



Open Water Spearing in Northern Wisconsin by Chippewa Indians During 1992

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ABSTRACT

For the eighth consecutive spring, spear fishing was conducted by Chippewa tribes in off-reservation waters of northern Wisconsin. In 1989, both fall spearing and summer gill-netting occurred for the first time. During the next three years (1990-1992), summer gill-netting took place in 1991 while summer and fall spearing occurred in 1992.

A total of 345 tribal members participated in spearing during spring 1992. Spearing occurred on 155 lakes and walleye were harvested from all except 7 lakes. A total of 21,574 fish was taken with 98% of the catch (21,188 fish) being walleye. The numbers of other gamefish harvested were 165 muskellunge, 134 bass, and 28 northern pike. Average lengths were 15.1 inches for walleye and 36.1 inches for muskellunge. The tribal walleye quota was exceeded on six lakes by a total of 16 fish. Except for these six 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 spearing occurred on 2 dates during June. A total of 12 fish were taken from 2 lakes of which 10 were bass. Fall spearing occurred on 7 dates from August to October. A total of 395 fish were harvested from 5 lakes to include 385 walleye, 5 northern pike, and 5 muskellunge. Average length for walleye was 15.3 inches.

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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 1992. 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. During 1992, summer and fall spearing did occur but no gill netting took place.

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, and 1991. 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. For example, muskellunge only and bass only permits were issued during spring 1992.

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 regularly in newspapers throughout Wisconsin.

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

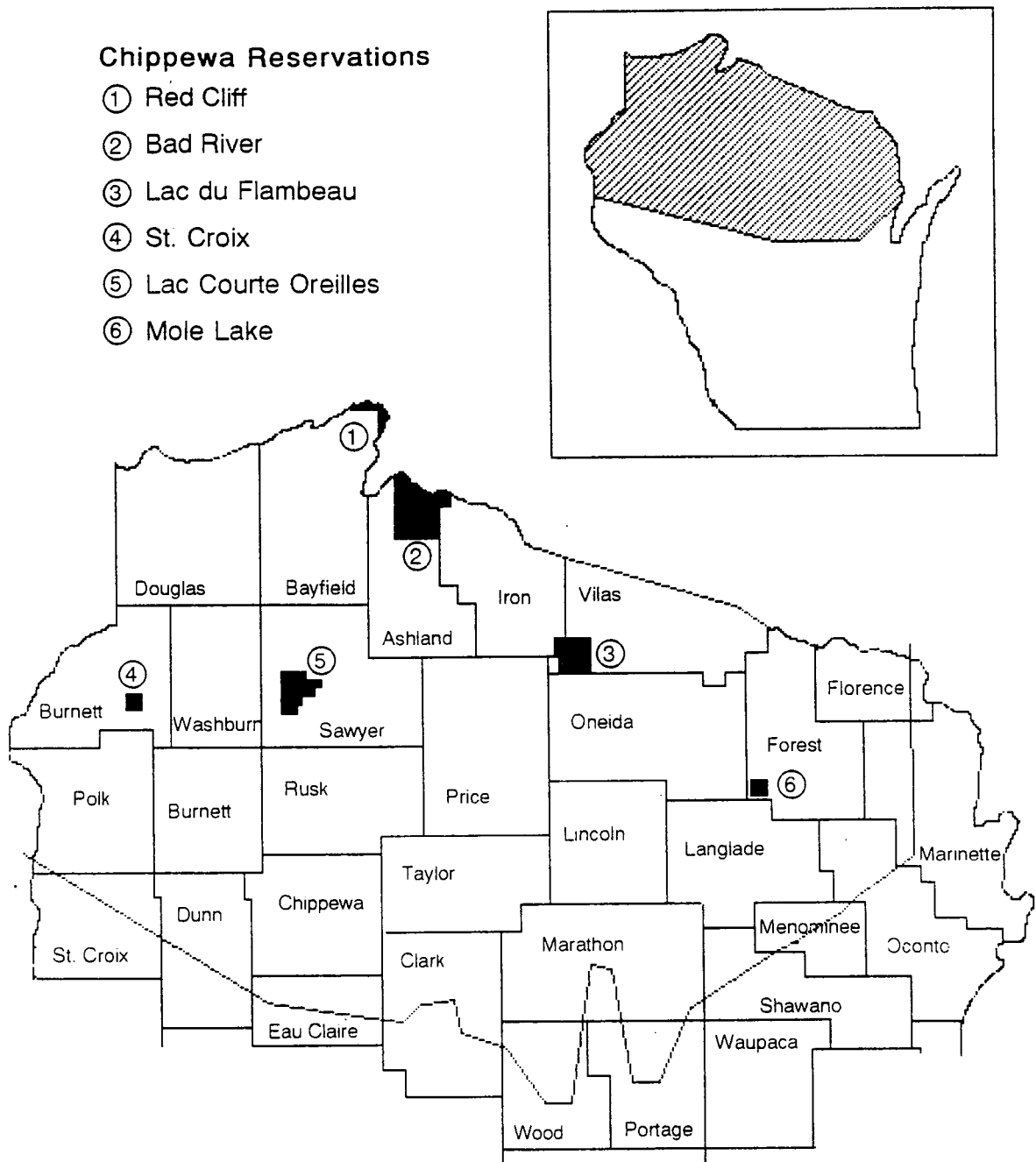


Figure 2. Off-Reservation Treaty Fishing Permit used during the 1992 open-water season.

28	29	30	31	Month _____	1	2	3	4	5	
27	Off-Reservation Treaty Fishing Permit							No	1445	6
26	<input type="checkbox"/>	Spearing	<input type="checkbox"/>	Fyke Netting						7
25	<input type="checkbox"/>	Saining	<input type="checkbox"/>	Gill Netting						8
24	Tribal ID Number _____ of _____ Reservation									
23	Signature of Permittee: _____									
22	Issued by: _____ of _____ Reservation									
21	Water: _____ County: _____									
20	Bag Limit: Walleye _____ Muskellunge _____									
19	Other Restrictions: _____									
18	17	16	15	14	13	12				

FRONT

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

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 345 tribal members participated in the 1992 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 and one at Mille Lacs. No individuals speared under three or more permit systems.

All persons spearing on lakes selected by Lac Courte Oreilles, Lac du Flambeau, and Red Cliff were members of their tribe (41, 112, and 52 persons, respectively). Of the 64 persons spearing on lakes selected by St. Croix, 20 were members of another tribe (2 from Lac Courte Oreilles, 3 from Lac du Flambeau, 1 from Red Cliff, 1 from Keweenaw Bay, and 13 from Mille Lacs). On lakes selected by Bad River, 3 of the 36 spearers were members of another tribe (2 from Red Cliff and 1 from Lac du Flambeau). Two persons from Lac Courte Oreilles were included in the 40 members spearing under permits issued by Mole Lake.

The number of spearers was lower than in 1988, 1990, and 1991 but remained higher than in 1989 when the number of spearers was lowest (Table 1, Figure 3). Compared to 1991 the total number of spearers decreased by 49 persons or 12%.

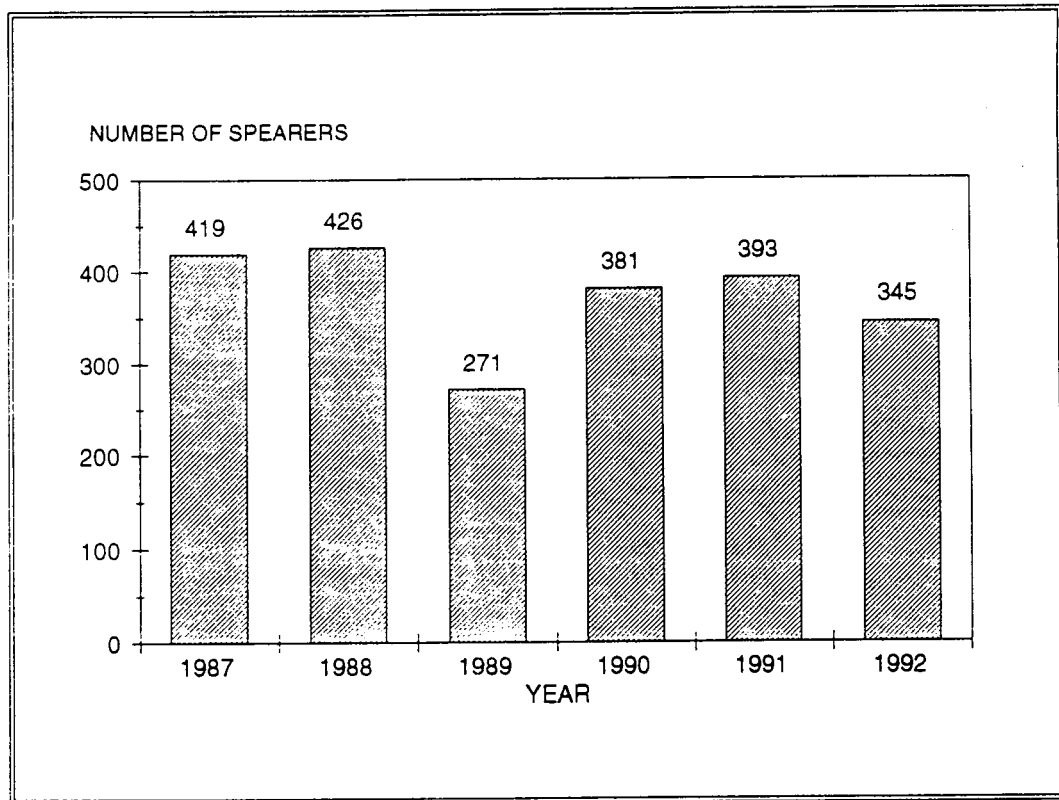
Table 1. Number of spearers on lakes selected by six Wisconsin Chippewa bands during spring spearing 1988-1992.

YEAR	BRV	LCO ¹	LDF	MLK	RCF	STC ²	TOTAL:
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
PERCENT CHANGE: 1991-1992	-5%	-27%	-18%	-20%	11%	-2%	-12%

¹ Includes members from Mille Lacs tribe: 1 in 1990 and 2 in 1991.

² Includes members from Mille Lacs tribe: 7 in 1988, 8 in 1989, 11 in 1990, 15 in 1991, and 13 in 1992.

Figure 3. Number of spearers during spring spearing seasons from 1987-1992.



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.

A total of 1,369 spearer-nights were recorded during spring 1992 (Table 2, Appendix B). Roughly one-third of this effort (512 spearer-nights or 37%) occurred on lakes selected by Lac du Flambeau. Spearer-nights on lakes selected by the other five tribes ranged from 140 at Bad River and Lac Courte Oreilles to 232 at St Croix.

Spearer-night effort in 1992 was lower than any of the previous 4 years except in 1989 (Table 2, Figure 4). Compared to 1991, effort decreased by 202 spearer-nights or 13% (Table 2).

