.5	9.9	7.9	157	6.9	6.9	2.61	58				
FOREST	BUTTERNUT L	1,292	C-NR	9/19	97.6	761	5.2	6.4	6.0	39.2	306	6.5	8.9	6.8	1,088	7.8	8.0	3.58	63				
FOREST	FRANKLIN L	892	C-NR	9/19	28.9	191	5.4	7.3	6.2	0.9	6	7.8	9.1	8.3	201	6.6	6.6	3.13	58				
FOREST	JUNGLE L	182	NR	9/18	36.8	81	5.5	7.8	6.6	0.9	2	10.1	10.2	10.2	112	2.2	2.2	1.15	60				
FOREST	L METONGA	1,991	C-ST	10/5	5.3	42	5.1	7.3	6.0	7.2	57	7.8	10.8	9.5	127	7.9	7.9	3.61	56				
FOREST	LILY L	211	NR	9/20	7.3	37	5.8	7.8	6.5	5.7	29	9.6	11.3	10.7	114	5.1	5.1	1.60	60				
FOREST	ROBERTS L	414	C-ST	9/29	1.1	5	5.9	6.7	6.1	3.6	16	9.1	10.5	9.8	64	4.5	4.5	2.10	57				
IRON	TRUDE L	781	NR	9/12	50.3	433	3.6	7.4	5.7	18.5	159	7.8	10.1	9.2	749	8.6	14.1	3.13	62				
IRON	TURTLE-FLAMBEAU FL	13,545	NR	10/9	37.0	947	4.2	7.1	5.6	11.9	305	7.2	10.4	8.9	1,307	25.6	211.0	8.38	50				
LANGLADE	ENTERPRISE L	505	NR	10/4	44.8	269	4.2	6.4	5.3	2.8	17	7.3	7.8	7.7	407	6.0	6.0	2.94	55				
LINCOLN	L MOHAWKSIN	1,910	NR	10/18	8.7	90	4.7	7.3	5.9	16.0	165	7.4	10.3	9.1	340	10.3	35.2	3.61	45				
ONEIDA	BEARSKIN L	400	NR	10/2	193.4	1,083	3.8	7.6	5.6	22.3	125	7.8	9.7	9.2	1,373	5.6	5.6	2.66	58				
ONEIDA	BIG L	865	C-NR	10/5	16.8	111	3.9	6.0	5.2	22.6	149	6.2	8.9	7.3	303	6.6	6.6	2.41	54				
ONEIDA	CLEAR L	846	NR	10/17	4.8	52	5.0	6.3	5.7	0.4	4	6.9	8.2	7.8	81	10.8	13.8	3.94	50				
ONEIDA	CRESCENT L	612	NR	10/6	145.0	1,073	4.3	8.1	5.5	12.7	94	8.2	10.0	9.4	1,251	7.4	7.4	3.50	56				
ONEIDA	DAM L	744	NR	9/18	39.9	307	3.5	6.2	4.7	17.4	134	6.7	10.4	8.2	456	7.7	7.7	2.15	58				
ONEIDA	GEORGE L	435	C-NR	9/25	74.7	411	3.9	6.7	5.4	10.5	58	7.1	8.6	8.0	558	5.5	5.5	3.11	57				
ONEIDA	KATHERINE L	590	NR	9/21	40.8	437	3.7	7.0	5.3	12.1	130	7.1	10.0	8.4	609	10.7	10.7	5.12	61				4
ONEIDA	KAWAGUESAGA L	670	NR	9/19	0.5	5	6.8	7.1	6.9	0.1	1	8.4	8.4	8.4	43	10.5	11.1	3.83	59				
ONEIDA	MINOCQUA L	1,360	C-NR	10/3	3.4	41	6.3	8.0	7.2	0.2	2	8.1	8.2	8.2	50	12.2	19.1	3.51	60				
ONEIDA	PELICAN L	3,585	C-NR	10/16	15.8	205	4.6	7.9		2.4	31	9.1	11.0		423	13.0	13.0	7.19	46	9	93	3	9
ONEIDA	SAND L	540	NR	9/18	60.2	269	3.5	7.3	5.7	14.4	69	7.6	9.9	8.8	393	4.8	4.8	2.33	62				
ONEIDA	SEVENMILE L	503	C-ST	9/27	14.9	61	6.7	8.4	7.6	4.9	20	9.3	11.6	10.5	89	4.1	6.1	1.86	56				
ONEIDA	SQUASH L	392	NR-2	9/26	1.5	11	6.0	7.1	6.6	0.0	0				17	7.4	7.4	2.96	59				
ONEIDA	SQUIRREL L	1,317	NR	10/5	156.6	2,177	4.7	7.7	6.1	0.7	10	8.5	9.7	9.1	2,330	13.9	13.9	5.63	57				
ONEIDA	THUNDER L	1,768	C-ST	9/20	0.8	8	4.3	5.4	4.9	0.1	1	7.1	7.1	7.1	13	10.4	10.6	4.41	55				
ONEIDA	TOMAHAWK L	3,392	C-ST	10/2	4.3	120	6.4	9.1	8.2	0.2	7	9.3	9.6	9.4	132	28.1	30.2	11.78	59				
