



Open Water Spearing in Northern Wisconsin by Chippewa Indians During 1999

by

**Jennifer Krueger
Database Manager**

**Administrative Report 2000-05
March 2000**

**Great Lakes Indian Fish & Wildlife Commission
Biological Services Division
P.O. Box 9
Odanah, WI 54861
(715) 682-6619**

ABSTRACT

Nineteen ninety-nine (1999) marked the fifteenth consecutive spring that spear fishing was conducted by Chippewa tribes in off-reservation waters of northern Wisconsin. A total of 428 tribal members participated in this traditional fishery. Spearing occurred on 155 lakes and walleye were harvested from all except 4 lakes. A total of 26,749 fish were taken with 97.6% of the catch (26,105 fish) being walleye. Numbers of other gamefish harvested were 275 muskellunge, 126 bass, and 29 northern pike. Average lengths were 15.1 inches for walleye and 37.7 inches for muskellunge. The tribal walleye quota was exceeded by 1 fish on one lake. Except for this one instance, harvest of walleye and muskellunge was maintained within the established limits by a nightly permit system and by complete monitoring of the catch.

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INTRODUCTION

This report presents data for harvest and effort by Chippewa spearers in ceded territory waters of northern Wisconsin (Figure 1) during spring 1999. Since 1989 two other seasonal fisheries have sometimes occurred in off-reservation waters: fall spearing and summer gill-netting. During 1999, neither spearing nor gill-netting took place in summer or fall.

REGULATIONS

Regulations governing the use of spears and nets for harvesting walleye and muskellunge were adopted by each of the six Wisconsin tribes and became permanent in 1989. A listing of the major differences between permanent regulations and negotiated interim rules that governed tribal harvest in 1988 can be found in Kmiecik and Shively (1990).

PERMIT SYSTEM AND MONITORING

The permit system has operated in the same manner since 1988. Permits (Figure 2) were issued at a tribal office during the day or at the designated boat landing at night. The number of permits that could be issued was determined daily by dividing the remaining tribal quota (TQ) for a lake by the nightly bag limit selected for that lake. Lakes were closed to further spearing of walleye and to all netting once the walleye TQ was reached. However, spearing permits could be issued for harvest of other species.

All spearing was monitored by tribal creel clerks under the supervision of Great Lakes Indian Fish and Wildlife Commission (GLIFWC) wardens and biologists. A set of instructions for collecting biological data was provided to creel clerks at a training meeting about one week prior to the season.

During spearing, teams of creel clerks and wardens were assigned to each lake in some areas and only to lakes where permits had been issued in other areas. These teams arrived at the designated boat landing before dark and prepared a work area. Upon return of each boating party, a catch report form was completed. For species other than walleye, all fish were identified, counted, sex determined, and measured. For walleye, all fish were counted. Also, the first 100 walleye plus all those in the last boat were measured and sex determined. In addition, permits were collected and a record made of each person's tribal ID number, the time spearing started and the time it ended.

Harvest and effort for each lake were totaled and reported by 9 a.m. the following day to administrative staff at the GLIFWC office in Odanah. These data were then transmitted to tribal and Wisconsin Department of Natural Resources (WDNR) representatives by 10 a.m. and used to update walleye and muskellunge TQ's. Starting in 1993 all catch report forms were also faxed in daily. Before noon, tribal representatives notified GLIFWC of the lakes and bag limits selected for spearing that night. In turn, these data were transmitted to the WDNR.

Figure 1. Map depicting the ceded territory and tribal lands in northern Wisconsin. Heavy line indicates approximate ceded territory boundary.



Figure 2

Off-Reservation Treaty Fishing Permit used during the 1999 open-water season.

28	29	30	31	Month	1	2	3	4	5	
27	Off-Reservation Treaty Fishing Permit								6	
26	<input type="checkbox"/>	Spearing	<input type="checkbox"/>	Fyke Netting	No	0250			7	
25	<input type="checkbox"/>	Seining	<input type="checkbox"/>	Gill Netting						8
24	Tribal ID Number _____ of _____ Reservation								9	
23	Signature of Permittee: _____								10	
22	Issued by: _____ of _____ Reservation								11	
21	Water: _____ County: _____								12	
	Bag Limit: Walleye _____ Muskellunge _____									
	Other Restrictions: _____									

FRONT

Spearing Times:		Number of:	
Starting	_____	Walleye per boat	_____
Ending	_____	Musky per boat	_____
WALLEYE LENGTHS			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

BACK

RESULTS AND DISCUSSION

Fishing Effort

As in previous years, effort in the spring spear fishery was measured in three ways: by the number of spearkers, the number of spearker-nights, and the number of boat-hours.

Number of spearkers. All tribal members spearing under permits issued by each tribe were counted as an individual spearker for that tribe regardless of whether the spearker was an enrolled member of the tribe issuing permits. A total of 428 tribal members participated in the 1999 spring spear fishery (Table 1, Figure 3, Appendix A). Compared to 1998 the total number of spearkers decreased by 86 persons or 20%.

Table 1. Number of spearkers on lakes selected by six Wisconsin Chippewa bands during spring spearing from 1986-1999¹.

YEAR	BRV	LCO ²	LDF	MLK	RCF	STC ³	TOTAL:
1986	2	26	119	32		15	194
1987	22	58	206	70		63	419
1988	35	48	200	63	14	66	426
1989	27	30	118	31	23	42	271
1990	46	43	142	46	40	64	381
1991	38	56	137	50	47	65	393
1992	36	41	112	40	52	64	345
1993	34	72	111	55	36	51	359
1994	31	87	134	66	31	70	419
1995	39	68	150	53	44	67	421
1996	25	50	153	54	42	61	385
1997	57	74	139	64	59	62	455
1998	75	85	156	78	51	69	514
1999	44	61	148	66	52	57	428
PERCENT CHANGE: 1998-1999	-70%	-39%	-5%	-18%	+2%	-21%	-20%

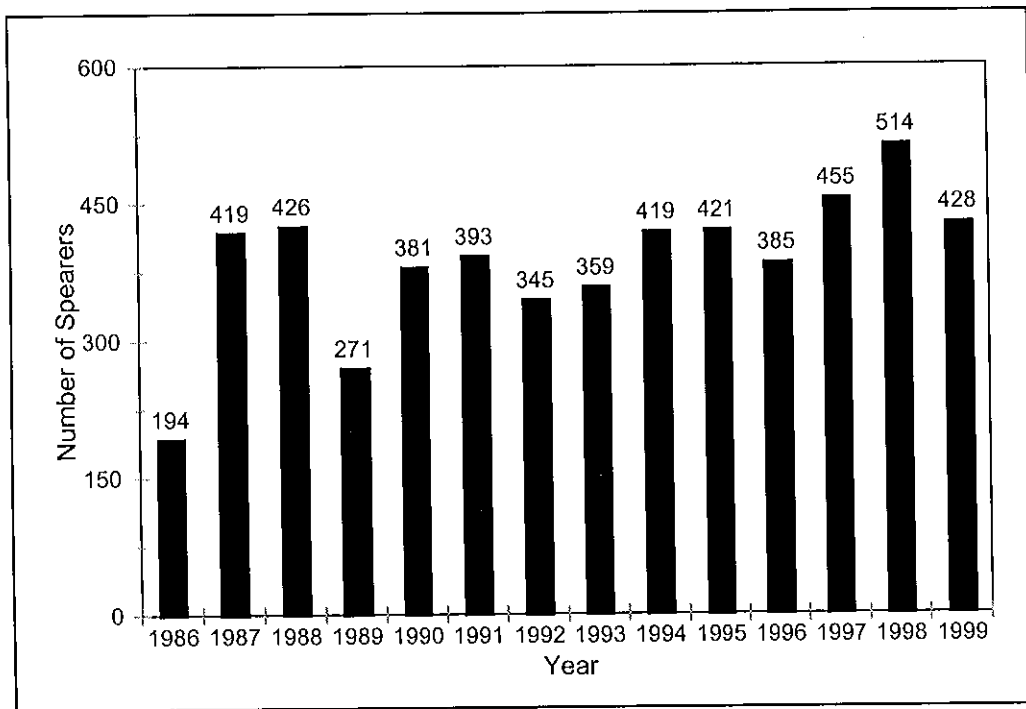
¹ Abbreviations for the various bands are: BRV = Bad River, LCO = Lac Courtes Oreilles, LDF = Lac du Flambeau, MLK = Mole Lake, RCF = Red Cliff, and STC = St. Croix.

² Includes members from Mille Lacs tribe: 1 in 1990, 2 in 1991, 1 in 1993, and 3 in 1994.

³ Includes members from Mille Lacs tribe: 7 in 1988, 8 in 1989, 11 in 1990, 15 in 1991, 13 in 1992, 4 in 1993, 14 in 1994, 15 in 1995, 16 in 1996, 18 in 1997, 12 in 1998, and 2 in 1999.

All persons spearing on lakes selected by Bad River, Lac Courte Oreilles, Lac du Flambeau, and Red Cliff were members of that tribe (44, 61, 148, and 52 persons, respectively). Of the 66 members spearing on lakes selected by Mole Lake, 1 was a member of the Bad River tribe. Lakes selected by St. Croix were also speared by 2 Mille Lacs tribal members and 3 Bad River members.

Figure 3. Number of spears during spring spearing seasons from 1986-1999.



Number of Spearer-nights or Permits Used. In a previous report (Kmiecik 1991), special clarification was given to the definition of "spearer-nights". It should be understood that the total number of "spearer-nights" is not simply the total number of nights that all tribal members speared, because some individuals speared under more than one permit on a single night. Additional permits have been issued at night at a boat landing on a "first come, first served" basis and only when enough fish remained in the tribal quota for a lake so that other permits could be issued. Persons receiving a second, third, or fourth permit may have speared on the same lake, a different lake, or both the same and a different lake. With this clarification in mind, this effort statistic will continue to be referred to as spearer-nights, but it can also be viewed as a count of the total number of permits used.

Table 2. Number of spearer-nights on lakes selected by six Wisconsin Chippewa bands during spring spearing from 1986-1999.

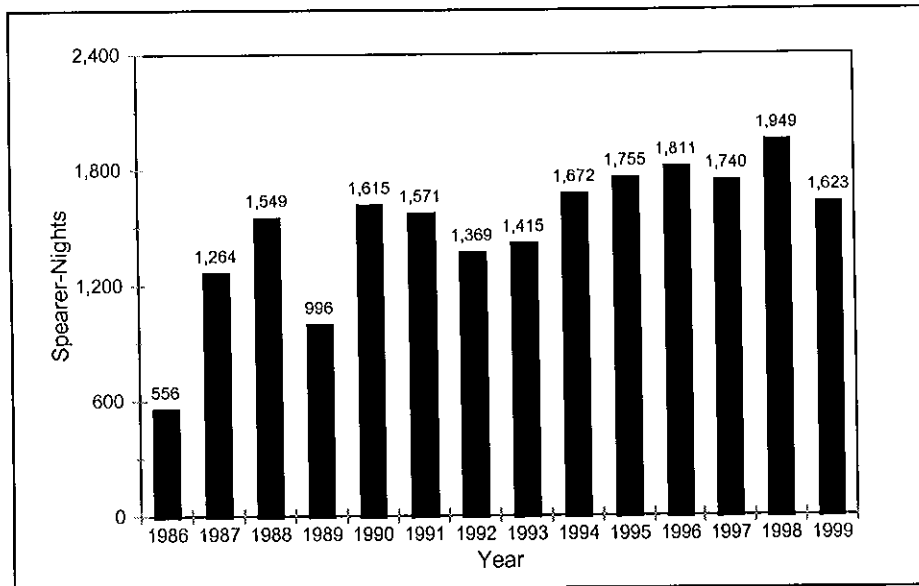
YEAR	BRV	LCO ¹	LDF	MLK	RCF	STC ²	TOTAL:
1986	2	50	382	72		50	556
1987	43	140	695	205		181	1,264
1988	64	165	788	249	37	246	1,549
1989	70	109	429	120	100	168	996
1990	174	116	751	221	124	229	1,615
1991	151	216	605	201	160	238	1,571
1992	140	140	512	177	168	232	1,369
1993	172	218	469	241	144	171	1,415
1994	129	255	700	167	132	289	1,672
1995	164	215	677	241	135	323	1,755
1996	120	215	712	294	119	351	1,811
1997	144	301	554	299	167	275	1,740
1998	172	331	700	307	135	304	1,949
1999	136	282	609	253	131	212	1,623
PERCENT CHANGE: 1998-1999	-26%	-17%	-15%	-21%	-3%	-43%	-20%

¹ Includes spearer-nights for Mille Lacs tribe: 2 in 1990, 3 in 1991, 1 in 1993, and 6 in 1994.

