



**Biological and Commercial Catch Statistics
from the Chippewa Inter-Tribal Gill Net Fishery
within Michigan Waters of Lake Superior
During 2008**

by

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ABSTRACT

The 2008 commercial inter-tribal fishery in the 1842 treaty-ceded waters of Michigan consisted of seven (7) large boats and 15 small boats, representing 22 tribal licensees from the Keweenaw Bay, Bad River and Red Cliff Bands of Lake Superior Chippewa. Gill nets were the only gear used in the fishery.

The fishing season for whitefish and lake trout was closed from November 1 through November 27 and commercial fishing was prohibited during October in seven seasonal refuges. Target fishing for lean lake trout (fishing in water < 35 fathoms) in areas outside the refuges was prohibited during October to reduce the impact of fishing on spawning stocks of lake trout. The Keweenaw Bay tribe managed their lake herring fishery through a quota system.

Fishermen reported fishing 4.83 million feet of gill net and harvesting 935,040 round pounds of fish. Whitefish was the primary target species, making up 88.5% of the total, followed by lake trout (10.6%), with the remaining 0.9% consisting of siscowet, lake herring (cisco), salmon, chubs, walleye, and menominee.

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INTRODUCTION

The Red Cliff, Bad River and Keweenaw Bay Bands of Lake Superior Chippewa entered into an agreement to establish an inter-tribal off-reservation assessment fishery in the western Michigan waters of Lake Superior (from the Wisconsin- Michigan state line to the West Entry in the Keweenaw Peninsula) on 23 August 1984. In 1988 tribal off-reservation commercial fishing expanded to include more fishermen and fishing in waters east of the Keweenaw Peninsula. An inter-tribal agreement was developed to manage this expanded fishery. Since 1990 Bad River and Red Cliff have managed their fishery within the guidelines of this inter-tribal agreement, while Keweenaw Bay manages their fishery through a fisheries management plan. Results of the early assessment fishery and the expanded commercial fishery have been reported annually as administrative reports of the Great Lakes Indian Fish and Wildlife Commission.

Biological and commercial fishery statistics were summarized for calendar year 2008 from the inter-tribal fishery in the 1842 treaty-ceded territory within Michigan waters of Lake Superior (Figure 1), and compared to those from previous years. Statistics were reported by management unit, grid, and gear type as indicated on individual catch reports.

Description of the Fishery

The commercial fishery consisted of seven (7) large boats and 15 small boats, representing 22 tribal licenses from the Keweenaw Bay, Bad River and Red Cliff Bands. As in previous years, the area south of a line from the East Entry of Keweenaw Peninsula to Point Abbaye (Figure 1) was open only to Keweenaw Bay small boat fishermen. Gill nets were the only gear used in the fishery during 2008.

The fishing season for whitefish and lake trout was closed from November 1 through November 27. Fishing for siscowet was prohibited in water less than 35 fathoms during the closed season for lake trout and whitefish. Commercial fishing was prohibited during October in seasonal refuges, of which four were created in 1988, and three in 1989 (Figure 1). Target fishing for lean lake trout in other areas was prohibited during October to reduce the impact of fishing on spawning stocks of lake trout. The Keweenaw Bay tribe employed a quota system for regulating lake herring harvest by its fishermen. The Bad River and Red Cliff tribes did not use this system for lake herring. Also, the three bands allowed fishing for lake herring year-round (i.e. no seasonal restriction).

Quota Management System

Since 1985, the tribes have used a quota management system to regulate lake trout harvest and to limit mortality on lake trout stocks in the 1842 inter-tribal gill net fishery within Michigan waters of Lake Superior. In 1985 and 1986, each gill net tug was assigned a lake trout quota of 3,750 or 15,000 pounds depending on tribal affiliation. Starting with the 1987-1990 time period and for each of the four management units, total allowable catch (TAC, expressed as number of fish) values were estimated for each year within the time period. The average TAC was then calculated and used as the TAC for each fishing year within the time period. A tribal fishing year began in November and ran through October of the next year. Harvest quotas applied only to lean lake trout (referred to as "lake trout" in this report). Harvest of siscowet, a form of lake trout that generally inhabits deeper water and has a higher fat content than lean lake trout, was not regulated by quotas. TAC's and tribal quotas by management unit, and each fishing year within a 3-6 year period were as follows:

UNIT		YEARS				
		Nov. 1987- Oct. 1990 ¹	Nov. 1990- Oct. 1994 ²	Nov. 1994- Oct. 1999 ³	Nov.1999- Oct. 2005 ^{4,5}	Nov. 2006- Oct. 2009 ⁶
MI-2	TAC	19,800	10,400	9,700	6,606	6,606
	Tribal	9,900	5,200	4,850	3,303	3,303
MI-3	TAC	5,000	7,600	6,600	4,950	4,950
	Tribal	2,500	3,800	3,300	2,475	2,475
MI-4	TAC	20,600	53,400	46,920	40,440	43,200
	Tribal	10,300	26,700	23,460	20,220	21,600
MI-5	TAC	16,100	15,700	17,080	33,130	33,130
	Tribal	4,830	4,710	5,124	16,565	16,565
Total	TAC	61,500	87,100	80,300	85,126	87,886
	Tribal	27,530	40,410	36,734	42,563	43,943

¹GLIFWC. 1987.

²Ebener et al. 1989.

³Mattes. 1994.

⁴Mattes. 2000.

⁵Mattes. 2004.

⁶Mattes. 2006.

METHODS

Effort and harvest data were collected from mandatory daily catch reports filed bi-weekly by all fishermen who sold fish in their names, or by the boat captain who reported all effort and catch for his vessel. Gill net effort was reported as linear feet of gill net lifted. Harvest was reported in both dressed and round pounds. Species for which harvest was reported by fishermen as dressed pounds and conversion factors used to calculate round pounds are as follows:

Species	Conversion
Whitefish	1.17
Lake trout	1.25
Siscowet	1.25
Salmon and Trout	1.25
Herring	1.20
Round whitefish (menominee)	1.15
Chub	1.20

Harvest of other species (walleye, sucker, smelt, burbot, and northern pike) were reported by fishermen as round pounds.

Biological statistics were derived from biological monitoring data. Biological monitoring of catches occurred several times a month by the Keweenaw Bay Natural Resources Department, the Red Cliff Fisheries Department, and the Great Lakes Indian Fish and Wildlife Commission.

RESULTS AND DISCUSSION

Commercial Catch and Effort Statistics

Fishermen reported fishing 4.83 million feet of gill net and harvesting 935,040 round pounds of fish. Whitefish was the primary target species, making up 88.5% of the total, followed by lake trout (10.6%), with the remaining 0.9% consisting of siscowet, lake herring (cisco), salmon, chubs, walleye, and menominee.

MI-2

Harvest. Twenty percent of the overall harvest was taken in MI-2 (Table 1). Of the 261,971 round pounds harvested in MI-2, 95.2% were whitefish, 3.7% lake trout, 0.5% siscowet, 0.5% herring (cisco) (Table 2). Lake trout harvest was highest in grid 1414 (2,774 dressed pounds), with less than 2,500 dressed pounds taken in each of the remaining six statistical grids fished (Figure 2). Whitefish harvest was greatest in grid 1413 (104,464 dressed pounds), followed by grids 1414, 1316, and 1412 (40,292, 30,721, and 20,637 dressed pounds, respectively). Less than 15,000 pounds were taken in each of the other three grids fished (Figure 3).

Effort. Twenty-eight percent of the overall gill-net effort occurred in MI-2 (Table 1) which was fished by two tribes (Table 3). Fishing effort in MI-2 was 987,600 feet with 45.9% (453,200 feet) occurring in grid 1413 and over 200,000 feet fished in grid 1414 (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 99.8% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort was targeted at whitefish and lake trout (Tables 4 and 5). Target effort (0.99 million feet) and harvest of whitefish (213,266 dressed pounds) was greater than the 1985-2008 average (368,256 feet and 67,377 dressed pounds, respectively). Target lake trout harvest (7,660 dressed pounds) was near the 1985-2008 average of 7,359 dressed pounds.

