



**Open Water Spearing and Netting in  
Northern Wisconsin by Chippewa Indians  
During 1991**

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## ABSTRACT

For the seventh consecutive spring, spear fishing was conducted by Chippewa tribes in off-reservation waters of northern Wisconsin. Although summer gill netting did occur during 1991, no fall spearing took place as in 1989.

A total of 393 tribal members participated in spearing during spring 1991. Spearing occurred on 159 lakes. Walleye were harvested from all except 11 lakes. A total of 23,469 fish was taken; 98% of the catch (23,018 fish) was walleye. The numbers of other gamefish harvested were 185 muskellunge, 147 bass, 41 northern pike, and 2 trout. Average lengths were 15.7 inches for walleye and 36.4 inches for muskellunge. For the first time, fyke netting occurred. One net was set overnight and 100 walleye were taken from Clear Lake (Vilas County). The tribal walleye quota was exceeded on five lakes by a total of 25 fish. Except for these five instances, harvest of walleye and muskellunge was maintained within the established limits by a nightly permit system and by complete monitoring of the catch.

Summer gill-netting occurred on 7 dates during July and one date in September. The mesh size used was either 3.0 or 3.5 inches (stretched measured), and the length of net per set ranged from 220 to 600 feet. A total of 305 fish was caught from 4 lakes, of which 181 or 59% were walleye, the targeted species. Of the four muskellunge caught, two were released. Average length of walleye was 15.39 inches; overall CPE (number per 100 feet of net) was 6.3 and ranged from 0.00 to 28.62 per set.

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## INTRODUCTION

This report presents data for harvest and effort by Chippewa spearmen in ceded territory waters of northern Wisconsin (Figure 1) during spring 1991. In 1989 two other seasonal fisheries occurred in off-Reservation waters for the first time since recognition of treaty fishing rights: fall spearing and summer gill netting. Although summer gill netting did occur in 1991, fall spearing did not materialize as in 1989. Only spring spearing occurred in 1990.

## 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 operated the same as in 1988, 1989, and 1990. 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 GLIFWC wardens and biologists. A set of instructions for collecting biological data was provided to creel clerks at a training meeting about two weeks 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 totalled and reported by 9 a.m. the following day to GLIFWC in Odanah. These data were then transmitted to tribal and WDNR representatives by 10 a.m. and used to update walleye and muskellunge TQ's. At the same time, tribal representatives notified GLIFWC of the lakes and bag limits selected for spearing that night. Harvest was reported daily in newspapers throughout Wisconsin.

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

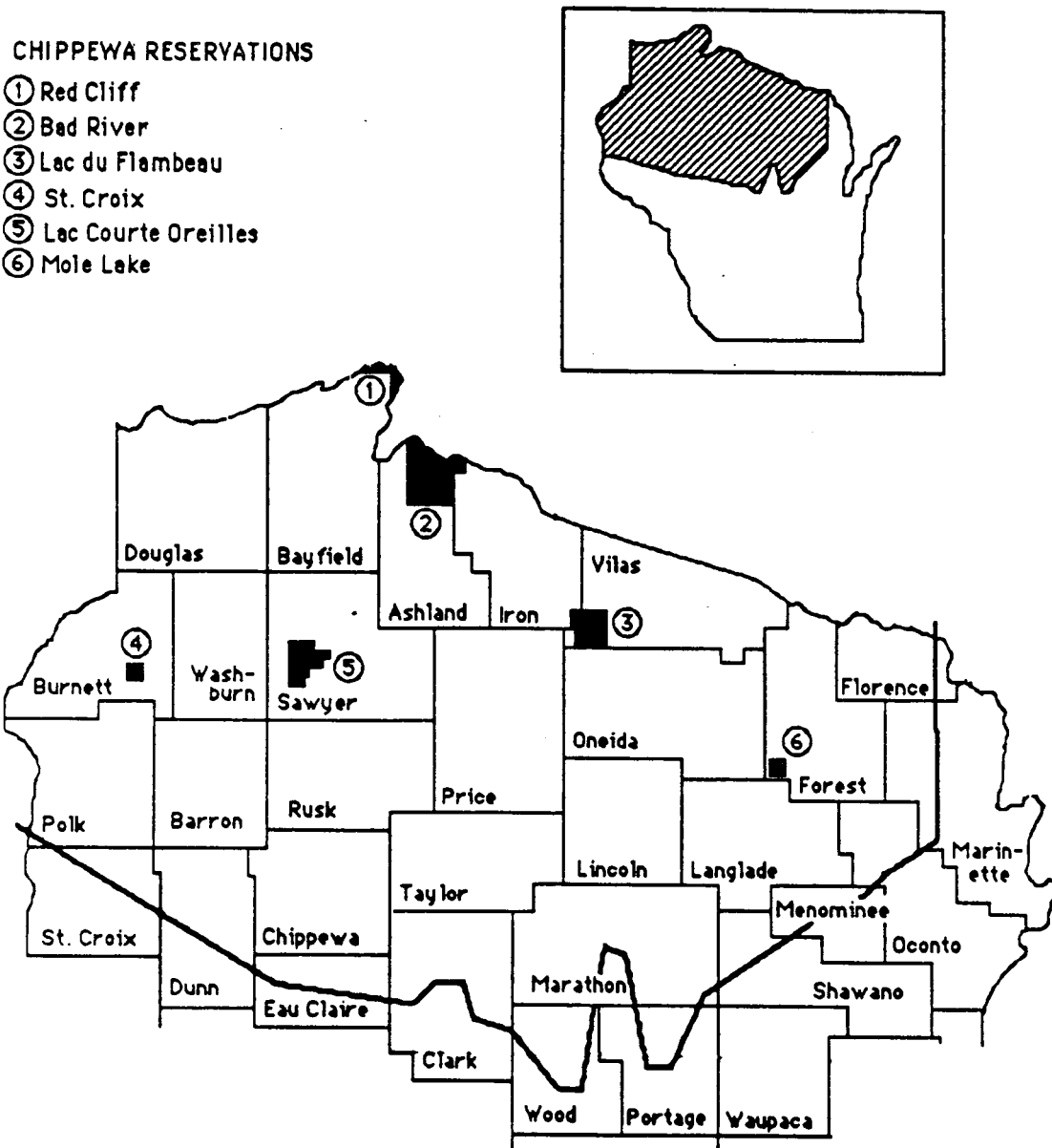


Figure 2. Off-Reservation Treaty Fishing Permit used during the 1991 open-water season.

28	29	30	31	Month _____	1	2	3	4	5	
27	Off-Reservation Treaty Fishing Permit							N <sup>o</sup>	1445	6
	<input type="checkbox"/>	Spearing	<input type="checkbox"/>	Fyke Netting						
26	<input type="checkbox"/>	Seining	<input type="checkbox"/>	Gill Netting						
25	Tribal ID Number _____ of _____ Reservation									
	Signature of Permittee: _____									
24	Issued by: _____ of _____ Reservation									
23	Water: _____ County: _____									
	Bag Limit: Walleye _____ Muskellunge _____									
22	Other Restrictions: _____									
21	20	19	18	17	16	15	14	13	12	

**FRONT**

<b>Spearing Times:</b>		<b>Number of:</b>	
Starting _____		Walleye per boat _____	
Ending _____		Musky per boat _____	
<b>WALLEYE LENGTHS</b>			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**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 spearers, the number of spearer-nights, and the number of boat-hours.

**Number of spearers.** As in previous years, all tribal members spearing under permits issued by each tribe were counted as an individual spearer for that tribe, regardless of whether the spearer was an enrolled member of the tribe issuing permits.

A total of 393 tribal members participated in the 1991 spring spear fishery (Table 1, Appendix A). Eight of these individuals speared under the permit system of two tribes and thus, were counted twice. Seven of these persons were enrolled at Lac du Flambeau, one at Mille Lacs. No individuals speared under three or more permit systems.

All persons spearing on lakes selected by Lac du Flambeau, Mole Lake, and Red Cliff were members of these tribes (137, 50, and 47 persons, respectively). Of the 65 persons spearing on lakes selected by St. Croix, 21 were members of another tribe (1 from Lac Courte Oreilles, 5 from Lac du Flambeau, and 15 from Mille Lacs). On lakes selected by Bad River, 5 of 38 spearers were enrolled at Lac du Flambeau. Two persons from Mille Lacs and one from Bad River were included in the 56 members spearing under permits issued by Lac Courte Oreilles.

The number of spearers was greater than in 1989 and 1990 but remained lower than in 1987 and 1988 (Table 1, Figure 3). Compared to 1990 the total number of spearers increased only slightly by 12 persons or 3%.

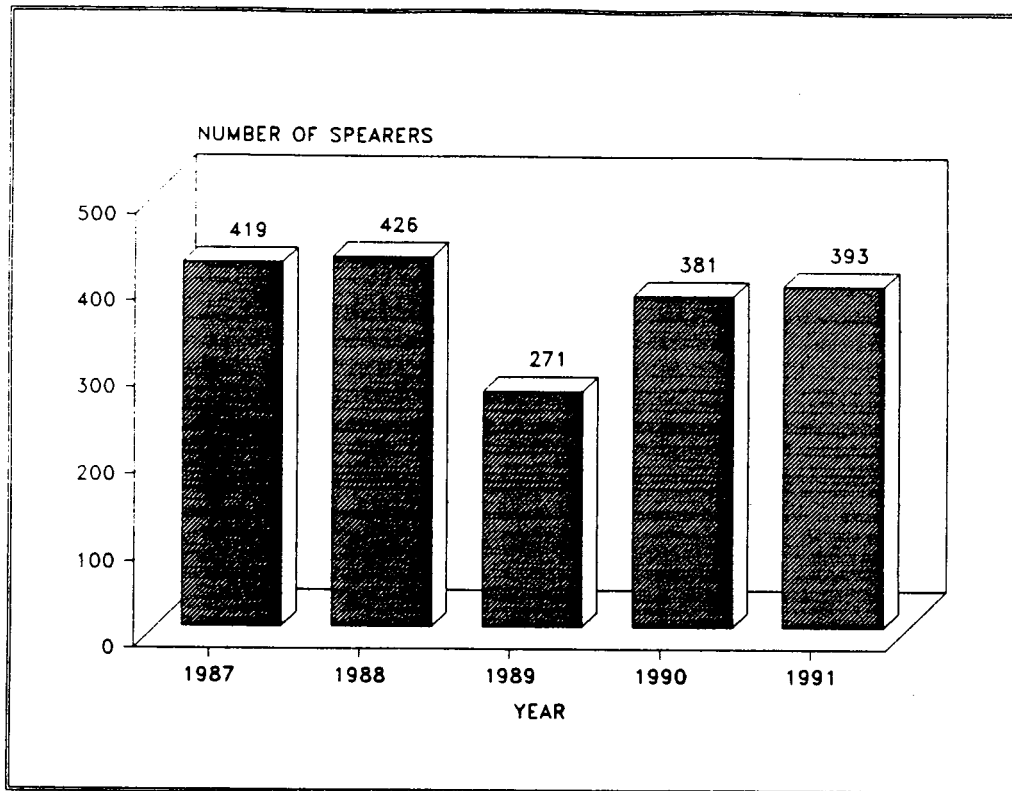
Table 1. Number of spearers on lakes selected by six Wisconsin Chippewa bands during spring spearing 1988-1991.