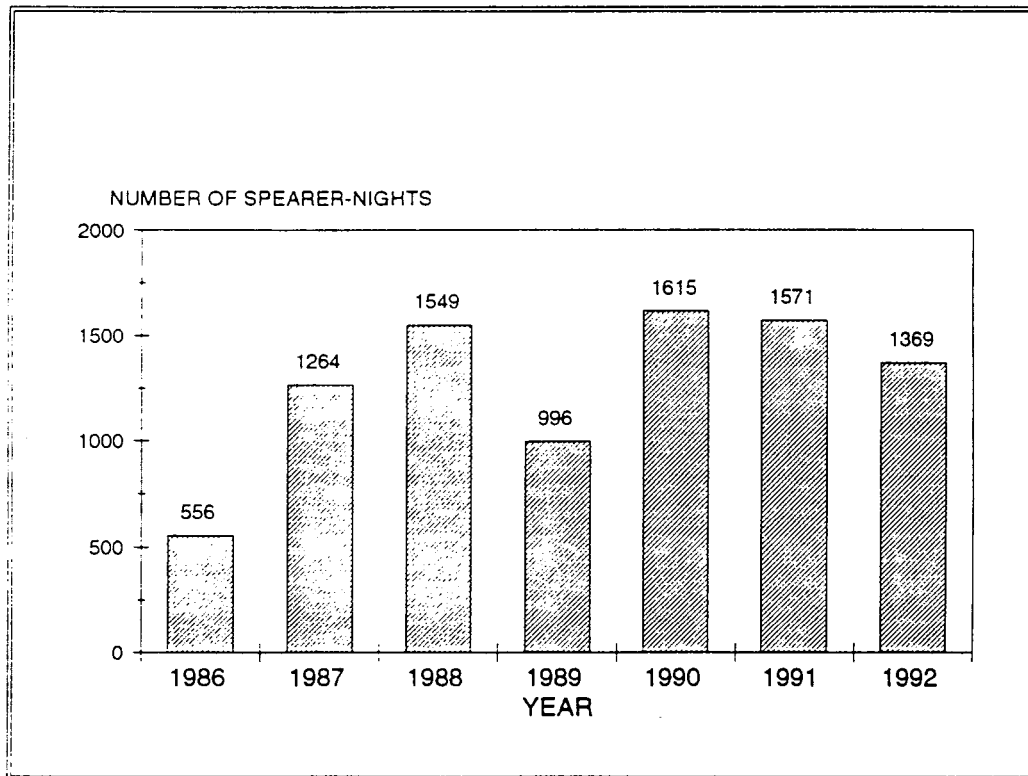
Table 2. Number of spearer-nights on lakes selected by six Wisconsin Chippewa bands during spring 1988-1992.

YEAR	BRV	LCO ¹	LDF	MLK	RCF	STC ²	TOTAL:
1988	64	165	788	249	37	246	1549
1989	70	109	429	120	100	168	996
1990	174	116	751	221	124	229	1615
1991	151	216	605	201	160	238	1571
1992	140	140	512	177	168	232	1369
PERCENT CHANGE: 1991-1992	-7%	-35%	-15%	-12%	5%	-3%	-13%

¹ Includes spearer-nights for Mille Lacs tribe: 2 in 1991 and 3 in 1991.

² Includes spearer-nights for Mille Lacs tribe: 22 in 1988, 29 in 1989, 35 in 1990, 45 in 1991, and 33 in 1992.

Figure 4. Number of spearer-nights during spring spearing seasons from 1986-1992.



Number of Boat-Hours. A total of 1558 boat-hours of effort were recorded in 1992 (Table 3, Figure 5, Appendix B). Compared to 1991, the number of boat-hours decreased by 32%. Roughly one-third of the effort (453 boat-hours) occurred on lakes selected by Lac du Flambeau. Boat-hours on lakes selected by the other five tribes ranged from 178 at Red Cliff to 281 at St. Croix.

Table 3. Number of spearer boat-hours on lakes selected by six Wisconsin Chippewa bands during spring spearing from 1988-1992.

YEAR	BRV	LCO ¹	LDF	MLK	RCF	STC ²	TOTAL:
1988	172.9	247.0	1093.7	393.2		333.8	2240.6
1989	134.8	121.5	364.1	155.4	109.2	209.6	1094.6
1990	253.6	150.7	786.5	297.8	181.4	338.4	2008.4
1991	287.6	283.4	703.7	343.7	225.5	443.6	2287.5
1992	206.2	221.3	452.5	218.3	178.4	281.3	1558.0
PERCENT CHANGE: 1991-1992	-28%	-22%	-36%	-36%	-21%	-37%	-32%

¹. Includes effort for Mille Lacs tribe in 1990 and 1991.

². Includes effort for Mille Lacs tribe in all five years.

For all tribes combined, a total of 639 interviews were conducted and effort was recorded for all except 12. For the 627 interviews with effort, average length of a trip was 2.5 boat-hours (Table 4).

Figure 5. Number of boat-hours of effort during spring spearing seasons from 1986-1992.

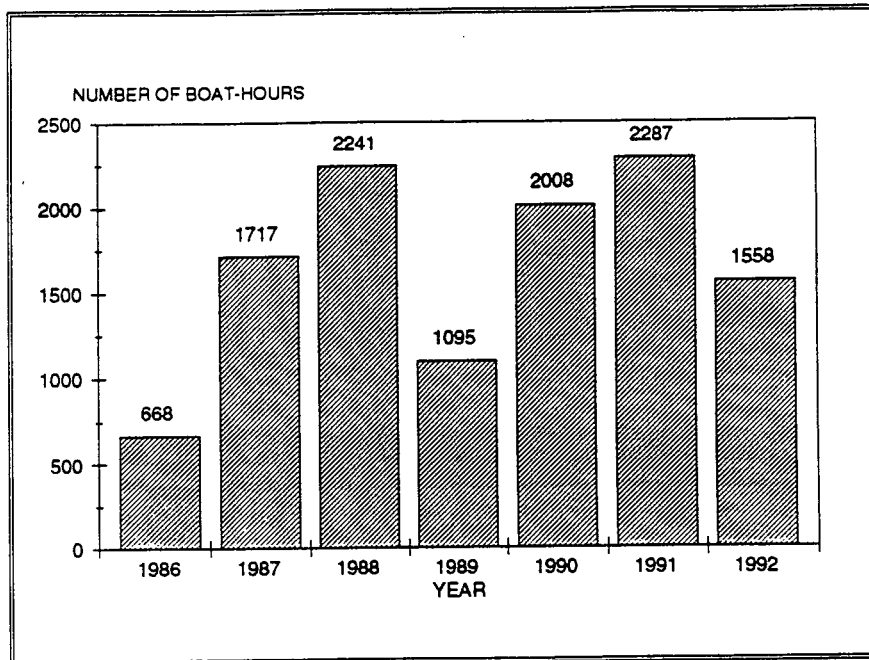


Table 4. Number of interviews and average length of spearing trip (in boat-hours) during spring 1992.

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	2.0	2.8	2.4	2.4	2.5
1992 BOAT-HOURS:	206.2	221.3	452.5	218.3	178.4	281.3	1558.0
1992 INTERVIEWS WITH EFFORT:	68	69	221	78	73	118	627
1992 INTERVIEWS WITHOUT EFFORT:	1	0	10	0	1	0	12

1. Includes effort for Mille Lacs tribe.

Total Harvest

Ten taxa of fish were harvested during the 1992 spring spear fishery (Table 5). Of the 21,574 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 0.1% for northern pike. No trout were speared in 1992. Other species combined (panfish and rough fish) totalled 59 fish and made up the remaining 0.3% of the harvest.

Table 5. Number of various fish species harvested during spring spearing seasons from 1988 -1992.

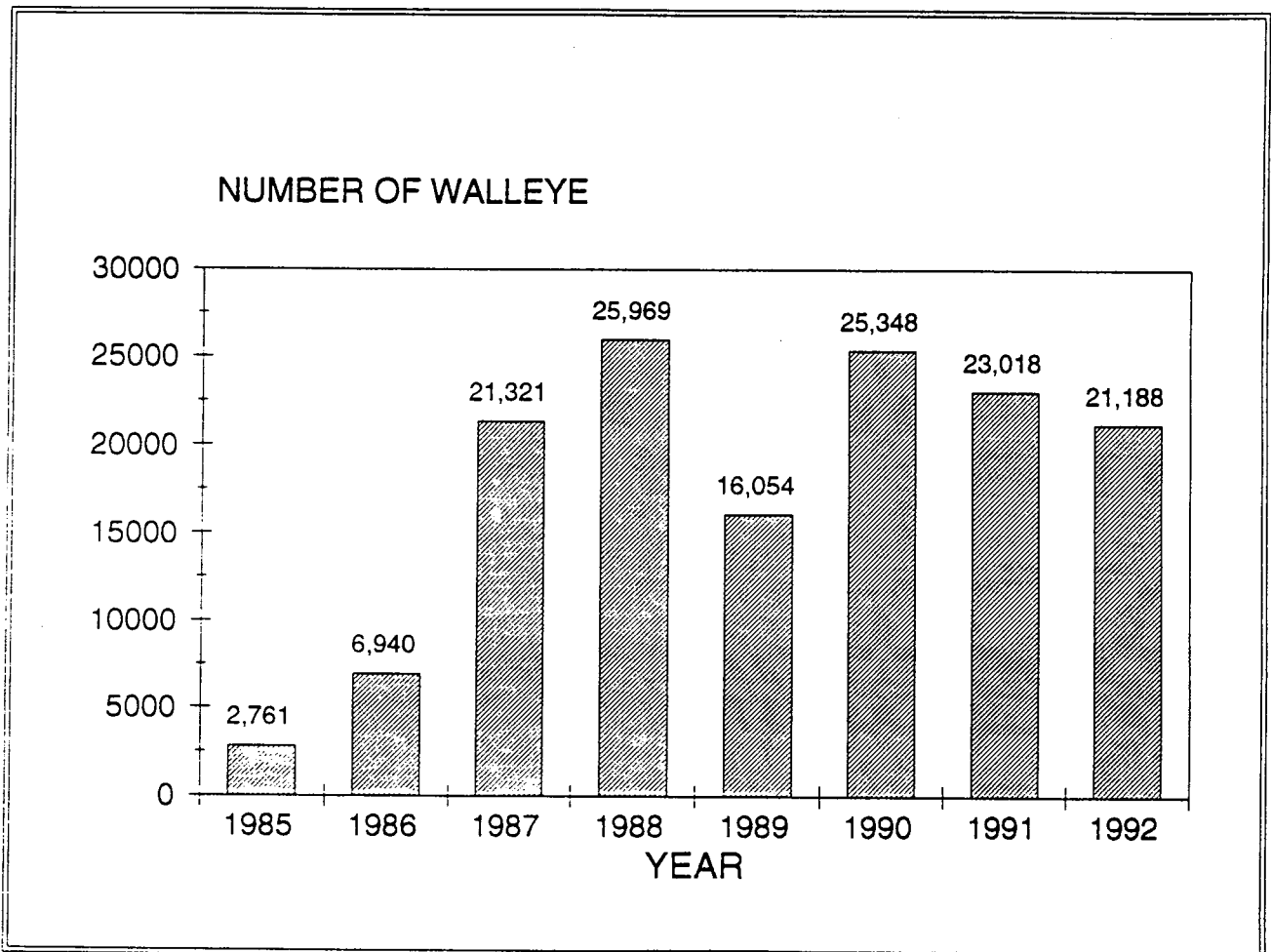
TAXA	1988	1989	1990	1991	1992	8 YEAR TOTAL: (1985-1987)
Walleye	25,969	16,054	25,348	23,018	21,188	142,599
Muskellunge	158	118	303	185	165	1,266
Bass Species	167	113	3	3	18	639
Largemouth Bass	0	0	167	130	85	382
Smallmouth Bass	0	0	49	14	31	94
Northern Pike	59	14	34	41	28	232
Lake Sturgeon	2	1	3	0	0	13
Trout Species	0	1	2	1	0	6
Rock Bass	23	9	20	4	2	74
Crappie	47	27	87	31	26	249
Bluegill	9	3	6	1	5	36
Yellow Perch	17	13	25	8	9	72
Bullhead	2	3	5	0	0	16
Sucker	21	31	72	28	17	259
Carp	1	0	1	1	0	5
Burbot	1	3	7	1	0	12
Bowfin	1	2	2	3	0	8
Cisco	0	2	0	0	0	2
TOTAL:	26,477	16,394	26,134	23,469	21,574	145,964

Walleye Harvest

Tribal quotas (TQ's) for walleye were selected for 222 lakes and totalled 38,863 walleye. Respective values declared in the three previous years were: 204 lakes and 39,090 walleye in 1991, 178 lakes and 41,373 walleye in 1990, and 254 lakes and 43,801 walleye in 1989. The percent of the "safe harvest" selected as tribal quotas for lakes in 1992 ranged from 0.61% to 59.9%. Two tribes selected the same lake in 31 instances and agreed on various inter-tribal allocation formulas to keep the TQ within the selected percentage. One lake, Moose Lake in Sawyer County, was selected by three tribes.