POLK	BALSAM L	2,054	C-ST	9/20	0.0	1	9.3	9.3		0.5	12	9.5	11.0		53	22.7	22.7	7.50	62				
PRICE	BUTTERNUT L	1,006	C-NR	9/18	64.0	717	4.8	7.9	6.8	19.0	213	8.0	10.3	9.2	1,254	11.2	11.2	5.19	62				
PRICE	PIKE L	806	C-NR	9/20	26.3	287	4.8	7.1	6.0	14.9	162	7.6	9.7	8.9	608	10.9	10.9	3.19	57				
PRICE	ROUND L	726	C-NR	9/19	111.0	566	4.5	6.9	5.6	84.1	429	7.0	9.8	8.4	1,125	5.1	5.1	2.45	59				
RUSK	ISLAND L	526	C-ST	10/9	0.0	0				0.0	0				18	5.8	5.8	2.06	56	3	3	28	2
SAWYER	CONNORS L	429	NR	10/3	18.0	84	4.0	8.0	5.9	4.7	22	6.7	10.3	8.6	154	4.7	5.0	1.76	56				
SAWYER	L CHETAC	1,920	C-NR	9/21	6.2	108	5.5	7.2	6.3	3.5	61	7.6	11.1	10.0	266	17.5	17.5	6.16	59		1		
SAWYER	L CHIPPEWA	15,300	C-NR	9/25-28	77.8	1,928	4.3	7.9	6.2	22.0	517	7.4	10.5	9.3	2,905	23.5	232.9	10.10	57				
SAWYER	NELSON L	2,503	C-ST	10/10	0.3	5	7.0	7.6	7.3	0.3	5	7.7	9.0	8.3	37	16.5	31.4	5.95	53		9	184	
SAWYER	ROUND L	3,054	C-NR	9/19	10.6	211	3.0	6.9		NA*	NA*				628	19.9	20.2	7.50	63	7	5		91
SAWYER	SISSABAGAMA L	719	C-NR	9/18	4.9	40	5.7	7.3	6.5	5.2	43	6.5	10.8	9.4	202	8.2	8.2	3.81	62				
SAWYER	WHITEFISH L	786	C-ST	9/20	0.1	1	5.3	5.3	5.3	0.0	0				27	8.1	8.1	2.37	60		1		1
SAWYER	WINDFALL L	102	C-NR	9/12	132.5	212	5.2	8.0	6.6	9.4	15	9.0	10.1	9.6	273	1.6	1.6	0.79	65				
VILAS	ALDER L	274	C-NR	10/4	16.7	65	5.3	7.6	6.6	6.2	24	8.0	9.8	9.2	114	3.9	3.9	1.37	57				
VILAS	ANNABELLE L	213	NR	10/17	3.8	16	6.5	7.8	7.2	8.1	34	9.1	10.8	9.9	65	4.2	4.2	1.74	47				
VILAS	BALLARD L	505	C-ST	10/4	0.2	1	6.3	6.3	6.3	4.4	24	8.3	9.5	8.8	40	5.5	5.5	2.13	54				
VILAS	BIG L (BOULDER JCT)	835	NR	9/28	32.2	309	4.4	7.9	6.1	10.2	98	8.2	9.8	9.1	484	9.6	9.6	3.45	57				
VILAS	BIG L (MI BORDER)	771	NR	9/26	37.8	522	4.1	7.8	5.7	9.7	134	8.1	10.0	9.0	794	13.8	13.8	4.45	58				
VILAS	BIG MUSKELLUNGE L	930	NR	10/10	129.6	1,257	4.2	8.0	5.8	9.1	88	8.1	10.4	9.2	1,362	9.7	10.2	3.00	53				
VILAS	BIRCH L	528	NR	10/16	2.2	14	4.8	6.5	5.8	24.8	156	6.9	10.0	8.2	188	6.3	6.3	2.19	47				
VILAS	BOULDER L	524	NR	9/27	71.2	548	4.2	7.5	5.3	26.6	205	7.6	10.4	9.1	836	7.7	7.7	2.77	55				
VILAS	CATFISH L	1,012	NR	10/9	17.6	199	4.7	7.2	6.1	31.2	353	7.3	8.8	8.1	813	11.3	11.3	4.55	54				
VILAS	CLEAR L	555	C-NR	10/4	100.6	523	4.0	7.1	5.8	7.1	37	7.4	10.4	9.2	608	5.2	7.1	1.94	56				
VILAS	CRAB L	949	NR	10/24	1.8	28	3.9	7.2	5.9	3.9	62	7.6	11.2	9.8	138	15.8	15.8	5.16	43				
VILAS	CRANBERRY L	956	NR	10/16	13.2	150	4.2	6.7	5.3	69.8	796	6.8	9.8	8.0	1,106	11.4	11.4	4.23	43				
VILAS	EAGLE L	572	NR	10/10	56.5	271	4.9	7.1	5.8	15.0	72	7.6	9.1	8.5	435	4.8	4.8	2.28	54				
VILAS	FISHTRAP L	329	NR	10/3	0.0	0				0.6	4	9.7	10.4	10.1	29	6.3	6.3	1.52	56				