TRIBE ISSUING PERMITS	NUMBER OF SPEARERS:				PERCENT CHANGE: 1990-1991
	1988	1989	1990	1991	
BAD RIVER	35	27	46	38	-17%
LAC COURTE OREILLES *	48	30	43	56	30%
LAC DU FLAMBEAU	200	118	142	137	-4%
MOLE LAKE	63	31	46	50	9%
RED CLIFF	14	23	40	47	18%
ST CROIX **	66	42	64	65	2%
TOTAL:	426	271	381	393	3%

\* = INCLUDES MEMBERS FROM MILLE LACS TRIBE - 1 IN 1990 AND 2 IN 1991.

\*\* = INCLUDES MEMBERS FROM MILLE LACS TRIBE - 7 IN 1988, 8 IN 1989, 11 IN 1990, AND 15 IN 1991.

Figure 3. Number of spearers during spring spearing seasons from 1987-1991



**Number of Spearer-nights or Permits Used.** In last year's 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 number of permits used.

A total of 1571 spearer-nights were recorded during spring 1991 (Table 2, Appendix B). Roughly one-third of this effort (605 spearer-nights or 39%) occurred on lakes selected by Lac du Flambeau. Spearer-nights on lakes selected by the other five tribes ranged from 151 at Bad River to 238 at St Croix.

Spearer-night effort in 1991 was higher than any of the previous years except in 1990 when participation was highest (Figure 4). Compared to 1990 (1,615 spearer-nights), effort decreased by only 44 spearer-nights or 3% (Table 2).

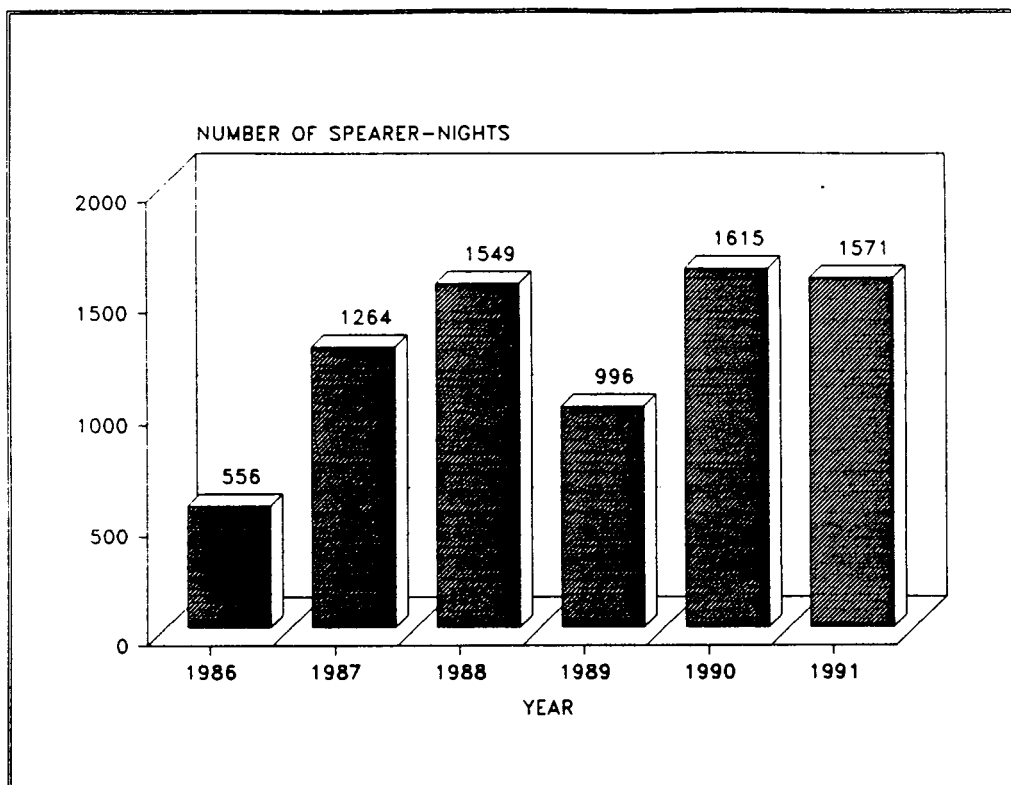
Table 2. Number of spearer-nights on lakes selected by six Wisconsin Chippewa bands during spring 1988-1991.

TRIBE ISSUING PERMITS	NUMBER OF SPEARER-NIGHTS:				PERCENT CHANGE: 1990-1991
	1988	1989	1990	1991	
BAD RIVER	64	70	174	151	-13%
LAC COURTE OREILLES *	165	109	116	216	86%
LAC DU FLAMBEAU	788	429	751	605	-19%
MOLE LAKE	249	120	221	201	-9%
RED CLIFF	37	100	124	160	29%
ST CROIX **	246	168	229	238	4%
<b>TOTAL:</b>	<b>1549</b>	<b>996</b>	<b>1615</b>	<b>1571</b>	<b>-3%</b>

\* = INCLUDES SPEARER-NIGHTS FOR MILLE LACS TRIBE: 2 IN 1990 AND 3 IN 1991.

\*\* = INCLUDES SPEARER-NIGHTS FOR MILLE LACS TRIBE - 22 IN 1988, 29 IN 1989, 35 IN 1990, AND 45 IN 1991.

Figure 4. Number of spearer-nights during spring spearing seasons from 1986-1991.



**Number of Boat-Hours.** A total of 2287 boat-hours of effort were recorded in 1991 (Table 3, Figure 5, Appendix B). Compared to 1990, number of boat-hours increased by 14%. Roughly one-third of this effort (704 boat-hours) occurred on lakes selected by Lac du Flambeau. Boat-Hours on lakes selected by the other five tribes ranged from 226 at Red Cliff to 444 at St. Croix.

Table 3. Number of spearer boat-hours on lakes selected by six Wisconsin Chippewa bands during spring spearing from 1988-1991.

TRIBE ISSUING PERMITS	NUMBER OF BOAT-HOURS:				PERCENT CHANGE: 1990-1991
	1988	1989	1990	1991	
BAD RIVER	172.9	134.8	253.6	287.6	13%
LAC COURTE OREILLES *	247.0	121.5	150.7	283.4	88%
LAC DU FLAMBEAU	1093.7	364.1	786.5	703.7	-11%
MOLE LAKE	393.2	155.4	297.8	343.7	15%
RED CLIFF		109.2	181.4	225.5	24%
ST CROIX **	333.8	209.6	338.4	443.6	31%
TOTAL:	2240.6	1094.6	2008.4	2287.5	14%

\* = INCLUDES EFFORT FOR MILLE LACS TRIBE IN 1990 AND 1991.

\*\* = INCLUDES EFFORT FOR MILLE LACS TRIBE IN ALL FOUR YEARS.

Boat-hour effort was completely recorded in 1991. For all tribes combined, a total of 718 interviews were conducted and boat-hour effort was noted for all tribes. The average length of a trip was 3.2 boat-hours (Table 4).

Figure 5. Number of boat-hours of effort during spring spearing seasons from 1986-1991.

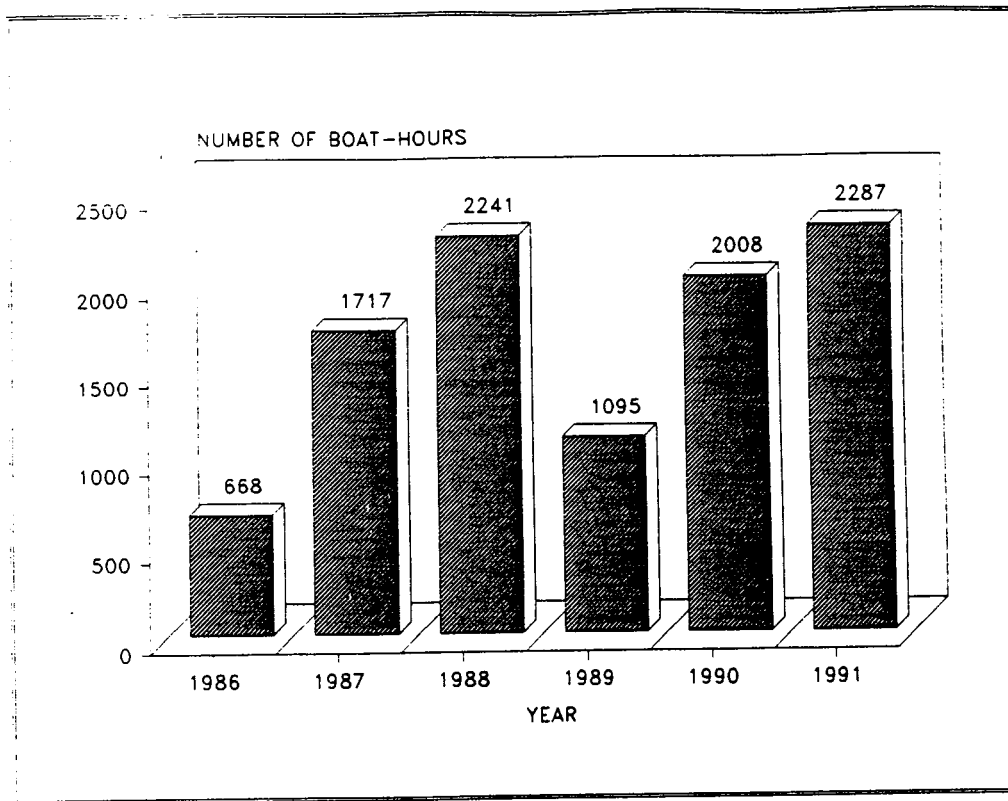


Table 4. Number of interviews and average length of spearing trip (in boat-hours) during spring 1991.

TRIBE ISSUING PERMITS	NUMBER OF INTERVIEWS:		1991 BOAT- HOURS (C)	AVERAGE LENGTH OF TRIP:		
	WITH EFFORT (A)	WITHOUT EFFORT (B)		1989	1990	1991 (C/A)
BAD RIVER	74	0	287.6	4.1	3.3	3.9
LAC COURTE OREILLES *	96	0	283.4	2.4	2.8	3.0
LAC DU FLAMBEAU	252	0	703.7	2.5	2.7	2.8
MOLE LAKE	89	0	343.7	2.6	3.1	3.9
RED CLIFF	80	0	225.5	2.5	3.5	2.8
ST CROIX *	127	0	443.6	2.7	3.1	3.5
TOTAL:	718	0	2287.5	2.7	3.1	3.2

\* = INCLUDES EFFORT FOR MILLE LACS TRIBE.

**Total Harvest**

Fourteen taxa of fish were harvested during the 1991 spring spear fishery (Table 5). Of the 23,469 fish taken, 98% were walleye. Percentages of the total catch for other game fish species were 0.8% for muskellunge, 0.6% for bass, and 0.2% for northern pike. Also, one brown trout was speared. Other species combined (panfish and rough fish) totalled 77 fish and made up the remaining 0.3% of the harvest.

