

**Fish Population Assessments of Ceded Territory Lakes in  
Wisconsin, Michigan and Minnesota During 2010**

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, Sokaogon (Mole Lake), and St. Croix Bands assisted with spring and fall surveys. An assessment crew from the Lac Courte Oreilles Band assisted with spring surveys, and an assessment crew from the Bad River Band assisted with fall surveys.

In the spring, adult walleye (*Sander vitreus*) population estimates were conducted on 20 lakes. A total of 22,245 walleye were sampled from 18,747 acres of water during these surveys. All but three of the lakes surveyed had naturally reproducing walleye populations, and density of adult walleye averaged 4.08 (SD = 2.33, range: 1.11 to 10.10) fish per acre. In 14 of these 20 lakes, adult walleye population densities were at least 3.0 fish per acre, indicating that walleye populations were healthy.

During the fall, electrofishing surveys were conducted on 99 lakes in Wisconsin, 9 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. In Wisconsin, a total of 15,935 age 0 and 5,653 age 1 walleye were sampled. In addition, 720 gamefish including muskellunge (*Esox masquinongy*), northern pike (*Esox lucius*), largemouth bass (*Micropterus salmoides*) and smallmouth bass (*M. dolomieu*) were sampled. In Michigan, a total of 886 age 0 and 158 age 1 walleye plus 6 gamefish were sampled during the fall. In Minnesota on Mille Lacs Lake, a total of 2,321 age 0 and 209 age 1 walleye were sampled.

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## **Introduction**

Fishery assessment surveys of ceded territory lakes were conducted during spring and fall of 2010 by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to improve 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 ceded territory walleye populations and associated biological parameters. They provide data needed to update recruitment codes, set harvest quotas, and monitor the impacts of a combined tribal and sport 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 2010 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 has continued through a subcontract with GLIFWC. The Sokaogon (Mole Lake) Band assisted with the spring and fall surveys through a subcontract with GLIFWC. The Bad River Band assisted with the fall surveys through a subcontract with GLIFWC. The Lac Courte Oreilles Band assisted with the spring survey on Lac Courte Oreilles Lake.

## **Methods**

### Spring Adult Walleye Population Estimates

Current information on adult walleye populations was collected from 19 lakes in the ceded territory of Wisconsin and one lake in the ceded territory of Michigan (Figure A1). Of these, 17 lakes in Wisconsin had experienced tribal spearing harvest during the previous year. The survey conducted on Hagerman Lake (Iron Co., Michigan) was a cooperative effort coordinated between GLIFWC and the Michigan Department of Natural Resources and Environment (MDNRE).

Nine lakes in Wisconsin are GLIFWC long-term study lakes. Large (greater than 500 acres in area) long-term study lakes surveyed in 2010 included Butternut Lake (Forest Co.), Kentucky Lake (Vilas Co.), Squirrel Lake (Oncida Co.) and Squaw Lake (Vilas Co.). Small (less than 500 acres in area) long-term study lakes surveyed in 2010 included Siskiwit Lake (Bayfield Co.), Bearskin Lake (Vilas 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 and assess models for predicting population size. A joint study between GLIFWC and the Wisconsin Department of Natural Resources (WDNR) was initiated in 2006 on Sherman Lake to investigate the effects of a 50% exploitation rate on the walleye population.

Mark and recapture data were used to calculate the adult walleye population estimate for each lake according to 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.

Fish were captured for marking with electrofishing gear soon after ice out in all lakes except for Hagerman Lake (Iron Co., MI), where walleye were captured by fyke netting by a MDNRE assessment crew. In Kentuck Lake (Vilas Co.) and Lake Metonga (Forest Co.) walleye were captured by fyke netting and electrofishing by the Sokaogon (Mole Lake) and GLIFWC assessment crews. In Lac Courte Oreilles (Sawyer County) walleye were captured by fyke netting by the Lac Courte Oreilles assessment crew and electrofishing by GLIFWC assessment crews. 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 2010 had an arrangement of six umbrella dropper anodes and used pulsed DC at 60 pps. Electrofishing occurred after sunset.

During the marking period, effort was focused on finding and sampling walleye spawning areas. With this concentrated effort, crews were able to mark the target number of walleye in two to 13 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 individually 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 to three 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 recorded.

### Fall Recruitment Surveys

Fall electrofishing surveys were conducted in 109 ceded territory waters including 99 lakes in Wisconsin, 9 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 assess whether recruitment codes were appropriate.

Electrofishing boats sampled lakes four nights per week from September 13 through October 21. Eight assessment crews were used during the season, including four from GLIFWC, one from USFWS, and crews from the Bad River, 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 18 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. Cases of severe weather were the only exceptions that prevented survey completion. All fish collected were identified to species and 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 bleached, 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 five Wisconsin lakes were conducted jointly by GLIFWC and WDNR, and the results summarized and reported by GLIFWC: Red Cedar Lake (Barron Co.), Lac Vieux Desert (Vilas Co.), Trout Lake (Vilas Co.), Long Lake (Washburn Co.), and Minong Flowage (Washburn Co.). Surveys on the following four Wisconsin lakes were conducted jointly by GLIFWC and WDNR, and the results were summarized and reported by WDNR: Upper Eau Claire Lake (Bayfield Co.), Balsam Lake (Polk Co.), Grindstone Lake (Sawyer Co.), and Pelican Lake (Oneida Co.). All data from these nine surveys are reflected in this report, regardless of which agency did the actual collection of fish.



## Results and Discussion

### Spring Adult Walleye Population Estimates

A total of 22,245 walleye were sampled from 18,747 acres of water in Wisconsin and Michigan during the spawning adult walleye population estimate period. Adult walleye population estimates for 20 stocks in Wisconsin and Michigan (Table A1) ranged from 515 to 6,953 fish. Estimated population densities ranged from 1.11 per acre for Lac Courte Oreilles, Sawyer Co., to 10.10 walleye per acre for Bearskin Lake, Oneida Co. (mean = 4.08, SD = 2.33) (Figure A2).

The Report on Biological Issues (1988) listed several indicators of healthy naturally 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.

Thirteen of the 20 lakes surveyed had recruitment codes of NR (Table A1), indicating that natural reproduction was the only source of recruitment. Four lakes had recruitment codes of C-NR, indicating that some stocking occurred even though the population was sustained by natural reproduction. Three of the lakes had a recruitment code of C-ST, indicating that some natural reproduction occurred even though the population was sustained by stocking. Fourteen of these 20 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 2,081 female, 18,904 male, and 1,260 unknown sex walleye were measured (Figure A3, Table A2) and a subsample aged (Figure A4). Female lengths ranged from 11.0 to 30.5 inches, male lengths ranged from 9.0 to 26.0 inches, and lengths for walleye of unknown sex ranged from 8.5 to 21.5 inches. Age-length tables were developed for subsets of female, male, and unknown sex walleye in each of the lakes sampled (Tables A3 – A21). 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, 17 of the 20 lakes had populations with at least five year classes of females in the aging sample.

## Fall Recruitment Surveys

Fall recruitment surveys were conducted on 109 lakes in the ceded territories of Wisconsin, Michigan and Minnesota (Figure B1, Table B2). Survey effort included 406.4 hours of electrofishing along 1055.1 miles of shoreline resulting in the collection of 31,592 walleye.

From 99 surveys conducted on 99 lakes in Wisconsin, 349.7 hours of electrofishing along 907.2 miles of shoreline resulted in a collection of 27,371 walleye. In Michigan, 9 lakes were surveyed in 30.4 hours along 79.4 miles of shoreline, resulting in the collection of 1,343 walleye. In Mille Lacs Lake, 2,878 walleye were collected in 26.3 hours along 68.5 miles of shoreline (Table B2).

A total of 15,935 age 0 walleye were caught in Wisconsin. Age 0 walleye were caught in 85 of the 99 lakes surveyed. Over all 99 surveys, catch per effort (CPE) for age 0 walleye ranged from 0.0 to 151.7 (mean = 21.0, median = 7.7, SD = 31.1) per mile. A total of 5,653 age 1 (yearling) walleye were caught in 84 of the lakes surveyed. Over all surveys, age 1 CPE ranged from 0.0 to 60.6 (mean = 7.7, median = 3.7, SD = 11.1) yearlings per mile.

In order to gauge the relative strength of the 2010 and 2009 walleye year classes monitored in the 2010 fall surveys as age 0 and age 1 fish, plots of mean and median CPE values were generated for each year from 1986 through 2010 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 B2 and B3). For 1986 through 2010, the averages of the yearly mean and median age 0 CPEs are 31.5 and 17.3 per mile, respectively, and the averages of the yearly mean and median age 1 CPEs are 10.2 and 5.7 per mile, respectively. For 2010, the mean and median age 0 CPEs were 22.7 and 11.8, respectively, and the mean and median age 1 CPEs were 7.1 and 3.2, respectively.

In Michigan, 886 age 0 walleye were caught. Age 0 walleye were caught in 6 of the 9 lakes surveyed. Age 0 CPE ranged from 0.0 to 32.2 (mean = 7.1, median = 1.3, SD = 11.9) per mile. A total of 158 age 1 walleye were caught in 5 lakes. Age 1 CPE ranged from 0.0 to 8.6 (mean = 1.9, median = 0.4, SD = 3.0) yearlings per mile.

In Minnesota, 2,321 age 0 and 209 age 1 walleye were caught in Mille Lacs Lake, yielding CPEs of 33.9 and 3.1 per mile, respectively. Length frequencies from the survey on Mille Lacs Lake are shown in Figure B4, and results from all fall recruitment surveys conducted by GLIFWC on Mille Lacs Lake are shown in Figure B5.

Table B2 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 O-ST lakes in Wisconsin, Michigan and Minnesota are given in Table B3. 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 B6 and B7.