Table C2. Fall 2006 Walleye Recruitment Surveys Conducted by GLIFWC, concluded

WISCONSIN		Surface Area	2006 Walleye	Date	Age 0	Age 0 Wall-	Age 0 Min	Age 0 Max	Age 0 Mean	Age 1	Age 1 Wall-	Age 1 Min	Age 1 Max	Age 1 Mean	Total Wall-	Miles	Shore	Hours	Temp-	Other Species			
County	Lake	(Acres)	Code	Surveyed	CPE	eye	Length	Length	Length	CPE	eye	Length	Length	Length	eye	Surveyed	Miles	Surveyed	erature	MUE	NOP	LMB	SMB
VILAS	FOREST L	466	NR	9/11	37.4	262	4.2	6.1	5.1	7.0	49	7.6	10.8	9.3	316	7.0	7.0	3.06	68			2	2
VILAS	HARRIS L	507	NR	9/26	3.0	18	5.0	6.6	6.0	1.5	9	7.2	9.9	8.7	57	6.0	6.0	1.92	60				
VILAS	HIGH L	734	NR	10/3	0.0	0				0.5	4	7.0	7.7	7.2	22	8.0	9.4	2.52	57				
VILAS	ISLAND L	1,023	C-NR	10/5	37.2	435	4.2	7.3	5.9	23.4	274	7.4	10.4	9.0	823	11.7	16.8	4.24	54				
VILAS	L LAURA	599	C-NR	9/21	30.0	144	4.3	6.8	5.6	36.9	177	6.9	10.0	8.5	353	4.8	4.8	2.55	60				
VILAS	LAC VIEUX DESERT	4,300	C-NR	10/10	0.3	5	6.2	7.2	6.8	9.4	149	7.7	10.8	9.8	323	15.8	16.3	6.89	51	1	28	6	14
VILAS	LITTLE ARBOR VITAE L	534	C-NR	9/19	0.5	3	6.1	6.4	6.3	0.3	2	7.0	7.9	7.5	223	6.3	7.1	2.31	57				
VILAS	LITTLE STAR L	244	C-NR	10/4	21.1	80	4.8	7.5	6.4	3.4	13	8.0	9.7	9.0	106	3.8	3.8	1.39	54				
VILAS	MAMIE L	400	NR	9/25	14.9	88	4.2	7.3	5.6	14.7	87	8.1	10.5	9.3	214	5.9	5.9	2.08	55				
VILAS	MANITOWISH L	506	C-NR	10/4	27.2	174	4.6	7.9	6.2	5.6	36	8.2	10.0	9.2	226	6.4	7.6	2.17	54				
VILAS	N TURTLE L	369	NR	10/18	6.2	31	4.2	6.8	5.7	27.2	136	7.2	10.3	8.7	199	5.0	5.0	1.88	42				
VILAS	N TWIN L	2,788	C-NR	10/18	4.9	49	4.9	7.4	6.5	20.3	203	7.8	10.1	9.3	445	10.0	10.4	3.39	47				
VILAS	OXBOW L	511	NR	10/24	22.8	299	4.3	7.4	6.2	24.7	323	7.6	10.1	9.0	688	13.1	13.5	5.13	41				
VILAS	PAPOOSE L	428	C-NR	10/3	11.7	77	4.2	7.3	5.5	17.4	115	6.9	10.3	8.9	251	6.6	6.6	2.91	55				