² Includes spearer-nights for Mille Lacs tribe: 22 in 1988, 29 in 1989, 35 in 1990, 45 in 1991, 53 in 1992, 9 in 1993, 34 in 1994, 59 in 1995, 74 in 1996, 82 in 1997, 22 in 1998, and 3 in 1999.

A total of 1,623 spearer-nights were recorded during spring 1999 (Table 2, Figure 4, Appendix B). About one-third of this effort (609 spearer-nights) occurred on lakes selected by Lac du Flambeau. Spearer-nights on lakes selected by the other five tribes ranged from 131 at Red Cliff to 282 at Lac Courte Oreilles. Compared to 1998, effort decreased by 326 spearer-nights or 20%.

Figure 4. Number of spearer-nights during spring spearing seasons from 1986-1999.



Number of Boat-Hours. A total of 1,633 boat-hours of effort was recorded in 1999 (Table 3, Figure 5, Appendix B). Compared to 1998, the number of boat-hours decreased by 29% (471 boat-hours). About one-third of the effort (513 boat-hours or 31%) occurred on lakes selected by Lac du Flambeau. Boat-hours on lakes selected by the other five tribes ranged from 128 at Red Cliff to 368 at Lac Courte Oreilles.

Table 3. Number of spearer boat-hours on lakes selected by six Wisconsin Chippewa bands during spring spearing from 1986-1999.

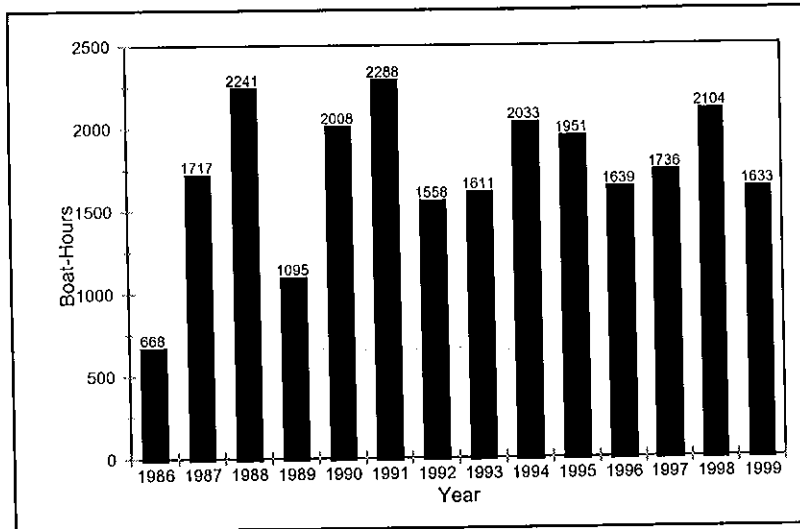
Year	BRV ¹	LCO ²	LDF	MLK	RCF	STC ³	Total:
1986	2	53	440	95		78	668
1987	46	163	976	252		280	1,717
1988	173	247	1094	393		334	2,241
1989	135	122	364	155	109	210	1,095
1990	254	151	787	298	181	338	2,008
1991	288	283	704	344	226	444	2,288
1992	206	221	453	218	178	281	1,558
1993	201	290	459	297	164	200	1,611
1994	172	356	743	247	133	381	2,033
1995	163	359	618	298	144	369	1,951
1996	131	304	641	156	105	302	1,639
1997	138	414	472	236	178	298	1,736
1998	220	416	650	345	118	355	2,104
1999	189	368	513	225	128	210	1,633
PERCENT CHANGE: 1998-1999	-16%	-13%	-27%	-53%	+8%	-69%	-29%

¹Includes Red Cliff boat-hours in 1988.

²Includes effort for Mille Lacs tribe in 1990, 1991, 1993, and 1994.

³Includes effort for Mille Lacs tribe from 1988-1999.

Figure 5. Number of boat-hours of effort during spring spearing seasons from 1986-1999.



For all tribes combined, a total of 722 interviews were conducted and effort (boat-hours) was determined for all. Average length of a trip was 2.3 boat-hours (Table 4).

Table 4. Number of interviews and average length of spearing trip (in boat-hours) during spring spearing from 1989-1999.

YEAR	AVERAGE LENGTH OF TRIP:						TOTAL
	BRV	LCO ¹	LDF	MLK	RCF	STC ¹	
1989	4.1	2.4	2.5	2.6	2.5	2.7	2.7
1990	3.3	2.8	2.7	3.1	3.5	3.1	3.1
1991	3.9	3.0	2.8	3.9	2.8	3.5	3.3
1992	3.0	3.2	2	2.8	2.4	2.4	2.5
1993	2.7	3.0	2.2	2.3	2.6	2.4	2.6
1994	3.2	3.0	2.9	3.5	2.3	3.0	3.0
1995	2.1	3.5	2.0	2.8	2.7	2.5	2.5
1996	2.4	2.9	2.2	1.3	2.0	2.2	2.2
1997	2.7	3.0	2.2	2.3	2.6	2.4	2.5
1998	3.4	2.6	2.2	2.5	2.3	2.2	2.4
1999	3.2	2.7	2.0	2.0	2.2	2.2	2.3
1999 Boat-hours:	189	368	513	225	128	210	1,633
1999 interviews with effort:	59	137	262	111	58	95	722
1999 interviews without effort:	0	0	0	0	0	0	0

¹Includes effort for Mille Lacs tribe.

Total Harvest

Twelve taxa of fish were harvested during the 1999 spring spear fishery (Table 5). Of the 26,749 fish taken, 97.6% were walleye. Percentages of the total catch for other game fish species were 1.03% for muskellunge, 0.47% for bass, and 0.11% for northern pike. Other species combined (panfish and rough fish) totaled 215 fish and made up the remaining 0.80% of the harvest.

Table 5. Number of various fish species harvested during spring spearing seasons from 1995-1999.

Species:	1995	1996	1997	1998	1999
Walleye	30,249	28,327	24,002	27,218	26,105
Muskellunge	299	319	333	271	275
Bass Species	11	6		3	1
Largemouth Bass	121	103	114	191	97
Smallmouth Bass	55	51	31	99	28
Northern Pike	32	30	37	68	29
Lake Sturgeon	3				
Rock Bass	1	4	12	6	2
Crappie	109	63	55	50	134
Bluegill	5	18	9	4	44
Yellow Perch	8	13	8	7	4
Bullhead		3			
Sucker	55	22	32	40	27
Whitefish				1	2
Carp	3	4			
Dogfish					1
Burbot	1				
TOTAL:	30,952	28,963	24,633	27,941	26,749

Walleye Harvest

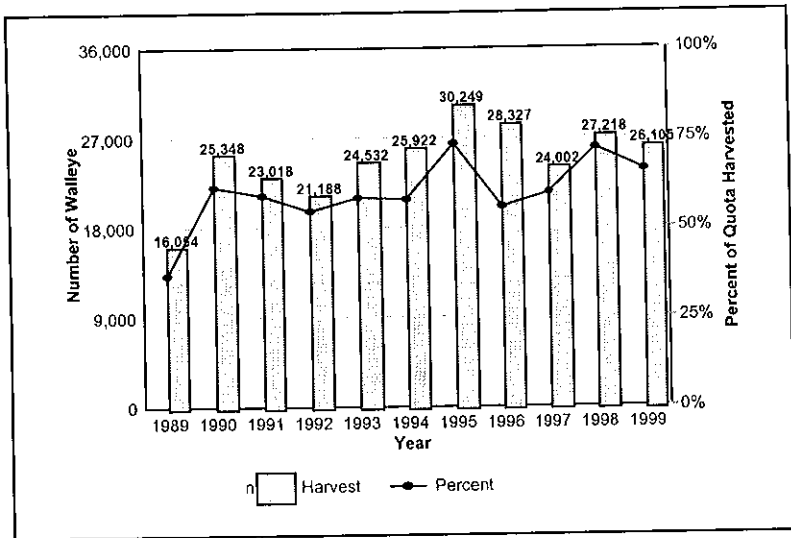
Tribal quotas (TQ) for walleye were selected for 204 lakes and totaled 39,586 walleye. The percent of the "safe harvest" selected as tribal quotas for lakes in 1999 ranged from 37.04% (Booth Lake, Oneida County) to 94.82% (Middle Eau Claire Lake, Bayfield County). Two tribes selected the same lake in 6 instances and agreed on various inter-tribal allocation formulas to keep the TQ within the selected percentage. No lakes were selected by more than two Wisconsin tribes.

Tribal spearers harvested a total of 26,105 walleye from 155 lakes (Table 5, Figure 6, Appendix B). Spearfishing also occurred in four other lakes (Otter Lake, Chippewa County; Chequamegon Waters Flowage, Taylor County; Boom Lake, Oneida County; and Long Lake, Oneida County) but no walleye were harvested. The percent of the total walleye quota harvested was 66%. Values for the tribal walleye quota and percent of this quota harvested from 1989-1999 were as follows:

Table 6. Number of lakes with a tribal walleye quota, spearfishing effort, and harvest plus percent of overall quota harvested from 1989-1999.

Year	Tribal Walleye Quota	Number of Lakes with Quotas	Number of Walleye Harvested	Number of Lakes with Effort	Number of Lakes with Harvest	Percent of Quota Harvested
1989	43,801	254	16,054	102	98	37%
1990	41,373	178	25,348	119	117	61%
1991	39,090	204	23,018	159	147	59%
1992	38,863	222	21,188	153	146	55%
1993	42,112	220	24,532	134	130	58%
1994	44,821	218	25,922	147	145	58%
1995	41,283	222	30,249	153	149	73%
1996	50,897	248	28,327	167	157	56%
1997	40,301	245	24,002	155	152	60%
1998	37,821	225	27,218	153	152	72%
1999	39,586	204	26,105	155	151	66%

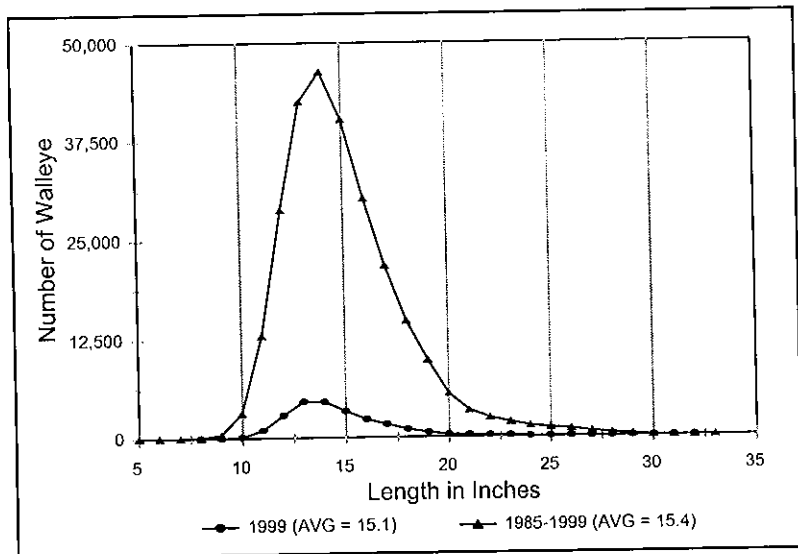
Figure 6. Number of walleye and percent of quota harvested during spring spearing seasons from 1989-1999.



Mean Length. A total of 23,616 walleye (90% of the catch) was measured in 1999 (Appendices C and D). The mean length was 15.1 inches, slightly less than the average length during 1985-1997 (range: 15.1-16.0 inches) but greater than the average length in 1998 (15.0). Size restrictions were identical during each of these years; all walleye were to be under 20 inches except that each permit authorized the harvest of one walleye of 20-24 inches and one of any size.

For the 15 spring spearing seasons combined, 82% of the walleye harvest has been measured (269,040 of 328,954 fish) (Figure 7; Appendix D). Average length for this 15 year sample was 15.4 inches. Also, 6.7% of the walleye (18,116 fish) were 20 inches or larger and 1.3% (3,505 fish) were 25 inches or larger.

Figure 7. Length frequency of walleye speared during 1999 and during the fifteen year period from 1985-1999.