Table 5. Number of various fish species harvested during spearing seasons from 1985-1991.

TAXA	NUMBER OF FISH							7 YEAR TOTAL
	1985	1986	1987	1988	1989	1990	1991	
Walleye	2,761	6,940	21,321	25,969	16,054	25,348	23,018	121,411
Muskellunge	86	55	196	158	118	303	185	1,101
Bass sp.	21	39	275	167	113	3	3	621
Largemouth Bass						167	130	297
Smallmouth Bass						49	14	63
Northern Pike	2	13	41	59	14	34	41	204
Lake Sturgeon	1		6	2	1	3		13
Trout sp.			2		1	2	1	6
Rock Bass	12	3	1	23	9	20	4	72
Crappie sp.		9	22	47	27	87	31	223
Bluegill	2	2	8	9	3	6	1	31
Yellow Perch				17	13	25	8	63
Bullhead sp.	1	1	4	2	3	5		16
Sucker sp.	27	15	48	21	31	72	28	242
Carp	1		1	1		1	1	5
Burbot				1	3	7	1	12
Bowfin				1	2	2	3	8
Cisco					2			2
Total:	2,914	7,077	21,925	26,477	16,394	26,134	23,469	124,390

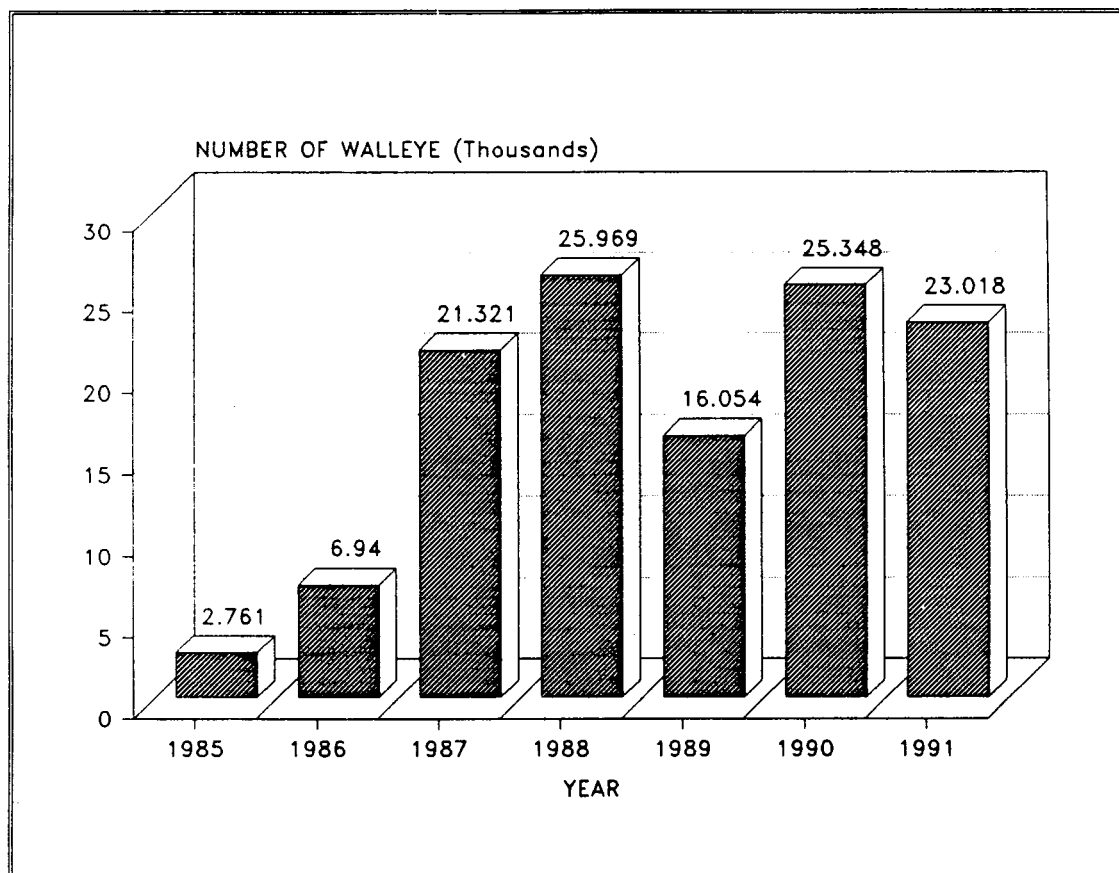
## Walleye Harvest

Tribal walleye quotas (TQ's) were selected for 204 lakes and totalled 39,090 walleye. Respective values declared in the two previous years were: 178 lakes and 41,373 walleye in 1990; 254 lakes and 43,801 walleye in 1989. The percent of the "safe harvest" selected as tribal quotas for lakes in 1991 ranged from 6.93% to 59.94%. Two tribes selected the same lake in 18 instances and agreed on various inter-tribal allocation formulas to keep the TQ within the selected percentage. One lake, Gordon in Ashland County, was selected by three tribes.

Tribal spearers harvested a total of 22,918 walleye from 148 lakes (Appendix B). Among these 148 lakes, an additional 100 walleye were taken from Clear Lake in Vilas County with a fyke net set for one night. Spearing effort was noted on 11 other lakes but no walleye were taken.

Harvest in 1991 (23,018) was lower than in 1990 and 1988 but higher than harvest during the four other years. Overall, 58.9% of the total walleye TQ was harvested in 1991 compared to 61.3% in 1990 and 36.6% in 1989.

Figure 6. Number of walleye harvested during spring spearing seasons from 1985-1991.

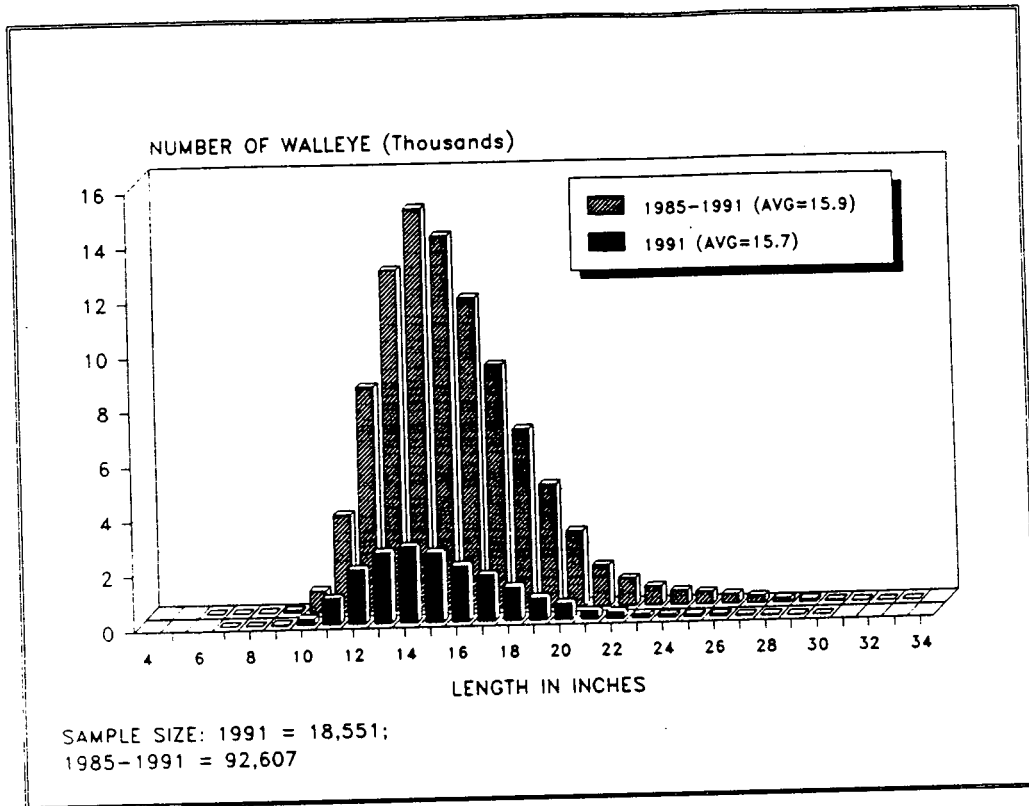




**Mean length.** A total of 18,551 walleye (81% of the catch) were measured in 1991 (Appendix C). Average length (15.7 inches) was slightly less than the average in 1987 (15.9 inches), 1988 (15.8 inches), 1989 (16.0 inches), and 1990 (15.9 inches) (Appendix D). Size restrictions have been identical during these five seasons, i.e. 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. Average length was highest in 1985 (16.3 inches) when regulations allowed one fish 20 inches and larger to be harvested and lowest in 1986 (15.5 inches) when one walleye of 20-24 inches and no walleye over 24 inches could be taken.

For the 7 spring spearing seasons combined, 76% of the walleye harvest has been measured (92,067 of 121,411 fish) (Figure 7; Appendix D). Average length for this 7 year sample was 15.9 inches. Also, 8.4% of the walleye (7,776 fish) were 20 inches or larger and 1.5% (1,343 fish) were 25 inches or larger.

Figure 7. Length frequency of walleye speared during 1991 and during the seven year period 1985-1991.



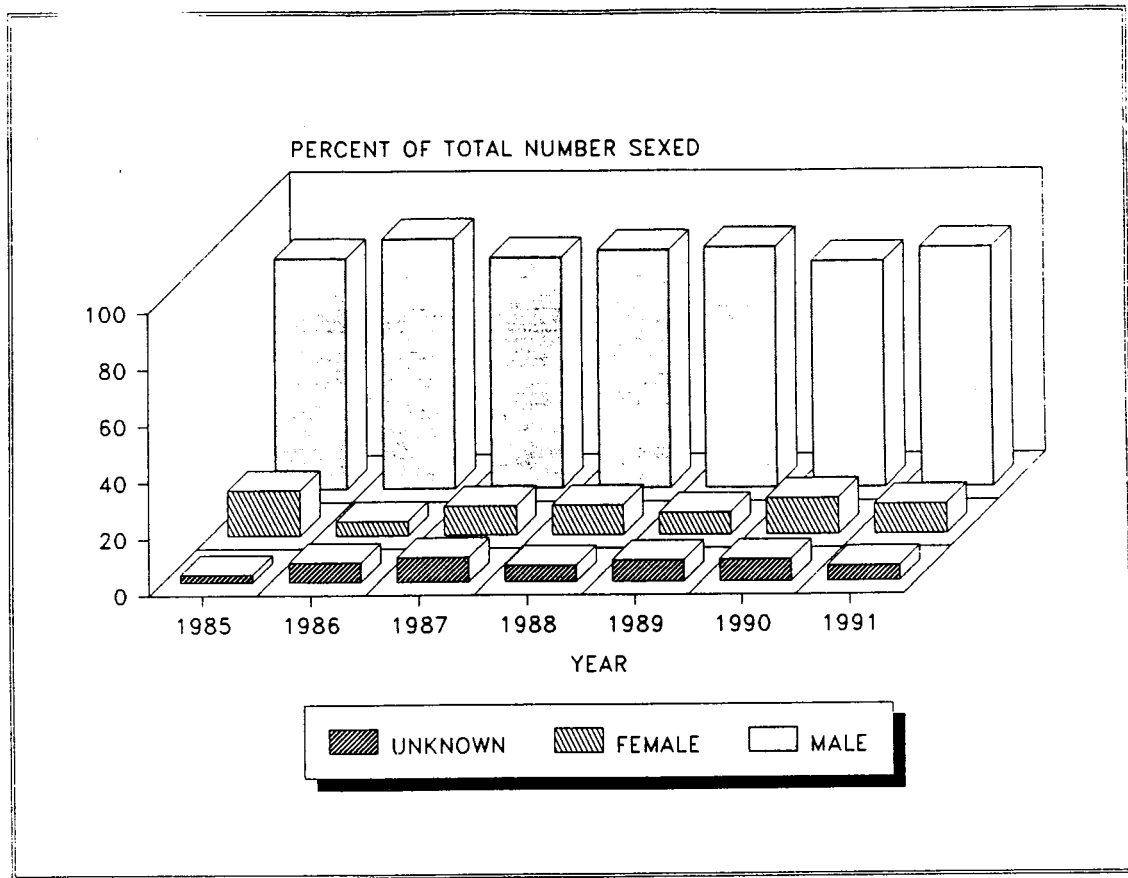
**Sex Composition of Catch.** The majority of walleye measured in 1991 were male: 15,626 of 18,551 fish or 84.2% (Table 6). Females (1,926 fish) comprised 10.4% of the measured harvest, while those whose sex could not be determined (999 fish) made up 5.4%. Males made up 89.0% of sexable fish.