Tribal spearers harvested a total of 21,188 walleye from 148 lakes (Table 5, Figure 6, Appendix B). Spearfishing occurred in another 7 lakes but no walleye were harvested. Harvest in 1992 (21,188) was higher than in 1985, 1986, and 1989 but lower than harvest during the four other years. Overall, 54.5% of the total walleye TQ was harvested in 1992 compared to 58.9% in 1991, 61.3% in 1990, and 36.6% in 1989.

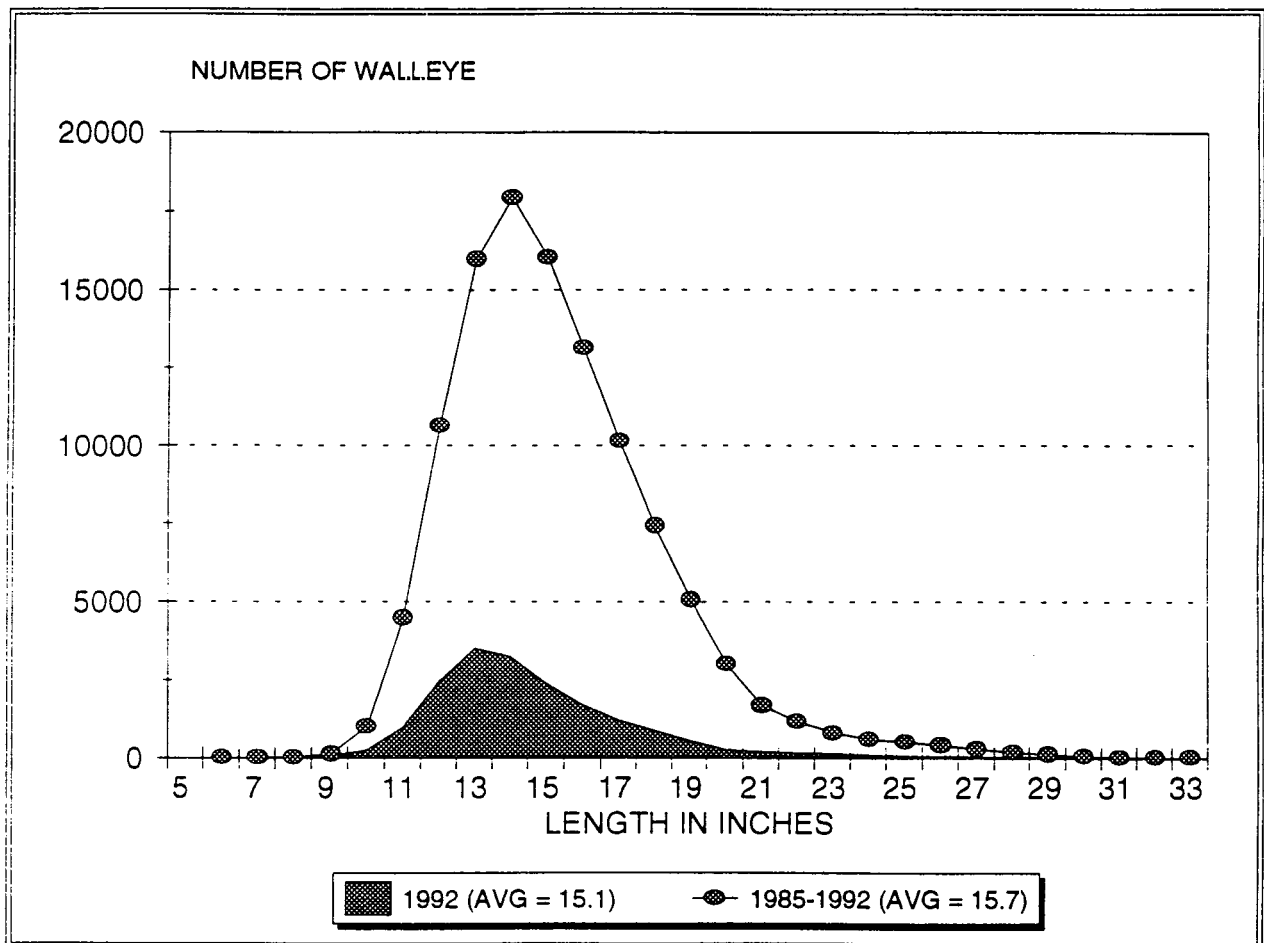
Figure 6. Number of walleye harvested during spring spearing seasons from 1985-1992.



Mean Length. A total of 18,226 walleye (86% of the catch) were measured in 1992 (Appendices C and D). Mean size (15.1 inches) was less than average length in the previous seven years (Appendix D). Size restrictions have been identical since 1987, 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 relatively low in 1986 (15.5 inches) when one walleye of 20-24 inches and no walleye over 24 inches could be taken.

For the 8 spring spearing seasons combined, 78% of the walleye harvest has been measured (110,883 of 142,599 fish) (Figure 7; Appendix D). Average length for this 8 year sample was 15.7 inches. Also, 8.0% of the walleye (8,843 fish) were 20 inches or larger and 1.4% (1,565 fish) were 25 inches or larger.

Figure 7. Length frequency of walleye speared during 1992 and during the eight year period 1985-1992.



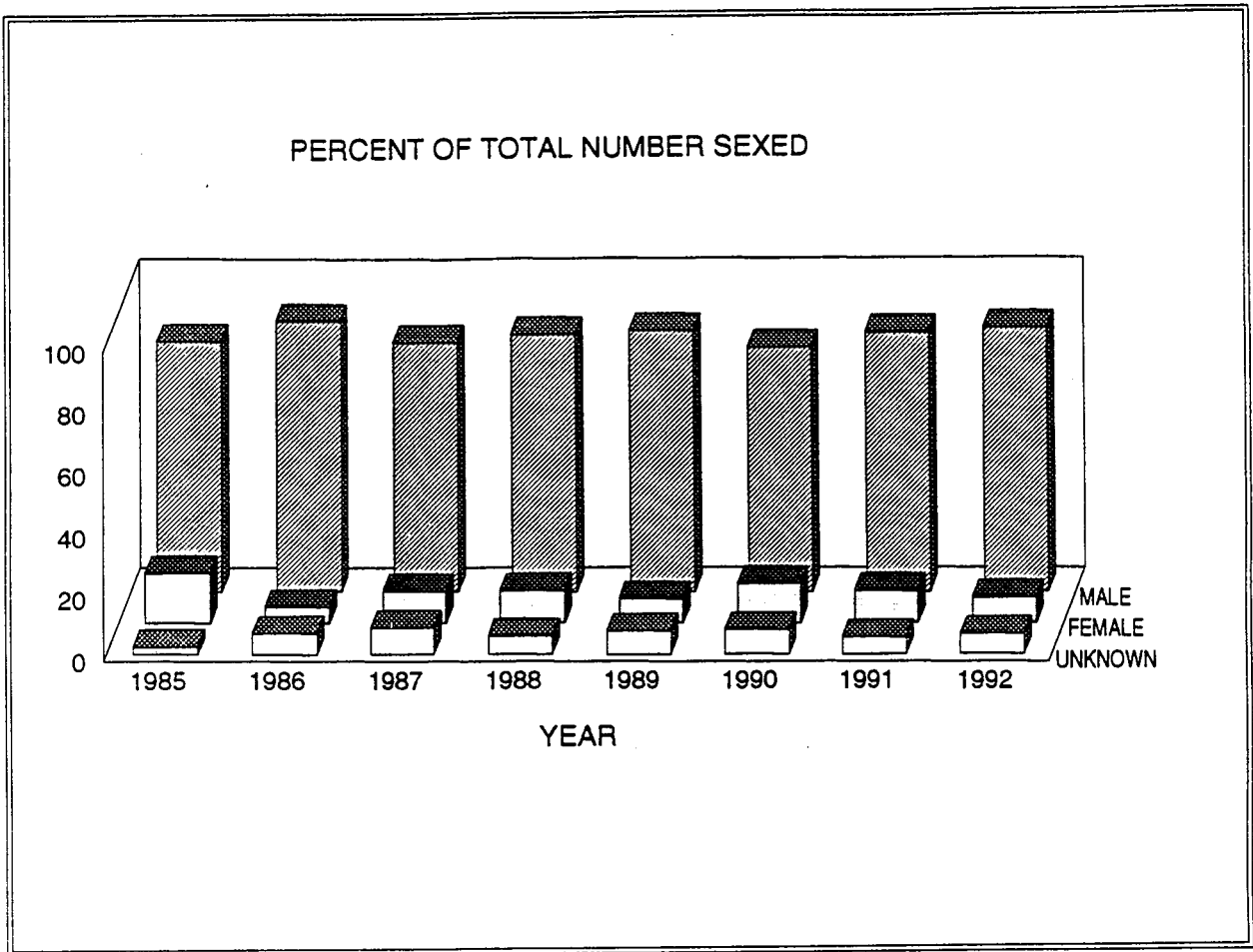
Sex Composition of Catch. The majority of walleye measured in 1992 were male: 15,563 of 18,226 fish or 85.4% (Table 6). Females (1,473 fish) comprised 8.1% of the measured harvest, while those whose sex could not be determined (1,190 fish) made up 6.5%. Males made up 91.4% of sexable fish.

For the 8 spring spearing seasons combined, a total of 109,821 walleye have been sexed (Table 6, Figure 8). Of these, 83.4% were male, 9.8% were female, and 6.8% 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 1985-1992.

Number of Walleye:	1985	1986	1987	1988	1989	1990	1991	1992
Harvested Number	2,761	6,940	21,321	25,969	16,054	25,348	23,018	21,188
Sexed Number	856	6,842	14,224	19,368	13,254	18,500	18,551	18,226
Percent	31.0%	98.6%	66.7%	74.6%	82.6%	73.0%	80.6%	86.0%
Male Number	696	6,013	11,539	16,193	11,222	14,693	15,626	15,563
Percent	81.3%	87.9%	81.1%	83.6%	84.7%	79.4%	84.2%	85.4%
Female Number	138	356	1,456	2,033	1,030	2,342	1,926	1,473
Percent	16.1%	5.2%	10.2%	10.5%	7.8%	12.7%	10.4%	8.1%
Unknown Number	22	473	1,229	1,142	1,002	1,465	999	1,190
Percent	2.6%	6.9%	8.6%	5.9%	7.6%	7.9%	5.4%	6.5%

Figure 8. Sex composition of the walleye harvest during spring seasons from 1985-1992.