VILAS	PRESQUE ISLE L	1,280	NR	9/13	21.0	185	4.7	7.4	6.3	6.0	53	7.6	10.5	9.5	311	8.8	8.8	3.80	64				1
VILAS	RAZORBACK L	362	C-NR	10/16	3.9	26	5.4	8.4	6.4	5.3	35	8.9	11.1	9.8	141	6.6	7.3	1.76	44				
VILAS	REST L	608	C-NR	10/4	72.8	590	3.3	8.3	6.4	14.6	118	8.7	10.9	10.0	758	8.1	8.1	3.20	55				
VILAS	S TURTLE L	454	NR	10/19	3.5	22	5.8	7.2	6.2	8.1	50	7.8	9.8	9.0	119	6.2	6.2	2.00	42				
VILAS	S TWIN L	642	C-NR	10/18	0.5	2	5.0	6.1	5.6	3.0	11	8.1	10.1	9.3	153	3.7	3.7	1.03	48				
VILAS	SHERMAN L	123	NR	9/25	106.4	234	4.7	7.4	6.2	33.6	74	7.8	10.3	9.2	323	2.2	2.2	1.05	57	2			
VILAS	SHERMAN L	123	NR	9/27	95.0	209	5.0	7.2	6.1	37.3	82	7.9	10.3	9.4	313	2.2	2.2	1.11	56				
VILAS	SHERMAN L	123	NR	9/28	93.2	205	4.8	7.2	6.2	36.4	80	7.8	10.3	9.2	299	2.2	2.2	0.99	55				
VILAS	SHERMAN L	123	NR	10/2	92.3	203	4.6	7.2	6.2	29.5	65	7.7	10.3	9.3	285	2.2	2.2	0.96	55				
VILAS	SQUAW L	785	NR	10/2	14.3	129	5.7	7.7	6.6	12.1	109	8.2	10.4	9.5	284	9.0	9.0	3.19	59				
VILAS	STAR L	1,206	C-NR	10/19	38.0	445	4.1	7.5	5.3	16.1	188	7.6	10.5	9.1	706	11.7	11.7	4.93	45				
VILAS	TENDERFOOT L	437	NR	10/19	0.6	4	5.6	6.3	5.9	3.6	24	8.0	10.0	9.3	55	6.6	6.6	2.10	42				
VILAS	TROUT L	3,816	C-ST	10/9	3.8	68	5.1	7.9		6.3	112	8.0	10.0		366	17.9	17.9	7.35	54				
WASHBURN	BASS-PATTERSON L	188	NR	9/14	221.0	641	4.2	7.8	5.6	1.4	4	7.4	7.8	7.5	660	2.9	2.9	1.48	67				
WASHBURN	LONG L	3,290	C-ST	10/18	0.8	17	5.2	7.8	6.5	0.0	0				60	22.6	38.0	7.49	47		65	10	14
WASHBURN	SHELL L	2,580	NR	10/19	3.5	36	5.2	7.2	6.3	2.5	26	7.4	9.6	8.8	68	10.2	10.2	3.83	46				
COUNT: 98 SURVEYS ON 95 LAKES				TOTALS:		24,848					8,394				40,256	896.2		344.08		22	256	266	139
				AVERAGES:	34.5	254			6.1	11.0	87			9.0	411								
				NUMBER OF SURVEYS WITH FISH CAUGHT:	93					93					98					5	10	9	10