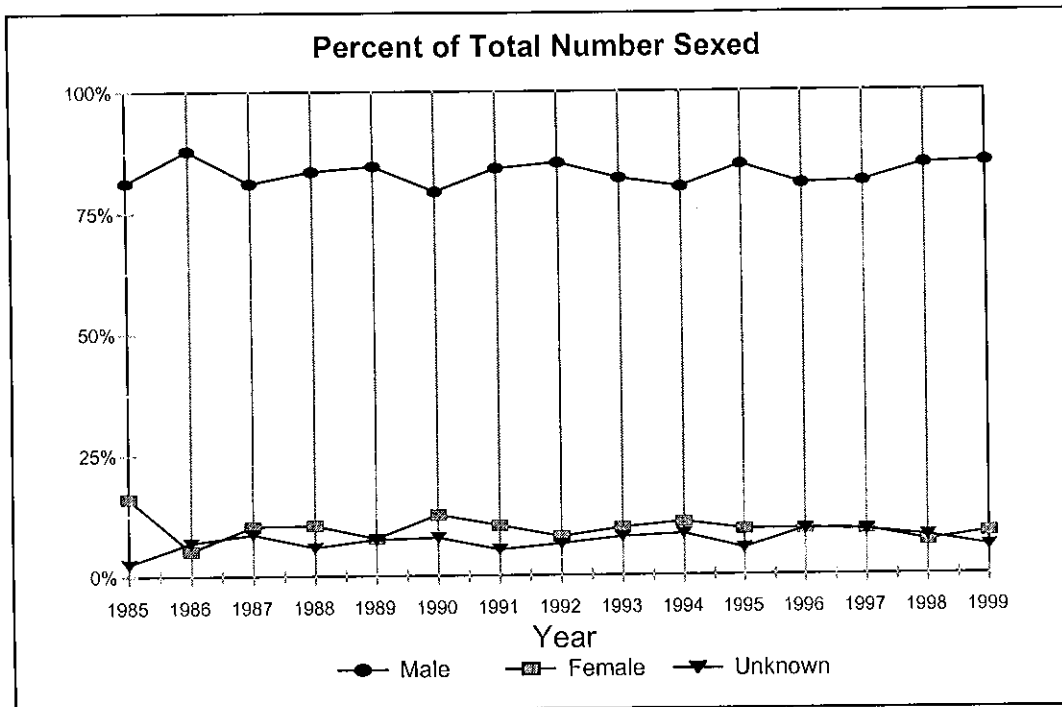
Sex Composition of Catch. The majority of walleye sexed in 1999 were male: 20,156 of 23,616 fish or 85% (Table 6). Females (2,076 fish) comprised 9% of the sexed harvest and those whose sex could not be determined (1,384 fish) made up 6%. Males made up 91% of sexable fish.

For the 15 spring spearing seasons combined, a total of 268,382 walleye have been sexed (Table 6, Figure 8). Of these, 83% were male, 9% were female, and 7% were of undetermined or unknown sex. Factors which influence the number of males and females speared were described by Kmiecik and Shively (1990). Some of the factors include bag and size restrictions, differences in behavior between the sexes during spawning season, and spearer preference.

Table 7. Number and percent of walleye that were sexed and were male, female, or unknown sex during spring spearing seasons from 1985-1999.

Year	Total Harvest	Male		Female		Unknown		Total Sexed:	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
1985	2,761	696	81%	138	16%	22	3%	856	31%
1986	6,940	6,013	88%	356	5%	473	7%	6,842	99%
1987	21,321	11,539	81%	1,456	10%	1,229	9%	14,224	67%
1988	25,969	16,193	84%	2,033	10%	1,142	6%	19,368	75%
1989	16,054	11,222	85%	1,030	8%	1,002	8%	13,254	83%
1990	25,348	14,693	79%	2,342	13%	1,465	8%	18,500	73%
1991	23,018	15,626	84%	1,926	10%	999	5%	18,551	81%
1992	21,188	15,563	85%	1,473	8%	1,190	7%	18,226	86%
1993	24,532	16,357	82%	1,958	10%	1,588	8%	19,903	81%
1994	25,922	17,467	80%	2,407	11%	1,852	9%	21,726	84%
1995	30,249	20,897	85%	2,339	10%	1,369	5%	24,605	81%
1996	28,327	18,562	81%	2,191	9.5%	2,181	9.5%	22,934	81%
1997	24,002	17,541	81%	2,031	9%	1,978	9%	21,550	90%
1998	27,218	20,604	85%	1,633	7%	1,990	8%	24,227	89%
1999	26,105	20,156	85%	2,076	9%	1,384	6%	23,616	90%
Total:	328,954	223,129	83%	25,389	9%	19,864	7%	268,382	82%

Figure 8. Sex composition of the walleye harvest during spring spearing seasons from 1985-1999.



Catch per effort (CPE). In 1999 a total of 1,633 boat-hours of spearing was recorded in which 26,105 walleye were caught. Overall catch per effort (total harvest/total boat-hours) was 16.0 walleye per boat-hour (Appendix B).

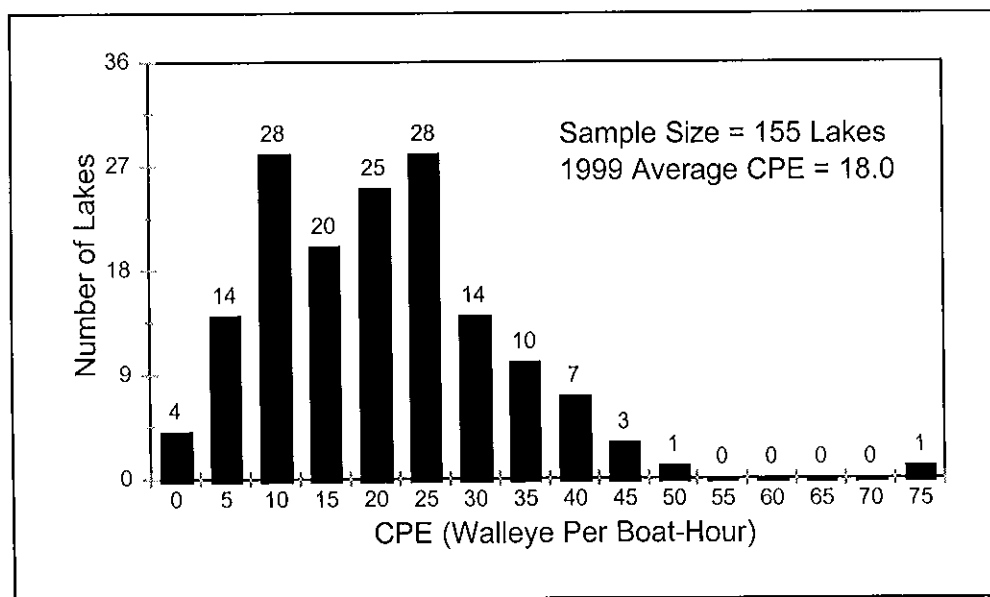
Catch rates for the 155 lakes speared in 1999 ranged from 0.0 to 74.0 and averaged 18.0 (Appendix B, Figure 9). Boat-hour effort was recorded for all lakes during spring 1999. Similar statistics for the years 1987-1998 were as follows:

Table 8. Range and average catch rates in lakes speared during spring spearing season from 1987-1999.

Year	Number of Lakes	Range: CPE	Average: CPE
1987	66	0.0 - 46.4	12.2
1988	91	0.0 - 84.1	14.2
1989	98	0.0 - 63.9	18.5
1990	117	0.0 - 45.1	14.3
1991	159	0.0 - 46.5	11.3
1992	153	0.0 - 68.0	16.1
1993	134	0.0 - 123.5	15.2
1994	137	0.0 - 95.2	16.7
1995	153	0.0 - 91.1	19.5
1996	167	0.0 - 52.9	17.4
1997	155	0.0 - 62.7	16.8
1998	153	0.0 - 76.0	16.2
1999	155	0.0 - 74.0	18.0

(Biological Issues Group 1988, Kmiecik and Shively 1990, Kmiecik 1991, Kmiecik and Ngu 1992, Ngu and Kmiecik 1993, Ngu 1994, Ngu 1995, Ngu 1996, Krueger 1997, Krueger 1998, Krueger 1999).

Figure 9. Walleye CPE (number per boat-hour) by lake during the 1999 spring spearing season.



Muskellunge Harvest

A total of 275 muskellunge were taken from 63 lakes during spring 1999 (Figure 10, Appendix E). This harvest represented 19.2% of the combined tribal muskellunge quota of 1,431 fish selected for 169 lakes. Similar muskellunge quota statistics for the years 1990 to 1998 were as follows:

Table 9. Number of lakes with a tribal muskellunge quota, with harvest, and percent of overall quota harvested from 1990-1999.

Year	Tribal Muskellunge Quota	Number of Lakes with Quota	Number of Lakes with Harvest	Number Harvested	Percent of Quota Harvested
1990	1,148	117	57	303	26.4%
1991	1,240	155	54	185	14.9%
1992	1,240	155	52	165	13.3%
1993	1,223	134	49	188	15.5%
1994	1,326	158	49	244	18.4%
1995	1,364	153	59	299	21.9%
1996	1,555	171	68	319	20.5%
1997	1,489	169	66	333	22.3%
1998	1,381	166	60	271	19.6%
1999	1,431	169	63	275	19.2%

The number of muskellunge harvested from each of these 63 lakes ranged from 1 to 23 fish (Appendix E). Ten or more muskellunge were harvested from 7 lakes, 6-9 muskellunge were taken from 10 lakes, and 1-5 fish were speared in 46 lakes. No muskellunge were speared from the other 106 lakes.

Lengths of the 275 measured muskellunge averaged 37.7 inches and ranged from 22.5 to 51.0 inches (Appendix F, Figure 11). During the fifteen spring seasons combined, 3,146 of 3,195 speared muskellunge have been measured. Average length for this sample of fish was 36.9 inches (range: 13.5-53.0 inches).

Of the measured catch in 1999, 12% (32 of 275 muskellunge) were 32 inches and smaller, while 5.8% (16 fish) were 45 inches and larger. For the 3,146 muskellunge measured from 1985-1999, 629 fish or 20% of the sample were less than or equal to 32 inches; 204 fish or 6.5% were 45 inches and larger (Appendix F).

The number of muskellunge per spearer averaged 0.64 for all tribes combined. In other words, 64 muskellunge were taken for every 100 spearers. From 1987-1998 the number per spearer ranged from 0.16 to 1.19. The combined tribal catch rate for muskellunge in 1999 was 0.17 muskellunge per boat-hour which was within the range of CPE's from 1987-1998 (0.07 to 0.19).

Figure 10. Number of muskellunge harvested during spring spearing seasons from 1985-1999.

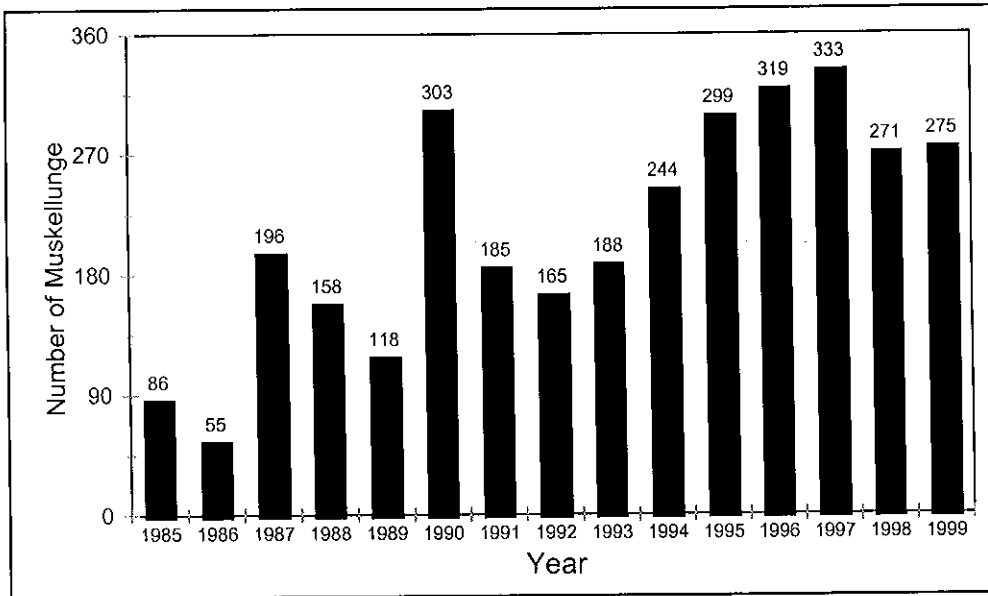
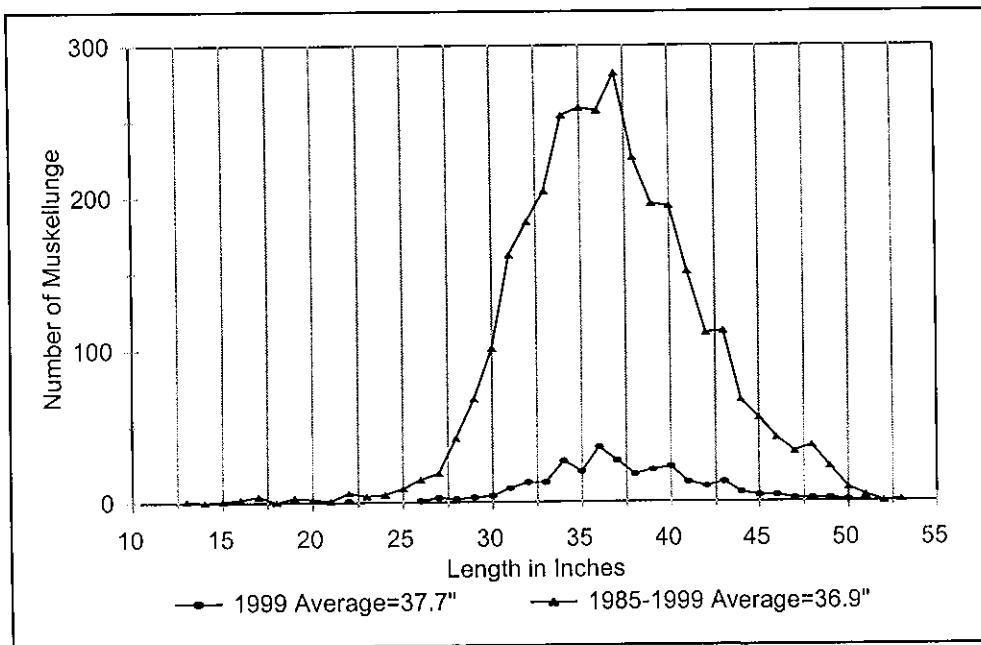


Figure 11. Length-frequency of muskellunge speared during spring 1999 and during the fifteen year period 1985-1999.