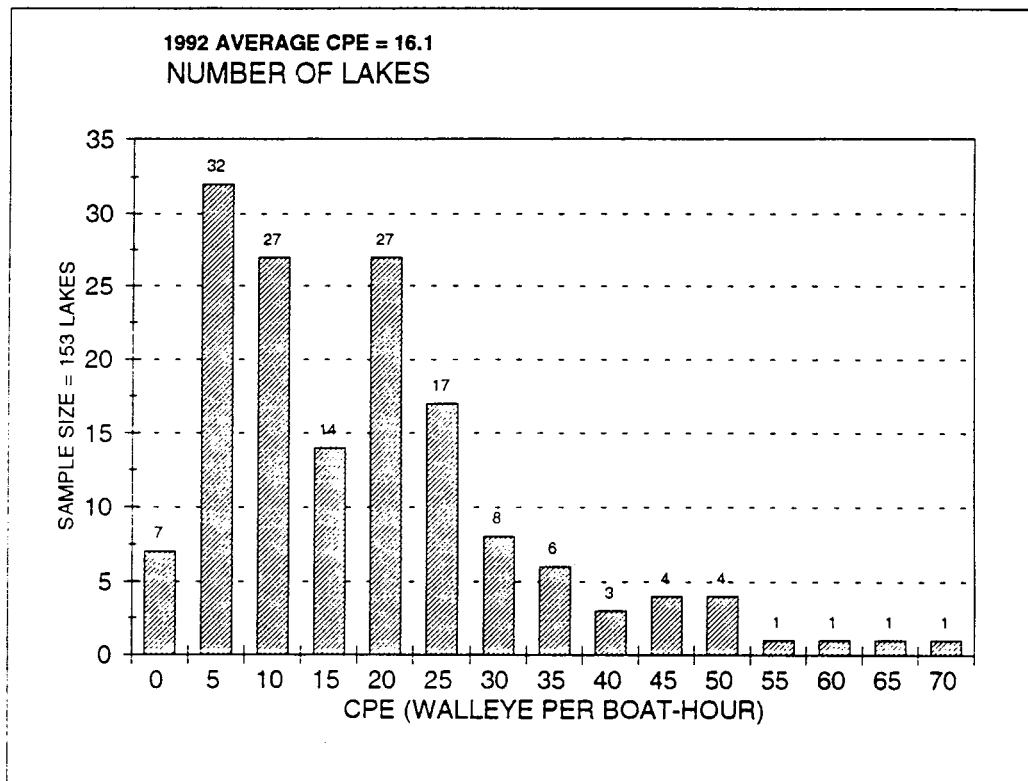
Catch per effort (CPE). In 1992 a total of 1,558.0 boat-hours of spearing was recorded in which 21,188 walleye were caught. Overall catch per effort was 13.6 walleye per boat-hour (Appendix B).

Catch rates for the 153 of 155 lakes speared in 1992 ranged from 0.0 to 68.0 and averaged 16.1 (Appendix B, Figure 9). Boat-hour effort was not recorded for 2 lakes (Sparkling and Anvil) in Vilas County. Respective statistics for the five 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
1991	159	0.0-46.5	11.3

(Biological Issues Group 1988, Kmiecik and Shively 1990, Kmiecik 1991, Kmiecik and Ngu 1992).

Figure 9. Walleye CPE (number per boat-hour) by lake during 1992 spring spearing season.



Muskellunge Harvest

A total of 165 muskellunge were speared from 50 lakes during spring 1992 (Figure 10, Appendix E). This harvest represented 13.3% of the combined tribal muskellunge quota of 1,240 fish selected for 155 lakes. In 1991, 14.9% of the combined tribal muskellunge quota (1,240) chosen for 155 lakes was harvested. 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 50 lakes ranged from 1 to 12 fish (Appendix E). More than ten muskellunge were harvested from 1 lake, 6-9 muskellunge were taken from 8 lakes, and 1-5 fish were speared in 41 lakes. In addition, the number of muskellunge harvested per surface-acre of water averaged 0.0020 and ranged from 0.0001 to 0.0109. No muskellunge were speared from the other 105 lakes.

Lengths of the 162 measured muskellunge averaged 36.1 inches (range: 18.5 to 48.5 inches (Appendix F, Figure 11)). During the eight spring seasons combined, 1,223 of 1,266 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 1992, 16.1% (26 of 162 muskellunge) were less than 32 inches while 2.5% (4 fish) were 45 inches and larger. For the 1,223 muskellunge measured from 1985-1992, 234 fish or 19% of the sample were less than 32 inches; 75 fish or 6% were 45 inches and larger (Appendix F).

The number of muskellunge per spearer averaged 0.48 for all tribes combined. In other words, 48 muskellunge were taken for every 100 spearers. The number per spearer was 0.47 in 1987, 0.37 in 1988, 0.44 in 1989, 0.80 in 1990, and 0.47 in 1991 (Kmiecik and Shively 1989, 1990, Kmiecik 1991).

For individual tribes, the number per spearer was highest for Lac du Flambeau (0.99) compared to the other 5 tribes (range: 0.05-0.49).

Catch per boat-hour in 1992 averaged 0.11 muskellunge. The number per boat hour was 0.11 in 1987, 0.07 in 1988, 0.11 in 1989, 0.15 in 1990, and 0.08 in 1991.

Figure 10. Number of muskellunge harvested during spring spearing seasons from 1985-1992.

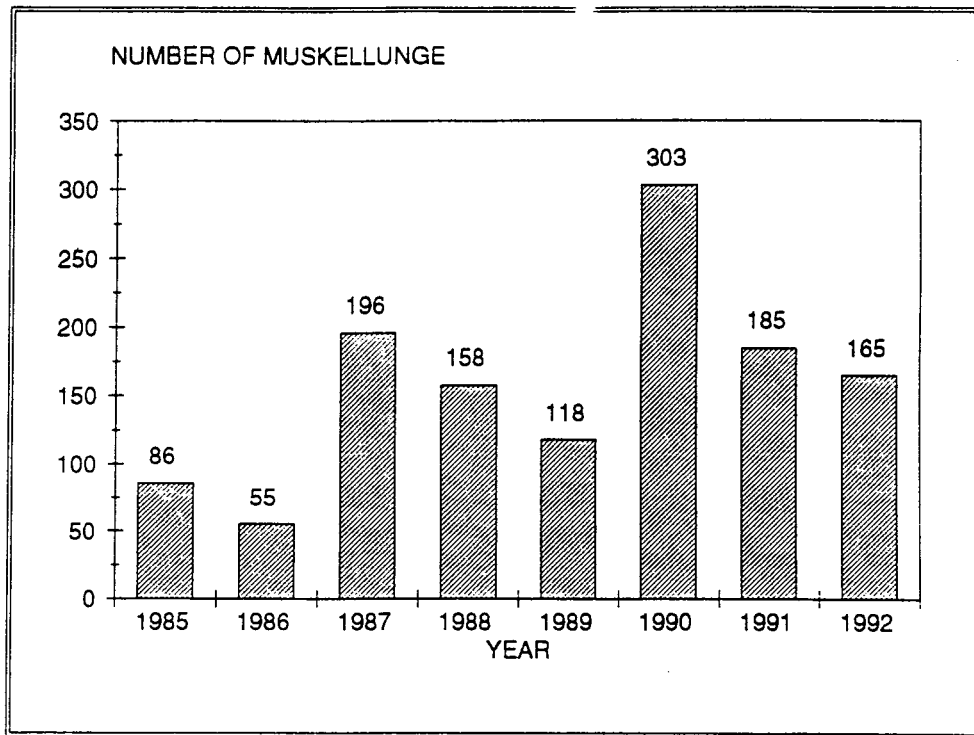
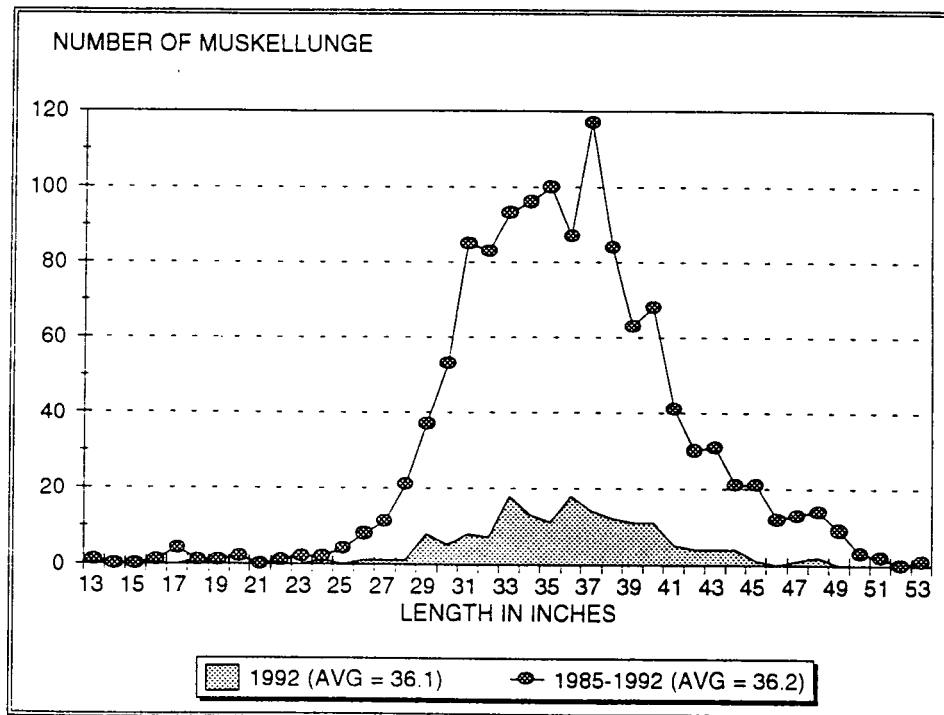


Figure 11. Length-frequency of muskellunge speared during spring 1992 and during the seven year period 1985-1992.



Bass Harvest

A total of 134 bass was harvested from 28 lakes in 10 counties (Appendix G). Species was recorded for 116 largemouth bass and smallmouth bass combined. A total of 85 largemouth bass were taken from 10 lakes in 7 counties and averaged 15.2 inches. Ten or more largemouth were speared from 2 lakes while 5 or less were taken from 6 lakes. The number harvested per surface acre of water averaged 0.0097 bass (range: 0.0020-0.0407).

A total of 31 smallmouth bass were speared from 10 lakes in 6 counties. Average length was 14.6 inches. Fewer than 3 fish were taken from all but two lakes, Long Lake in Bayfield County and Clear Lake in Oneida County, where 18 were speared. The number harvested per surface acre averaged 0.0018 bass (range:0.0003-0.0342).

Lengths of 116 measured bass ranged from 10.8-20.5 inches (Figure 13) and averaged 15.3 inches (Appendix G). Average lengths during the 7 previous seasons (1985-1991) were 15.0, 15.4, 15.2, 15.8, 15.3, 15.1, and 15.0 inches, respectively. Of the 1,117 bass speared during the eight spearing seasons combined, 992 have been measured (Appendix H). Average length for this sample was 15.3 inches.

The majority of bass (73 fish or 63% of the total) were taken from 7 lakes speared by St. Croix. St. Croix members also speared the majority of bass (range: 75-82%) in the five years (1987-1991) when more than 100 were harvested.

For all tribes combined the number of bass per spearer was 0.34, a value slightly lower than CPE in the 5 previous years (ranged: 0.37 to 0.66). For individual tribes, CPE (bass per spearer) was highest for St. Croix (1.14), as was the case during the five previous seasons (3.33 in 1987, 2.12 in 1988, 2.10 in 1989, 2.8 in 1990, and 1.80 in 1991). Catch per spearer for the other five tribes ranged from 0.0 to 0.27 bass.

The combined tribal catch rate for bass in 1992 was 0.07 bass per boat-hour within the range of CPE's from 1987-1991 (0.06 to 0.14). Bass per boat-hour for St. Croix spearers was 0.26 in 1992.

Figure 12. Number of bass harvested during spring spearing seasons from 1985-1992.