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## Appendix A: Spring Survey Data

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- A - Bad River
- B - Bay Mills (not depicted)
- C - Fond du Lac
- D - Keweenaw Bay
- E - Lac Courte Oreilles
- F - Lac du Flambeau
- G - Lac Vieux Desert
- H - Mille Lacs
- I - Mole Lake
- J - Red Cliff
- K - St. Croix

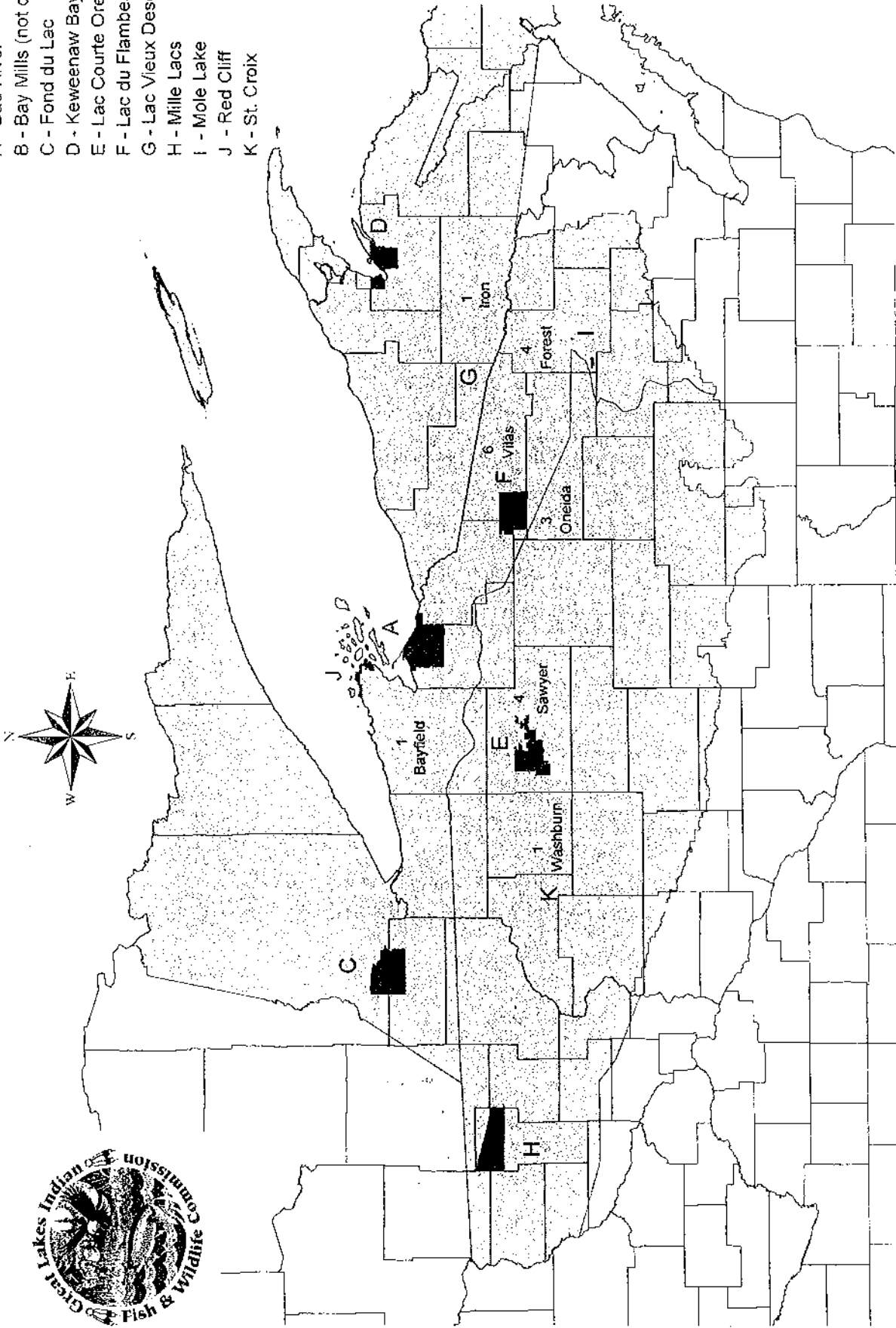


Figure A1. Ceded Territory in Wisconsin, Michigan, and Minnesota with the number of lakes per county where spring adult walleye surveys were conducted by GLIFWC during 2010.

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

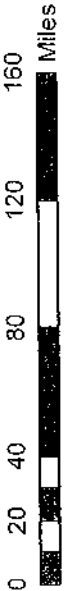


Figure A2. Estimated Adult Walleye Densities by Recruitment Code, Spring 2010

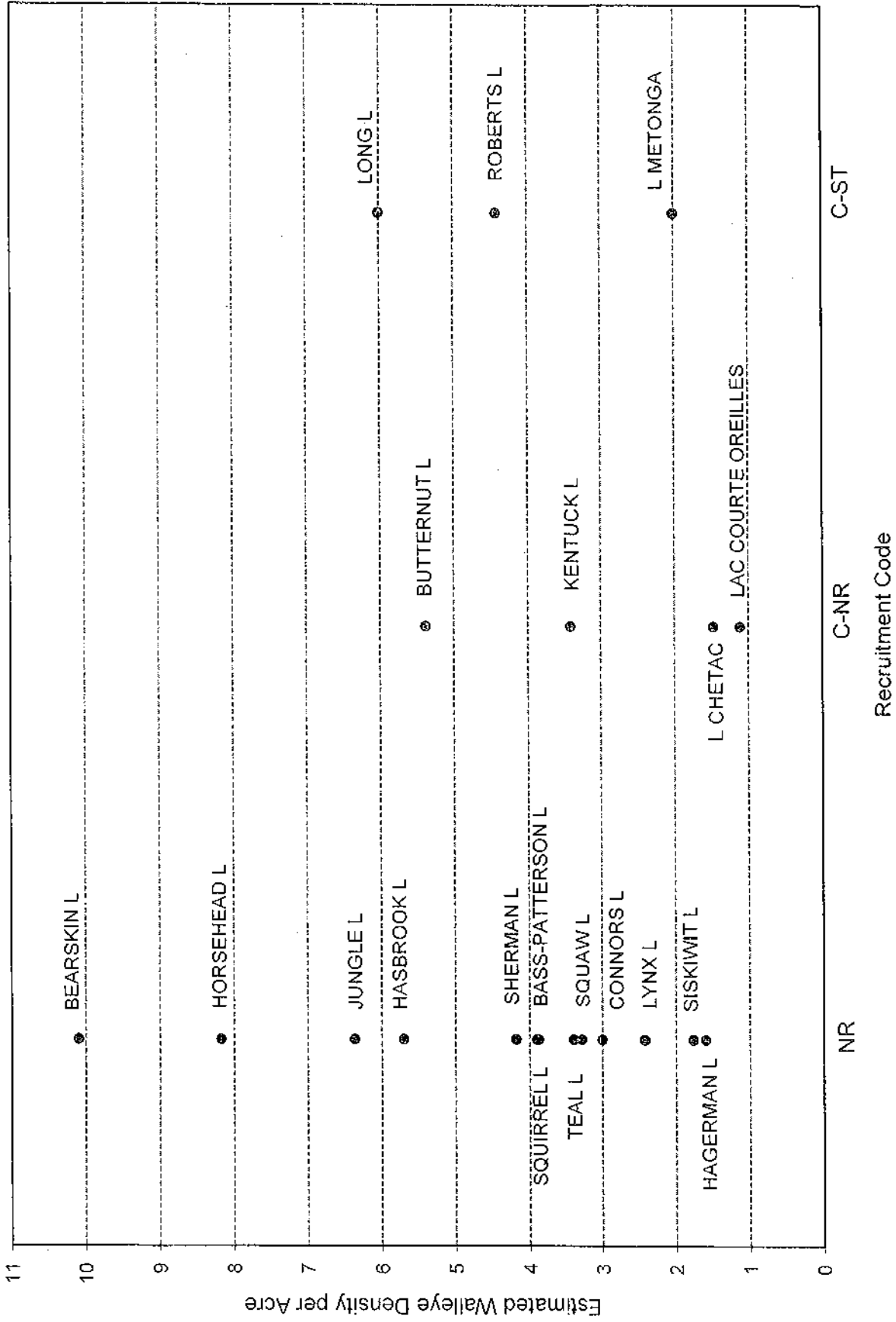


Figure A3

Length Frequency of Adult Walleye Marked  
Adult Walleye Population Estimates, Spring 2010

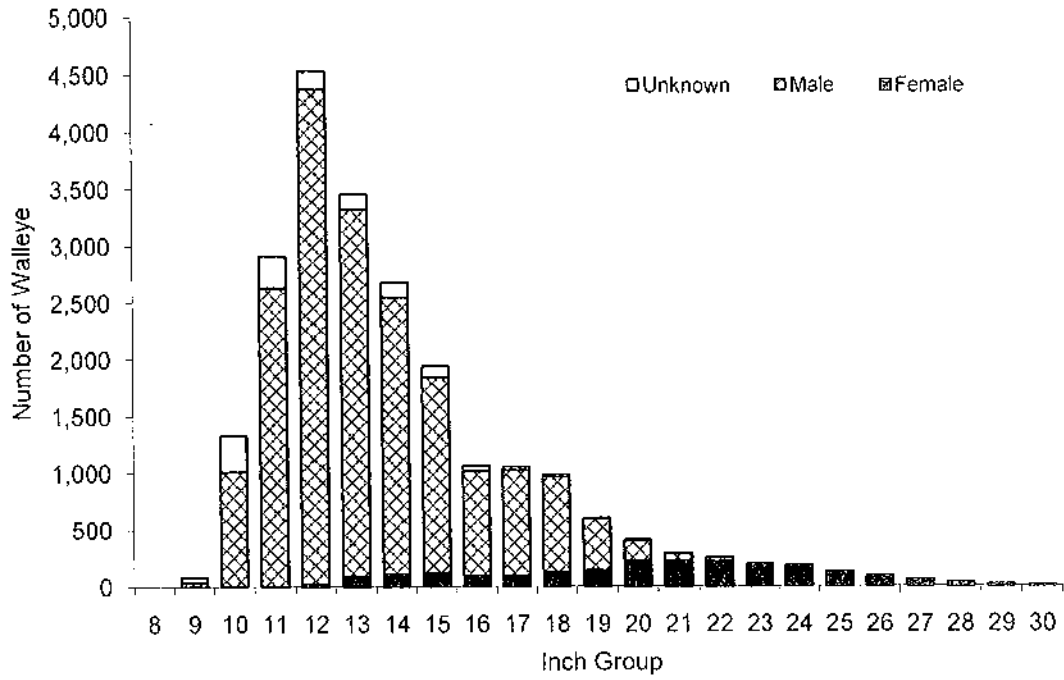


Figure A4

Age Frequency of Adult Walleye Aged  
Adult Walleye Population Estimates, Spring 2010