Bass Harvest

A total of 126 bass were harvested from 27 lakes in 11 counties (Appendix G). Species was recorded for all bass except one. A total of 97 largemouth bass were taken from 17 lakes in 9 counties and averaged 21.3 inches. Ten or more largemouth were speared from 1 lake, 6-9 from 2 lakes, and 5 or less were taken from 14 lakes. The number harvested per surface acre of water averaged 0.0062 largemouth bass (range: 0.0001-0.0512).

A total of 28 smallmouth bass were speared from 9 lakes in 7 counties. Average length was 18.1 inches. Five or fewer fish were taken from all but one lake (11 fish). The number harvested per surface acre averaged 0.0035 smallmouth bass (range: 0.0003-0.0114).

Lengths of 126 measured bass ranged from 11.7-21.5 inches (Figure 13) and averaged 15.6 inches (Appendix H). Of the 2,487 bass speared during the fifteen spearing seasons combined, 2,337 have been measured. Average length for this sample was 15.4 inches (annual range: 15.0-15.8 inches).

For all tribes combined the number of bass per spearer (CPE) was 0.29. CPE ranged from 0.32 to 0.66 from 1987-1998. The combined tribal catch rate for bass in 1999 was 0.08 bass per boat-hour which was within the range of CPE's from 1987-1998 (0.06 to 0.14).

Figure 12. Number of bass harvested during spring spearing seasons from 1985-1999.

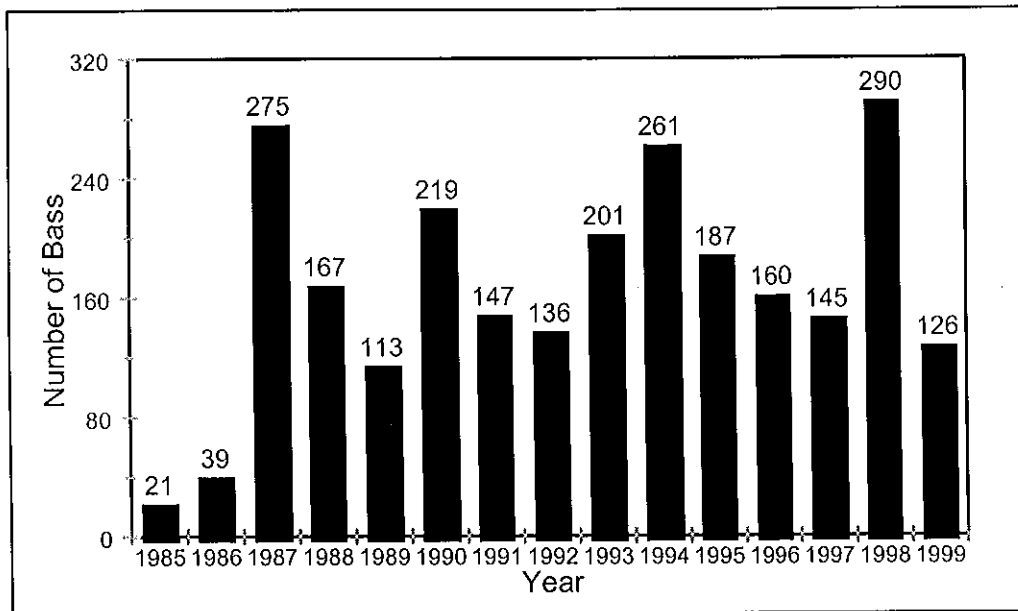
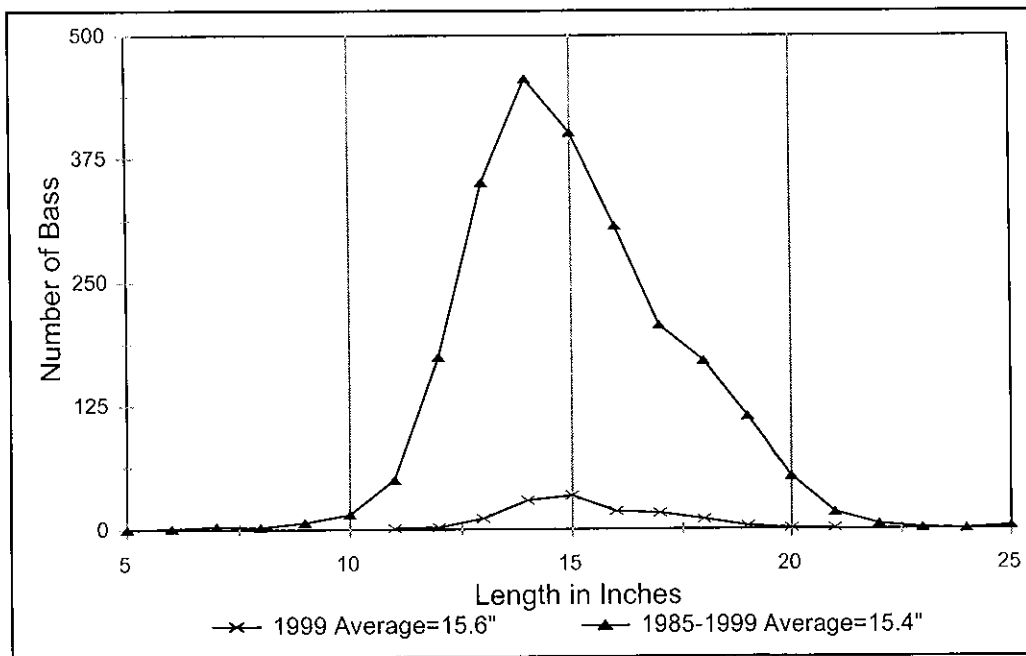


Figure 13. Length-frequency for bass taken during 1999 and during the fifteen year period 1985-1999.



Northern Pike Harvest

A total of 29 northern pike were harvested from 14 lakes in 7 counties (Appendix G). The number speared per lake never exceeded 5 fish except for Round Lake (Sawyer County) where 6 northern pike were taken. Catch per surface acre of water averaged 0.0024 (range: 0.0003-0.0106).

Lengths of 23 measured northern pike ranged from 16.4 to 37.5 inches and averaged 25.3 inches (Appendix I, Figure 15). During the fifteen spring seasons combined a total of 479 northern pike have been speared (Appendix I). Of these, 410 were measured and length averaged 26.1 inches. Harvest of pike continues to be incidental and an insignificant component of the fishery.

Figure 14. Number of northern pike harvested during spring spearing seasons from 1985-1999.

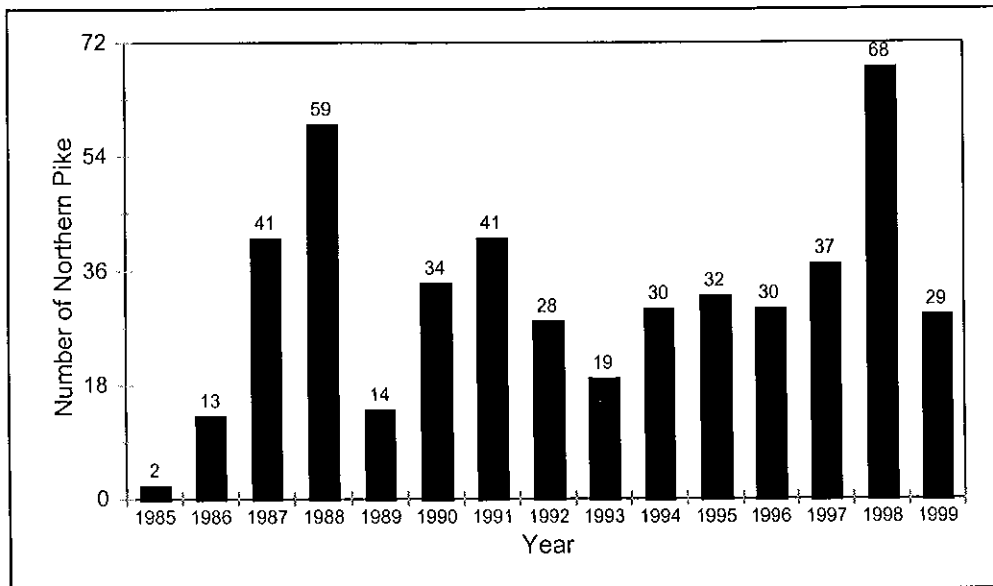
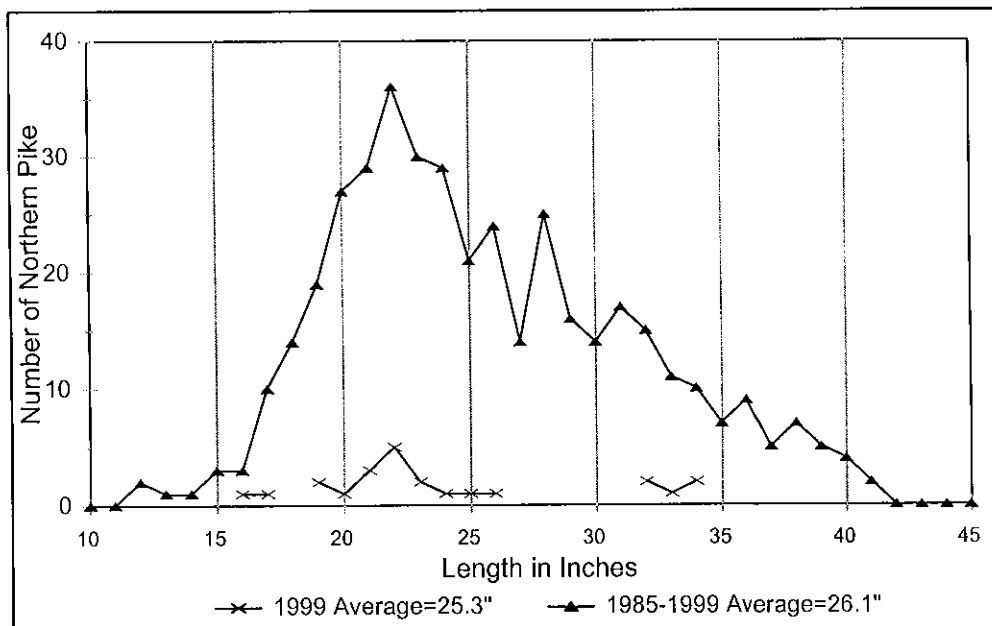


Figure 15. Length frequency of northern pike speared during 1999 and during the fifteen year period from 1986-1999.



ACKNOWLEDGMENTS

The author extends a "Meegwitch" to the following workers who assisted with monitoring the fishery (either as creel clerk or seasonal warden) or who issued permits and helped to update and compile harvest data each day:

Bad River (BRV) - Kenneth Andrews, Michael Barbano, Elizabeth Bunch, William Deragon, Rick Johnson, Lois Kolodziejski, Peter Lemieux, Sharon Lemieux, Susanne Maki, Fran Malouf, and Jon Shubat..