For the 7 spring spearing seasons combined, a total of 91,595 walleye have been sexed (Table 6, Figure 8). Of these, 83.0% were male, 10.1% were female, and 6.9% were of undetermined or unknown sex. Factors which influence the number of males and females speared were described by Kmiecik and Shively (1990).

Table 6. Number and percent of walleye that were sexed and were male, female, or unknown sex during spring spearing seasons from 1985-1991.

WALLEYE	YEAR:							7 YEAR TOTAL
	1985	1986	1987	1988	1989	1990	1991	
HARVESTED NUMBER	2,761	6,940	21,321	25,969	16,054	25,348	23,018	121,411
SEXED								
NUMBER	856	6,842	14,224	19,368	13,254	18,500	18,551	91,595
PERCENT	31.0%	98.6%	66.7%	74.6%	82.6%	73.0%	80.6%	75.4%
MALE								
NUMBER	696	6,013	11,539	16,193	11,222	14,693	15,626	75,982
PERCENT	81.3%	87.9%	81.1%	83.6%	84.7%	79.4%	84.2%	83.0%
FEMALE								
NUMBER	138	356	1,456	2,033	1,030	2,342	1,926	9,281
PERCENT	16.1%	5.2%	10.2%	10.5%	7.8%	12.7%	10.4%	10.1%
UNKNOWN								
NUMBER	22	473	1,229	1,142	1,002	1,465	999	6,332
PERCENT	2.6%	6.9%	8.6%	5.9%	7.6%	7.9%	5.4%	6.9%

Figure 8. Sex composition of the walleye harvest during spring seasons from 1985-1991.



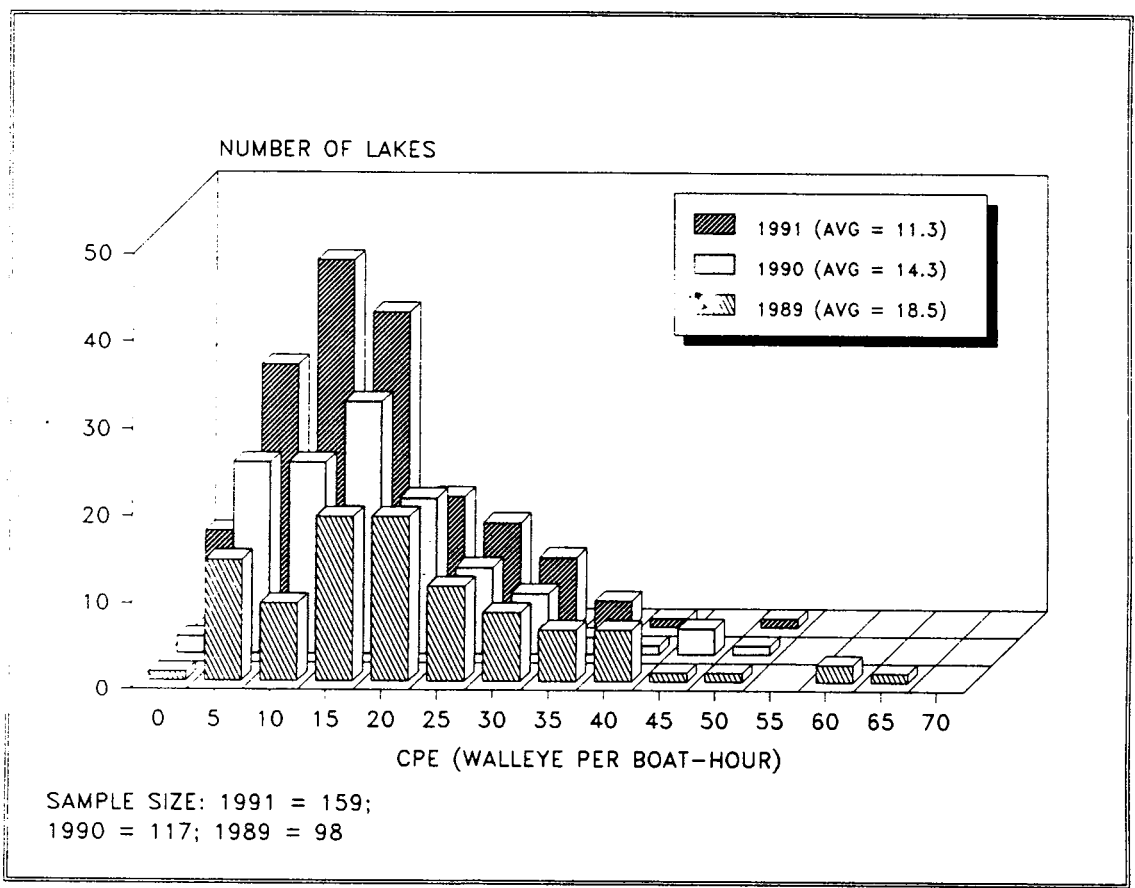
**Catch per effort (CPE).** In 1991 a total of 2,287 boat-hours of spearing was recorded in which 22,918 walleye were caught (100 walleye taken in a fyke net were excluded from the total and the following statistic). Overall catch per effort was 10.0 walleye per boat-hour (Appendix B).

Catch rates for the 159 lakes speared in 1991 ranged from 0.0 to 46.5 and averaged 11.3 (Appendix B, Figure 9). Respective statistics for the four previous years were:

<u>Year</u>	<u>Number of lakes</u>	<u>Range</u>	<u>Average</u>
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

(Biological Issues Group 1988, Kmiecik and Shively 1990, Kmiecik 1991).

Figure 9. Walleye CPE (number per boat-hour) by lake during spring spearing seasons from 1989-1991.



## Muskellunge Harvest

A total of 185 muskellunge were speared from 55 lakes during spring 1991 (Figure 10, Appendix E1). This harvest represented 14.9% of the combined tribal muskellunge quota of 1,240 fish selected for 155 lakes. During the 1990 season, 26.4% of the combined quota (1,148 fish) declared for 136 lakes was harvested (Kmiecik 1991). In 1989, 9.7% of the combined quota (1,221 fish) selected for 184 lakes was taken (Kmiecik and Shively 1990).

The number of muskellunge harvested from each of these 55 lakes ranged from 1 to 17 fish (Appendix E1). Ten or more muskellunge were taken from 5 lakes while 1-3 fish were speared in 42 lakes. In addition, the number of muskellunge harvested per surface-acre of water averaged 0.0038 and ranged from 0.0006 to 0.0157. No muskellunge were speared from the other 100 lakes.

Lengths of the 185 measured muskellunge averaged 36.4 inches (range: 17.8-50.1 inches (Appendix F, Figure 11)). During the seven spring seasons combined, 1,061 of 1,101 speared muskellunge have been measured. Average length for this sample of fish was 36.2 inches (range: 13.5-53.0 inches).

Of the measured catch in 1991, 16% (30 of 185 muskellunge) were less than 32 inches while 7% (13 fish) were 45 inches and larger. For the 1,061 muskellunge measured from 1985-1991, 208 fish or 20% of the sample were less than 32 inches; 71 fish or 7% were 45 inches and larger (Appendix F).

The number of muskellunge per spearer averaged 0.47 for all tribes combined. In other words, 47 muskellunge were taken for every 100 spearers. The number per spearer was 0.47 in 1987, 0.37 in 1988, 0.44 in 1989, and 0.80 in 1990 (Kmiecik and Shively 1989, 1990, Kmiecik 1991).

For individual tribes, the number per spearer was higher for Lac du Flambeau (0.74) and Lac Courte Oreilles (0.59) compared to the other 4 tribes (range: 0.11-0.38).

Catch per boat-hour in 1991 averaged 0.08 muskellunge. The number per boat hour was 0.11 in 1987, 0.07 in 1988, 0.11 in 1989, and 0.15 in 1990.

Figure 10. Number of muskellunge harvested during spring spearing seasons from 1985-1991.