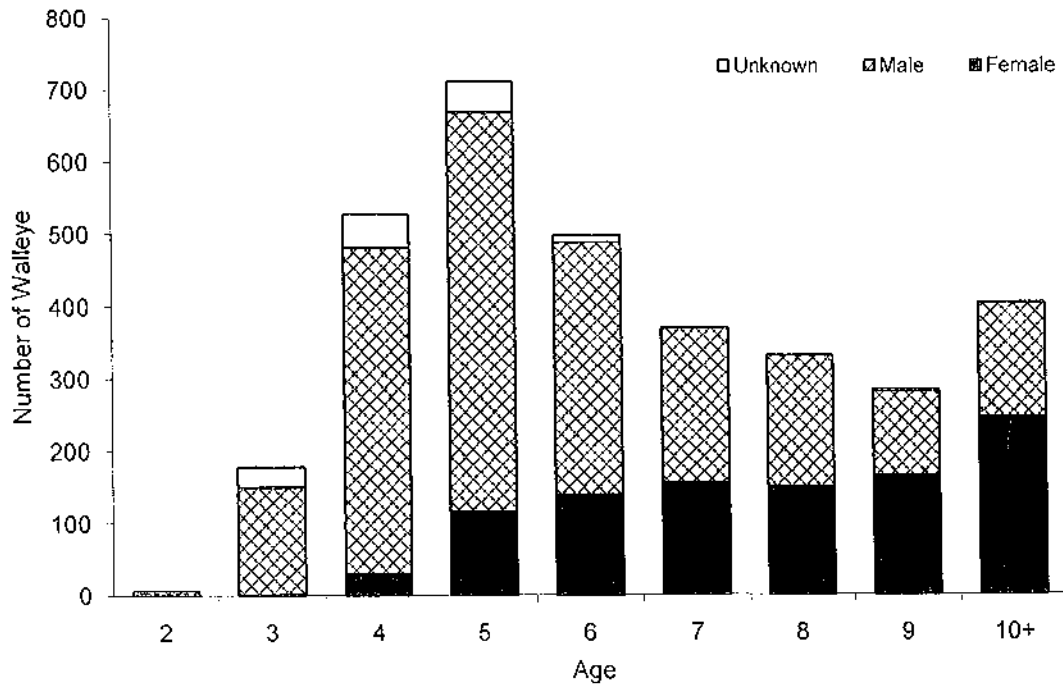


Table A1. Spring 2010 Adult Population Estimates Conducted by GLIFWC

State	County	Lake	Surface Area (Acres)	2010 Walleye Code	Population Estimate	Density	Coefficient of Variation (%)	Marking Gear*	Recapture Gear**	Fin clip applied**	Male: female sex ratio***
MI	IRON	HAGERMAN L	584	NR	934	1.60	17.55	F	E	TC	3:1
WI	BAYFIELD	SISKIWT L	330	NR	583	1.77	15.29	E	E	YF	5:1
WI	FOREST	BUTTERNUT L	1,292	C-NR	6,953	5.38	7.74	E	E	YF	168:1
WI	FOREST	JUNGLE L	182	NR	1,159	6.37	9.82	E	E	TCN	28:1
WI	FOREST	L'METONGA	1,991	C-ST	3,993	2.01	22.01	E/F	E	HLP	5:1
WI	FOREST	ROBERTS L	414	C-ST	1,831	4.42	4.46	E	E	TCN	19:1
WI	ONEIDA	BEARSKIN L	400	NR	4,039	10.10	11.03	E	E	YF	54:1
WI	ONEIDA	HASBROOK L	302	NR	1,722	5.70	11.35	E	E	BCN	48:1
WI	ONEIDA	SQUIRRELL L	1,317	NR	5,107	3.88	4.89	E	E	YF	38:1
WI	SAWYER	CONNORS L	429	NR	1,289	3.00	11.49	E	E	BCN	7:1
WI	SAWYER	L'CHETAC	1,920	C-NR	2,833	1.48	5.32	E	E	BCN	10:1
WI	SAWYER	LAC COURTE OREILLES	5,039	C-NR	5,611	1.11	23.79	E/F	E	TC	5:1
WI	SAWYER	TEAL L	1,049	NR	3,572	3.41	3.43	E	E	BCN	12:1
WI	VILAS	HORSEHEAD L	234	NR	1,913	8.18	13.66	E	E	BCN	6:1
WI	VILAS	KENTUCK L	957	C-NR	3,277	3.42	7.92	E/F	E	YF	6:1
WI	VILAS	LONG L	872	C-ST	5,240	6.01	14.68	E	E	BCN	2:1
WI	VILAS	LYNX L	339	NR	822	2.42	25.55	E	E	BCN	21:1
WI	VILAS	SHERMAN L	123	NR	515	4.19	10.40	E	E	YF	17:1
WI	VILAS	SQUAW L	785	NR	2,585	3.29	13.55	E	E	YF	6:1
WI	WASHBURN	BASS-PATTERSON L	188	NR	734	3.90	11.05	E	E	YF	11:1

\*Gear used: E = electrofishing, F = fyke netting

\*\*BCN = bottom caudal notch, YF = numbered yellow floy tag, TC = top caudal, HLP = half left pectoral

\*\*\*Sex ratio is calculated for walleye sampled during marking and recapture runs but excludes recaptured fish

Table A2. Lengths of Walleye Collected During Spring 2010 Adult Walleye Population Estimates

STATE	COUNTY	LAKE	NUMBER SAMPLED		FEMALE				MALE				UNKNOWN	
			FEMALE	MALE	MINIMUM LENGTH	MAXIMUM LENGTH	MINIMUM LENGTH	MAXIMUM LENGTH	MINIMUM LENGTH	MAXIMUM LENGTH	MINIMUM LENGTH	MAXIMUM LENGTH		
			TOTAL	UNKNOWN	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH		
MI	IRON	HAGERMAN L	117	296	0	413	16.0	27.5	11.5	20.5	10.5	17.5	17.5	17.5
WI	BAYFIELD	SISKIWT L	41	191	60	282	13.0	18.0	11.5	17.5	12.0	17.0	17.0	17.0
WI	FOREST	BUTTERNUT L	11	1,851	37	1,899	15.0	27.5	10.5	22.0	10.0	18.0	11.0	11.0
WI	FOREST	JUNGLE L	17	477	4	488	14.5	22.0	12.0	18.0	10.0	11.0	11.0	11.0
WI	FOREST	L'METONGA	240	1,108	0	1,348	16.5	30.5	10.5	24.5	10.5	24.5	11.5	11.5
WI	FOREST	ROBERTS L	57	1,096	3	1,156	13.5	27.0	10.5	20.5	10.5	16.0	16.0	16.0
WI	ONEIDA	BEARSKIN L	30	1,821	70	1,721	12.5	26.0	9.5	19.0	9.5	16.0	16.0	16.0
WI	ONEIDA	HASBROOK L	14	676	12	702	13.0	29.0	10.0	26.0	10.5	20.5	20.5	20.5
WI	ONEIDA	SQUIRRELL L	65	2,452	15	2,532	13.0	26.5	9.5	19.0	11.0	16.0	16.0	16.0
WI	SAWYER	CONNORS L	69	458	53	580	12.5	27.5	9.5	22.0	8.5	19.5	19.5	19.5
WI	SAWYER	L'CHETAC	116	1,168	11	1,285	16.0	28.0	12.0	23.0	13.5	16.5	16.5	16.5
WI	SAWYER	LAC COURTE OREILLES	216	1,079	43	1,338	17.5	29.0	10.0	24.5	8.5	21.0	21.0	21.0
WI	SAWYER	TEAL L	156	1,867	116	2,139	13.0	27.5	10.0	24.0	10.5	21.5	21.5	21.5
WI	VILAS	HORSEHEAD L	142	872	70	1,084	11.0	28.0	10.0	17.0	10.0	17.5	17.5	17.5
WI	VILAS	KENTUCK L	202	1,232	268	1,702	13.0	30.5	10.0	26.0	10.5	16.0	16.0	16.0
WI	VILAS	LONG L	420	878	39	1,337	13.0	30.5	10.0	26.0	10.5	16.0	16.0	16.0
WI	VILAS	LYNX L	15	316	23	354	15.0	22.0	9.5	22.5	9.0	21.0	21.0	21.0
WI	VILAS	SHERMAN L	16	278	21	315	12.0	24.5	9.5	15.5	10.0	16.5	16.5	16.5
WI	VILAS	SQUAW L	110	679	178	967	11.5	19.0	10.0	15.5	10.0	14.0	14.0	14.0
WI	WASHBURN	BASS-PATTERSON L	27	309	237	573	14.0	27.0	10.5	20.5	10.0	19.0	19.0	19.0
WI	OVERALL		2,081	18,904	1,260	22,245	11.0	30.5	9.0	26.0	8.5	21.5	21.5	21.5

Table A3

Number of Walleye Aged by Sex and Length From Spring 2010 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	F	M	U
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10																																				
11								1	4				1																			1	5	6		
12								1			9	4			2	3																12	7	19		
13										1	2	3		1	6																	2	8	14		
14										1	1	1			8	3		2	5	1			2								3	16	5	24		
15										1		1		3			4	2	2			2										8	6	3	17	
16													2			2	1				2		2			1	1					7	4	11		
17																		1	2				3			1	1	1				5	1	2	8	
18																									1								1		1	
19																																				
20																																				
21																																				
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24																																				
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29																																				
30																																				
TOTALS										2	4	3	12	10	6	16	6	8	8	5	4	4	3	4	2	2	1				26	48	26	100		

Number of female year classes: 6

Number of male year classes: 7

Table A4

Number of Walleye Aged by Sex and Length From Spring 2010 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	F	M	U
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26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS										7		15		2	64	2	28	1	14			1	6		4		5	5	10	143	1	154				

Number of female year classes: 4

Number of male year classes: 8



Table A5

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Jungle 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12													13		4																		17	17		
13												6		14																			20	20		
14											1		1	9		6																1	18	19		
15												4	2		1	8																6	20	26		
16															1	4																4	14	18		
17																																1	2	3		
18																1																1	1	3		
19																1																2	1	3		
20																																				
21																																	1	1		
22																																	1	1		
23																																				
24																																				
25																																				
26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS													20		5	29		4	18		5	19		2	5		1				16	92	108			

Number of female year classes: 4                      Number of male year classes: 6

Table A6

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Lake Metonga, 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	F	M	U
3																																				
4																																				
5																																				
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7																																				
8																																				
9																																				
10													1																				1	1		
11													1		14																		15	15		
12													1		18																		19	19		
13															14																		18	18		
14													4		7																		11	11		
15															5		13																20	20		
16															4		18																31	31		
17															1		2																2	10	12	
18																1	2																4	1	22	
19																	4																3	1	16	
20																																	3	1	18	
21																																	2	3	19	
22																																	6	1	15	
23																																	6	1	14	
24																																	5	1	14	
25																																	12	1	13	
26																																	1	14	15	
27																																	11		11	
28																																	5		5	
29																																	2		2	
30																																	1		1	
TOTALS													3		50		1	21		11	33		13	7		6	5		23	21	60	24	114	164	278	