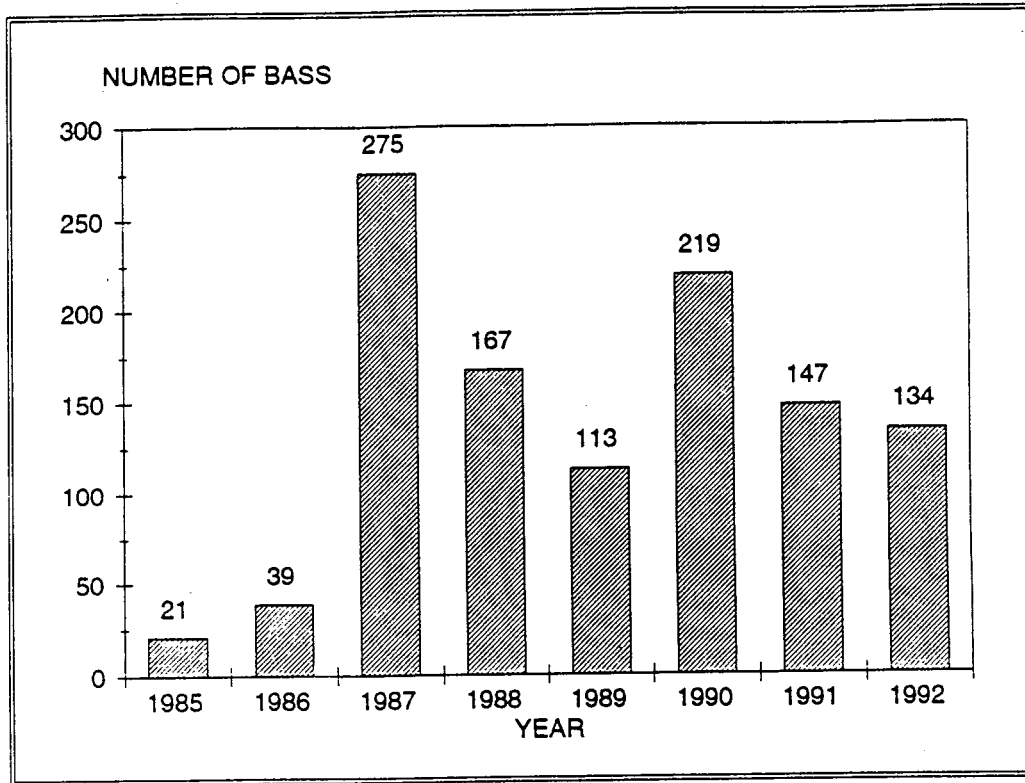
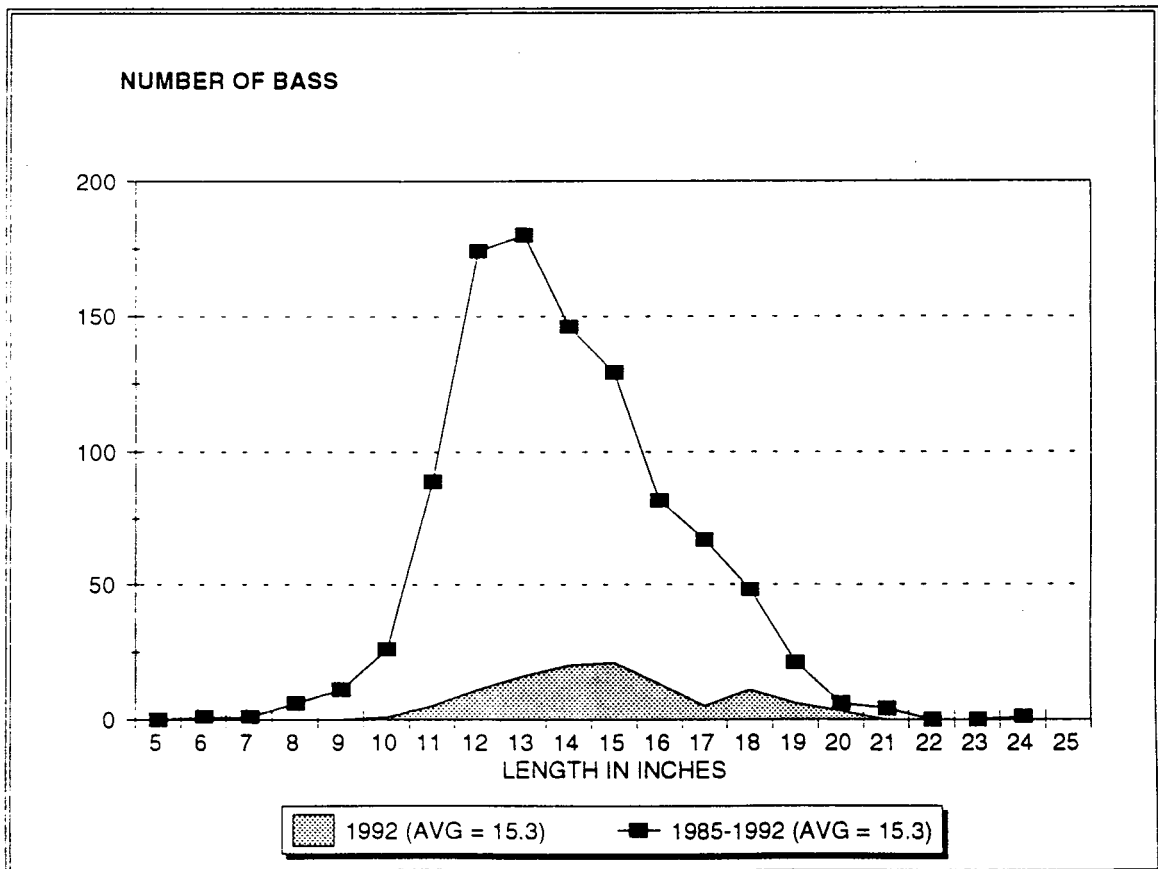


Figure 13. Length-frequency for bass taken during 1992 and during the eight year period 1985-1992.



Northern Pike Harvest

A total of 28 northern pike were harvested from 10 lakes in 6 counties (Appendix G). The number speared per lake never exceeded four fish. St. Croix spearers harvested 12 of 28 northens from 6 lakes. Catch per surface acre of water averaged 0.0024 (range: 0.0003-0.0136).

Lengths of 18 measured northern pike ranged from 12.7 to 36.1 inches and averaged 25.2 inches (Appendix I, Figure 15). During the eight spring seasons combined a total of 234 northern pike have been speared (Appendix I). Of these, 189 were measured and length averaged 25.1 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 1985-1992.

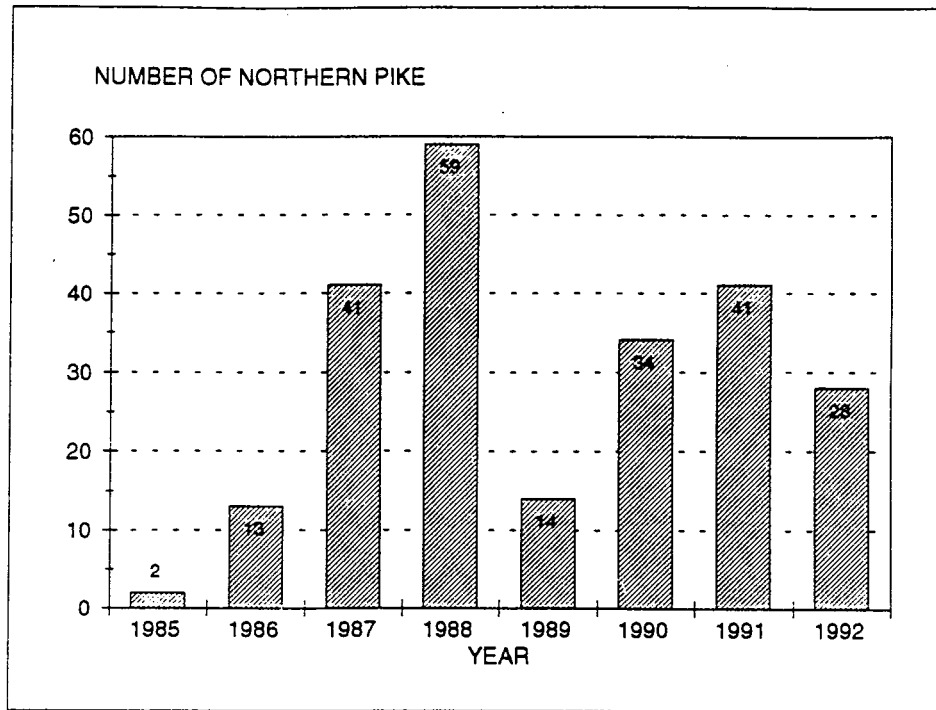
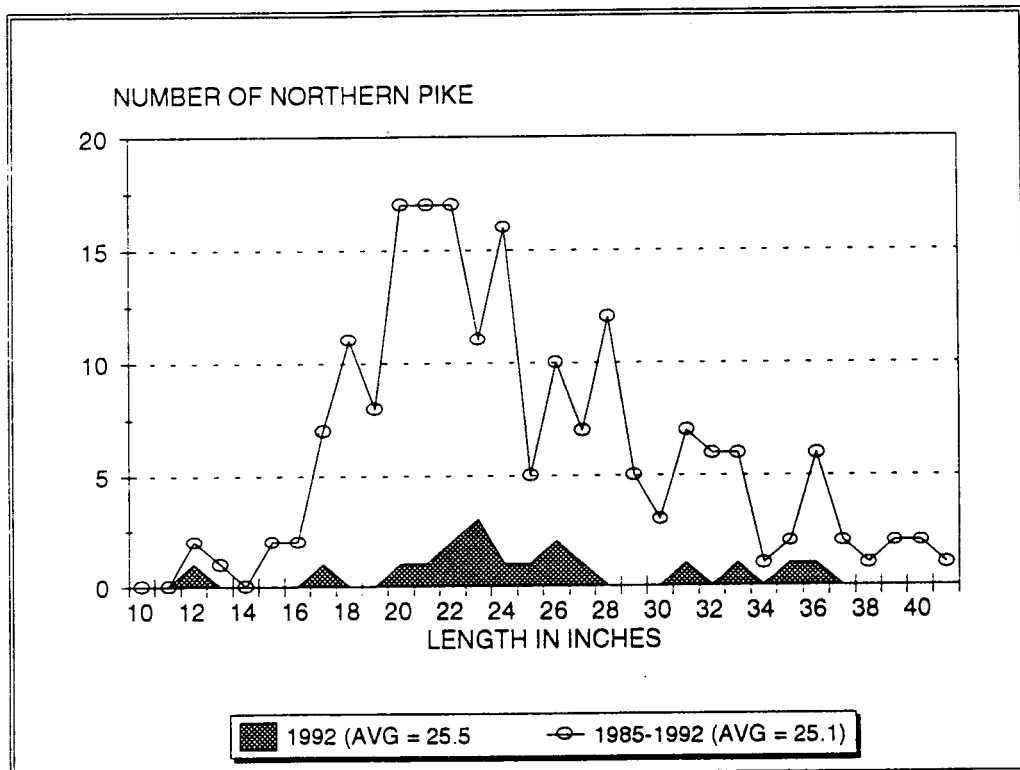


Figure 15. Length frequency of northern pike speared during 1992 and during the six year period 1986-1992.



SUMMER AND FALL SPEARING

A total of 407 fish were taken during summer and fall spearing of which 386 were walleye (Table 7). Summer spearing occurred on 2 dates in June and 12 fish, to include 10 bass, were taken from 2 lakes. Fall spearing occurred on 7 nights from August 20 to October 23. A total of 385 walleye were harvested from 5 lakes; mean length was 15.3 inches.