Lac Courte Oreilles (LCO) - Brenda Beaudin, Holly Brownrigg, Jon Cooper, Thomas Ford, Kelly Grover, Murl Grover Sr., Brenda Merrill, Michell Nickence, Valerie, Nickence, Lona Paull, Michelle Taylor, and Jose Valentin.

Lac du Flambeau (LDF) - Paula Big John, Cynthia Carufel, Ardella Christensen, Myron Christensen, Carla Clements, George Clements, Mark Doud, Anita Koser, Beverly LaBarge, Michelle LaBarge, Robert LaBarge, Clude Mann, Gerald Mann, Lyle Mann, Tammy Mann, Mike Murphy, Scott Poupart, Thomas Poupart Sr., Lois Vetterneck, Cheyenne White, Derek White, Frank White, George White, Aaron Wolfe, Christine Zortman, and Raymond Zortman.

Lac Vieux Desert (LVD) - Ira Antone Sr., Daniel Hueckstaedt, Joe Jackson Sr., Sam Klingman, and Anthony LaBine.

Mole Lake (MLK) - Shannon Biggerstaff, Darlene Brunk, Lynette Evans, Mildred McGeshick, Paula McGeshick, Willard McGeshick, Matt McPherson, Peter Mulroy, Frank Olds, Brenda Poler, James Smith, Beth Weber, and Bruce Weber.

Red Cliff (RCF) - Guy DeFoe, Raymond DeFoe Jr., Brennan Deragon, Thomas Jeffords, Michael LaGrew, Victoria Leask, and George Newago.

St. Croix (STC) - Patti Carpenter, Dana Clark, Peter Dunckley, Brenda Heinz, Ernest Honts, Phyllis Lowe, Lisa Morales, Stephanie Mosay, Michelle Pardun, Pearl St. John, Daniel Staples, Sandy Staples, John Taborshak, and Randal Teed.

The efforts of the following GLIFWC wardens in setting up nightly clerk/warden teams and in kindly agreeing to supervise creel clerks is appreciated: Jack Lemieux and Vern Stone (BRV), Kenneth Rusk and Sonya Harrington (LCO), Larry Mann and Frank White (LDF), Richard Burke (LVD), John Mulroy and Joseph Kane (MLK), Mark Bresette and Michael Soulier (RCF), and Ken Pardun and James Mattson (STC).

The patience and humor of tribal members during the nightly counting and measuring of fish continues to be recognized and appreciated.

Thanks also go to Annie Thannum and Kim Campy for their diligence in compiling nightly harvest statistics, in providing these data to tribal and WDNR representatives, and in updating each day the list of lakes selected for harvest, along with the adjusted quota, the bag limits, and the number of permits available for each lake. Finally, I would like to thank Neil Kmiecik for editing this report.

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Appendix A. Number of tribal members that speared one or more nights on lakes selected by six Wisconsin Chippewa bands during the 1999 spring spear fishery.

Number of Nights	BRV	LCO	LDF	MLK ¹	RCF	STC ²	Total:	Percent of Total:	Cumulative Percent:
1	19	17	32	22	22	21	133	31.1%	31.1%
2	9	14	30	12	13	11	89	20.8%	51.9%
3	5	6	22	8	8	8	57	13.3%	65.2%
4	4	6	22	5	7	3	47	11.0%	76.2%
5	3	2	12	5	1	3	26	6.1%	82.2%
6	2	2	5	4	0	2	15	3.5%	85.7%
7	1	4	4	2	1	2	14	3.3%	89.0%
8	0	2	4	2	0	4	12	2.8%	91.8%
9	0	2	6	4	0	0	12	2.8%	94.6%
10	0	1	6	1	0	0	8	1.9%	96.5%
11	1	2	1	0	0	0	4	0.9%	97.4%
12	0	2	3	1	0	2	8	1.9%	99.3%
13	0	0	1	0	0	0	1	0.2%	99.5%
14	0	0	0	0	0	0	0	0.0%	99.5%
15	0	1	0	0	0	1	2	0.5%	100.0%
16	0	0	0	0	0	0	0	0.0%	100.0%
17	0	0	0	0	0	0	0	0.0%	100.0%
18	0	0	0	0	0	0	0	0.0%	100.0%
19	0	0	0	0	0	0	0	0.0%	100.0%
20	0	0	0	0	0	0	0	0.0%	100.0%
21	0	0	0	0	0	0	0	0.0%	100.0%
22	0	0	0	0	0	0	0	0.0%	100.0%
23	0	0	0	0	0	0	0	0.0%	100.0%
24	0	0	0	0	0	0	0	0.0%	100.0%
25	0	0	0	0	0	0	0	0.0%	100.0%
Total:	44	61	148	66	52	57	428	100%	100%

¹ Includes 1 member from Bad River.

² Includes 2 members from Mille Lacs and 3 from Bad River.

Appendix B (continued). Number of walleye harvested nightly on lakes selected by six Wisconsin Chippewa bands during spring 1999. Also, balance of quota, number of boat-hours, catch per effort (CPE - walleye per boat-hour), number of spearer-nights, number of interviews with effort, and number of interviews without effort.

County	Lac du Flambeau	Area	Walleye Safe Harvest	1999 Tribal Quota	April 13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	4	Total Harvest	Quota Balance	Boat-Hour	CPE	
IRON	GILE FL	3384	1206	663					152	58	**	119	314		**		**									644	19	29.4	21.9		
IRON	TURTLE-FLAMBEAU FL	13545	5751	2289											1240	231										1471	828	58.5	25.1		
LINCOLN	RICE R FL CHAIN	3764	1402	770	284	65	2	**	204	184	**										**	**				739	31	38.0	19.4		
ONEIDA	BEARSKIN L	400	439	175	172	**	0						**				0				**	**				172	3	4.9	35.1		
ONEIDA	BOOM L	437	175	96	**	**							**													0	96	3.4	0.0		
ONEIDA	BOOTH L	207	27	10	**	**																				0	10	2.6	36.5		
ONEIDA	BUCKSKIN L	634	174	95	95				19																	95	0	2.6	36.5		
ONEIDA	CARROLL L	335	38	20				157	22												**	**				19	1	1.5	12.7		
ONEIDA	CLEAR L	846	327	179				43																		179	0	11.5	15.6		
ONEIDA	DAML	744	288	107	63	**	**	**	43																	106	1	8.5	12.5		
ONEIDA	GEORGE L	435	174	95	89	**	**																			89	6	3.0	29.7		
ONEIDA	GILMORE L	301	34	18	**	**	**	61		**										**	**					61	6	3.5	17.4		
ONEIDA	HASBROOK L	302	123	67				47	45																	125	2	10.1	12.3		
ONEIDA	KATHERINE L	590	232	127			33	93	78																	171	0	12.2	14.0		
ONEIDA	KAWAGUESAGA L	670	428	171		**	**					52														10	13	2.0	5.0		
ONEIDA	L THOMPSON	382	42	23	10	**	**							19	0					20	19	**	**			0	4	2.0	5.0		
ONEIDA	MADELINE L	159	8	4																						0	4	2.0	5.0		
ONEIDA	MANSON L	236	97	53	53			70																		53	0	1.3	39.8		
ONEIDA	MEDICINE L	372	150	82			70																			70	12	2.5	28.0		
ONEIDA	MINOQUA L	1360	769	307				281	26																	307	0	14.6	21.0		
ONEIDA	MOEN L	460	183	100	**	48	**					52														100	0	10.5	9.5		
ONEIDA	MUSKELLUNGE L	284	116	63		62	**																			62	1	1.8	34.4		
ONEIDA	N NOKOMIS L	476	154	61				**	59																	59	2	3.3	17.9		
ONEIDA	PICKEREL L	736	75	41		11	**	9	**	18	**															12	29	2.2	5.5		
ONEIDA	RAINBOW FL	2035	964	397	82	**	**	**	**	**	**			19	0					20	19	**	**			204	193	38.2	5.2		
ONEIDA	RHINELANDER FL	1326	499	274									**													0	274	0	1.8	27.4	
ONEIDA	SAND L	540	122	48		48																				48	0	1.8	27.4		
ONEIDA	SQUIRREL L	1317	869	347				315	25																	340	7	9.8	34.7		
ONEIDA	TOMAHAWK L CHAIN	3552	1042	416						395	**	**	21													416	0	17.0	24.5		
ONEIDA	TWO SISTERS L	719	167	66	**	**	**	**	66	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	66	0	2.8	24.0		
ONEIDA	WILLOW FL	5135	1782	489	**	208	61	**	**	189	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	458	31	16.3	28.1		
PRICE	BUTTERNUT L	1006	438	175		157																				157	18	5.3	29.9		
VILAS	ALDER L	274	112	61						61																61	0	3.8	16.3		
VILAS	ANVIL L	380	153	84																						83	1	3.7	22.4		
VILAS	BALLARD L	505	54	29								54		**	29											29	0	1.1	26.9		
VILAS	BIG ARBORVITAE L	1090	653	261						206	**	54		**	29											260	1	16.0	16.3		
VILAS	BIG L (BOULDER JCT)	835	322	177								176														176	1	7.6	23.2		
VILAS	BIG L (MI BORDER)	771	237	130									176													130	0	2.9	44.8		
VILAS	BIG L (MI BORDER)	930	357	196										189												196	0	9.3	21.2		
VILAS	BIG MUSKELLUNGE L	638	250	137								203		137												137	0	3.0	45.7		
VILAS	BIG PORTAGE L	1617	510	203																						203	0	8.5	23.9		
VILAS	BIG ST GERMAIN L	1528	50	19																						0	19	0	19	0	19

Appendix B (continued). Number of walleye harvested nightly on lakes selected by six Wisconsin Chippewa bands during spring 1999. Also, balance of quota, number of boat-hours, catch per effort (CPE - walleye per boat-hour), number of spearer-nights, number of interviews with effort, and number of interviews without effort.

County	Sokogon (Mole Lake)	Lake	Area	Walleye Safe Harvest	1999 Tribat Quota	April 12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	4	Total Harvest	Quota Balance	Boat-Hour	CPE
FLORENCE		EMILY L	191	23	19																							0	19		*	
FLORENCE		FAY L	247	14	10																								0	10		*
FLORENCE		HALSEY L	512	55	46																							2	44	2.1	1.0	
FLORENCE		KEYES L	202	21	16																							0	16		*	
FLORENCE		PATTEN L	255	105	62																							56	6	2.8	20.4	
FLORENCE		PINE R FL	127	54	45									56														0	45		*	
FLORENCE		ARBUTUS L	161	20	16																							0	16		*	
FLORENCE		BIRCH L	468	186	158																							0	158		*	
FLORENCE		BUTTERNUT L	1282	629	377							180	197															377	0	17.5	21.5	
FLORENCE		CRANE L	337	38	32																							0	32		*	
FLORENCE		FRANKLIN L	892	193	115																							37	78	3.0	12.4	
FLORENCE		GROUND HEMLOCK L	88	11	9																							0	9		*	
FLORENCE		HOWELL L	177	8	6																							0	6		*	
FLORENCE		JUNGLE L	182	76	64				64																			64	0	2.0	32.0	
FLORENCE		KING L	33	15	12																							0	12		*	
FLORENCE		L LUCERNE	1026	101	60																							60	0	8.0	7.5	
FLORENCE		L METONGA	1991	774	464																							461	3	50.2	9.2	
FLORENCE		LILY L	211	87	52																							52	0	2.1	24.8	
FLORENCE		PINE L	1670	153	130																							55	75	3.8	14.5	
FLORENCE		RANGE LINE L	82	22	16																							0	16		*	
FLORENCE		ROBERTS L	414	166	99																							71	28	15.0	4.7	
FLORENCE		STEVENS L	297	34	20																							20	0	1.4	14.3	
FLORENCE		TRUMP L	172	17	13																							0	13		*	
LANGLADE		BIG TWIN L	60	8	6																							0	6		*	
LANGLADE		ENTERPRISE L	502	199	119																							104	15	2.5	41.6	
LANGLADE		JESSIE L	35	5	4																							0	4		*	
LANGLADE		LAWRENCE L	50	7	5																							0	5		*	
LANGLADE		LOWER POST L	377	10	7																							0	7		*	
LANGLADE		MOCCASIN L	110	14	11																							0	11		*	
LANGLADE		MUELLER L	88	11	9																							0	9		*	
LANGLADE		OTTER L	90	12	10																							0	10		*	
LANGLADE		ROLLING STONE L	672	70	59																							0	59		*	
LANGLADE		ROSE L	112	14	11																							0	11		*	
LANGLADE		SAWYER L	149	18	15																							0	15		*	
LANGLADE		UPPER POST L	757	175	134																							0	134		*	
LANGLADE		WHITE L	166	20	16																							0	16		*	
LINCOLN		ALEXANDER L	677	264	224																							0	224		*	
LINCOLN		L ALICE	1369	129	109																							0	109		*	
LINCOLN		L MOHAWKINS	1610	704	598																							0	598		*	

Appendix B (continued). Number of walleye harvested nightly on lakes selected by six Wisconsin Chippewa bands during spring 1999. Also, balance of quota, number of boat-hours, catch per effort (CPE - walleye per boat-hour), number of spearer-nights, number of interviews with effort, and number of interviews without effort.