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

Table A7

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Roberts 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10								1																								1	1			
11								3																								5	5			
12								2					14																			16	16			
13												1	7				7														1	16	17			
14										1	1			3	7		1	9												5	19	24				
15														2																5	21	26				
16																3	15			2	2									5	21	28				
17																7	5			2	9			5		3				9	22	31				
18																5				2				3		3		4		7	10	17				
19																3				2	1		3	1		2				8	4	12				
20															1										1		1		1	1	2	3	3			
21																					1									1	1	2	2			
22																														1		1	1			
23																																				
24																																				
25																											1		2		3		3			
26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS								6		2	24		3	16		20	31		9	14		4	11		1	10		2	5	41	117	158				

Number of female year classes: 7

Number of male year classes: 8

Table A8

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Bearskin Lake, Oneida 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9								1				3																			3	1	4			
10								1	1			8	4		2	2															11	7	18			
11												4	1		16	8				1	1										21	10	31			
12															1	10	6														1	21	9	31		
13																																1	26	7	34	
14												1	8				14	7													1	26	7	34		
15													1				2	8	1		1	8								3	20	1	24			
16																4	1			2	7									7	23		30			
17																6					6										7	20		27		
18																				1											2	10		12		
19																					1										1			1		
20																															1	1		1		
21																															2			2		
22																																				
23																																				
24																																				
25																																				
26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS								1	2		17	5	2	36	13	13	34	15	4	25		3	17		1	13		2	9	1	4	26	156	35	217	

Number of female year classes: 7

Number of male year classes: 9

Table A9

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Hasbrook Lake, Oneida 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	F	M	U	ALL						
3																																											
4																																											
5																																											
6																																											
7																																											
8																																											
9																																											
10								9	1			4																				13	1	14									
11								2				11	1																				20	1	21								
12												9	1																					22	1	23							
13												1	1	1																				2	22	1	25						
14																																			22		22						
15																																			2	19		21					
16																																			9		9						
17																																			3		3						
18																																			2	1	3						
19																																			1	1	2						
20																																			1		1						
21																																											
22																																			1		1						
23																																			1		1						
24																																			1		1						
25																																											
26																																			1		1						
27																																											
28																																											
29																																			1		1						
30																																											
TOTALS																																								16	129	4	149

Number of female year classes: 7

Number of male year classes: 8

Table A10

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Squirrel Lake, Oneida 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	F	M	U	ALL						
3																																											
4																																											
5																																											
6																																											
7																																											
8																																											
9																																											
10																																				6	6						
11																																				20	20						
12																																				21	21						
13																																				2	18	20					
14																																				2	5	7					
15																																				2	19	21					
16																																				3	14	17					
17																																				5	7	12					
18																																				2	4	6					
19																																				12		12					
20																																				8		8					
21																																				1		1					
22																																				3		3					
23																																				3		3					
24																																				4		4					
25																																											
26																																				2		2					
27																																											
28																																											
29																																											
30																																											
TOTALS																																								49	114		163

Number of female year classes: 7

Number of male year classes: 8

Table A11

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Connors Lake, Sawyer 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	F	M	U	ALL
3																																					
4																																					
5																																					
6																																					
7																																					
8																																					
9																																					
10								3																							3	3					
11										1																					1	1					
12										7	3				7	2			1												14	6	20				
13										9	1				12				1												21	2	23				
14									1	1					11				8											1	20	21					
15												1	4				16													1	20	21					
16									1				2				1	9			6									2	20	22					
17													2				1	9				6			1	4				5	4	10	14				
18													1				2	1												3	4	5	6	10	16		
19													1				2														2	2	8	4	12		
20																					2										3	5	1	2	10	2	12
21																					1										1	4	3	1	9		9
22																															4	4	1	9		9	
23																															1	3	2	6		6	
24																																5	5	5		5	
25																															4	4	4		4		
26																															4	4	4		4		
27																															1	1	1		1		
28																																					
29																																					
30																																					
TOTALS										3	2	18	4	5	36	2	6	34	2	6	6	18	7	14	7	19	14	70	122	11	203						

Number of female year classes: 7

Number of male year classes: 7

Table A12

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Lake Chetac, Sawyer 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																																		
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28																																		
29																																		
30																																		
TOTALS										5	4	36	9	21	9	21	20	18	12	10	33	13	26	34	104	137	241							

Number of female year classes: 6

Number of male year classes: 7

Table A13

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Lac Courte Oreilles, Sawyer 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	F	M	U
3																																				
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26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS																																				

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

Table A14

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Teal Lake, Sawyer 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	F	M	U
3																																				
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28																																				
29																																				
30																																				
TOTALS																																				

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



Table A15

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Horsehead 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10								7		2		1																			10	10				
11								3		9		7																			19	19				
12										6		3	14		1															3	21	24				
13												7	17		3															7	20	27				
14												10	1		1	6		4		1		1							11	13	24					
15												4			3	4		1	8										8	12	20					
16												1					1		8										2	2	2	2				
17															3			1			1		1						3	2	5	5				
18															1															1	1	1	1			
19																																				
20																				1										1	1	1	1			
21																															3	3	3			
22																															4	4	4			
23																															5	5	5			
24																															4	4	4			
25																															2	2	2			
26																															4	4	4			
27																															1	1	1			
28																																				
29																															1	1	1			
30																																				
TOTALS													10			17			25	40	8	14	4	13	7	2	3	1	13		60	97	157			

Number of female year classes: 6

Number of male year classes: 7

Table A16

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Kentuck 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9								6		1																					7	7	7			
10								7		6		5																			18	18	18			
11								1		11		5																			17	17	17			
12										4		14		1																	19	19	19			
13												1	9		1	9		9		2										2	20	22	22			
14															2		11		5		1										19	19	19			
15															1		6		1	3		3								2	12	14	14			
16																1		1	3		4		3							1	10	11	11			
17																2		5		3		1	1		1	1				9	2	11	11			
18																	5		3		1	1		2					1	9	3	12	12			
19																			8		3									11	1	12	12			
20																			5		5		2							12	12	12	12			
21																			5		5		2							13	13	13	13			
22																				4		6		3						13	13	13	13			
23																					3									8	8	8	8			
24																															5	5	5	5		
25																																				
26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS										14			1	22	2	35	8	27	31	13	24	9	11	6	9	2	86	128	214							

Number of female year classes: 7

Number of male year classes: 8

Table A17

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Long 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	F	M	U	ALL		
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																	1	1					
11																																	1	1					
12																																	9	9					
13																																	15	15					
14																																	3	20	23				
15																																	5	10	15				
16																																	3	4	7				
17																																	1	8	9				
18																																	1	9	10				
19																																	2	10	12				
20																																	7	3	10				
21																																	2	2	4				
22																																	8	1	9				
23																																	9	2	11				
24																																	10		10				
25																																	5	10	10				
26																																	7		7				
27																																	7		7				
28																																	7		7				
29																																	4		4				
30																																	5		5				
TOTALS																																					91	95	186

Number of female year classes: 8

Number of male year classes: 8

Table A18

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Lynx 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																																		6	6				
11																																		20	20				
12																																		19	19				
13																																		20	20				
14																																		2	21	23			
15																																		6	8	14			
16																																		6	4	10			
17																																		1	3	4			
18																																		1		1			
19																																		2	1	3			
20																																		1	1	2			
21																																		1		1			
22																																		1	1	2			
23																																							
24																																							
25																																							
26																																							
27																																							
28																																							
29																																							
30																																							
TOTALS																																					21	104	125

Number of female year classes: 6

Number of male year classes: 7

Table A19

Number of Walleye Aged by Sex and Length From Spring 2010 Adult Population Estimate  
Sherman 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	F	M	U
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9					1			1																							2		2			
10								7	2			4																			11	2	13			
11								3				7	3		4																14	3	17			
12												6			1	11															1	17	18			
13															7	2			1												8	2	10			
14															2				3												2	3	5			
15																		1	1												1	1	2			
16															1					2											1	2	3			
17																																2		2		
18															1																	4		4		
19																																				
20																																1		1		
21																																2		2		
22																																				
23																																				
24																																				
25																																				
26																																				
27																																				
28																																				
29																																				
30																																				
TOTALS					1			11	2		17	3		5	22	2		7	5	2	2											14	56	9	79	

Number of female year classes: 3

Number of male year classes: 5

Table A20

Number of Walleye Aged by Sex and Length From Spring 2010 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	F	M	U	ALL					
3																																										
4																																										
5																																										
6																																										
7																																										
8																																										
9																																										
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27																																										
28																																										
29																																										
30																																										
TOTALS								9			4	27	1		13	21			11	30			9	6			10	3			3	1			2				52	97	1	150

Number of female year classes: 7

Number of male year classes: 7

Table A21

Number of Walleye Aged by Sex and Length From Spring 2010 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	F	M	U	ALL		
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10					1																										3	8	11						
11																															10	5	15						
12																																10	10						
13																																19	1	20					
14																																2	20	22					
15																																4	18	22					
16																																1	12	14					
17																																2	4	6					
18																																1	4	5					
19																																3		3					
20																																2	1	3					
21																																							
22																																							
23																																							
24																																							
25																																							
26																																							
27																																							
28																																							
29																																							
30																																							
TOTALS																																							

Number of female year classes: 6

Number of male year classes: 8

## Appendix B: Fall Recruitment Survey Data

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Figure B2 Means of Age 0 and Age 1 Walleye CPEs in Wisconsin