Total effort for summer and fall spearing combined was 51.8 boat-hours and 26 spearer-nights. The number of walleye caught per boat-hour was 7.9. Other species caught included 6 muskellunge, 5 northern pike, and 10 bass.

Table 7. Number of walleye harvested during summer and fall spearing in 1992.

Lake	County	Tribe	Season	Wae	Mue	Nop	Smb	Lmb	Boat-Hours	Spearer-Nights
Spider L	Iron	Brv	Fall	77	4	0	0	0	9.8	4
Trude L	Iron	Brv	Fall	85	0	0	0	0	12.5	5
Turtle-Flambeau Fl	Iron	Brv	Fall	104	1	2	0	0	4.4	4
Kawaguesaga L	Oneida	Ldf	Summer	1	1	0	1	1	1.8	1
Chippewa Fl*	Sawyer	Lco	Fall	2	0	0	0	0	2.3	2
Nelson L	Sawyer	Brv	Fall	117	0	3	0	0	19.6	8
Wabasso L	Vilas	Ldf	Summer	0	0	0	0	8	1.5	2
				386	6	5	1	9	51.9	26

* Fall spearing occurred on October 1. Chippewa Fl was also named for spearing on 15 dates from October 2 through November 1 but no spearing effort occurred.

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:

Bad River (BRV) - Kenneth Bouley, Robert Cadotte, Barry Cech, Charles Connors, William Deragon, Simon Maday, Samuel Lemieux, Anthony Neveux, Jon Shubat, Joseph Szwerek, Warren Timothy, and James Toppin;

Lac Courte Oreilles (LCO) - Andy Bennett, Brenda Beaudin, Doreen Debrot, Barry LaRonge, Robert Dunlap, Ken Featherly, Dennis Miller, Robin Rusk, James Schlender Jr., William Taylor, and Jose Valentine;

Lac du Flambeau (LDF) - Maurice Beson, Charles Carufel, Gerald Christensen, George Defoe, Clyde Mann, Alex Maulsen, Michael Peltier, Duane Poupart, Faith Poupart, Scott Poupart, Gloria Smith, William Snow, Cheryl St. Germaine, Paul St. Germaine, George White, William Wildcat, and Raymond Zortman;

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Red Cliff (RCF) - Christopher Bear, Francis Darcy, Raymond Defoe Jr., Michael LaGrew, George A. Newago, George P. Newago, Feanine O'Claire, Leonard Peterson, and Arthur Pratt;

St. Croix (STC) - Bradley Bearheart Jr., Jeff Bontekoe, Joleen Clement, Lynn Holmes, Martin Johnson, Randy Phernetton, William Scanlon, Alice Taylor, and Theodore Nelson.

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We are grateful to Jackie Rose 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 and appreciated.

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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 1992 spring spear fishery.

NUMBER OF NIGHTS	BAD RIVER	LCO	LDF	MOLE LAKE	RED CLIFF	ST. CROIX	TOTAL	PERCENT OF TOTAL
1	19	10	27	10	24	20	110	31.9%
2	3	6	20	10	11	14	64	18.6%
3	1	9	9	3		7	29	8.4%
4		7	14	3	2	6	32	9.3%
5	2	2	8		4	4	20	5.8%
6	1	3	7	3	3	3	20	5.8%
7	3		3	4	4	2	16	4.6%
8	3	2	6	2	1	2	16	4.6%
9		1	5			1	7	2.0%
10	2	1	2			2	7	2.0%
11			1	2	1	1	5	1.4%
12			1	1			2	0.6%
13			1			1	2	0.6%
14			2		1		3	0.9%
15	1		2	2	1		6	1.7%
16	1						1	0.3%
17			2				2	0.6%
18						1	1	0.3%
19			1				1	0.3%
20			1				1	0.3%
TOTAL:	36	41	112	40	52	64	345	100.0%

APPENDIX B (CONTINUED)

Number of walleye harvested nightly on lakes speared by six Wisconsin Chippewa bands during spring 1992. Also, balance of quota, number of boat-hours and catch per effort (CPE-walleye per boat-hour) per lake.

COUNTY	LAKE	AREA	WALLEYE SAFE HARVEST	(A) WALLEYE QUOTA	APRIL							MAY							(B) WALLEYE HARVEST	(A-B) QUOTA BALANCE	(C) BOAT-HOURS	(B/C) CPE	
					18 SA	19 SU	20 SA	21 SU	22 SA	23 SU	24 SA	25 SA	26 SU	27 M	28 T	29 W	30 R	1 F					2 SU
LAC COURTE OREILLES																							
CHIPPEWA	HOLCOMBE FL	3890	1346	538	0																538	2.2	0.0
SAWYER	GRINDSTONE L	3111	539	296																	282	14	21.7
SAWYER	L CHIPPEWA	15300	5642	3385																	1862	147.6	10.3
SAWYER	LAC COURTE OREILLES	5039	524	288																	48	10.2	23.4
SAWYER	LITTLE ROUND L	229	81	44																	29	3.0	5.0
SAWYER	LOSTLAND L	1304	65	35																	1	4.6	7.4
SAWYER	MOOSE L	1670	625	114																	114	0.0	0.0
SAWYER	ROUND L	3054	1178	647																	186	19.2	24.0
SAWYER	SAND L	928	337	185																	177	8	15.5
SAWYER	SQUAW L	208	46	25																	0	25	0.0
SAWYER	TEAL R FL	75	36	19																	0	19	2.4
SAWYER	WHITEISH L	786	86	47																	31	16	8.4
CHIPPEWA R	COUDERAY R																						
	NUMBER OF LAKES:	12																			50		
	AREA IN ACRES:	35584																					
	WALLEYE HARVEST:	10605		5623																	2763		
	NUMBER OF SPEARER-NIGHTS:																				140		
	BOAT-HOURS:																						
	CPE:																					221.3	12.5

Note:
 1. The following lakes were named but with no spearing effort:
 Chippewa River and Couderay River on April 21 and 22.
 Grindstone Lake on May 2 and 12.
 Lake Chippewa on May 2, 5, 7, 8, 9, 10, 12, 13, 14 and 15.
 Lac Courte Oreilles on May 10 and 11.
 Round Lake on May 15.

APPENDIX B (CONTINUED)

Number of walleye harvested nightly on lakes speared by six Wisconsin Chippewa bands during spring 1992. Also, balance of quota, number of boat-hours and catch per effort (CPE-walleye per boat-hour) per lake.

COUNTY	LAKE	AREA	WALLEYE SAFE HARVEST	(A) WALLEYE QUOTA	APRIL							MAY							(B) WALLEYE HARVEST	(A-B) QUOTA BALANCE	(C) BOAT-HOURS	(B/C) CPE					
					11	17	20	22	23	24	25	26	28	29	30	1	2	3					4	5	6	9	
BAD RIVER																											
ASHLAND	GORDON L	142	65	19																19	0					0.0	
BAYFIELD	DIAMOND L	341	82	49							34									15	34					17.0	
BAYFIELD	NAMEKAGON L	3227	1137	341							338									3	338					21.1	
CHIPPEWA	HOLCOMBE FL	3890	1349	202																202	0					0.0	
CHIPPEWA	L WISSOTA	6300	2081	500																500	0					0.0	
IRON	L OF THE FALLS	338	144	39								**								39	0					0.0	
IRON	LONG L	398	167	45																45	0					0.0	
IRON	PIKE L	194	86	51																51	0					0.0	
IRON	PINE L	312	130	77																77	0					0.0	
IRON	SPIDER L	352	150	89																89	0					0.0	
IRON	TRUDE L	781	312	85																85	0					0.0	
IRON	TURTLE-FLAMBEAU FL	13545	4141	1138																1138	0					0.0	
ONEDA	RAINBOW FL	2035	918	400																400	0					0.0	
PRICE	DUROY L	378	160	43							0									38	470	164	1034	104	51.7	20.0	
PRICE	LAC SAULT DOIRE	561	230	63																63	0					0.0	
PRICE	PIKE L	806	394	105																105	0					0.0	
PRICE	ROUND L	728	376	103																103	0					0.0	
PRICE	SOLBERG L	859	340	200																196	0					0.0	
PRICE	TURNER L	149	206	123																97	0					0.0	
SAWYER	NELSON L	2503	903	498																505	0					0.0	
SAWYER	TEAL L	1049	630	348																321	0					0.0	
VILAS	CHABL	949	373	102																56	0					0.0	
VILAS	HARRIS L	507	210	57																84	0					0.0	
VILAS	HIGH L	734	308	84																58	0					0.0	
VILAS	OXBOW L	511	211	58																103	0					0.0	
VILAS	PRESQUE ISLE CHAIN (3 LAKES)***	1571	377	103																100	0					3.2	
VILAS	SQUAW L	785	568	100																30	0					0.0	
NUMBER OF LAKES:			27																		30						
AREA IN ACRES:			43942																						2090		
WALLEYE HARVEST:			16035	5018	0	0	373	132	1	1	1	1	1	3	4	2	1	1	1	1	2	1	2	1	2	1	
NUMBER OF SPEARER-NIGHTS:					6	6	2	14	6	2	11	7	13	4	22	7	25	4	2	6	2	1	56	0	0	2828	
BOAT-HOURS:					4.1	10.3	2.6	48.8	8.4	1.8	14.6	7.0	17.2	6.6	23.7	5.9	25.8	9.2	3.3	13.4	3.6	15.6	3.6	2	1	140	
CPE:					0.0	0.0	0.0	7.6	15.8	0.0	13.4	19.7	18.7	21.7	20.9	6.6	18.2	17.8	29.9	22.4	15.6	2.4	15.6	3.6	NR	NA	208.2
																											14.2

Note: 1. A total of 250 walleye were added to the initial quota after spring spearing in Nelson Lake, Sawyer County. These fish were excluded from this appendix.

Number of walleye harvested nightly on lakes spared by six Wisconsin Chippewa bands during spring 1992. Also, balance of quota, number of boat-hours and catch per effort (CPE walleye per boat-hour) per lake.