MICHIGAN		Surface Area	2006 Walleye	Date	Age 0	Age 0 Wall-	Age 0 Min	Age 0 Max	Age 0 Mean	Age 1	Age 1 Wall-	Age 1 Min	Age 1 Max	Age 1 Mean	Total Wall-	Miles	Shore	Hours	Temp-	Other Species			
County	Lake	(Acres)	Code	Surveyed	CPE	eye	Length	Length	Length	CPE	eye	Length	Length	Length	eye	Surveyed	Miles	Surveyed	erature	MUE	NOP	LMB	SMB
BARAGA	PARENT L	182	NR	9/21	0.9	2	3.4	3.8	3.6	6.1	14	7.9	9.4	8.6	35	2.3	2.3	0.89	56				
GOGEBIC	BEATONS L	330	ST	9/11	0.0	0				0.0	0				0	6.9	6.9	2.28	62				
GOGEBIC	CISCO L	506	C-NR	9/14	0.0	0				0.0	0				0	3.2	12.4	1.31	67				
GOGEBIC	DUCK L	616	C-ST	9/27	1.1	9	4.8	5.7	5.3	0.2	2	7.2	7.6	7.4	40	8.5	9.5	2.81	53				
GOGEBIC	L GOGEBIC	13,380	C-NR	9/13	203.7	4,951	4.1	7.9	6.1	3.9	94	8.0	10.0	9.2	5,066	24.3	35.0	12.44	64				
GOGEBIC	POMEROY L	314	NR	9/11	1.9	7	6.4	6.9	6.7	3.5	13	7.2	7.9	7.6	220	3.7	3.7	1.52	63				
GOGEBIC	TAMARACK L	335	NR	9/28	13.8	55	5.0	6.8	6.4	3.8	15	6.9	7.3	7.0	208	4.0	4.0	1.31	51				
GOGEBIC	THOUSAND ISLAND L	1,020	C-NR	9/14	0.0	0				0.0	0				3	10.7	10.7	4.61	64		1		1
IRON	EMILY L	320	ST	9/20	0.3	1	6.6	6.6	6.6	0.3	1	7.8	7.8	7.8	64	3.2	3.2	1.46	62				
IRON	PERCH L	994	NR	9/20	23.9	191	4.6	7.1	6.3	0.9	7	7.2	7.8	7.3	422	8.0	8.0	3.11	59				
IRON	STANLEY L	310	NR	10/17	31.4	110	6.2	8.7	7.4	4.0	14	9.2	11.3	10.7	144	3.5	3.5	1.14	40				
ONTONAGON	BOND FALLS FL	2,118	C-NR	10/25	0.2	3	4.8	5.3	5.1	0.8	11	6.4	9.6	8.5	53	14.5	15.0	3.98	41				
COUNT: 12 SURVEYS ON 12 LAKES				TOTALS:		5,329					171				6,255	92.8		36.86		0	1	0	1
				AVERAGES:	23.1	444			5.9	2.0	14			8.2	521								
				NUMBER OF SURVEYS WITH FISH CAUGHT:	9					9					10					0	1	0	1