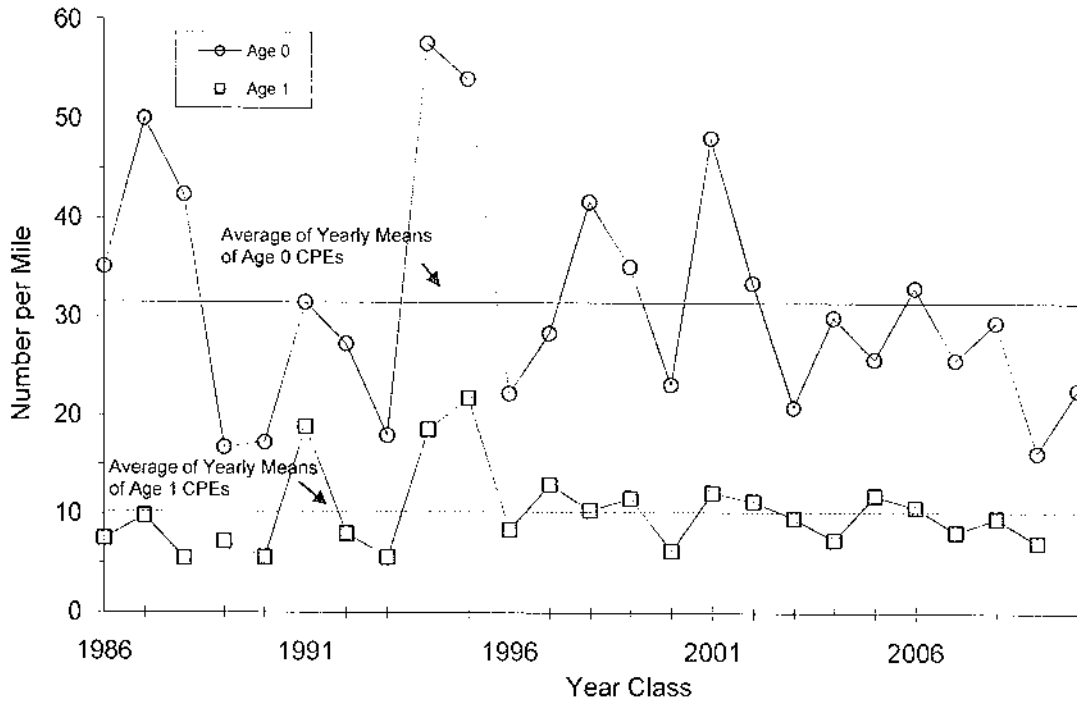
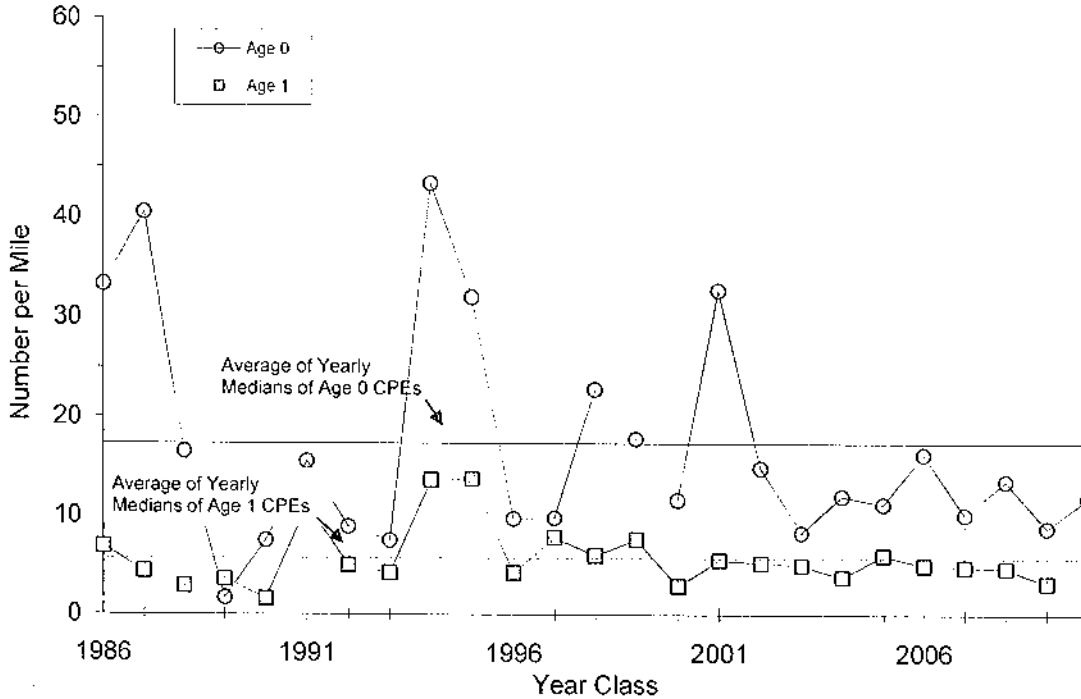


Figure B3 Medians of Age 0 and Age 1 Walleye CPEs in Wisconsin



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 B4

Length Frequency of Walleye Captured  
Fall 2010 Walleye Recruitment Survey, Mille Lacs Lake