County	Red Cliff Lake	Area	Walleye Safe Harvest	1999 Tribal Quota	April 10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total Harvest	Quota Balance	Boat-Hour	CPE
BAYFIELD	DIAMOND L	341	38	36									**	**	9	26				35	1	7.3	4.8
BAYFIELD	L OWEN	1323	125	37											36					36	1	5.5	6.5
BAYFIELD	MIDDLE EAU CLAIRE L	902	502	476					**	**	234	238					**			472	4	25.0	18.9
BAYFIELD	NAMEKAGON L	3227	1153	489									209	279						488	1	18.2	26.9
BAYFIELD	PIKE L CHAIN	714	297	178						**	**	65	66	46			**			177	1	13.7	13.0
BAYFIELD	UPPER EAU CLAIRE L	1030	101	60			**			**	**	58								58	2	2.4	24.7
DOUGLAS	L NEBAGAMON	914	187	177				6			164									170	7	7.0	24.3
DOUGLAS	LOWER EAU CLAIRE L	802	310	185						160	25									185	0	5.8	32.2
DOUGLAS	UPPER ST CROIX L	855	259	155			**	**	130						**	24				154	1	5.8	26.6
SAWYER	NELSON L	2503	1461	562	**	141	124	208	8						68	**				549	13	37.3	14.7
	Number of lakes:	10			1	1	2	2	3	3	4	3	3	3	4	3	2	0	0				
	Area in acres:	12,611																					
	Number of walleye:		4,433	2,355	0	141	124	208	144	160	423	361	275	325	113	50	0	0	0	2324	31		
	Number of spearer-nights:				0	13	8	8	13	6	19	18	10	17	10	9	0	0	0	131			
	Number of interviews with effort:				0	5	3	4	7	2	9	7	5	8	5	3	0	0	0	58			
	Number of interviews without effort:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Number of boat-hours:				0.0	15.8	5.8	8.2	8.0	4.0	22.3	14.9	11.8	17.1	14.8	5.3	0.0	0.0	0.0			127.7	
	Catch-per-effort:				0.0	9.0	21.4	25.4	18.0	40.0	19.0	24.3	23.4	19.1	7.7	9.4	0.0	0.0	0.0				18.2

* Lakes not speared during spring 1999.

** Lakes open for spearing but no effort.

Also, balance of quota, number of boat-hours, catch per effort (CPE - walleye per boat-hour), number of spearer-nights, number of interviews with effort, and number of interviews without effort.

Six Tribal Bands Combined:		Area	Safe Harvest	Tribal Quota	April	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Number of lakes:					5	6	4	6	8	8	11	9	19	34	36	34	43	46	43	43	45	47	44
Area in acres:	217,026																						
Number of walleye:		67,933	39,586	0	69	182	31	60	69	327	1,118	2,316	1,634	1,044	2,669	2,218	2,234	2,390	1,778	1,558	1,153		
Number of spearer-nights:					0	8	16	7	21	10	35	74	112	86	85	148	121	97	143	105	109	79	
Number of interviews with effort:					0	3	9	3	10	4	15	33	54	37	30	64	51	53	69	49	49	30	
Number of interviews without effort:					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of boat-hours:					0.0	4.7	22.0	7.5	16.5	12.6	32.3	65.0	120.5	77.6	86.9	166.3	138.8	124.3	151.0	112.1	91.4	64.0	
Catch-per-effort:					0.0	14.8	8.3	4.1	3.6	5.5	10.1	17.2	19.2	21.1	12.0	16.1	16.0	18.0	15.8	15.9	17.1	18.0	

Six Tribal Bands Combined:		Area	Safe Harvest	Tribal Quota	April	23	24	25	26	27	28	29	30	1	2	3	4	Total Harvest	Quota Balance	Boat-Hour	
Number of lakes:					47	51	42	31	31	31	36	32	31	16	0	26	6	832			
Area in acres:	217,026																				
Number of walleye:		67,933	39,586	1,857	1,475	726	432	211	193	106	157	98	0	0	0	0	0	26,105	13,481		
Number of spearer-nights:				108	103	54	22	14	19	25	18	4	0	0	0	0	0	1,623			
Number of interviews with effort:				50	42	25	9	6	8	10	7	2	0	0	0	0	0	722			
Number of interviews without effort:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of boat-hours:				56.9	93.5	59.5	28.7	21.3	26.4	22.2	15.6	3.0	0.0	0.0	0.0	0.0	0.0				
Catch-per-effort:				32.7	15.8	12.2	15.1	9.9	7.3	4.8	10.1	32.7	0.0	0.0	0.0	0.0	0.0				

Appendix C. Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

County	Lake	Area	INCH GROUP																											Total Measured	Total Harvested	Total Inches	Mean Length	Male	Female	Unknown	Total Sexed
			8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27															
			BAYFIELD	L OWEN	1323				2	2	11	4	1	8	6																						
BAYFIELD	NAMEKAGON L	3227	1		1	14	57	136	137	76	29	13	11	5	1	1	1	1	1	1	1	1	1	1	1	1	489	489	7057.8	14.4	460	26	3	489			
CHIPPEWA	L WISSOTA	6300			1	7	38	66	38	33	11	5	1													200	200	2784.9	13.9	198	2		200				
CHIPPEWA	LONG L	1052			3	14	37	55	40	34	13	3	3	1											205	240	2858.5	13.9	199	3	3	205					
DOUGLAS	WHITEFISH L	832				2	9	20	10	10	10	16	2	1											80	80	1204.1	15.1	76	3	1	80					
IRON	L OF THE FALLS	338																							13	13	241.4	18.6	2		11	13					
IRON	TRUDE L	781			2	26	47	51	45	18	16	8	1	1	1	1	1	1	1	1	1	1	1	1	220	220	3082.3	14.0	205	13	2	220					
IRON	TURTLE-FLAMBEAU FL	13545			7	81	194	243	180	82	37	10	3	2	2	1	1	1	1	1	1	1	1	1	843	843	11486.4	13.6	782	58	3	843					
SAWYER	NELSON L	2503				5	37	134	127	44	13	8	7	7	1	2	1	1	1	1	1	1	1	1	386	446	5559.4	14.4	400	31	14	445					
SAWYER	TEAL L	1049				8	38	81	77	26	3	3	1	1	1	1	1	1	1	1	1	1	1	237	237	3303.4	13.9	230	4	3	237						
VILAS	ANNABELLE L	213			2	3	7	12	10	6	5	1	2	1	1	1	1	1	1	1	1	1	1	50	50	681.2	13.6	43	3	4	50						
VILAS	CRAB L	949			4	9	38	66	55	19	5	5	3	2	1	1	1	1	1	1	1	1	1	213	213	2784.8	13.0	195	17	1	213						
VILAS	FOREST L	466																						111	111	1752.9	15.8	107	4		111						
VILAS	HARRIS L	507			1	16	28	20	30	12	2	3	3	1	1	1	1	1	1	1	1	1	1	120	120	1679.1	14.0	112	5	3	120						
VILAS	HIGH L	734			1	7	18	41	37	22	16	8	9	2	1	2	1	2	1	2	1	1	1	169	169	2503.2	14.8	158	10	1	169						
VILAS	MAMIE L	400				2	9	18	17	18	11	7	2	2	1	3	1	2	1	2	1	1	1	92	92	1411.3	15.3	80	1	11	92						
VILAS	PRESQUE ISLE L CHAIN	1571			5	30	33	24	26	19	11	7	7	1	1	1	1	1	1	1	1	1	1	176	176	2562.6	14.6	154	22		176						
VILAS	S TURTLE L	454			1	2	13	17	6	5	3	2	3	2	3	1	1	1	1	1	1	1	1	53	53	751.7	14.2	41	9	3	53						
VILAS	TENDERFOOT L	437			1	4	12	15	14	13	3	4	1	5	1	2	2	1	1	1	1	1	1	91	91	1297.2	14.3	89	2		91						
	Sub-total:	36681	3	10	38	272	655	1001	826	456	216	126	69	40	13	13	16	11	8	6	4	2	3785	3880	53616.7	14.2	3552	215	77	3844							

Appendix C (continued). Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

Lac Courte Oreilles		INCH GROUP																													Total Measured	Total Harvested	Total Inches	Mean Length	Male	Female	Unknown	Total Sexed
		Area	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29															
		Lake	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count													
RUSK	278					1	3	3	4	1	5																17	17	295.6	17.4	15	2	17					
RUSK	534				2	15	7	2	2	1	1	1	3	1													53	53	824.2	15.6	50	1	53					
RUSK	126					3	5	8	9	5	1																45	45	727.9	16.2	43	2	45					
RUSK	262							3	7	2	1																16	16	281.3	17.6	14	2	16					
SAWYER	3111		1		22	51	96	90	77	49	36	16	8	5	2	3	3	2	2								464	464	7434.7	16.0	352	26	464					
SAWYER	1920		4		9	16	29	50	15	6	4	4	2														139	139	2102.1	15.1	130	4	139					
SAWYER	15300		2	12	104	333	448	289	199	162	106	58	33	14	10	6	5	5	3	3	2						1805	1805	26325.2	14.6	1638	118	1804					
SAWYER	273		2	4	2	10	7	9	7	3	3	3	3	3	1	2	1	1	2	1	1						61	61	909.3	14.9	17	2	61					
SAWYER	5039				9	17	4	8	63	135	123	75	31	28	12	6	4	7	3	1							526	526	9874.4	18.4	404	56	526					
SAWYER	229			1	2	2	5	7	9	2	4	2	1	2	2	1	1	1	1	1							41	41	701.2	17.1	24	6	41					
SAWYER	1304		1	12	47	125	61	13	2	1																	270	270	3744.4	13.9	235	11	270					
SAWYER	229																										14	14	227.5	16.3	12	2	14					
SAWYER	3054			1	27	41	84	72	31	25	14	4	5	3	3	1	1	1	1								313	313	4812.2	15.4	260	31	312					
SAWYER	928						5	19	62	41	28	17	10	4	2	5	2										195	195	3445.4	17.7	144	26	195					
SAWYER	323				1	5	8	8	6	17	14	6	2	5													72	72	1238.3	17.2	61	2	72					
SAWYER	1454						2	13	19	15	6	9	7	1	1	1											74	74	1304.0	17.6	64	5	74					
SAWYER	786				1	1	3	3	14	10	3	3	1	1	1												43	43	752.9	17.5	30	8	43					
SAWYER	102			1	1	1	9	7	11	6	1																37	37	584.2	15.8	33	2	37					
WASHBURN	3290				1		13	42	21	15	8																108	108	1800.8	16.7	97	9	108					
	38542	4	18	126	465	732	642	567	518	453	313	178	84	66	39	29	17	17	13	7	4	1	4293	4293	67185.6	15.7	3623	310	358	4291								
	Sub-total:																																					