MINNESOTA		Surface Area	2006 Walleye	Date	Age 0	Age 0 Wall-	Age 0 Min	Age 0 Max	Age 0 Mean	Age 1	Age 1 Wall-	Age 1 Min	Age 1 Max	Age 1 Mean	Total Wall-	Miles	Shore	Hours	Temp-	Other Species			
County	Lake	(Acres)	Code	Surveyed	CPE	eye	Length	Length	Length	CPE	eye	Length	Length	Length	eye	Surveyed	Miles	Surveyed	erature	MUE	NOP	LMB	SMB
MILLE LACS	MILLE LACS L	132,516	NR	9/25-26	187.5	7,464	3.8	8.2	6.7	12.9	513	7.7	12.3	9.3	8,054	39.8	78.0	17.26	58				
OVERALL: 111 SURVEYS ON 108 LAKES				TOTALS (OVERALL):		37,641					9,078				54,565	1,028.8		398.20		22	257	266	140
				AVERAGES (OVERALL):	34.6	339			6.1	10.0	83			8.9	492								
				NUMBER OF SURVEYS WITH FISH CAUGHT (OVERALL):	103					103					109					5	11	9	11

CPE=catch per unit effort (number of fish divided by shore miles surveyed), MUE=muskellunge, NOP=northern pike, LMB=largemouth bass, SMB=smallmouth bass.
*The number of age 1 walleye caught was not determined for Round Lake, Sawyer County.

Table C3 Summary of Age 0 and Age 1 Catch per Effort Rates During Fall 2006 Recruitment Surveys Conducted by GLIFWC

Including Lakes Where No Year Class Was Detected

		NR and C-NR					C-ST					NR-2				
AGE	STATE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE
0	WISCONSIN	40.3	48.9	83	0.0	221.0	2.3	4.0	14	0.0	14.9	1.5		1	1.5	1.5
	MICHIGAN	30.6	66.0	9	0.0	203.7	0.5	0.5	3	0.0	1.1			0		
	MINNESOTA	187.5		1	187.5	187.5			0					0		
	POOLED	41.0	52.5	93	0.0	221.0	2.0	3.7	17	0.0	14.9	1.5		1	1.5	1.5
1	WISCONSIN	12.6	14.6	82	0.1	84.1	2.0	2.7	14	0.0	7.2	0.0		1	0.0	0.0
	MICHIGAN	2.5	2.2	9	0.0	6.1	0.2	0.2	3	0.0	0.3			0		
	MINNESOTA	12.9		1	12.9	12.9			0					0		
	POOLED	11.7	14.1	92	0.0	84.1	1.7	2.6	17	0.0	7.2	0.0		1	0.0	0.0

Excluding Lakes Where No Year Class Was Detected

		NR and C-NR					C-ST					NR-2				
AGE	STATE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE	MEAN CPE	ST. DEV.	N	MIN. CPE	MAX. CPE
0	WISCONSIN	42.4	49.3	79	0.3	221.0	2.5	4.1	13	0.0	14.9	1.5		1	1.5	1.5
	MICHIGAN	39.4	73.5	7	0.2	203.7	0.7	0.5	2	0.3	1.1			0		
	MINNESOTA	187.5		1	187.5	187.5			0					0		
	POOLED	43.8	53.1	87	0.2	221.0	2.3	3.9	15	0.0	14.9	1.5		1	1.5	1.5
1	WISCONSIN	12.6	14.6	82	0.1	84.1	2.5	2.8	11	0.1	7.2			0		
	MICHIGAN	3.3	1.9	7	0.8	6.1	0.3	0.1	2	0.2	0.3			0		
	MINNESOTA	12.9		1	12.9	12.9			0					0		
	POOLED	11.9	14.2	90	0.1	84.1	2.2	2.7	13	0.1	7.2			0		

Table C4 Summary of Fall 2006 Age 0 and Age 1 Population Estimate Conducted by GLIFWC

County	Lake	Surface Area (Acres)	2006 Walleye Code	Age	Population Estimate	Coefficient of Variation (%)	Density Per Acre	Mean CPE (#/mile)
VILAS	SHERMAN L	123	NR	0	3,051	17.6%	24.8	96.7
				1	857	25.1%	7.0	34.2