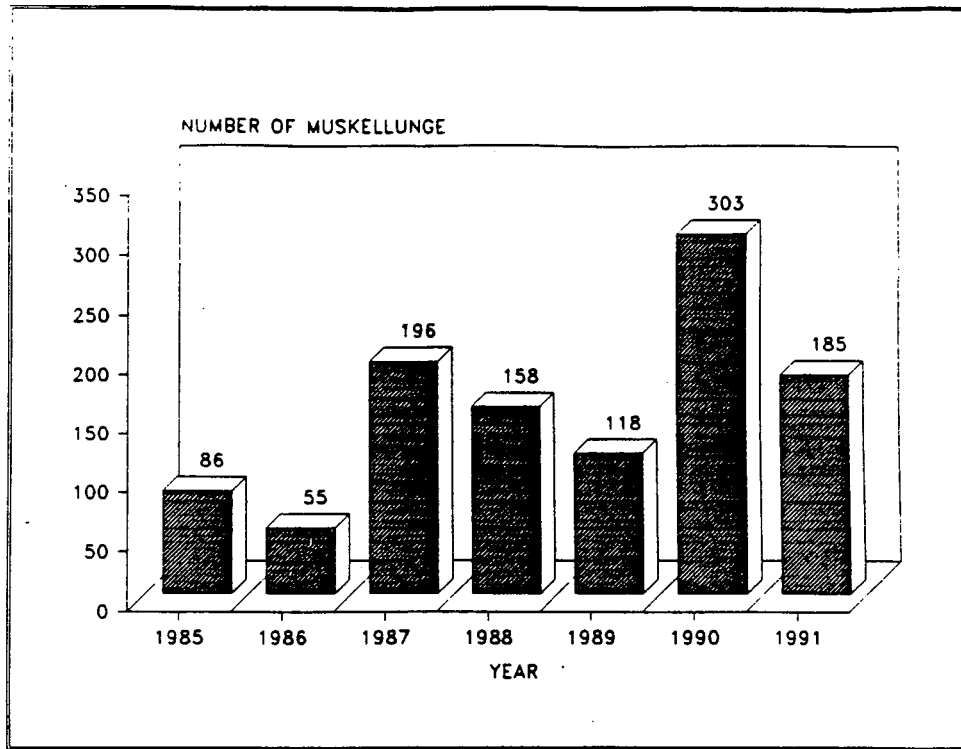
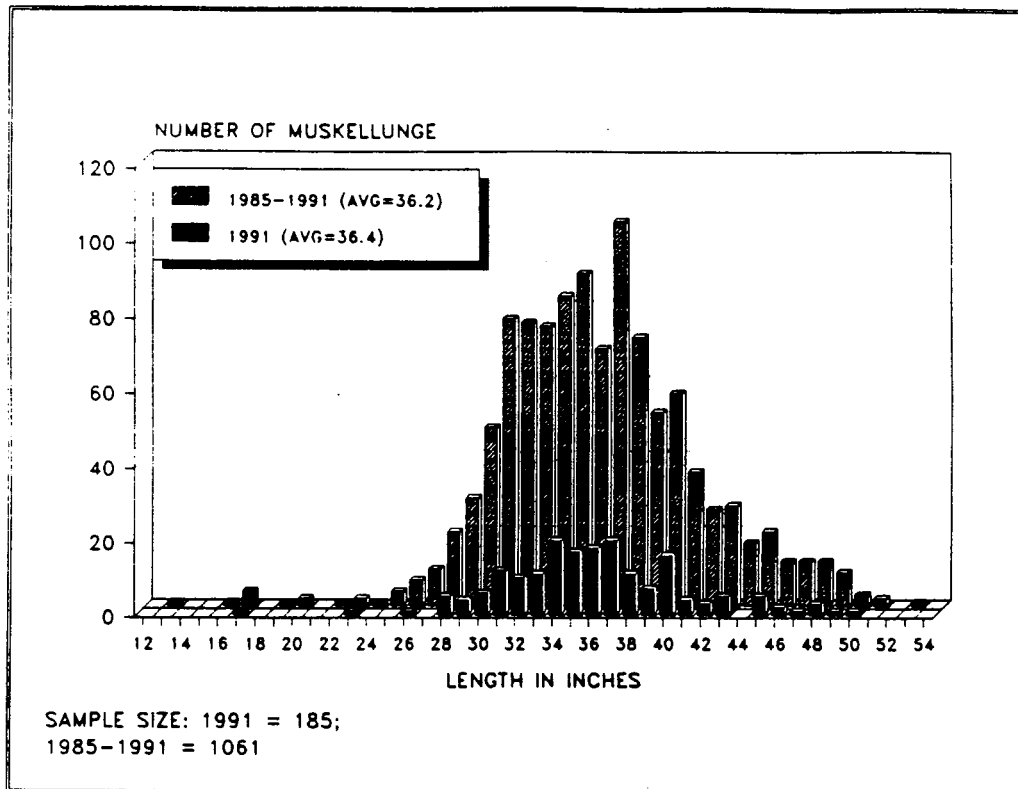


Figure 11. Length-frequency of muskellunge speared during 1991 and during the seven year period 1985-1991.



## Bass Harvest

A total of 147 bass was harvested from 23 lakes in 11 counties (Appendix E2). Species was recorded for 144 bass. A total of 130 largemouth bass were taken from 14 lakes in 8 counties and averaged 14.9 inches. Ten or more largemouth were speared from 2 lakes while 5 or less were taken from 9 lakes. The number harvested per surface acre of water averaged 0.0092 bass (range: 0.0011-0.0690).

A total of 14 smallmouth bass were speared from 7 lakes in 4 counties. Average length was 15.7 inches. Fewer than 5 fish were taken from all but one lake, Butternut in Forest County, where 7 were speared. The number harvested per surface acre averaged 0.0010 bass (range: 0.0003-0.0054).

Lengths of 144 measured bass ranged from 9.5-22.5 inches (Figure 13) and averaged 15.0 inches (Appendix G). Average lengths during the 6 previous seasons (1985-1990) were 15.0, 15.4, 15.2, 15.8, 15.3, and 15.1 inches, respectively. Of the 981 bass speared during the seven spearing seasons combined, 880 have been measured (Appendix G). Average length for this sample was 15.3 inches.

The majority of bass (117 fish or 80% of the total) were taken from 8 lakes speared by St. Croix. St. Croix members also speared the majority of bass in the four other years when more than 100 were harvested: 76% in 1987, 75% in 1988, 78% in 1989, and 82% in 1990 (Kmiecik and Shively 1989, 1991).

For all tribes combined the number of bass per spearer was 0.37 in 1991 compared to 0.66 in 1987, 0.39 in 1988, 0.42 in 1989, and 0.57 in 1990 (Kmiecik and Shively 1989, 1990, Kmiecik 1991). For individual tribes CPE (bass per spearer) was highest for St. Croix (1.8), as was the case during the four previous seasons (3.33 in 1987, 2.12 in 1988, 2.10 in 1989, and 2.8 in 1990). Catch per spearer for the other five tribes ranged from 0.0 to 0.28 bass.

The combined tribal catch rate for bass in 1991 was 0.06 bass per boat-hour compared to 0.14 in 1987, 0.07 in 1988, 0.10 in 1989, and 0.11 in 1990. Bass per boat-hour for St. Croix spearers was 0.26 in 1991, lower than any of the four previous seasons (0.72 in 1987, 0.43 in 1988, 0.42 in 1989, and 0.53 in 1991).

Figure 12. Number of bass harvested during spring spearing seasons from 1985-1991.

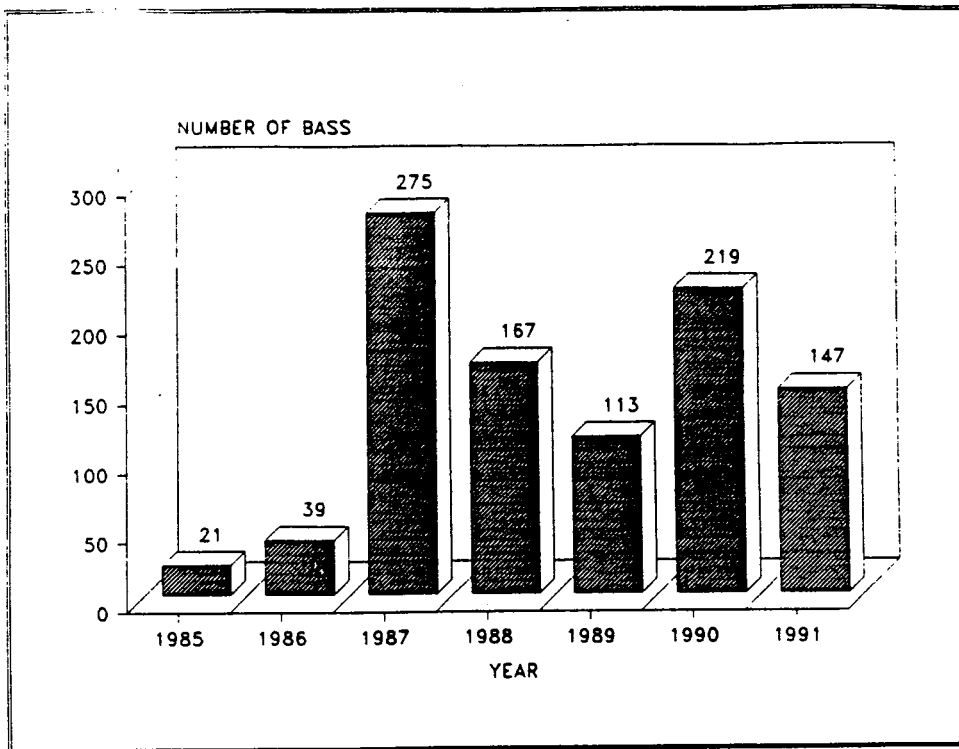
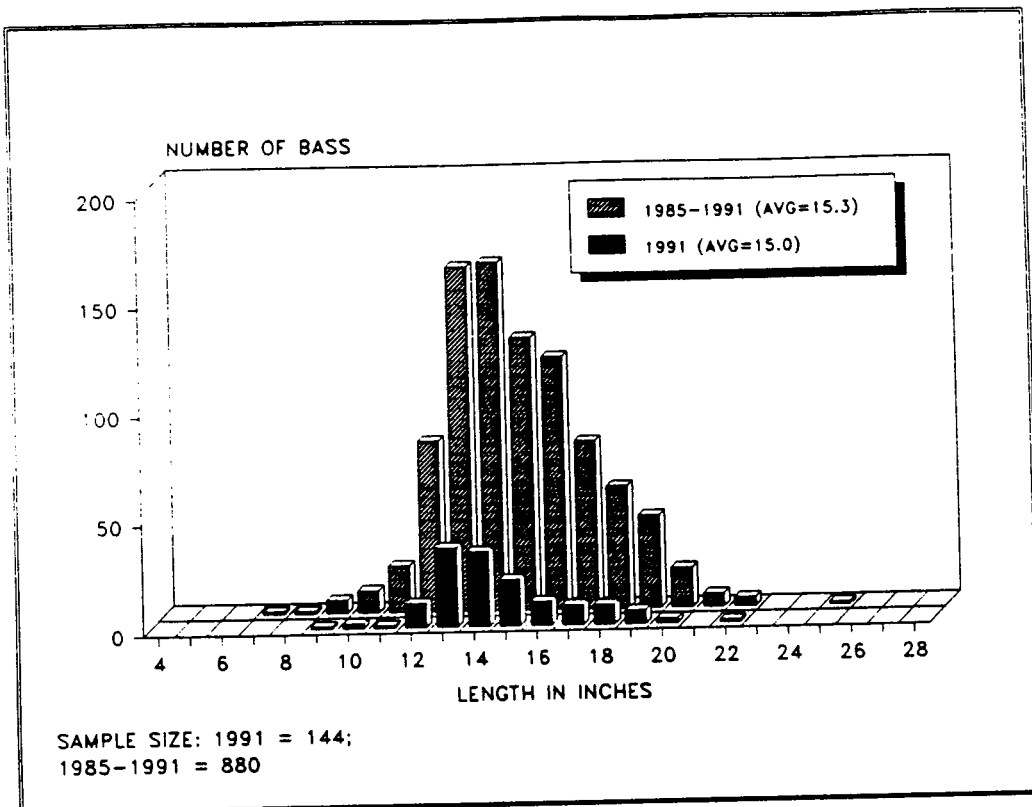


Figure 13. Length-frequency for bass taken during 1991 and during the seven year period 1985-1991.





### Northern Pike Harvest

A total of 41 northern pike were harvested from 25 lakes in 14 counties (Appendix E2). The number speared per lake never exceeded six fish. Both Mole Lake and St. Croix spearers harvested northern pike from 7 lakes taking 14 and 13 fish, respectively. Catch per surface acre of water averaged 0.0012 (range: 0.0003-0.0072).