Appendix C (continued). Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

County	Lake	Area	INCH GROUP																												Total Meas.	Total Harv.	Total Inches	Mean Length	Male	Female	Unk.	Total Sexed
			8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	32												
VILAS	ISLAND L	1,023			1	7	48	59	34	26	15	5	4	4	2	2	2	1	2	1	2	1	2	1	2	1	1	1	1	1	213	3087.3	14.5	165	14	33	212	
VILAS	JAG L	158																													34	799.9	23.5	25	7	2	34	
VILAS	L LAURA	599			5	25	40	12	7	6	4	1	4	4	3	4	8	9	1	3	4	2	1	2	1	1	1	1	1	115	1704.4	14.8	95	16	4	115		
VILAS	LITTLE ARBOR VITAE L	534			4	28	29	22	8	10	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	116	1686.8	14.5	105	8	3	116		
VILAS	LITTLE JOHN L	166																													10	172.8	17.3	9	1	1	10	
VILAS	LITTLE ST GERMAIN L	980			1	1	3	8	8	9	6	10	3	6	3	4	6	1	4	6	5	1	1	1	1	1	1	1	1	77	1506.7	19.6	33	25	16	74		
VILAS	MANITOWISH L	506			2	10	26	27	14	6	7	3	4	2	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	109	1601.9	14.7	82	17	10	109		
VILAS	OXBOW L	511			18	48	27	12	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	111	1450.9	13.1	101	7	3	111		
VILAS	PAPOOSE L	428			2	6	8	3	3	7	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	441.0	14.2	27	2	2	31		
VILAS	PICKEREL L	293																												9	196.3	21.8	6	3	3	9		
VILAS	PLUM L	1,033			6	15	27	40	26	26	13	5	3	1	2	1	1	2	1	2	1	2	1	2	1	2	1	1	1	170	2621.9	15.4	145	14	10	169		
VILAS	REST L	608			1	17	31	35	19	5	7	2	4	3	1	3	3	1	2	1	2	1	2	1	2	1	1	1	1	131	1980.7	15.1	89	16	26	131		
VILAS	SNIPE L	239			2	4	12	8	8	4	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	48	753.4	45.7	18	17	13	48		
VILAS	SPIDER L	272			3	8	10	8	4	1	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	44	670.8	15.2	28	8	8	44		
VILAS	SQUAW L	785			3	33	49	26	14	10	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	140	1815.4	13.0	132	7	1	140		
VILAS	STAR L	1,206			11	45	61	36	31	16	8	7	4	1	1	1	2	4	4	1	1	1	1	1	1	1	1	1	1	229	3342.8	14.6	194	21	13	228		
VILAS	TROUT L	3,816																												234	4065.6	17.4	176	27	31	234		
VILAS	WHITE SAND L	728																												41	651.7	15.9	30	4	7	41		
VILAS	WILD RICE L	379			1	6	8	21	13	6	3	5																		65	917.1	14.1	29	11	25	65		
		67,543	1	2	32	294	978	1,541	1,646	1,191	695	476	245	148	90	84	53	70	34	40	41	36	14	9	4	1	7,725	116,920.9	15	6,448	850	623	7,921					

Appendix C (continued). Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

Mole Lake (Sokoagon)		Area	INCH GROUP																														Total Measured	Total Harvested	Total Inches	Mean Length	Male	Female	Unknown	Total Sexed							
County	Lake		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																							
FLORENCE	HALSEY L	512											2											1				2					2														
FLORENCE	PATTEN L	255			3	7	11	15	17	1																																					
FLORENCE	BUTTERNUT L	1292	1	12	64	111	53	23	36	33	22	5	3	3	5	5	1											377	5612.4	347					56	876.9	49	5	2	56							
FLORENCE	FRANKLIN L	892				1	3	4	4	10	8	2	1																																		
FLORENCE	JUNGLE L	182				2	7	25	20	5	5																	37	656.0	18																	
FLORENCE	L LUCERNE	1026				1	4	5	7	11	14	11																																			
FLORENCE	L METONGA	1991	1	47	135	110	52	45	34	10	10	4	4	4	2	4	2	1											64	1026.1	56																
FLORENCE	LILY L	211				5	16	14	11	3																																					
FLORENCE	PINE L	1670				2	7	11	9	5	9	6																																			
FLORENCE	ROBERTS L	414	1	5	27	16	1	2	1	2	2	2	1	2	1	2	1	2	1																												
FLORENCE	STEVENS L	297								1	5	6	3	2	1	1																															
LANGLADE	ENTERPRISE L	502								1	5	6	1																																		
LANGLADE	WHEELER L	293																																													
ONEIDA	BIG FORK L	690	1	11	58	64	47	25	9	5	3	3	1																																		
ONEIDA	BIG L	865	1	4	13	12	10	6	7	1	3	1	1																																		
ONEIDA	BIG STONE L	548																																													
ONEIDA	CRESCENT L	612	3	13	28	33	21	14	6	3	7	3	1	1	2	2	4	1																													
ONEIDA	PELICAN L	3585	1	6	80	225	211	134	88	68	41	26	18	16	16	8	3	3	1																												
ONEIDA	PLANTING GROUND L	1012	2	24	79	94	42	25	16	10	9	8	4	4	2	3	1	1	3																												
ONEIDA	SEVENMILE L	503																																													
ONEIDA	SQUASH L	392																																													
VILAS	BIG SAND L	1408																																													
VILAS	CATFISH L	1012	1	16	57	66	13	2	2	2	2	1	1	3																																	
VILAS	LAC VIEUX DESERT	4300																																													
VILAS	LONG L	872																																													
VILAS	TWIN L CHAIN	3430																																													
Sub-total:		28766	4	61	257	573	791	780	587	463	298	192	106	62	51	45	31	19	16	10	8	6	4	4	4	4	4368	65959.3	4368																		

Appendix C (continued). Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

County	Red Cliff Lake	Area	INCH GROUP																Total Measured	Total Harvested	Total Inches	Mean Length	Male	Female	Unknown	Total Sexed																
			8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23									24	25	26	27	29	31										
BAYFIELD	DIAMOND L	341										4	5	1	8	1	4	1	1	1	5													35	35	656.8	18.8	23	11	1	35	
BAYFIELD	L OWEN	1323	1									4	12	5	5	2	4																	36	28	610.1	16.9	28	4	2	36	
BAYFIELD	MIDDLE EAU CLAIRE L	902								2	18	56	91	45	22	13	2	1				3	1											333	305	4709.7	14.1	305	23	5	333	
BAYFIELD	NAMEKAGON L	3227								1	5	28	74	48	29	22	6	16				1	1	1	2	1						1				248	56	6	310			
BAYFIELD	PIKE L CHAIN	714								6	7	18	38	27	22	3	6	3				2	5		1	2										153	15	7	175			
BAYFIELD	UPPER EAU CLAIRE L	1030										1	14	21	16	3	1	1				1	4	2	1										58	58	912.6	15.7	58	12	2	58
DOUGLAS	L NEBAGAMON	914								2	10	24	47	23	20	15	7	1				1		2	1										157	143	2413.1	15.4	143	13	1	157
DOUGLAS	LOWER EAU CLAIRE L	802								1	4	19	67	59	17	3	3	2				2	5	2	1									185	171	2833.5	15.3	171	13	1	185	
DOUGLAS	UPPER ST CROIX L	855										1	7	25	30	19	10	2				1	2	1									154	150	2444.2	15.9	150	4		154		
SAWYER	NELSON L	2503								1	6	48	221	153	43	25	5	10				5	5	3	2	2	3	2					535	480	7700.9	14.4	480	43	11	534		
	Sub-total:	12611	1	0	11	38	165	476	505	342	187	96	48	38	17	14	7	4	4	4	5	2	2	1	1	1982	2324	29820.7	14.9	1759	181	35	1975									

Appendix C. (continued). Total number of walleye harvested and measured per inch group and sexed during spring in 1999. Data arranged alphabetically by tribe, county, and lake.

County	St. Croix Lake	Area	INCH GROUP																												Total Measured	Total Harvested	Total Inches	Mean Length	Male	Female	Unknown	Total Sexed
			10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30															
BARRON	BEAR L	1358	2		11	3	4	9	10	11	5	5	2	1	2	1	1	1										68	1120.0	58	4	6	68					
BARRON	BEAVER DAM L	1112		1			4	6	1	8	2	2	2	1	2	1	1		1									31	615.6	25	6	31						
BARRON	HORSESHOE L	115				1	1	2	7	6	3	1	2	1													26	489.1	19	6	1	26						
BARRON	LOWER TURTLE L	276				1	1	2	1	5	1	1	1	1													13	240.2	10	3	13							
BARRON	RED CEDAR L	1841	1	6	23	45	38	16	16	6	6	1	3														161	2491.0	149	6	6	161						
BARRON	SILVER L	337					3	1	2	1	2	1	2	1													10	180.2	10			10						
BARRON	UPPER TURTLE L	438				5	5	4	7	2	1	2	1	2													26	454.8	21	5	5	26						
BURNETT	BIG MCKENZIE L	1185			2	17	26	9	3	3	3	1	1														62	975.8	59	3	3	62						
BURNETT	DEVILS L	1001				3	14	10	4	4	2																38	628.9	36	2		38						
BURNETT	LITTLE YELLOW L	348			1	1	4	3	1	1	3	1	1	1	1												18	317.9	3	6	9	18						
BURNETT	SAND L	962				1	2	13	9	10	4	3	3	3													49	894.9	38	11	49							
BURNETT	YELLOW L	2287			1	2	5	8	6	4	2	3	2	1	2	1											37	664.6	10	24	3	37						
POLK	BALSAM L	2054	2	6	13	12	17	27	15	19	10	2	5	1	1	1	1	1									130	2281.3	116	6	8	130						
POLK	BIG ROUND L	1015			2	1	2	1	9	10	5	2	2	3	3	1	1										44	850.4	28	3	13	44						
POLK	HALF MOON L	579			1	1	5	3	10	2	1	2															26	423.5	21	5	5	26						
POLK	MAGNOR L	224			3	8	3	4	10	14	3	2	2	1	1												49	850.3	47	2		49						
POLK	PIPE L	270			1	8	13	10	5	8	5	2	2	2	1												57	979.7	44	10	3	57						
POLK	WAPOGASSET L	1186			1	3	7	18	23	4	4	1															62	995.9	61	1	1	62						
WASHBURN	BASS-PATTERSON L	188			1	5	13	9	5																		33	491.1	28	4	1	33						
WASHBURN	L NANCY	772			1	1	6	27	13	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107	1853.1	77	13	17	107						
WASHBURN	LONG L	3290			4	7	21	28	21	9	6	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	92	1653.9	70	7	15	92						
WASHBURN	MIDDLE MCKENZIE L	530			1	1	4	17	30	19	10	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	9	162.8		2	7	9						
WASHBURN	SHELL L	2580					1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	162.8		2	7	9						
	Sub-total:	23948	2	2	25	57	149	221	207	194	136	89	41	25	26	17	11	4	5	3	3	0	1	1218	1218	20748.9	17.0	995	117	106	1218							

Appendix D. Number of walleye per inch group taken during spring spearing seasons from 1985-1999.

Inch Group	Number of walleye in:															15 Year Total	Percent of Total	Cumulative Percent
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999			
5									1				1	2		4	0.0%	0.0%
6		1						1	1				2	2		6	0.0%	0.0%
7				3	1			4	3				16	25	5	85	0.0%	0.0%
8		3	17	10	4	14		36	34			6	79	104	20	502	0.2%	0.2%
9	2	49	123	121	60	183		229	243	245		233	372	505	162	3,135	1.2%	1.4%
10	5	358	558	678	306	649		957	957	905		1,026	1,230	1,817	989	12,958	4.8%	6.2%
11	31	680	1,282	1,688	925	1,513		1,979	2,444	2,101		2,532	2,262	3,258	2,861	28,790	10.7%	16.9%
12	140	928	1,892	2,755	1,684	2,370		2,582	3,507	3,636		3,879	3,242	3,951	4,598	42,512	15.8%	32.7%
13	265	1,068	2,133	3,289	2,222	2,917		2,777	3,252	4,032		4,305	3,570	3,890	4,548	46,315	17.2%	49.9%
14	286	985	1,895	2,951	2,154	2,856		2,543	2,375	3,111		3,666	3,390	3,281	3,364	40,201	14.9%	64.9%
15	293	939	1,666	2,311	1,919	2,295		2,031	1,696	1,993		3,368	3,281	2,443	2,286	30,199	11.2%	76.1%
16	247	801	1,374	1,658	1,390	1,862		1,687	1,207	1,323		2,517	2,548	1,819	1,643	21,732	8.1%	84.2%
17	172	458	1,113	1,297	1,010	1,288		1,216	878	812		1,796	1,580	1,094	1,003	14,692	5.5%	89.6%
18	145	255	811	932	634	932		811	562	589		1,120	1,129	1,094	599	9,784	3.6%	93.3%
19	118	149	513	596	328	556		590	261	308		850	617	706	307	5,538	2.1%	95.3%
20	33	72	259	316	210	307		303	199	218		383	378	338	258	3,409	1.3%	96.6%
21	25	50	148	214	109	202		249	171	148		267	237	260	193	2,427	0.9%	97.5%
22	18	23	116	134	76	160		151	129	120		205	186	183	165	1,841	0.7%	98.2%
23	18	9	86	124	67	100		111	85	101		189	142	134	93	1,396	0.5%	98.7%
24	11	10	76	89	48	107		102	66	80		145	105	90	87	1,155	0.4%	99.1%
25	7	9	57	75	45	71		86	65	54		98	98	81	78	951	0.4%	99.5%
26	9	3	42	56	31	63		46	42	33		91	85	91	58	656	0.2%	99.7%
27	10	1	28	32	18	30		39	25	27		55	56	53	27	416	0.2%	99.9%
28	5		25	30	8	15		15	17	12		30	32	49	16	224	0.1%	100.0%
29	8		8	9	3	5		15	6	12		12	13	22	16	224	0.1%	100.0%
30	11		2		2	1		6	1	1		5	4	5	9	81	0.0%	100.0%
31	6															17	0.0%	100.0%
32	2															4	0.0%	100.0%
33	1															1	0.0%	100.0%
34																	0.0%	0.0%
35																	0.0%	0.0%
36																	0.0%	0.0%
37																	0.0%	0.0%
Total No. Measured:	1,868	6,842	14,224	19,368	13,254	18,500		18,551	18,226	19,903		21,726	21,399	24,204	23,371	269,040	100%	100%
Total Length:	30,382	106,051	226,789	306,926	211,645	295,047		291,543	275,331	301,713		335,322	327,444	363,297	354,052	4,149,768		
Average Length:	16.3	15.5	15.9	15.8	16.0	15.9		15.7	15.1	15.2		15.4	15.3	15.0	15.1	15.4		
Total No. Speared:	2,761	6,940	21,321	25,969	16,054	25,348		23,018	21,188	24,532		25,922	24,002	27,218	26,105	328,954		
Percent Measured:	68%	99%	67%	75%	83%	73%		81%	86%	81%		84%	89%	89%	90%	82%		

Appendix F. Number of muskellunge per inch group taken during spring spearing seasons from 1985-1999.