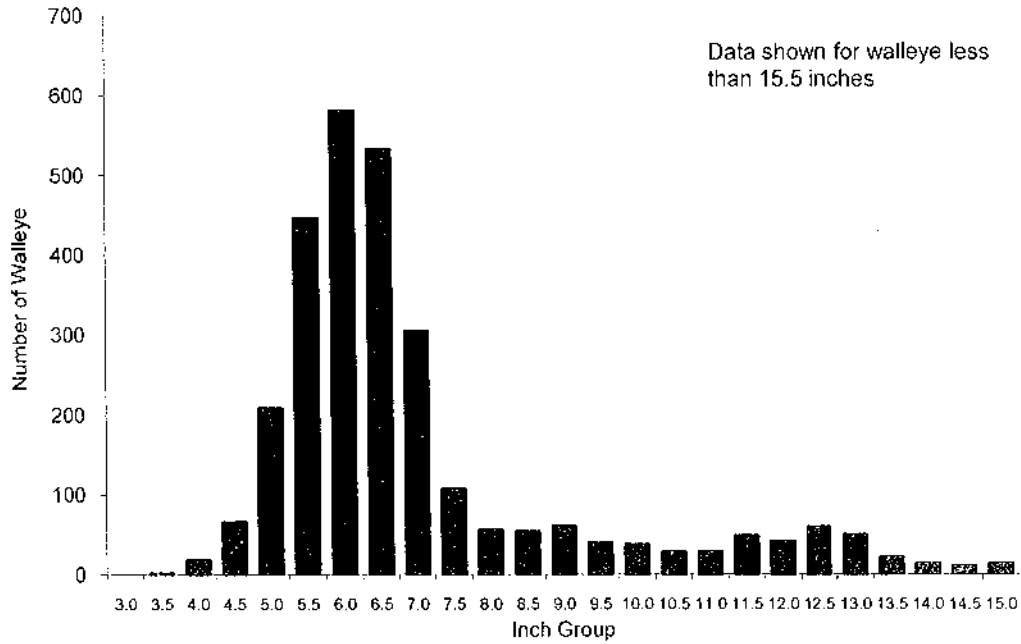


Figure B5

Mille Lacs Lake Fall Walleye CPEs from GLIFWC Surveys

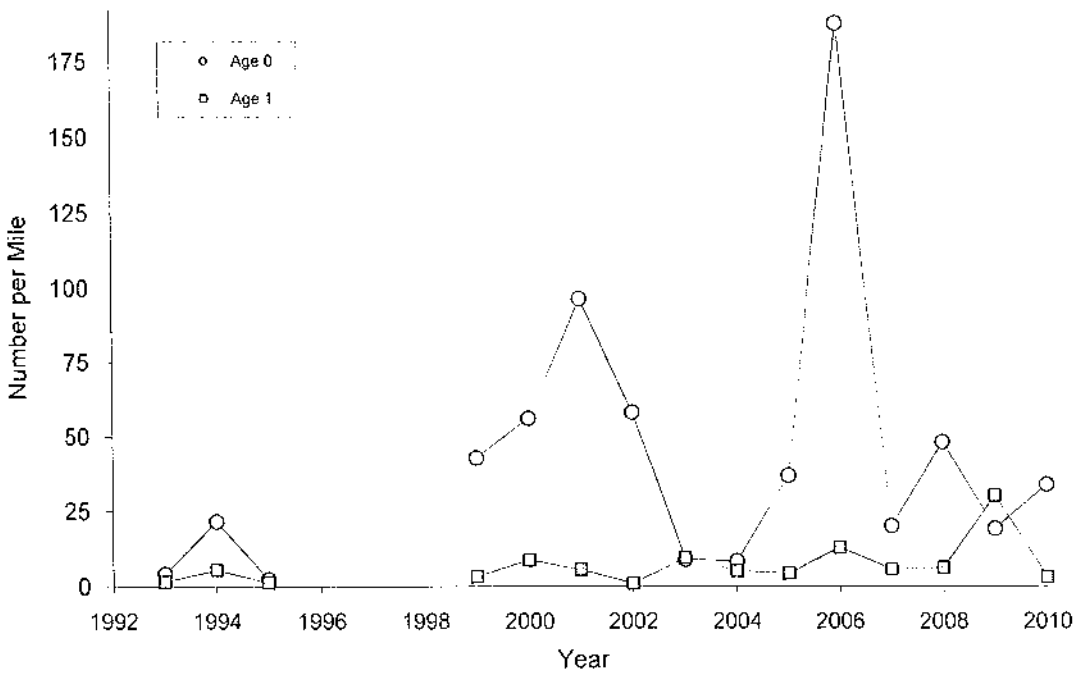


Figure B6. Age 0 CPE By Code for GLIFWC 2010 Recruitment Surveys

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

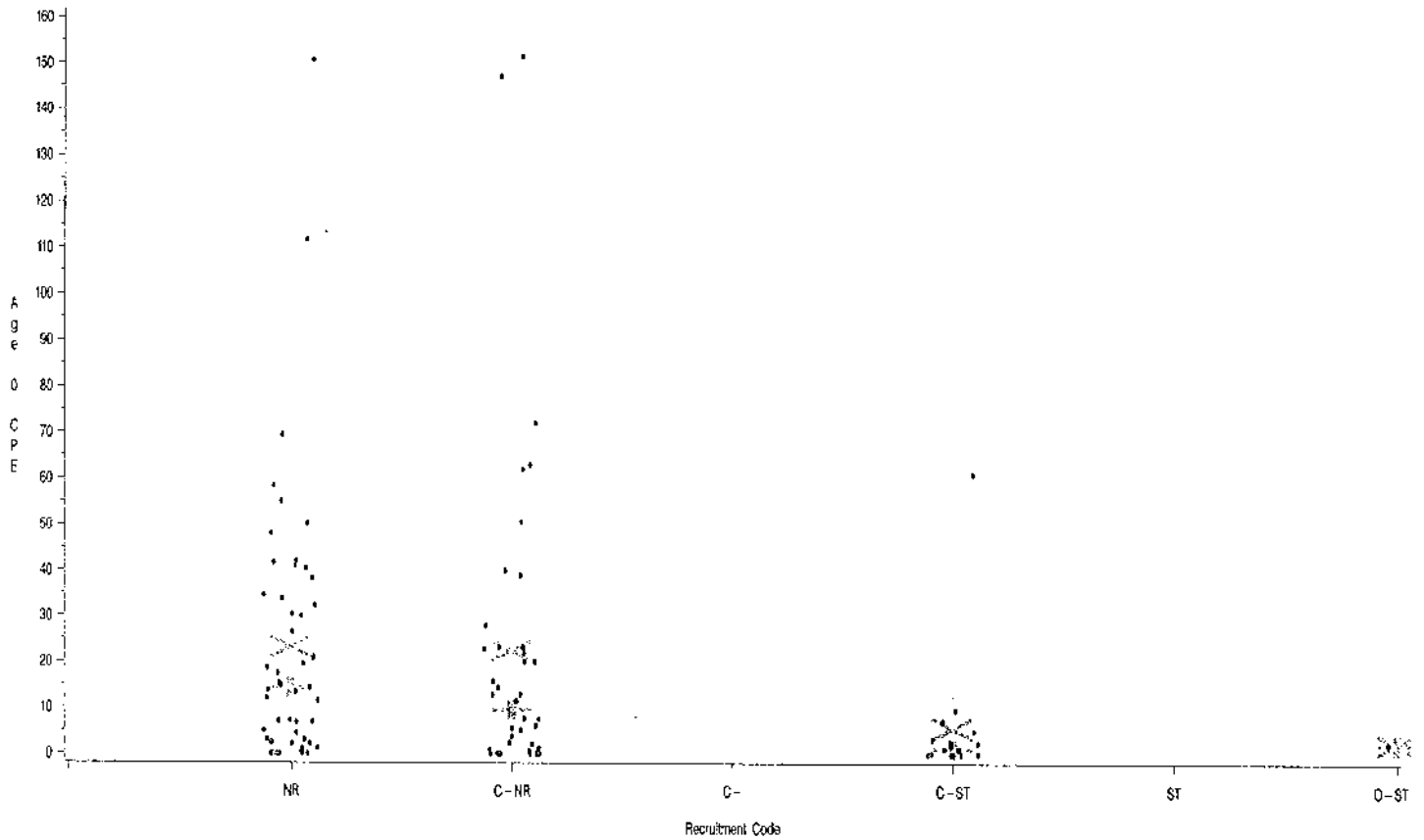
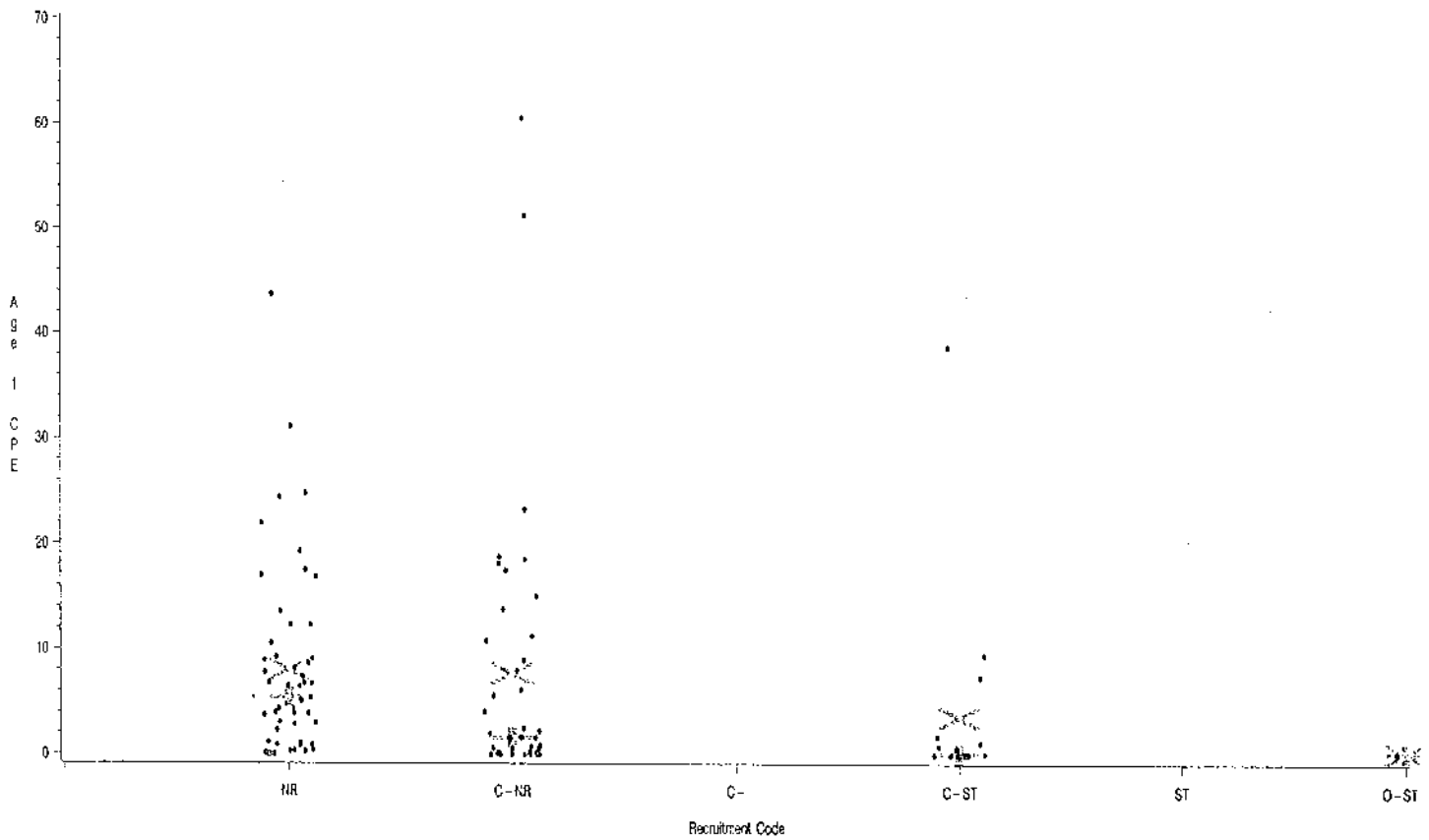


Figure B7. Age 1 CPE By Code for GLIFWC 2010 Recruitment Surveys

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



**Table B1. Description of Walleye Recruitment Source Codes.**

<b>Code</b>	<b>Recruitment Code Description</b>
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 B2. Fall 2010 Walleye Recruitment Surveys Conducted by GLIFWC