Length of 40 measured northern pike ranged from 17.9-40.0 inches and averaged 24.6 inches (Appendix H, Figure 15). During the seven spring seasons combined a total of 204 northern pike have been speared (Appendix H). Of these, 171 were measured and length averaged 25.0 inches. Harvest of pike continues to be incidental and an insignificant component of the fishery.

Figure 14. Number of northern pike taken during spring spearing seasons from 1985-1991.

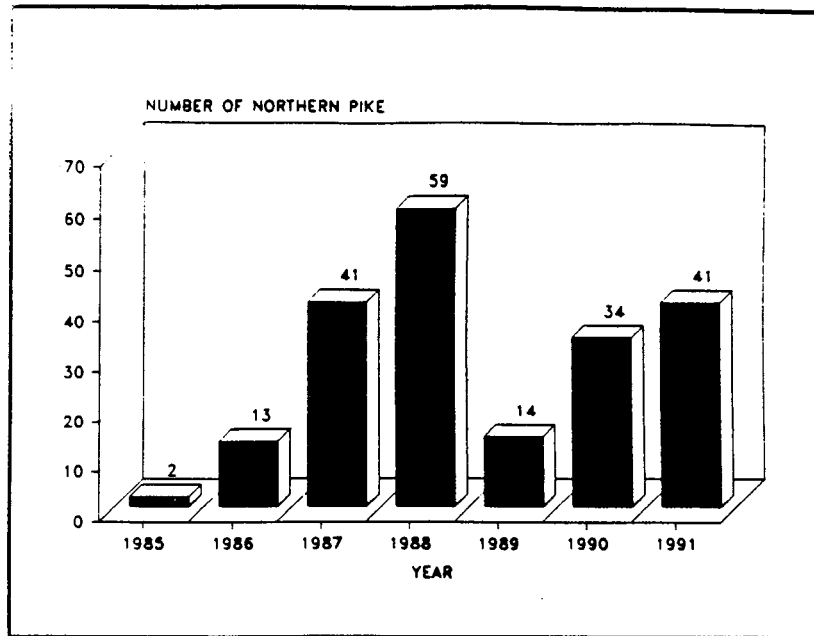
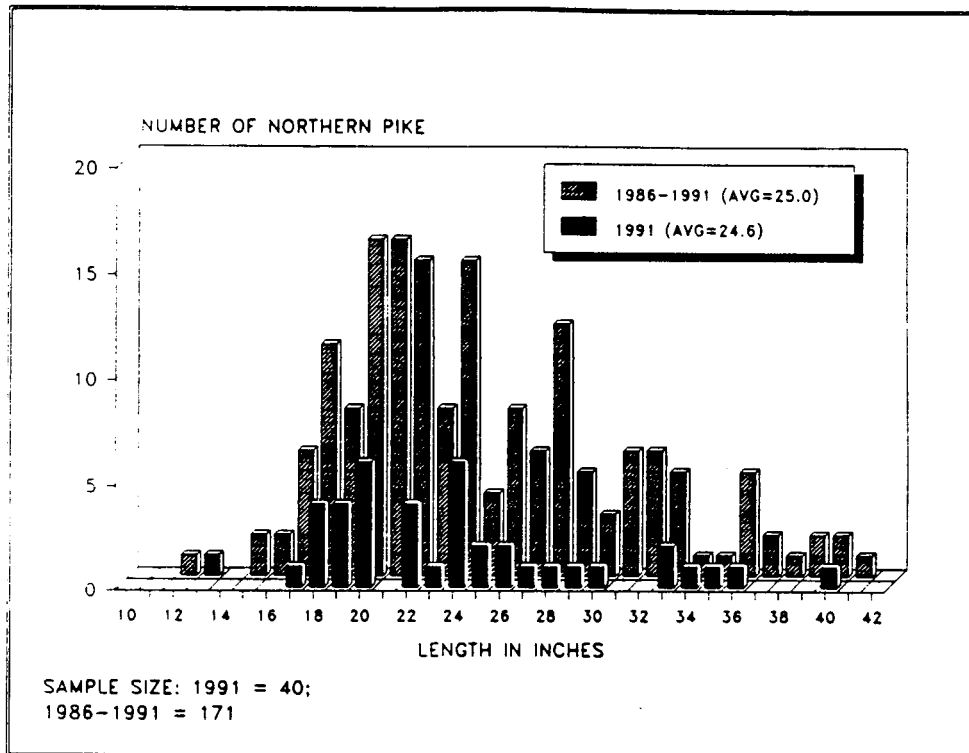


Figure 15. Length frequency of northern pike speared during 1991 and during the six year period 1986-1991.

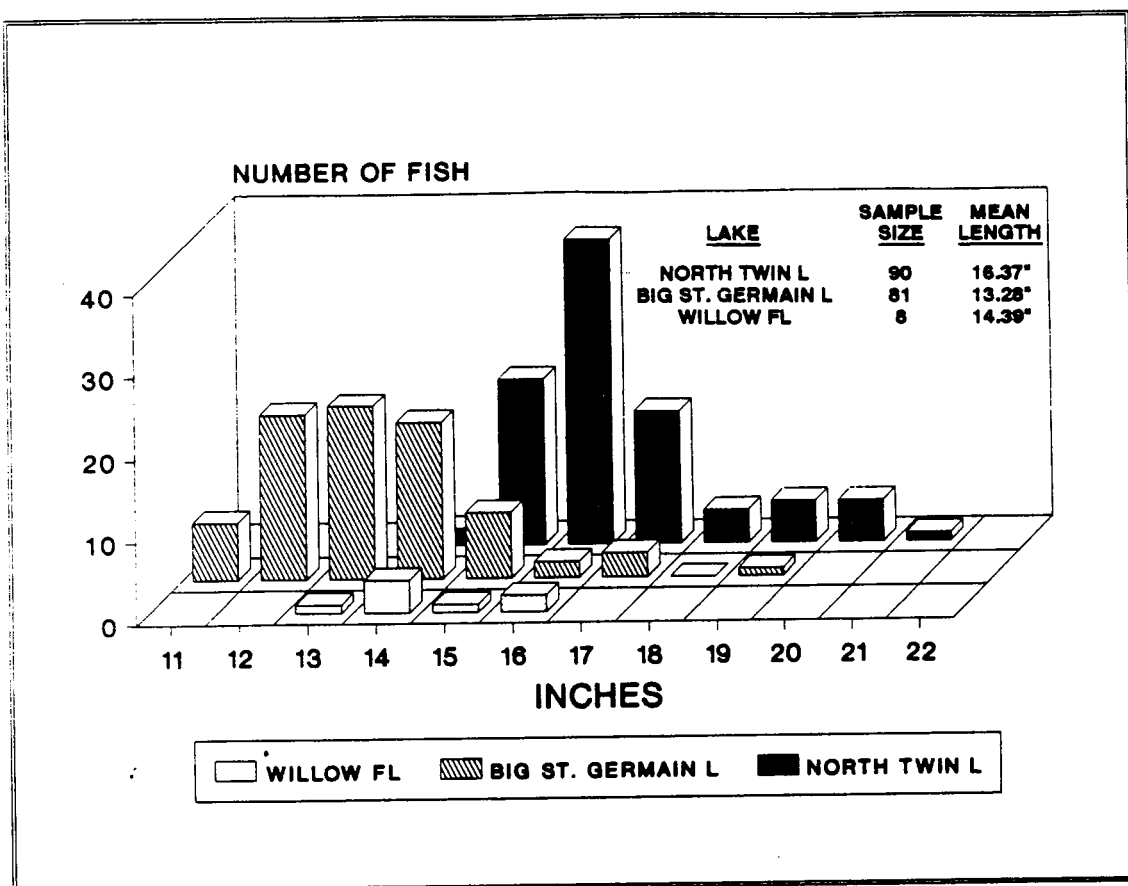


**SUMMER GILL-NETTING**

Gill-net permits were issued on 7 dates during July and one in September to persons from the Lac du Flambeau tribe (Appendix I). North Twin Lake (Vilas County) was netted for four nights, Island Lake (Vilas County) for two nights, and one night each at Willow Flowage (Oneida County) and Big St. Germain Lake (Vilas County). Mesh size (stretch) used for all lakes was 3.0 inches except for North Twin Lake (3.5 inches) (Appendix I).

A total of 181 walleye, the targeted species, was caught from three lakes; no walleye were caught in Island Lake. CPE (number of walleye per 100 feet) per night ranged from 0.00 (Island Lake) to 28.62 (Big St. Germain Lake) and averaged 6.3. Lengths of walleye ranged from 11 to 21.4 inches (Figure 16) and averaged 15.38 inches. Mean length per lake ranged from 13.28 to 16.37 inches and fell outside the predicted or targeted range at Big St. Germain and North Twin Lakes (Appendix I).

Figure 16. Length frequency of walleye taken during summer gill-netting in 1989.



Incidental catch of other species included 51 cisco, 35 yellow perch (1 released), 15 suckers (7 released), 7 rock bass, 5 bullhead (all released), 4 muskellunge (2 released), and 2 northern pike (1 released). No species other than cisco were caught at Island Lake in Vilas County where 49 were netted. Mean length was 11.54 inches and CPE (number per 100 feet) was 8.45. Two other cisco were caught in Big St. Germain Lake.

A total of 33 yellow perch was taken from Big St. Germain Lake. Mean length was 9.24 inches with CPE (number per 100 feet) at 11.28 (Appendix I).

## ACKNOWLEDGMENTS

The authors extend 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:

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We are grateful to Leanne Thannum for her 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.

The patience and humor of tribal members during the nightly counting and measuring of fish is recognized with a Meegwitch.

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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 1991 spring spear fishery.

NUMBER OF NIGHTS	BANDS						TOTAL	PERCENT OF TOTAL
	BAD RIVER	LCO	LDL	MOLE LAKE	RED CLIFF	ST. CROIX		
1	12	20	41	16	22	22	133	33.8%
2	9	14	25	6	9	15	78	19.8%
3	4	1	16	6	5	3	35	8.9%
4	1	6	7	4	1	7	26	6.6%
5	2	6	6	5	4	2	25	6.4%
6	7	4	10	2	2	4	29	7.4%
7	2		10	6	1	2	21	5.3%
8		1	5	1	2	5	14	3.6%
9			4	2	1	3	10	2.5%
10		1	5	1			7	1.8%
11		3	3	1		1	8	2.0%
12						1	1	0.3%
13	1		1				2	0.5%
14			2				2	0.5%
15			1				1	0.3%
16							0	0.0%
17			1				1	0.3%
<b>TOTAL:</b>	<b>38</b>	<b>56</b>	<b>137</b>	<b>50</b>	<b>47</b>	<b>65</b>	<b>393</b>	





























APPENDIX D

Number of walleye per inch group taken during spring spearing seasons from 1985-1991.