COUNTY	LAKE	AREA	WALLEYE SAFE HARVEST	(A) WALLEYE QUOTA	APRIL							MAY					(B) WALLEYE HARVEST	(A-B) QUOTA BALANCE	(C) BOAT-HOURS	(B/C) CPE:									
					13 M	14 T	15 W	16 R	17 F	18 SA	19 SU	20 M	21 T	22 W	23 R	24 F					25 SA	26 SU	27 M	28 T	29 W	30 R	1 T		
ST. CROIX																													
BARRON	BEAR L		129	70	1	2	1	3	4	5	3	4	4	4	4	4	4	4	4	1	61	1904	2813	5.3					
BARRON	BEAVERDAM L		111	61	17	88	184	102	177	100	28	22	64	57	91	34	88	68	170	60	125	2	51	1504					
BARRON	DUCK L		47	25	8	17	21	21	19	9	4	4	10	8	16	17	12	8	18	7	11	8	2	2	232				
BARRON	RED CEDAR L		683	375	10.7	20.6	17.8	24.6	30.2	22.7	16.7	2.6	13.9	10.1	20.4	12.5	17.7	11.7	24.1	5.4	13.3	5.7	0.4	0.6					
BARRON	SAND L		44	24	4.3	4.3	4.1	5.9	4.4	1.6	8.5	4.6	5.7	4.5	2.7	3.8	5.7	7.1	11.2	9.4	0.4	0.4							
BARRON	SILVER L		337	79																									
BURNETT	BIG MCKENZIE L		407	162																									
BURNETT	DEVIL S L		103	58																									
BURNETT	LIPSETT L		51	28																									
BURNETT	LITTLE YELLOW L		148	81																									
BURNETT	SAND L		100	54																									
BURNETT	YELLOW L		962	457																									
BURNETT	BALSAM L		882	754	17																								
BURNETT	BIG BUTTERNUT L		2287	892																									
POLK	BIG ROUND L		2064	414																									
POLK	HAIR MOON L		378	186																									
POLK	PIPE L		579	118																									
POLK	WAPOGASSET L		270	94																									
WASHBURN	BALSAM L		1188	117																									
WASHBURN	BASS L		295	127																									
WASHBURN	BASS L		130	60																									
WASHBURN	BASS L		144	23																									
WASHBURN	BIG BASS L		188	84																									
WASHBURN	BIRCH L		203	30																									
WASHBURN	GILMORE L		388	48																									
WASHBURN	L NANCY		389	50																									
WASHBURN	LONG L		772	309																									
WASHBURN	MIDDLE MCKENZIE L		3290	709																									
WASHBURN	MCKENZIE L		530	117																									
WASHBURN	MCKENZIE L		1564	161																									
WASHBURN	RICE L		132	60																									
WASHBURN	SHELL L		2590	63																									
WASHBURN	STONE L		63	34																									
WASHBURN	TREGO L		451	57																									
NUMBER OF LAKES:		33																											
AREA IN ACRES:		28287																											
WALLEYE HARVEST:		7140																											
NUMBER OF SPEARER-NIGHTS:		3408																											
BOAT-HOURS:																													
CPE:																													

Number of walleye harvested nightly on lakes speared by six Wisconsin Chippewa bands April 1 through April 30 during spring 1992. Also, balance of quota, number of boat-hours and catch per effort (CPE-walleye per boat-hour) per lake.

COUNTY	LAKE	WALLEYE SAFE HARVEST	(A) WALLEYE QUOTA	APRIL																															(B) WALLEYE HARVEST	(A-B) QUOTA BALANCE	(C) BOAT-HOURS	(B/C) CPE
				11 SA	13 M	14 T	15 W	16 R	17 F	18 SA	19 SU	20 M	21 T	22 W	23 R	24 F	25 SA	26 SU	27 M	28 T	29 W	30 R																
				0	17	88	184	102	177	100	26	22	64	430	533	249	711	542	1357	1063	1856	2843	10364	28499	990.4	10.5												
				6	8	17	16	21	27	22	11	6	10	22	55	59	71	43	87	75	78	154	788															
				4.1	10.7	20.6	17.8	24.6	40.4	24.9	19.0	5.2	13.9	58.9	48.0	60.3	84.2	61.5	118.1	85.4	127.1	155.7																
				0.0	1.6	4.3	10.3	4.1	4.4	4.0	1.4	4.3	4.6	7.3	11.1	4.1	7.6	8.8	11.5	12.4	14.6	18.3																
				255	270931	91124	38863																															
				255	270931	91124	38863	2182	1403	1770	1677	1630	725	512	255	74	112	5	122	100	53	185	0	19	21188	17675	1558.0	13.6										
				108	88	78	79	66	43	31	27	9	8	2	8	6	7	14	4	3																		
				117.1	62.6	88.4	72.5	62.2	48.6	23.5	23.4	7.9	7.8	NA	15.3	10.1	8.6	14.4	2.3	2.6																		
				18.6	22.4	20.0	23.1	26.2	14.9	21.8	10.9	9.4	14.4	NA	8.0	9.9	6.2	12.9	0.0	7.4																		

Number of walleye harvested nightly on lakes speared by six Wisconsin Chippewa bands from April 1 through May 24 during spring 1992. Also, balance of quota, number of boat-hours and catch per effort (CPE-walleye per boat-hour) per lake.

COUNTY	LAKE	WALLEYE SAFE HARVEST	(A) WALLEYE QUOTA	MAY												(B) WALLEYE HARVEST	(A-B) QUOTA BALANCE	(C) BOAT-HOURS	(B/C) CPE						
				1 F	2 SA	3 SU	4 M	5 T	6 W	7 R	8 F	9 SA	10 SU	11 M	12 T					13 W	14 R	15 F	23 SA	24 SU	
				2182	1403	1770	1677	1630	725	512	255	74	112	5	122	100	53	185	0	19	21188	17675	1558.0	13.6	
				108	88	78	79	66	43	31	27	9	8	2	8	6	7	14	4	3					
				117.1	62.6	88.4	72.5	62.2	48.6	23.5	23.4	7.9	7.8	NA	15.3	10.1	8.6	14.4	2.3	2.6					
				18.6	22.4	20.0	23.1	26.2	14.9	21.8	10.9	9.4	14.4	NA	8.0	9.9	6.2	12.9	0.0	7.4					

Note: 1. Grand total excluded CPE on April 23 from Lac du Flambeau.

2. NR = Not Recorded, NA = Not Available

3. * = Lake not speared during spring 1992. Also, a "0" indicates spearing effort but no harvest.

4. ** = Lake named but no spearing effort.

5. *** = The quota of designated chains may be taken from any combination of one or more individual lakes in the chain.

Pike L. Chain: Buskey Bay, Hart L., L. Millicent, Twin Bear L.
 Rice R. Chain: L. Nokomis, Rice R. F., Bridge L. (Onida Co.)
 Presque Isle Chain: Averill L., Presque Isle L., Van Vleet L.
 Twin Lakes Chain: N. Twin L., S. Twin L.

Number of walleye per inch group taken during spring spearing seasons from 1985-1992.

INCH GROUP	NUMBER OF WALLEYE IN:								8 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991	1992		
5										
6		1							1	0.0%
7							1	1	2	0.0%
8				3	1	4	4	3	15	0.0%
9	2	3	17	10	4	14	36	34	120	0.1%
10	5	49	123	121	60	183	229	243	1013	0.9%
11	31	358	558	678	306	649	957	957	4494	4.1%
12	140	680	1282	1688	925	1513	1979	2444	10651	9.6%
13	265	928	1892	2755	1684	2370	2582	3507	15983	14.4%
14	286	1068	2133	3289	2222	2917	2777	3252	17944	16.2%
15	293	985	1895	2951	2154	2856	2543	2375	16052	14.5%
16	247	939	1666	2311	1919	2295	2031	1696	13104	11.8%
17	172	801	1374	1658	1390	1862	1687	1207	10151	9.2%
18	145	458	1113	1297	1010	1288	1216	878	7405	6.7%
19	118	255	811	932	634	932	811	562	5055	4.6%
20	33	149	513	596	328	556	590	261	3026	2.7%
21	25	72	259	316	210	307	303	199	1691	1.5%
22	18	50	148	214	109	202	249	171	1161	1.0%
23	18	23	116	134	76	160	151	129	807	0.7%
24	11	9	86	124	67	100	111	85	593	0.5%
25	7	10	76	89	48	107	102	66	505	0.5%
26	9		57	75	45	71	86	65	408	0.4%
27	10	3	42	56	31	63	46	42	293	0.3%
28	5	1	28	32	18	30	39	25	178	0.2%
29	8		25	30	8	15	15	17	118	0.1%
30	11		8	9	3	5	6	6	48	0.0%
31	6		2		2	1		1	12	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	18,226	110,833	100%
TOTAL LENGTH:	30,382	106,051	226,789	306,926	211,645	295,047	291,543	275,331	1,743,714	
AVERAGE LENGTH:	16.3	15.5	15.9	15.8	16.0	15.9	15.7	15.1	15.7	
TOTAL NO. SPEARED:	2,761	6,940	21,321	25,969	16,054	25,348	23,018	21,188	142,599	
PERCENT MEASURED:	67.7%	98.6%	66.7%	74.6%	82.6%	73.0%	80.6%	86.0%	77.7%	

APPENDIX E

Number, average length, and harvest per acre of muskellunge from various lakes during spring spearing in 1992.

COUNTY	LAKE	AREA	TRIBE	NUMBER HARVESTED	TOTAL INCHES	AVERAGE LENGTH	NUMBER PER ACRF
BARRON	SAND L	322	SC	2	76.0	38.0	0.0062
BAYFIELD	NAMEKAGON L	3227	RC	1	29.5	29.5	0.0003
BAYFIELD	PIKE L CHIAN (BUSKEY BAY)	100	RC	1	39.5	39.5	0.0100
BAYFIELD	PIKE L CHIAN (HART)	259	RC	1	36.0	36.0	0.0039
BAYFIELD	PIKE L CHIAN (MILLICENT)	183	RC	2	71.0	35.5	0.0109
BAYFIELD	UPPER EAU CLAIRE L	1030	RC	1	44.0	44.0	0.0010
BURNETT	BIG MCKENZIE L	1185	SC	3	103.0	34.3	0.0025
BURNETT	YELLOW L	2287	SC	1	41.0	41.0	0.0004
LINCOLN	RICE R FL CHAIN (3 LAKES)*	3764	LDF	2			0.0005
OCONTO	ARCHIBALD L	430	MLK	2	71.0	35.5	0.0047
ONEIDA	BEARSKIN L	400	LDF	3	105.5	35.2	0.0075
ONEIDA	BOOTH L	207	LDF	1	26.4	26.4	0.0048
ONEIDA	CARROL L	335	LDF	1	36.2	36.2	0.0030
ONEIDA	CRESCENT L	612	LDF	1	31.4	31.4	0.0016
ONEIDA	HASBROOK L	302	LDF	3	103.6	34.5	0.0099
ONEIDA	KAWAGUESAGA L	670	LDF	1	37.0	37.0	0.0015
ONEIDA	LONG L	620	MLK	2	67.1	33.6	0.0032
ONEIDA	MINOCQUA L	1360	LDF	3	109.3	36.4	0.0022
ONEIDA	MUSKELLUNGE L	284	LDF	2	73.6	36.8	0.0070
ONEIDA	PELICAN L	3585	MLK	6	212.4	35.4	0.0017
ONEIDA	PLANTING GROUND L	1012	MLK	1	44.0	44.0	0.0010
ONEIDA	RAINBOW FL	2035	BRV	2	71.8	35.9	0.0010
ONEIDA	SQUIRREL L	1317	LDF	4	132.8	33.2	0.0030
ONEIDA	TOMAHAWK L	3392	LDF	7	237.9	34.0	0.0021
PRICE	BUTTERNUT L	1006	LDF	1	43.0	43.0	0.0010
SAWYER	GRINDSTONE L	3111	LCO	1	42.1	42.1	0.0003
SAWYER	L CHIPPEWA	15300	LCO	1	42.5	42.5	0.0001
SAWYER	LAC COURTE OREILLES	5039	LCO	4	163.0	40.8	0.000
SAWYER	ROUND L	3054	LCO	9	364.2	40.5	0.0029
SAWYER	SAND L	928	LCO	5	189.1	37.8	0.0054
SAWYER	SISSABAGAMA L	719	RC	4	135.2	33.8	0.0056
VILAS	BALLARD L	505	LDF	3	94.1	31.4	0.0059
VILAS	BIG ARBOR VITAE L	1090	LDF	9	324.3	36.0	0.0083
VILAS	BIG L	850	LDF	8	293.0	36.6	0.0094
VILAS	BIG MUSKELLUNGE L	930	LDF	3	129.8	43.3	0.0032
VILAS	BIG SAND L	1408	LDF	3	97.1	32.4	0.0021
VILAS	BIG ST GERMAIN L	1617	LDF	7	249.5	35.6	0.0043
VILAS	CATFISH L	1012	LDF	3	102.2	34.1	0.0030
VILAS	CLEAR L	555	LDF	1	30.0	30.0	0.0018
VILAS	KENTUCK L	957	MLK	5	188.0	37.6	0.0052
VILAS	L LAURA	599	LDF	3	104.6	34.9	0.0050
VILAS	LITTLE ARBOR VITAE L	534	LDF	4	132.7	33.2	0.0075
VILAS	LITTLE ST GERMAIN L	980	LDF	5	178.2	35.6	0.0051
VILAS	MANITOWISH L	506	LDF	2	68.0	34.0	0.0040
VILAS	NORTH TWIN L	3430	LDF	12	435.5	36.3	0.0035
VILAS	SPARKLING L*	127	LDF	1			0.0079
VILAS	STAR L	1206	LDF	7	252.6	36.1	0.0058
VILAS	TROUT L	3816	LDF	8	276.5	34.6	0.0021
VILAS	WHITE SAND L	728	LDF	1	38.2	38.2	0.0014
WASHBURN	SHELL L	2580	SC	2	71.9	36.0	0.0008
TOTAL:		81505		165	5845.3		
AVERAGE:						36.1	0.0038

* INDICATES THAT FISH WERE NOT MEASURED.