County	Lake	Surface Area (Acres)	2010 Walleye Code	Date Surveyed	Age 0 Wall-eye	Age 0			Age 1 Wall-eye	Age 1			Total Wall-eye	Miles Surveyed	Shore Miles Surveyed	Hours Surveyed	Temperature	Other Species		
						CPE	Min Length	Max Length		Mean Length	Min Length	Max Length						Mean Length	MUE	NOPI
BARRON	RED CEDAR L	1,841	C-NR	10/4	13.0	206	4.4	7.8	6.3	1.6	26	8.2	379	15.9	15.9	5.86	59	16	2	20
BARRON	SAND L	322	C-ST	10/14	0.0	0	0	0	0	0	0	0	7	6.3	6.3	2.31	58			
BAYFIELD	ATKINS L	176	C-NR	10/11	20.0	46	7.2	9.4	8.1	0.0	0	0	50	2.3	2.3	1.02	58			2
BAYFIELD	LOWEN	1,323	C-ST	9/15	0.0	0	0	0	0	0	0	0	204	16.2	24.0	5.66	59			21
BAYFIELD	NAMEKAGON L	3,327	NR	9/20	2.5	75	5.2	7.5	6.2	1.2	36	7.6	204	30.2	43.6	9.18	60			1
BAYFIELD	SISKIWI L	330	NR	10/21	40.5	162	4.3	6.2	4.9	6.6	27	7.0	9.5	8.7	229	4.0	4.0	1.69	48	
BURNETT	UPPER EAU CLAIRE L	996	C-NR	10/7	1.0	11	6.4	8.6	7.1	2.0	22	9.2	11.1	11.1	3.80	58				
BURNETT	BIG MCKENZIE L	1,185	C-ST	9/22	2.4	17	5.4	7.8	6.8	0.1	7.9	7.9	19	7.1	7.1	2.73	62			6
BURNETT	SAND L	962	C-ST	10/11	2.3	19	5.9	7.2	6.6	0.2	2	8.3	11.4	9.8	24	8.3	8.3	2.72	62	
BURNETT	YELLOW L	2,287	C-NR	9/21	20.0	112	5.6	8.0	6.8	1.6	9	8.3	10.0	9.2	155	5.6	7.9	2.34	55	
CHIPPewa	LONG L	1,052	NR	10/18	38.3	429	3.7	7.0	5.8	12.3	138	7.1	9.3	7.8	684	11.2	14.0	3.88	55	
DOUGLAS	ANNISON L	426	C-NR	9/13	0.0	0	0	0	0	0	0	0	1	6.0	6.0	1.78	62			6
DOUGLAS	L NEBAGAMON	914	C-NR	9/20	0.6	7	6.6	7.3	7.1	0.2	2	7.7	9.8	8.8	13	10.8	10.8	4.18	59	
DOUGLAS	LOWER EAU CLAIRE L	802	NR	9/22	0.0	0	0	0	0	0.3	2	9.4	10.2	9.8	7	7.8	7.8	2.22	61	
DOUGLAS	UPPER ST CROIX L	855	C-NR	9/22	0.1	1	6.3	6.3	6.3	0.1	1	9.5	9.5	9.5	19	10.0	10.0	4.31	60	
FOREST	BUTTERNUT L	1,292	C-NR	9/28	12.9	103	4.3	7.8	6.2	0.6	5	9.4	10.5	9.9	125	8.0	8.0	2.95	57	
FOREST	FRANKLIN L	892	C-NR	9/29	6.1	40	4.4	7.6	6.1	0.2	1	8.2	8.2	8.2	46	6.6	6.6	2.57	58	
FOREST	JUNGLE L	182	NR	9/21	0.0	0	0	0	0	0.9	2	7.4	7.4	7.4	2	2.2	2.2	1.26	58	
FOREST	LUCERNE	1,026	C-ST	10/13	1.8	15	6.3	7.1	6.7	0.6	5	9.2	10.0	9.7	35	10.5	10.5	3.74	57	
FOREST	L METONGA	1,991	C-ST	9/27	61.1	483	3.5	6.4	4.7	7.5	59	6.5	9.9	8.0	606	7.9	7.9	4.60	59	
FOREST	LILY L	211	NR	9/22	1.1	36	5.2	7.5	6.4	9.2	47	9.1	11.0	9.3	126	5.1	5.1	1.81	62	
FOREST	ROBERTS L	414	C-ST	9/29	0.2	1	7.2	7.2	7.2	1.8	8	8.9	9.8	9.3	86	4.5	4.5	2.39	57	
IRON	TRUDE L	781	NR	9/20	26.5	204	4.8	7.9	6.5	12.3	95	8.0	10.8	9.2	325	7.7	14.1	2.70	58	
IRON	TURTLE-FLAMBEAU FL	13,545	NR	9/22	41.8	802	4.3	7.7	5.8	10.6	203	7.8	10.1	8.9	1,066	19.2	211.0	6.97	56	
LANGLADE	ENTERPRISE L	505	NR	9/28	18.7	112	4.5	7.3	6.5	7.8	47	7.7	10.0	8.8	170	6.0	6.0	2.55	58	
LANGLADE	OTTER L	83	NR	9/28	0.0	0	0	0	0	0.8	2	7.8	10.2	9.0	14	2.4	2.4	1.06	58	
LINCOLN	L MOHAWKIN	1,910	NR	10/13	30.0	309	5.2	8.0	6.7	19.3	199	8.1	10.7	9.7	612	10.3	35.2	3.67	56	
LINCOLN	L NOKOMIS	2,433	NR	10/20	15.3	238	5.2	8.6	7.2	2.3	36	9.0	10.9	10.2	300	15.6	38.5	7.61	51	
ONEIDA	BEARSKIN L	400	NR	9/28	55.2	309	4.8	7.7	6.4	24.3	137	7.8	10.4	9.2	571	5.6	5.6	2.76	59	
ONEIDA	BIG FORK L	690	C-NR	10/6	151.7	819	4.2	6.8	5.8	23.3	126	6.9	9.2	7.9	1,119	5.4	5.4	2.63	57	
ONEIDA	BIG L	865	C-NR	10/5	14.4	95	4.9	7.0	6.2	18.2	120	7.1	8.9	8.2	489	6.6	6.6	2.88	56	
ONEIDA	BIG STONE L	548	C-NR	10/11	22.1	106	5.6	6.7	6.4	51.3	246	6.8	9.5	8.3	596	4.8	4.8	2.26	59	
ONEIDA	BOOM L	437	NR	10/12	0.0	0	0	0	0	0	0	0	12	5.8	5.8	2.17	57			
ONEIDA	CLEAR L	846	NR	10/14	4.5	62	4.1	7.7	6.1	0.4	5	7.9	10.8	9.6	75	13.8	13.8	5.41	55	
ONEIDA	HASBROOK L	302	NR	9/30	14.3	63	5.3	7.6	6.7	3.9	17	7.8	9.2	8.6	105	4.4	4.4	1.98	60	
ONEIDA	ISLAND L	295	C-NR	10/5	40.0	176	5.0	7.4	6.4	17.5	77	7.5	9.5	8.5	322	4.4	4.4	1.99	54	
ONEIDA	KATHERINE L	590	NR	10/11	7.3	78	5.7	7.3	6.7	6.5	7	7.4	9.7	8.8	271	10.7	10.7	4.27	59	
ONEIDA	LITTLE FORK L	620	C-NR	10/4	147.3	766	4.6	6.9	6.1	13.8	72	7.0	8.4	7.8	1,008	5.2	5.2	2.24	57	
ONEIDA	LONG L	620	C-NR	10/7	38.9	292	5.3	7.2	6.3	6.1	46	7.6	9.6	8.7	405	7.5	7.5	2.71	56	
ONEIDA	MEDICINE L	372	C-NR	10/7	62.1	298	4.9	7.7	6.3	9.0	43	7.8	9.5	8.7	426	4.8	4.8	1.96	56	
ONEIDA	PELICAN L	3,565	C-NR	9/26	15.8	205	5.7	8.4	7.5	5.6	73	8.5	11.9	11.9	416	13.0	13.0	8.40	61	
ONEIDA	PLANTING GROUND L	1,012	C-NR	10/6	72.2	758	4.8	7.5	6.4	15.0	158	7.7	9.7	8.6	1,158	10.5	10.5	4.01	56	
ONEIDA	RAINBOW FL	2,035	C-NR	10/6	7.6	74	5.9	8.3	7.1	2.2	22	8.5	10.6	9.6	130	9.8	22.3	5.12	55	
ONEIDA	SQUIRREL L	1,317	NR	9/27	6.9	96	5.8	8.0	6.7	5.4	75	8.2	10.3	9.3	237	13.9	13.9	4.77	59	
ONEIDA	TOMAHAWK L	3,392	C-ST	10/18	0.0	0	0	0	0	0	0	0	2	16.9	30.2	6.31	54			18
ONEIDA	WILLOW FL	5,135	NR	10/7	2.2	35	5.0	6.7	5.9	0.3	5	7.3	10.4	9.6	52	16.2	98.5	3.41	55	
POLK	BALSAM L	2,054	C-ST	10/6	0.0	0	0	0	0	0	0	0	19	22.7	22.7	7.10	59			7
POLK	WAPOGASSET L	1,186	C-ST	10/12	1.1	6	7.9	8.7	8.4	0.0	0	0	9	5.6	9.9	2.26	60			1
PRICE	BUTTERNUT L	1,006	C-NR	9/29	7.7	86	6.1	7.9	7.2	18.6	208	8.0	10.3	9.5	619	11.2	11.2	4.92	57	
PRICE	PIKE L	806	C-NR	10/12	2.1	23	5.3	7.3	6.5	11.3	123	7.5	10.3	9.0	196	10.9	10.9	2.94	58	
PRICE	ROUND L	728	C-NR	10/12	23.1	118	5.9	7.3	6.9	18.8	66	8.3	10.2	9.2	237	5.1	5.1	2.81	55	
SAWYER	CONNORS L	429	NR	10/19	41.0	205	6.3	8.6	7.7	4.2	21	8.9	10.4	9.7	234	5.0	5.0	2.96	53	
SAWYER	GRINDSTONE L	3,111	C-NR	10/5	63.0	662	3.7	8.2	7.1	0.8	8	8.6	10.7	684	10.5	10.5	4.30	59		
SAWYER	LCHETAC	1,920	C-NR	10/20	0.0	0	0	0	0	0	0	0	4	17.5	17.5	6.28	51			4
SAWYER	LAC COURTE OREILLES	5,039	C-NR	9/13	5.2	94	4.9	8.1	6.7	1.7	30	7.4	10.2	9.7	275	18.1	232.9	8.16	62	
SAWYER	LOST LAND L	1,204	C-NR	9/16	0.0	0	0	0	0	0	0	0	2	11.3	11.3	2.64	61			1
SAWYER	NELSON L	2,503	C-ST	10/13	2.6	50	7.0	9.8	8.6	0.7	13	10.0	11.5	10.6	103	19.1	31.4	7.54	57	
SAWYER	SAND L	928	C-ST	9/22	7.3	37	3.9	7.6	5.9	38.8	198	8.1	10.9	9.2	243	5.1	5.1	2.38	59	
SAWYER	TEAL L	1,049	NR	10/20	2.5	29	6.9	8.6	7.7	0.0	0	0	34	11.8	11.8	4.06	48			
SAWYER	WINDFALL L	102	C-NR	10/21	50.6	81	5.7	7.1	6.5	60.6	97	7.2	11.3	8.2	185	1.6	1.6	0.82	51	
VILAS	ANNABELLE L	213	NR	10/19	69.5	292	4.8	8.4	6.8	13.6	57	8.8	10.6	10.0	397	4.2	4.2	2.23	52	
VILAS	BALLARD L	505	C-NR	10/15	0.0	0	0	0	0	0.2	1	10.1	10.1	10.1	19	5.5	5.5	2.09	55	
VILAS	BIG L (BOULDER JCT)	835	NR	10/4	42.2	405	4.3	8.5	6.5	8.2	79	8.6	10.4	9.4	562	9.6	9.6	3.51	54	
VILAS	BIG L (MI BORDER)	771	NR	9/13	20.7	286	5.2	7.3	6.2	6.7	93	7.7	8.8	7.7	475	13.8	13.8	4.10	61	
VILAS	BIG MUSKELLUNGE L	930	NR	10/20	17.5	133	4.5	8.0	6.6	3.9	30	8.5	10.3	9.3	191	7.6	10.2	2.79	49	
VILAS	BIG PORTAGE L	638	NR	10/14	21.0	143	4.7	8.5	6.2	0.9	6	9.1	10.9	9.9	156	6.8	6.8	2.04	58	
VILAS	BIG ST GERMAIN L	1,617	C-ST	10/4	5.1	39	5.8	7.4	6.6	1.2	9	8.7	10.7	9.5	48	7.6	7.6	2.86	55	
VILAS	BOULDER L	524	NR	9/21	111.8	861	3.8	7.8	6.6	17.5	135	7.9	10.3	9.1	1,009	7.7	7.7	3.27	57	