Inch Group	Number of muskellunge in:															15 Year Total	Percent of Total
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		
13						1										1	0.0%
14																0	0.0%
15											1					1	0.0%
16			1								1					2	0.1%
17				3			1									4	0.1%
18								1								1	0.0%
19				1					1		1					3	0.1%
20			2													2	0.1%
21												1				1	0.0%
22						1					1	2	1		1	6	0.2%
23		1					1				1			1		4	0.1%
24		1						1			2	1				5	0.2%
25	1		1		1	1			2	1	1			1		9	0.3%
26				1	2	3	1	1	3	1	1		1	1		15	0.5%
27			3	3	2	2		1	1	2	1	1	3			19	0.6%
28	2		3	1	5	4	5	1	3	3	3	1	3	6	2	42	1.3%
29	2	2	7	5	3	6	4	8	4	2	2	4	9	7	3	68	2.2%
30	8	3	4	6	6	15	6	5	6	11	3	7	8	9	4	101	3.2%
31	6	3	14	9	9	24	12	8	9	14	13	12	7	13	9	162	5.1%
32	7	2	15	13	11	18	10	7	11	14	20	4	19	20	13	184	5.8%
33	3	6	12	10	8	25	11	18	12	20	14	12	15	25	13	204	6.5%
34	8	1	16	10	8	20	20	13	21	17	23	26	23	21	27	254	8.1%
35	7	7	12	10	10	26	17	11	10	26	29	23	31	20	20	259	8.2%
36	2	4	12	7	6	20	18	18	22	15	22	27	30	18	36	257	8.2%
37	8	8	17	11	10	29	20	14	15	16	26	36	31	14	27	282	9.0%
38		6	12	9	7	27	11	12	14	16	25	25	25	19	18	226	7.2%
39	2	1	10	10	6	16	7	11	10	17	18	19	30	18	21	196	6.2%
40	1	2	8	6	5	19	16	11	11	11	15	22	20	24	23	194	6.2%
41	1	2	5	9	3	12	4	5	5	10	17	28	19	18	13	151	4.8%
42	1	1	4	6	5	6	3	4	8	11	14	17	10	11	10	111	3.5%
43	2	2	3	6	3	6	5	4	4	7	16	21	14	6	13	112	3.6%
44	2		3	7		5		4	6	4	5	12	7	6	6	67	2.1%
45			4	8	2	1	5	1	1	7	8	2	10	2	4	55	1.7%
46		1	4	3		2	2	2	1	8	5	2	6	4	4	42	1.3%
47	3		2	1	2	3	1	1	1	1	3	8	2	3	2	33	1.0%
48		1	4	1	1	2	3	2	3	5	4	2	5	2	2	37	1.2%
49	1		2	1	1	3	1		2	3	1	3	2	1	2	23	0.7%
50	1				1		1		1	1	1		2		1	9	0.3%
51				1		1								1	1	4	0.1%
52																0	0.0%
53		1														1	0.0%
Total Number Measured:	68	55	180	158	117	298	185	162	187	243	297	318	333	271	275	3,147	100%
Total Length:	2,407	1,994	6,507	5,805	4,175	10,761	6,725	5,845	6,822	9,034	11,072	12,117	12,521	9,966	10,356	116,106	
Average Length:	35.4	36.2	36.2	36.7	35.7	36.1	36.4	36.1	36.5	37.2	37.3	38.1	37.6	36.8	37.7	36.9	
Total Number Speared:	86	55	196	158	118	303	185	165	188	244	299	319	333	271	275	3,195	
Percent Measured:	79.1%	100.0%	91.8%	100.0%	99.2%	98.3%	100.0%	98.2%	99.5%	99.6%	99.3%	99.7%	100.0%	100.0%	100.0%	98.5%	

Appendix G. Number, average length (inches), and harvest per acre (largemouth and smallmouth bass and northern pike) for various lakes during spring spearing 1999.

Tribe	County	Lake	Area	Species	Number Harvested	Number Measured	Total Inches	Average Length	Number Per Acre
LDF	VILAS	LITTLE ARBOR VITAE L	534	BAS	1	1	17.6	17.6	0.0019
Total:			534		1	1	17.6	17.6	0.0019
STC	BARRON	BEAVER DAM L	1112	LMB	2	2	35.4	17.7	0.0018
STC	BURNETT	BIG MCKENZIE L	1185	LMB	1	1	15.5	15.5	0.0008
STC	BURNETT	DEVILS L	1001	LMB	9	9	131.3	14.6	0.0090
LDF	ONEIDA	TOMAHAWK L CHAIN	3552	LMB	2	2	32.1	16.1	0.0006
STC	POLK	BIG ROUND L	1015	LMB	52	52	781.7	15.0	0.0512
STC	POLK	PIPE L	270	LMB	1	1	17.8	17.8	0.0037
LCO	RUSK	PULASKI L	126	LMB	1	1	16	16.0	0.0079
LCO	SAWYER	L CHETAC	1920	LMB	8	8	121.3	15.2	0.0042
LCO	SAWYER	L CHIPPEWA	15300	LMB	1	1	15	15.0	0.0001
LCO	SAWYER	L OF THE PINES	273	LMB	2	2	38.5	19.3	0.0073
LCO	SAWYER	ROUND L	3054	LMB	4	4	65	16.3	0.0013
LCO	SAWYER	SAND L	928	LMB	1	1	17.9	17.9	0.0011
LCO	TAYLOR	CHEQUAMEGON WATERS FL	2714	LMB	2	2	30	15.0	0.0007
LDF	VILAS	CLEAR L	555	LMB	4	4	67.3	16.8	0.0072
STC	WASHBURN	LONG L	3290	LMB	1	1	14.2	14.2	0.0003
STC	WASHBURN	MIDDLE MCKENZIE L	530	LMB	4	4	57.9	14.5	0.0075
STC	WASHBURN	SHELL L	2580	LMB	2	2	37.1	18.6	0.0008
Total:			39405		97	97	1494.0	15.4	0.0062
STC	BURNETT	SAND L	962	SMB	11	11	183.6	16.7	0.0114
LCO	CHIPPEWA	OTTER L	661	SMB	1	1	15.3	15.3	0.0015
MLK	FLORENCE	HALSEY L	512	SMB	1	1	15.9	15.9	0.0020
LDF	ONEIDA	BEARSKIN L	400	SMB	4	4	66.7	16.7	0.0100
MLK	ONEIDA	BIG FORK L	690	SMB	1	1	17.2	17.2	0.0014
LCO	SAWYER	ROUND L	3054	SMB	3	3	55.3	18.4	0.0010
MLK	VILAS	TWIN L CHAIN	3430	SMB	1	1	18.8	18.8	0.0003
STC	WASHBURN	MIDDLE MCKENZIE L	530	SMB	1	1	13.3	13.3	0.0019
STC	WASHBURN	SHELL L	2580	SMB	5	5	84.6	16.9	0.0019
Total:			12819		28	28	470.7	16.8	0.0035
BRV	BAYFIELD	NAMEKAGON L	3227	NOP	1	1	20.8	20.8	0.0003
STC	BURNETT	BIG MCKENZIE L	1185	NOP	2	2	43.8	21.9	0.0017
STC	BURNETT	YELLOW L	2287	NOP	1	1	21.1	21.1	0.0004
MLK	FOREST	L METONGA	1991	NOP	1	1	25.8	25.8	0.0005
MLK	FOREST	PINE L	1670	NOP	1	0			0.0006
LDF	ONEIDA	MINOCQUA L	1360	NOP	2	0			0.0015
MLK	ONEIDA	PLANTING GROUND L	1012	NOP	1	1	16.4	16.4	0.0010
LDF	ONEIDA	TWO SISTERS L	719	NOP	3	0			0.0042
LCO	SAWYER	GRINDSTONE L	3111	NOP	2	2	56.4	28.2	0.0006
LCO	SAWYER	ROUND L	3054	NOP	6	6	188.9	31.5	0.0020
BRV	VILAS	MAMIE L	400	NOP	1	1	17.2	17.2	0.0025
BRV	VILAS	TENDERFOOT L	437	NOP	3	3	63.2	21.1	0.0069
LDF	VILAS	WILD RICE L	379	NOP	4	4	91.7	22.9	0.0106
STC	WASHBURN	SHELL L	2580	NOP	1	1	37.5	37.5	0.0004
Total:			23412		29	23	582.8	25.3	0.0024

Appendix H. Number of bass per inch group (largemouth and smallmouth) taken during spring spearing seasons from 1985-1999.

Inch Group	Number of bass in:															Percent of Total	
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		15 Year Total
5																0	0.0%
6										1						1	0.0%
7			1							2						3	0.1%
8			2													2	0.1%
9	1	1	1													7	0.3%
10			2													15	0.6%
11			8													50	2.1%
12			16													174	7.4%
13			43													351	15.0%
14			33													456	19.5%
15			25													401	17.2%
16			30													307	13.1%
17			20													207	8.9%
18	1		15													170	7.3%
19	1		7													114	4.9%
20			5													53	2.3%
21	1		2													17	0.7%
22			1													5	0.2%
23			1													1	0.0%
24																0	0.0%
25																3	0.1%
Total No. Measured:	17	39	210	144	111	215	144	112	198	256	185	152	145	283	126	2,337	100%
Total Length:	255	602	3,199	2,275	1,694	3,246	2,165	1,708	3,002	3,931	2,881	2,315	2,245	4,440	1,982	35,941	
Average Length:	15.0	15.4	15.2	15.8	15.3	15.1	15.0	15.3	15.2	15.4	15.6	15.2	15.5	15.7	15.7	15.4	
Total No. Spared:	21	39	275	167	113	219	147	136	201	261	187	160	145	290	126	2,487	
Percent Measured:	81.0%	100.0%	76.4%	86.2%	98.2%	98.2%	98.0%	82.4%	98.5%	98.1%	98.9%	95.0%	100.0%	97.6%	100.0%	94.0%	

Appendix I. Number of northern pike per inch group taken during spring spearing seasons from: 1985-1999.

Inch Group	Number of northern pike in:															Percent of Total	
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		15 Year Total
10																0	0.0%
11																0	0.0%
12																2	0.5%
13																1	0.2%
14																1	0.2%
15																3	0.7%
16																3	0.7%
17																10	2.4%
18																14	3.4%
19																19	4.6%
20																27	6.6%
21																29	7.1%
22																36	8.8%
23																30	7.3%
24																29	7.1%
25																21	5.1%
26																24	5.9%
27																14	3.4%
28																25	6.1%
29																16	3.9%
30																14	3.4%
31																17	4.1%
32																15	3.7%
33																11	2.7%
34																10	2.4%
35																7	1.7%
36																9	2.2%
37																5	1.2%
38																7	1.7%
39																5	1.2%
40																4	1.0%
41																2	0.5%
Total No. Measured:	0	12	28	45	14	32	40	18	19	29	28	26	35	61	23	410	100%
Total Length:	0	312	724	1,152	334	776	986	453	527	792	744	693	987	1,660	583	10,721	
Average Length:	NA	26.0	25.9	25.6	23.9	24.2	24.6	25.2	27.7	27.3	26.6	26.7	28.2	27.2	25.3	26.1	
Total No. Speared:	2	13	41	59	14	34	41	30	19	30	32	30	37	68	29	479	
Percent Measured:	0.0%	92.3%	68.3%	76.3%	100.0%	94.1%	97.6%	60.0%	100.0%	96.7%	87.5%	86.7%	94.6%	89.7%	79.3%	85.6%	