INCH GROUP	NUMBER OF WALLEYE IN:							7 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991		
5									
6		1						1	0.0%
7							1	1	0.0%
8				3	1	4	4	12	0.0%
9	2	3	17	10	4	14	36	86	0.1%
10	5	49	123	121	60	183	229	770	1.0%
11	31	358	558	678	306	649	957	3537	4.8%
12	140	680	1282	1688	925	1513	1979	8207	11.1%
13	265	928	1892	2755	1684	2370	2582	12476	16.8%
14	286	1068	2133	3289	2222	2917	2777	14692	19.8%
15	293	985	1895	2951	2154	2856	2543	13677	18.5%
16	247	939	1666	2311	1919	2295	2031	11408	15.4%
17	172	801	1374	1658	1390	1862	1687	8944	12.1%
18	145	458	1113	1297	1010	1288	1216	6527	8.8%
19	118	255	811	932	634	932	811	4493	6.1%
20	33	149	513	596	328	556	590	2765	3.7%
21	25	72	259	316	210	307	303	1492	2.0%
22	18	50	148	214	109	202	249	990	1.3%
23	18	23	116	134	76	160	151	678	0.9%
24	11	9	86	124	67	100	111	508	0.7%
25	7	10	76	89	48	107	102	439	0.6%
26	9		57	75	45	71	86	343	0.5%
27	10	3	42	56	31	63	46	251	0.3%
28	5	1	28	32	18	30	39	153	0.2%
29	8		25	30	8	15	15	101	0.1%
30	11		8	9	3	5	6	42	0.1%
31	6		2		2	1		11	0.0%
32	2							2	0.0%
33	1							1	0.0%
TOTAL NO. MEASURED:	1,868	6,842	14,224	19,368	13,254	18,500	18,551	92,607	
TOTAL LENGTH:	30,382	106,051	226,789	306,926	211,645	295,047	291,543	1,468,383	
AVERAGE LENGTH:	16.3	15.5	15.9	15.8	16.0	15.9	15.7	15.9	
TOTAL NO. SPEARED:	2,761	6,940	21,321	25,969	16,054	25,348	23,018	121,411	
PERCENT MEASURED:	67.7%	98.6%	66.7%	74.6%	82.6%	73.0%	80.6%	76.3%	

## APPENDIX E1

Number, average length (in inches), and harvest per acre of muskellunge from various lakes during spring spearing in 1991.

COUNTY	LAKE	AREA	TRIBAL QUOTA	TRIBE(S)	NUMBER HARVESTED	QUOTA BALANCE	TOTAL INCHES	AVERAGE LENGTH	NUMBER PER ACRE
BARRON	SAND L	322	5	STC	1	4	36.8	36.8	0.0031
BAYFIELD	HART L (PIKE L CHAIN)	259	4	RC	3	1	109.1	36.4	0.0116
BAYFIELD	MIDDLE EAU CLAIRE L	926	9	RC	1	8	17.8	17.8	0.0011
BAYFIELD	TWIN BEAR L (PIKE L CHAIN)	172	2	RC	2	0	66.8	33.4	0.0116
BURNETT	BIG MCKENZIE L	1185	11	STC	11	0	389.1	35.4	0.0093
BURNETT	YELLOW L	2287	17	STC	10	7	369.6	37.0	0.0044
DOUGLAS	AMNICON L	426	5	RC	1	4	39.1	39.1	0.0023
IRON	LONG L	396	5	BRV	1	4	31.4	31.4	0.0025
LINCOLN	L NOKOMIS (RICE R FL CHAIN)	2433	17	LDF	6	11	210.2	35.0	0.0025
OCONTO	ARCHIBALD L	430	5	MLK	3	2	111.7	37.2	0.0070
ONEIDA	BEARSKIN L	400	5	LDF	2	3	71.9	36.0	0.0050
ONEIDA	CLEAR L	846	8	LDF	2	6	92.0	46.0	0.0024
ONEIDA	CRESCENT L	612	7	LDF	3	4	104.4	34.8	0.0049
ONEIDA	HASBROOK L	302	4	LDF	2	2	72.0	36.0	0.0066
ONEIDA	KATHERINE L	590	7	LDF	2	5	71.8	35.9	0.0034
ONEIDA	KAWAGUESAGA L	670	7	LDF	1	6	36.5	36.5	0.0015
ONEIDA	LONG L	620	6	LDF/MLK	1	5	31.7	31.7	0.0016
ONEIDA	MINOCQUA L	1360	12	LDF	2	10	67.8	33.9	0.0015
ONEIDA	PELICAN L	3585	22	LDF/MLK	17	5	624.0	36.7	0.0047
ONEIDA	PLANTING GROUND L	1012	10	MLK	2	8	64.0	32.0	0.0020
ONEIDA	RHINELANDER FL	1326	11	LDF	1	10	33.0	33.0	0.0008
ONEIDA	SPIRIT L	368	4	LDF/MLK	1	3	28.6	28.6	0.0027
ONEIDA	SQUIRREL L	1317	11	LDF	1	10	30.7	30.7	0.0008
ONEIDA	TOMAHAWK L	3392	22	LDF	7	15	256.3	36.6	0.0021
PRICE	MUSSER FL	563	6	LDF	1	5	29.0	29.0	0.0018
PRICE	PIKE L	806	8	LDF/BRV	1	7	28.6	28.6	0.0012
PRICE	ROUND L	726	8	LDF/BRV	2	6	69.6	34.8	0.0028
SAWYER	GRINDSTONE L	3111	10	LCO	3	7	112.9	37.6	0.0010
SAWYER	L CHIPPEWA	15300	37	LCO	9	28	330.1	36.7	0.0006
SAWYER	LAC COURTE OREILLES	5039	18	LCO	15	3	523.8	34.9	0.0030
SAWYER	LOST LAND L	1304	10	BRV/LCO	1	9	26.4	26.4	0.0008
SAWYER	ROUND L	3054	20	LCO	4	16	166.2	41.6	0.0013
SAWYER	TEAL L	1049	10	BRV/LCO	2	8	69.8	34.9	0.0019
SAWYER	TEAL R FL	75	1	BRV	1	0	36.0	36.0	0.0133
VILAS	BIG ARBOR VITAE L	1090	10	LDF	2	8	72.0	36.0	0.0018
VILAS	BIG L	771	6	LDF	1	5	36.1	36.1	0.0013
VILAS	BIG MUSKELLUNGE L	930	9	LDF	1	8	46.5	46.5	0.0011
VILAS	BIG ST GERMAIN L	1617	13	LDF	5	8	209.3	41.9	0.0031
VILAS	CATFISH L	1012	10	LDF	2	8	65.1	32.6	0.0020
VILAS	CLEAR L	555	6	LDF	4	2	141.9	35.5	0.0072
VILAS	HIGH L	734	8	LDF	1	7	34.6	34.6	0.0014
VILAS	KENTUCK L	957	9	MLK	2	7	77.3	38.7	0.0021
VILAS	L LAURA	599	7	LDF	1	6	35.5	35.5	0.0017
VILAS	LITTLE ARBOR VITAE L	534	6	LDF	2	4	66.8	33.4	0.0037
VILAS	LITTLE ST GERMAIN L	980	10	LDF	9	1	316.9	35.2	0.0092
VILAS	LITTLE STAR L	244	3	LDF	2	1	78.1	39.1	0.0082
VILAS	LYNX L	339	4	LDF	1	3	40.0	40.0	0.0029
VILAS	N TWIN L	2788	19	LDF	14	5	521.6	37.3	0.0050
VILAS	PALMER L	635	7	LDF	3	4	98.3	32.8	0.0047
VILAS	PRESQUE ISLE L	1280	16	LDF	1	15	42.7	42.7	0.0008
VILAS	REST L	640	7	LDF	1	6	45.5	45.5	0.0016
VILAS	S TWIN L	642	7	LDF	2	5	87.7	43.9	0.0031
VILAS	SPARKLING L	127	2	LDF	2	0	73.3	36.7	0.0157
VILAS	STAR L	1206	11	LDF	4	7	150.0	37.5	0.0033
WASHBURN	MIDDLE MCKENZIE L	530	6	STC	3	3	126.9	42.3	0.0057
TOTAL:		74473	520		185	335	6724.8		
AVERAGE:								35.9	0.0038

## APPENDIX E2

Number, average length (in inches), and harvest per acre of bass (largemouth and smallmouth) and northern pike from various lakes during spring seining 1991.

LAKE COUNT	SPECIES AND LAKE	COUNTY	AREA	NUMBER HARVESTED	TOTAL LENGTH	AVERAGE LENGTH	NUMBER PER ACRE
<b>BASS SPECIES</b>							
1	ARCHIBALD L	OCONTO	430	1	18.3	18.3	0.0023
2	LONE STONE L	ONEIDA	172	2	30.1	15.1	0.0116
		TOTAL	602	3	48.4	16.1	0.0050
<b>LARGEMOUTH BASS</b>							
1	SAND L	BARRON	322	2	N/A	0.0	0.0062
2	LONG L	BAYFIELD	263	7	102.0	14.6	0.0266
3	PIKE L CHAIN	BAYFIELD	945	1	15.0	15.0	0.0011
4	YELLOW L	BURNETT	2287	4	75.3	18.8	0.0017
5	WHEELER L	OCONTO	293	1	18.5	18.5	0.0034
6	SHISHEBOGAMA L	ONEIDA	716	1	14.8	14.8	0.0014
7	BALSAM L	POLK	2054	3	50.0	16.7	0.0015
8	BIG BUTTERNUT L	POLK	378	2	30.2	15.1	0.0053
9	BIG ROUND L	POLK	1015	70	1026.9	14.7	0.0690
10	HALFMOON L	POLK	579	28	392.6	15.1	0.0449
11	BALLARD L	VILAS	505	1	9.5	9.5	0.0020
12	KENTUCK L	VILAS	957	2	32.2	16.1	0.0021
13	LONG L	WASHBURN	3290	5	69.9	14.0	0.0015
14	MIDDLE MCKENZIE L	WASHBURN	530	5	74.2	14.8	0.0064
		TOTAL	14134	130	1913.1	14.9	0.0092
<b>SMALLMOUTH BASS</b>							
1	L NEBAGAMON	DOUGLAS	914	1	16.7	16.7	0.0011
2	BUTTERNUT L	FOREST	1292	7	115.9	16.6	0.0054
3	MINOCQUA	ONEIDA	1360	1	N/A	0.0	0.0007
4	SPIRIT L	ONEIDA	368	1	15	15.0	0.0027
5	LAC COURTE OREILLES	SAWYER	5039	2	26.5	13.3	0.0004
6	NELSON L	SAWYER	2503	1	14.1	14.1	0.0004
7	ROUND L	SAWYER	3054	1	15.4	15.4	0.0003
		TOTAL	14530	14	203.6	15.7	0.0010
<b>NORTHERN PIKE</b>							
1	SAND L	BARRON	322	1	N/A	0.0	0.0031
2	LONG L	BAYFIELD	263	1	18.3	18.3	0.0036
3	MIDDLE EAU CLAIRE	BAYFIELD	926	1	18.2	18.2	0.0011
4	PIKE L CHAIN	BAYFIELD	945	1	30.4	30.4	0.0011
5	SAND L (NORTH)	BURNETT	962	2	55.9	28.0	0.0021
6	YELLOW L	BURNETT	2287	1	22.4	22.4	0.0004
7	L MINNESUING	DOUGLAS	432	1	22.7	22.7	0.0023
8	L NEBAGAMON	DOUGLAS	914	1	17.9	17.9	0.0011
9	FAY L	FLORENCE	247	1	24.4	24.4	0.0040
10	BUTTERNUT L	FOREST	1292	6	148.7	24.8	0.0046
11	LONG L	IRON	396	1	22.5	22.5	0.0025
12	HIGH FALLS RES	MARINETTE	1496	1	18.3	18.3	0.0007
13	ARCHIBALD L	OCONTO	430	2	50.9	25.5	0.0047
14	BIG FOLK L	ONEIDA	690	1	19.9	19.9	0.0014
15	PELICAN L	ONEIDA	3586	1	33.2	33.2	0.0003
16	VIRGIN L	ONEIDA	278	2	53.1	26.6	0.0072
17	BIG BUTTERNUT L	POLK	378	1	33.2	33.2	0.0026
18	BIG ROUND L	POLK	1015	2	58.0	29.0	0.0020
19	GRINDSTONE L	SAWYER	3111	3	77.9	26.0	0.0010
20	LAC COUETR OREILLES	SAWYER	5039	2	39.8	19.9	0.0004
21	ROUND L	SAWYER	3054	1	36.1	36.1	0.0003
22	TEAL L	SAWYER	1049	1	20.2	20.2	0.0010
23	BIG ST GERMAIN L	VILAS	1617	1	35.7	35.7	0.0006
24	L NANCY	WASHBURN	772	5	103.1	20.6	0.0086
25	LONG L	WASHBURN	3290	1	24.7	24.7	0.0003
		TOTAL	34790	41	985.5	25.3	0.0012