WISCONSIN		Surface Area (Acres)	2010 Walleye Code	Date Surveyed	Age 0 CPE	Age 0 Wall-eye	Age 0 Min Length	Age 0 Max Length	Age 0 Mean Length	Age 0 CPE	Age 1 CPE	Age 1 Wall-eye	Age 1 Min Length	Age 1 Max Length	Age 1 Mean Length	Total Wall-eye	Miles Surveyed	Shore Miles	Hours Surveyed	Temperature	Other Species				
County	Lake																				MUE	NOP	LMB	SMB	
VILAS	CATFISH L	1,012	NR	10/12	50.3	568	5.3	8.3	6.9	24.9	28.1	0	8.5	10.6	9.5	990	11.3	11.3	4.70	58					
VILAS	CLEAR L	555	C-NR	9/16	5.6	29	7.3	9.8	8.5	0.0	0	0	7.6	9.7	8.8	1,468	5.2	7.1	1.75	59					
VILAS	CRANBERRY L	956	NR	10/13	58.5	667	5.2	7.5	6.5	43.8	499	81	7.7	9.7	8.8	1,468	11.4	11.4	3.63	55					
VILAS	EAGLE L	572	NR	10/14	11.5	55	5.9	7.0	6.9	16.9	81	7.7	9.7	9.1	212	4.8	4.8	1.83	55						
VILAS	FOREST L	466	NR	9/20	13.9	97	4.5	6.9	5.5	0.1	1	8.3	8.3	8.3	106	7.0	7.0	2.60	57						
VILAS	HARRIS L	507	NR	9/16	6.8	41	4.6	6.5	5.6	2.8	17	7.1	9.8	9.1	92	6.0	6.0	1.89	60						
VILAS	HIGH L	734	NR	10/18	0.0	0	0	0	0	0	0	0	0	0	4	7.4	7.4	2.73	54						
VILAS	HORSEHEAD L	234	NR	10/12	5.1	21	5.6	7.0	6.3	22.0	81	7.1	10.6	9.2	195	4.1	4.1	2.02	58						
VILAS	ISLAND L	1,023	C-NR	9/14	27.9	469	4.0	7.2	6.1	10.8	182	7.3	10.4	8.6	715	16.8	16.8	5.01	57						
VILAS	KENTUCK L	957	C-NR	9/27	0.0	0	0	0	0	0	0	0	0	0	50	6.0	6.0	2.34	56						
VILAS	LAC VIEUX DESERT	4,300	C-NR	10/4	0.1	1	6.9	6.9	6.9	0.0	0	0	0	0	74	16.3	16.3	7.44	54						
VILAS	LITTLE STAR L	244	C-NR	9/30	0.1	1	7.8	7.8	7.8	0.0	0	6	8.1	9.4	8.8	17	3.8	3.8	1.54	50					
VILAS	LONG L	872	C-ST	9/30	0.1	1	5.4	7.7	6.8	6.5	44	7.9	10.8	9.2	72	6.8	6.8	2.53	57						
VILAS	LYNX L	339	NR	9/14	0.4	3	5.4	7.0	6.8	3.9	23	7.1	9.9	8.9	115	5.9	5.9	1.86	59						
VILAS	MAMIE L	400	NR	9/14	13.4	79	5.5	7.0	6.5	3.9	23	7.1	9.9	8.9	115	5.9	5.9	1.86	59						
VILAS	MAMIE L	2,788	NR	10/11	30.4	316	4.3	7.5	6.1	31.2	324	7.6	10.2	9.5	1,035	10.4	10.4	5.01	57						
VILAS	N TWIN L	1,280	NR	9/13	19.5	172	4.8	7.5	6.7	5.1	45	7.5	10.4	9.1	277	8.8	8.8	3.96	63						
VILAS	PRESQUE ISLE L	608	C-NR	9/14	11.5	93	4.5	7.5	6.1	8.0	65	7.6	9.9	8.9	244	8.1	8.1	3.37	61						
VILAS	REST L	642	NR	10/11	34.6	128	4.3	7.5	6.3	17.0	63	7.6	10.2	9.0	272	3.7	3.7	1.35	57						
VILAS	S TWIN L	123	NR	9/30	150.9	332	4.2	7.3	5.7	9.1	20	7.5	9.4	8.3	384	2.2	2.2	1.60	56						
VILAS	SHERMAN L	783	NR	9/28	3.1	28	6.0	7.8	6.8	7.4	67	8.2	10.6	9.7	117	9.0	9.0	3.12	56						
VILAS	SQUAW L	1,206	NR	10/19	48.2	564	3.9	6.9	5.1	6.8	80	7.2	10.3	8.8	729	11.7	11.7	4.84	52						
VILAS	STAR L	437	NR	10/18	1.1	7	6.5	7.6	7.2	1.1	7	9.2	10.3	9.9	47	6.6	6.6	2.27	50						
VILAS	TENDERFOOT L	3,816	C-ST	10/5	3.3	59	5.4	7.9	6.5	0.8	15	8.9	11.8	10.9	84	17.9	17.9	8.30	56						
WASHBURN	BASS-PATTERSON L	188	NR	9/29	12.1	35	5.4	8.2	7.1	9.0	26	8.5	10.4	9.6	144	2.9	2.9	1.11	59						
WASHBURN	DUNN L	193	C-NR	9/27	0.8	3	7.4	7.7	7.5	0.6	2	8.4	8.4	8.4	7	3.6	3.6	1.30	60						
WASHBURN	LONG L	3,290	C-ST	9/30	9.6	154	4.1	8.9	6.5	0.1	1	9.2	9.2	9.2	169	16.0	16.0	6.42	50						
WASHBURN	MIDDLE WICKENZIE L	530	C-ST	9/28	1.2	5	6.3	7.3	6.8	0.0	0	8	4.1	8.1	6.0	8	4.1	4.1	1.81	60					
WASHBURN	MINONG FL	1,564	NR	9/20	15.0	169	5.0	7.3	6.6	4.3	49	7.4	9.7	9.1	365	11.3	11.3	2.24	57						
WASHBURN	SHELL L	2,580	NR	10/21	3.1	32	5.1	7.5	6.7	3.7	38	7.7	10.6	8.9	97	10.2	10.2	4.49	52						
COUNT: 99 SURVEYS ON 99 LAKES					15,935				6.5	7.7	57	5,653			9.0	27,371	907.2	349.69			34	149	344	193	
AVERAGES:					210	161			6.5	7.7	84			9.0	276	98						8	16	19	16
NUMBER OF SURVEYS WITH FISH CAUGHT:					85																				

MICHIGAN		Surface Area (Acres)	2010 Walleye Code	Date Surveyed	Age 0 CPE	Age 0 Wall-eye	Age 0 Min Length	Age 0 Max Length	Age 0 Mean Length	Age 0 CPE	Age 1 CPE	Age 1 Wall-eye	Age 1 Min Length	Age 1 Max Length	Age 1 Mean Length	Total Wall-eye	Miles Surveyed	Shore Miles	Hours Surveyed	Temperature	Other Species				
County	Lake																				MUE	NOP	LMB	SMB	
BARAGA	PARENT L	182	C-ST	10/7	0.0	0	0	0	0	0	0	0	0	0	16	2.3	2.3	1.18	54						
GOGEBIC	DUCK L	616	C-NR	10/5	3.8	36	5.4	7.2	6.2	0.5	5	9.6	10.6	10.2	53	9.5	9.5	3.05	58						
GOGEBIC	L GOGEBIC	13,380	C-NR	9/15	22.9	552	3.6	7.2	5.0	4.1	106	7.7	11.0	9.2	727	25.9	35.0	9.95	57						
GOGEBIC	POMEROY L	314	NR	9/13	2.2	8	5.5	7.0	6.3	8.6	32	7.8	9.9	9.1	231	3.7	3.7	1.63	61						
GOGEBIC	TAMARACK L	335	NR	9/14	1.3	5	6.1	7.2	6.8	3.0	12	9.9	11.3	10.6	33	4.0	4.0	1.56	62						
HOUGHTON	PORTAGE L	10,808	C-NR	10/4	1.3	19	5.7	8.6	6.8	0.0	0	0	0	0	20	14.2	67.4	5.53	56						
HOUGHTON	TORCH L	2,400	C-NR	10/6	0.0	0	0	0	0	0	0	0	0	0	0	8.1	23.1	2.85	57						
IRON	HAGERMAN L	584	NR	10/21	32.3	226	4.7	6.9	5.7	0.4	3	7.0	8.4	7.6	240	7.0	7.0	2.73	50						
IRON	IRON L	396	NR	10/20	0.0	0	0	0	0	0	0	0	0	0	23	4.7	4.7	1.87	48						
COUNT: 9 SURVEYS ON 9 LAKES					886				6.1	1.9	18	158			9.3	1,343	79.4	30.36			0	0	0	6	
AVERAGES:					7.1	98			6.1	1.9	5			9.3	149	8						0	0	0	1
NUMBER OF SURVEYS WITH FISH CAUGHT:					6																				

MINNESOTA		Surface Area (Acres)	2010 Walleye Code	Date Surveyed	Age 0 CPE	Age 0 Wall-eye	Age 0 Min Length	Age 0 Max Length	Age 0 Mean Length	Age 0 CPE	Age 1 CPE	Age 1 Wall-eye	Age 1 Min Length	Age 1 Max Length	Age 1 Mean Length	Total Wall-eye	Miles Surveyed	Shore Miles	Hours Surveyed	Temperature	Other Species				
County	Lake																				MUE	NOP	LMB	SMB	
MILLE LACS	MILLE LACS L	132,516	NR	9/27	33.9	2,321	3.8	8.3	6.3	6.3	3.1	209	8.4	10.6	9.4	2,878	68.5	78.0	26.32	57					
OVERALL: 109 SURVEYS ON 109 LAKES					19,142				6.4	7.2	55	6,020			9.0	31,592	1,055.1	406.37			34	149	344	199	
AVERAGES (OVERALL):					20.0	176			6.4	7.2	90			9.0	290	107						8	16	19	17
NUMBER OF SURVEYS WITH FISH CAUGHT (OVERALL):					92																				

CPE=catch per unit effort (number of fish divided by shore miles surveyed). MUE=muskellunge, NOP=northern pike, LMB=largemouth bass, SMB=smallmouth bass.

Table B3 Summary of Age 0 and Age 1 Catch per Effort Rates During Fall 2010 Recruitment Surveys Conducted by GLIFWC

Including Lakes Where No Year Class Was Detected

AGE	STATE	NR and C-NR				ST and C-ST				O-ST						
		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	24.2	32.7	82	0.0	151.7	6.0	15.0	16	0.0	61.1	2.3		1	2.3	2.3
	MICHIGAN	8.0	12.4	8	0.0	32.3	0.0		1	0.0	0.0			0		
	MINNESOTA	33.9		1	33.9	33.9			0					0		
	POOLED	22.9	31.6	91	0.0	151.7	5.6	14.6	17	0.0	61.1	2.3		1	2.3	2.3
1	WISCONSIN	8.5	11.3	82	0.0	60.6	3.8	9.8	16	0.0	38.8	0.2		1	0.2	0.2
	MICHIGAN	2.1	3.1	8	0.0	8.6	0.0		1	0.0	0.0			0		
	MINNESOTA	3.1		1	3.1	3.1			0					0		
	POOLED	7.9	10.9	91	0.0	60.6	3.6	9.5	17	0.0	38.8	0.2		1	0.2	0.2

Excluding Lakes Where No Year Class Was Detected

AGE	STATE	NR and C-NR				ST and C-ST				O-ST						
		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	27.6	33.6	72	0.1	151.7	8.0	17.0	12	0.1	61.1	2.3		1	2.3	2.3
	MICHIGAN	10.6	13.5	6	1.3	32.3			0					0		
	MINNESOTA	33.9		1	33.9	33.9			0					0		
	POOLED	26.3	32.5	79	0.1	151.7	8.0	17.0	12	0.1	61.1	2.3		1	2.3	2.3
1	WISCONSIN	9.6	11.6	73	0.1	60.6	6.1	12.0	10	0.1	38.8	0.2		1	0.2	0.2
	MICHIGAN	3.3	3.4	5	0.4	8.6			0					0		
	MINNESOTA	3.1		1	3.1	3.1			0					0		
	POOLED	9.1	11.3	79	0.1	60.6	6.1	12.0	10	0.1	38.8	0.2		1	0.2	0.2