APPENDIX F

Number of muskellunge per inch group taken during spring spearing seasons from 1985-1992.

INCH GROUP	NUMBER OF MUSKELLUNGE IN:								8 YEARS TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991	1992		
13						1			1	0.1%
14									0	0.0%
15									0	0.0%
16			1						1	0.1%
17				3			1		4	0.3%
18								1	1	0.1%
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	2	0.2%
25	1		1		1	1			4	0.3%
26				1	2	3	1	1	8	0.7%
27			3	3	2	2		1	11	0.9%
28	2		3	1	5	4	5	1	21	1.7%
29	2	2	7	5	3	6	4	8	37	3.0%
30	8	3	4	6	6	15	6	5	53	4.3%
31	6	3	14	9	9	24	12	8	85	7.0%
32	7	2	15	13	11	18	10	7	83	6.8%
33	3	6	12	10	8	25	11	18	93	7.6%
34	8	1	16	10	8	20	20	13	96	7.8%
35	7	7	12	10	10	26	17	11	100	8.2%
36	2	4	12	7	6	20	18	18	87	7.1%
37	8	8	17	11	10	29	20	14	117	9.6%
38		6	12	9	7	27	11	12	84	6.9%
39	2	1	10	10	6	16	7	11	63	5.2%
40	1	2	8	6	5	19	16	11	68	5.6%
41	1	2	5	9	3	12	4	5	41	3.4%
42	1	1	4	6	5	6	3	4	30	2.5%
43	2	2	3	6	3	6	5	4	31	2.5%
44	2		3	7		5		4	21	1.7%
45			4	8	2	1	5	1	21	1.7%
46		1	4	3		2	2		12	1.0%
47	3		2	1	2	3	1	1	13	1.1%
48		1	4	1	1	2	3	2	14	1.1%
49	1		2	1	1	3	1		9	0.7%
50	1				1		1		3	0.2%
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	162	1223	100%
TOTAL LENGTH:	2,407	1,994	6,507	5,805	4,175	10,761	6,725	5,845	44,219	
AVERAGE LENGTH:	35.4	36.2	36.2	36.7	35.7	36.1	36.4	36.1	36.2	
TOTAL NO. SPEARED:	86	55	196	158	118	303	185	165	1266	
PERCENT MEASURED	79.1%	100.0%	91.8%	100.0%	99.2%	98.3%	100.0%	98.2%	96.6%	

APPENDIX G

NUMBER, AVERAGE LENGTH (IN INCHES), AND HARVEST PER ACRE OF BASS (LARGEMOUTH AND SMALLMOUTH) AND NORTHERN PIKE FROM VARIOUS LAKES DURING SPRING SPEARING IN 1992.

COUNTY	LAKE	AREA	TRIBE	SPECIES*	NUMBER HARVESTED	TOTAL INCHES	AVERAGE LENGTH	NUMBER PER ACRE
BAYFIELD	BONY L	191	RC	BAS	1			0.0052
BAYFIELD	MIDDLE EAU CLAIRE L	926	RC	BAS	11			0.0119
BAYFIELD	UPPER EAU CLAIRE L	1030	RC	BAS	1	13.3	13.3	0.0010
DOUGLAS	UPPER ST CROIX L	855	RC	BAS	1	14.0	14.0	0.0012
ONEIDA	HASBROOK L	302	LDF	BAS	1			0.0033
ONEIDA	WHITEFISH L	205	MLK	BAS	1	18.4	18.4	0.0049
PRICE	DUROY L	379	BRV	BAS	1	8.5	8.5	0.0026
VILAS	BIG ST GERMAIN L	1617	LDF	BAS	1			0.0006
TOTAL NUMBER MEASURED:					4	54.2	13.6	
TOTAL NUMBER HARVESTED:		4388			18			0.0041

BURNETT	YELLOW L	2287	SC	LMB	5	78.1	15.6	0.0022
OCONTO	MAIDEN L	290	MLK	LMB	3	50.6	16.9	0.0103
ONEIDA	CLEAR L	846	LDF	LMB	9	110.5	12.3	0.0106
ONEIDA	WHITEFISH L	205	MLK	LMB	1	15.4	15.4	0.0049
POLK	BALSAM L	2054	SC	LMB	9	119.4	17.1	0.0044
POLK	BIG ROUND L	1015	SC	LMB	38	573.4	15.1	0.0374
POLK	HALF MOON L	579	SC	LMB	4	70.7	17.7	0.0069
SAWYER	SISSABAGAMA L	719	RC	LMB	3	34.8	17.4	0.0042
VILAS	BALLARD L	505	LDF	LMB	1	14.5	14.5	0.0020
WASHBURN	BALSAM L	295	SC	LMB	12	178.5	14.9	0.0407
TOTAL NUMBER MEASURED:					82	1245.9	15.2	
TOTAL NUMBER HARVESTED:		8795			85			0.0097

BAYFIELD	LONG L	263	RC	SMB	9			0.0342
BAYFIELD	PIKE L (MILLCIENT)	183	RC	SMB	2			0.0109
OCONTO	MAIDEN L	290	MLK	SMB	1	15.5	15.5	0.0034
ONEIDA	CLEAR L	846	LDF	SMB	9	110.8	12.3	0.0106
ONEIDA	MINOCQUA L	1360	LDF	SMB	2	33.1	16.6	0.0015
ONEIDA	TOMAHAWK L	3392	LDF	SMB	1	15.5	15.5	0.0003
POLK	BALSAM L	2054	SC	SMB	2	34.8	17.4	0.0010
SAWYER	LAC COURTE OREILLES	5039	LCO	SMB	1	17.2	17.2	0.0002
SAWYER	ROUND L	3054	LCO	SMB	1	18.0	18.0	0.0003
WASHBURN	BALSAM L	295	SC	SMB	3	46.2	15.4	0.0102
TOTAL NUMBER MEASURED:					20	291.1	14.6	
TOTAL NUMBER HARVESTED:		16776			31			0.0018

BAYFIELD	L OWEN	1323	RC	NOP	1	24.4	24.4	0.0008
BAYFIELD	UPPER EAU CLAIRE L	1030	RC	NOP	2	62.8	31.4	0.0019
BURNETT	YELLOW L	2287	SC	NOP	1	23.5	23.5	0.0004
OCONTO	ARCHIBALD L	430	MLK	NOP	2	45.7	22.9	0.0047
POLK	BIG ROUND L	1015	SC	NOP	1	26.4	26.4	0.0010
POLK	HALF MOON L	579	SC	NOP	1	25.0	25.0	0.0017
SAWYER	WHITEFISH L	786	LCO	NOP	1	27.6	27.6	0.0013
WASHBURN	BALSAM L	295	SC	NOP	4	122.0	30.5	0.0136
WASHBURN	L NANCY	772	SC	NOP	4	77.8	19.5	0.0052
WASHBURN	LONG L	3290	SC	NOP	1	17.6	17.6	0.0003
TOTAL NUMBER MEASURED:					18	452.8	25.2	
TOTAL NUMBER HARVESTED:		11807			28			0.0024

* BAS = Bass Species, LMB = Largemouth Bass, SMB = Smallmouth Bass, NOP = Northern Pike.

APPENDIX H

Number of bass per inch group (largemouth and smallmouth combined) taken during spring spearing seasons from 1985-1992.*

INCH GROUP	NUMBER OF BASS IN:								8 YEAR TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991	1992		
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	0.6%
10			2	4	1	1	2	1	11	1.1%
11	1	1	8		7	3	1	5	26	2.6%
12	2	2	16	7	10	30	11	11	89	9.0%
13	3	6	43	21	14	35	36	16	174	17.5%
14		2	33	27	17	47	34	20	180	18.1%
15	7	8	25	21	17	26	21	21	146	14.7%
16		12	30	19	19	25	11	13	129	13.0%
17		3	20	15	11	19	9	5	82	8.3%
18	1	2	15	9	4	16	9	11	67	6.8%
19	1		7	11	8	9	6	6	48	4.8%
20		1	5	7	1	2	2	3	21	2.1%
21	1	1	2	1		1			6	0.6%
22			1	1	1		1		4	0.4%
23									0	0.0%
24									0	0.0%
25				1					1	0.1%
TOTAL NO. MEASURED:	17	39	210	144	111	215	144	112	992	100%
TOTAL LENGTH:	255	602	3,199	2,275	1,694	3,246	2,165	1,708	15,145	
AVERAGE LENGTH:	15.0	15.4	15.2	15.8	15.3	15.1	15.0	15.3	15.3	
TOTAL NO. SPEARED:	21	39	275	167	113	219	147	136	1,117	
PERCENT MEASURED:	81.0%	100.0%	76.4%	86.2%	98.2%	98.2%	98.0%	82.4%	88.8%	

APPENDIX I

Number of northern pike per inch group taken during spring spearing seasons from 1985-1992.

INCH GROUP	NUMBER OF NORTHERN PIKE IN:								8 YEARS TOTAL	PERCENT OF TOTAL
	1985	1986	1987	1988	1989	1990	1991	1992		
10									0	0.0%
11									0	0.0%
12		1						1	2	1.0%
13				1					1	0.5%
14									0	0.0%
15			1			1			2	1.0%
16						2			2	1.0%
17		1	1	2	1		1	1	7	3.7%
18			1	1	1	4	4		11	5.8%
19				2	1	1	4		8	4.2%
20		2		2	5	1	6	1	17	8.9%
21			2	10	1	3		1	17	8.9%
22		2	3	2		4	4	2	17	8.9%
23		1	2	2		2	1	3	11	5.8%
24		1	3	2		3	6	1	16	8.4%
25			1	1			2	1	5	2.6%
26				5		1	2	2	10	5.2%
27			1	1	1	2	1	1	7	3.7%
28			7	2	1	1	1		12	6.3%
29				1	1	2	1		5	2.6%
30			1	1			1		3	1.6%
31			2	3		1		1	7	3.7%
32			3	2		1			6	3.1%
33		1			1	1	2	1	6	3.1%
34							1		1	0.5%
35							1	1	2	1.0%
36		1		2		1	1	1	6	3.1%
37				1	1				2	1.0%
38						1			1	0.5%
39		1		1					2	1.0%
40		1					1		2	1.0%
41				1					1	0.5%
TOTAL NO. MEASURED:	0	12	28	45	14	32	40	18	189	99%
TOTAL LENGTH:	0	312	724	1,152	334	776	986	453	4,736	
AVERAGE LENGTH:	N/A	26.0	25.9	25.6	23.9	24.2	24.6	25.2	25.1	
TOTAL NO. SPEARED:	2	13	41	59	14	34	41	30	234	
PERCENT MEASURED:	0.0%	92.3%	68.3%	76.3%	100.0%	94.1%	97.6%	60.0%	80.8%	