## APPENDIX F

Number of muskellunge per inch group taken during spring spearing seasons from 1985-1991.

INCH GROUP	NUMBER OF MUSKELLUNGE IN:							7 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991		
13						1		1	0.1%
14								0	0.0%
15								0	0.0%
16			1					1	0.1%
17				3			1	4	0.4%
18								0	0.0%
19				1				1	0.1%
20			2					2	0.2%
21								0	0.0%
22						1		1	0.1%
23		1					1	2	0.2%
24		1						1	0.1%
25	1		1		1	1		4	0.4%
26				1	2	3	1	7	0.7%
27			3	3	2	2		10	0.9%
28	2		3	1	5	4	5	20	1.9%
29	2	2	7	5	3	6	4	29	2.7%
30	8	3	4	6	6	15	6	48	4.5%
31	6	3	14	9	9	24	12	77	7.3%
32	7	2	15	13	11	18	10	76	7.2%
33	3	6	12	10	8	25	11	75	7.1%
34	8	1	16	10	8	20	20	83	7.8%
35	7	7	12	10	10	26	17	89	8.4%
36	2	4	12	7	6	20	18	69	6.5%
37	8	8	17	11	10	29	20	103	9.7%
38		6	12	9	7	27	11	72	6.8%
39	2	1	10	10	6	16	7	52	4.9%
40	1	2	8	6	5	19	16	57	5.4%
41	1	2	5	9	3	12	4	36	3.4%
42	1	1	4	6	5	6	3	26	2.5%
43	2	2	3	6	3	6	5	27	2.5%
44	2		3	7		5		17	1.6%
45			4	8	2	1	5	20	1.9%
46		1	4	3		2	2	12	1.1%
47	3		2	1	2	3	1	12	1.1%
48		1	4	1	1	2	3	12	1.1%
49	1		2	1	1	3	1	9	0.8%
50	1				1		1	3	0.3%
51				1		1		2	0.2%
52								0	0.0%
53		1						1	0.1%
TOTAL NO. MEASURED:	68	55	180	158	117	298	185	1061	
TOTAL LENGTH:	2,407	1,994	6,507	5,805	4,175	10,761	6,725	38,374	
AVERAGE LENGTH:	35.4	36.2	36.2	36.7	35.7	36.1	36.4	36.2	
TOTAL NO. SPEARED:	86	55	196	158	118	303	185	1101	
PERCENT MEASURED:	79.1%	100.0%	91.8%	100.0%	99.2%	98.3%	100.0%	96.4%	



APPENDIX G

Number of bass (largemouth and smallmouth combined) taken during spring spearing seasons from 1985-1991

INCH GROUP	NUMBER OF BASS IN:							7 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991		
5								0	0.0%
6								1	0.1%
7					1			1	0.1%
8			1					1	0.1%
9	1	1	2			1	1	6	0.7%
10			2	4	1	1	2	10	1.1%
11	1	1	8		7	3	1	21	2.4%
12	2	2	16	7	10	30	11	78	8.9%
13	3	6	43	21	14	35	36	158	18.0%
14		2	33	27	17	47	34	160	18.2%
15	7	8	25	21	17	26	21	125	14.2%
16		12	30	19	19	25	11	116	13.2%
17		3	20	15	11	19	9	77	8.8%
18	1	2	15	9	4	16	9	56	6.4%
19	1		7	11	8	9	6	42	4.8%
20		1	5	7	1	2	2	18	2.0%
21	1	1	2	1		1		6	0.7%
22			1	1	1		1	4	0.5%
23								0	0.0%
24								0	0.0%
25				1				1	0.1%
TOTAL NO. MEASURED:	17	39	210	144	111	215	144	880	
TOTAL LENGTH:	255	602	3,199	2,275	1,694	3,246	2,165	13,437	
AVERAGE LENGTH:	15.0	15.4	15.2	15.8	15.3	15.1	15.0	15.3	
TOTAL NO. SPEARED:	21	39	275	167	113	219	147	981	
PERCENT MEASURED:	81.0%	100.0%	76.4%	86.2%	98.2%	98.2%	98.0%	89.7%	

APPENDIX H

Number of northern pike per inch group taken during spring spearing seasons from 1985-1991.

INCH GROUP	NUMBER OF NORTHERN PIKE IN:							7 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991		
10								0	0.0%
11								0	0.0%
12		1						1	0.6%
13				1				1	0.6%
14								0	0.0%
15			1			1		2	1.2%
16						2		2	1.2%
17		1	1	2	1		1	6	3.5%
18			1	1	1	4	4	11	6.4%
19				2	1	1	4	8	4.7%
20		2		2	5	1	6	16	9.4%
21			2	10	1	3		16	9.4%
22		2	3	2		4	4	15	8.8%
23		1	2	2		2	1	8	4.7%
24		1	3	2		3	6	15	8.8%
25			1	1			2	4	2.3%
26				5		1	2	8	4.7%
27			1	1	1	2	1	6	3.5%
28			7	2	1	1	1	12	7.0%
29				1	1	2	1	5	2.9%
30			1	1			1	3	1.8%
31			2	3		1		6	3.5%
32			3	2		1		6	3.5%
33		1			1	1	2	5	2.9%
34							1	1	0.6%
35							1	1	0.6%
36		1		2		1	1	5	2.9%
37				1	1			2	1.2%
38						1		1	0.6%
39		1		1				2	1.2%
40		1					1	2	1.2%
41				1				1	0.6%
TOTAL NO. MEASURED:	0	12	28	45	14	32	40	171	
TOTAL LENGTH:	0	312	724	1,152	334	776	986	4,283	
AVERAGE LENGTH:	N/A	26.0	25.9	25.6	23.9	24.2	24.6	25.0	
TOTAL NO. SPEARED:	2	13	41	59	14	34	41	204	
PERCENT MEASURED:	0.0%	92.3%	68.3%	76.3%	100.0%	94.1%	97.6%	83.8%	

APPENDIX I

Number of fish caught during summer 1991 by Lac du Flambeau members using 3.0 or 3.5 inch mesh (stretch) gill nets.

DATE	JULY 9	JULY 10	JULY 17	JULY 19	JULY 20	JULY 21	JULY 22	SEP 12	TOTAL
LAKE	WILLOW FL	N TWIN	N TWIN	N TWIN	BIG ST GERMAIN	ISLAND	ISLAND	N TWIN	
COUNTY	ONEIDA	VILAS	VILAS	VILAS	VILAS	VILAS	VILAS	VILAS	
AREA IN ACRES	5135	2788	2788	2788	1617	1023	1023	2788	
PRE-NETTING CALCULATIONS									
MEAN LENGTH (INCHES) OF ADULT WALLEYE IN LAKE:	16.25	16.57	16.57	16.57	15.87	14.50	14.50	16.57	
MEAN LENGTH DETERMINED BY:	SPEARING	SPEARING	SPEARING	SPEARING	SPEARING	SPEARING	SPEARING	SPEARING	
YEAR:	1991	1991	1991	1991	1991	1991	1991	1991	
REQUIRED MESH SIZE:	3.0	3.5	3.5	3.5	3.0	3.0	3.0	3.5	
PREDICTED RANGE FOR MEAN LENGTH (INCHES) OF CATCH:	13.50-16.49	16.50-18.49	16.50-18.49	16.50-18.49	13.50-16.49	13.50-16.49	13.50-16.49	16.50-18.49	
FEET OF NET SET	600	400	400	400	290	290	290	220	2890
NETTING RESULTS									
WALLEYE:									
NUMBER:	8	23	27	40	81 (2)				181
MEAN LENGTH:	14.39	16.64	16.40	16.21	13.28				15.38
CPE (Number per 100 feet):	1.33	5.75	6.75	10.00	28.62				6.30
MUSKELLUNGE:									
NUMBER:		1	(1)	1				(1)	4
MEAN LENGTH:		30.30		32.90					31.60
NORTHERNS:									
NUMBER:	1				(1)				2
YELLOW PERCH:									
NUMBER:	1 (1)				33				35
MEAN LENGTH:	10.20				9.24				9.72
CPE (Number per 100 feet):	0.33				11.28				1.21
BLACK CRAPPIE:									
NUMBER:	2 (1)								3
MEAN LENGTH:	7.65								7.65
BULLHEAD:									
NUMBER:	(5)								5
SUCKER SP:									
NUMBER:		8 (3)	1 (2)	1	*(2)				15
MEAN LENGTH:		15.02	13.80	15.80	12.40				14.28
CPE (Number per 100 feet):		2.25	0.75	0.25	0.69				0.52
BLUE GILL:									
NUMBER:				1	1				2
MEAN LENGTH:				7.50	6.10				6.80
ROCK BASS:									
NUMBER:					7				7
MEAN LENGTH:					6.99				6.99
CISCO:									
NUMBER:					2	12	37		51
MEAN LENGTH:					10.85	11.38	11.60		11.28
CPE (Number per 100 feet):					0.69	4.14	12.76		5.86

( ) = NUMBER OF FISH THAT WERE RELEASED AND NOT MEASURED.

\* ( ) = BOTH FISH WERE RELEASED BUT ONE WAS MEASURED.

NOTE THAT BOTH MEAN LENGTH AND CPE WERE NOT COMPUTED FOR NORTHERNS AND BULLHEAD.

ALSO, ONLY MEAN LENGTH WAS COMPUTED FOR MUSKELLUNGE, BLACK CRAPPIE, BLUE GILL, AND ROCK BASS.