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing in the eight grids fished in MI-2 ranged from 63-351 pounds (Table 4). Whitefish CPE for the eight grids combined was 216 above the average CPE of 183 for this unit for the 24 year period 1985-2008 (Table 5). Lake trout CPE for targeted fishing ranged from 2-67 per grid and was 8 for all grids combined, below the 1985-2008 average CPE of 20 pounds.

Unit MI-3

Harvest. Forty-eight percent of the overall harvest was taken in MI-3 (Table 1). Of the 454,218 round pounds harvested in MI-3, 96.2% were whitefish, 3.5% lake trout, and 0.3% siscowet (Table 2). Harvest occurred in six statistical grids, with lake trout harvest highest in grid 1220 (3,547 dressed pounds) and less than 2,500 dressed pounds in the remaining five grids fished (Figure 2). Whitefish harvest was greatest in grid 1121 (125,810 dressed pounds) followed by grids 1219, 1023, and 1220 (89,690, 70,165, and 53,012 dressed pounds, respectively). Whitefish harvest was less than 30,000 pounds in the other two grids fished (Figure 3).

Effort. Thirty-nine percent of the overall gill-net effort occurred in MI-3 (Table 1) which was fished by three tribes (Table 3). Fishing effort in MI-3 was 1,871,150 feet with 36.2% (678,000 feet) occurring in grid 1121, followed by 26.4% (493,200 feet) in grid 1219 and 15.2% (284,000 feet) in grid 1023 (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 99.8% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort in MI-3 was targeted at whitefish and lake trout (Table 4). Target gill-net effort (1.87 million feet) was near the 1985-2008 average of 1.83 million feet (Table 5). Target harvest of whitefish (373,411 dressed pounds) was above the 1985-2008 average (172,037 dressed pounds). Target harvest of lake trout (12,697 dressed pounds) was below the 1985-2008 average (18,468 dressed pounds).

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing in the six grids fished ranged from 82-260 pounds (Table 4). Whitefish CPE for the six grids combined was 200 pounds and above the average CPE of 94 for this unit for the 24 year period 1985-2008 (Table 5). Lake trout CPE for targeted fishing ranged from 3-17 pounds and was 7 for all grids combined, below the 1985-2008 average CPE of 10 pounds.

Unit MI-4

Harvest. Twenty-one percent of the overall harvest was taken in MI-4 (Table 1). Of the 194,495 round pounds harvested, 68% were whitefish, 30% lake trout, 1.6% siscowet, and 0.2% herring (Table 2). Harvest occurred in ten statistical grids. Lake trout harvest was highest in grid 1224 (20,841 dressed pounds) followed by grids 1223 and 1324 (5,600 and 5,412 dressed pounds, respectively) (Figure 2). Less than 5,000 dressed pounds were harvested in each of the other seven grids fished. Whitefish harvest was greatest in grid 1224 (35,480 dressed pounds) followed by grids 1125 and 1324 (22,080 and 15,866 dressed pounds, respectively) and exceeded 10,000 pounds in grid 1026 (Figure 3). Less than 10,000 dressed pounds were harvested in each of the other six grids fished.

Effort. Thirty percent of the overall gill-net effort occurred in MI-4 (Table 1) which was fished by two tribes (Table 3). Fishing effort in MI-4 was 1,465,750 feet with 36% (527,000 feet) occurring in grid 1224 (Table 2), followed by 20.1% (295,200 feet) in grid 1125. Greater than 100,000 feet were fished in three grids (1324, 1223, and 1423) with less than 100,000 feet being fished in each of the remaining five grids (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 93.6% of the unit's effort (Table 2 and Figure 5). No small mesh net was fished in MI-4 in 2008.

Target Effort and Harvest. All fishing effort (1,465,750 feet) was targeted at whitefish and lake trout (Table 4), which was lower than the 1985-2008 average of 3.2 million feet (Table 5). Target harvest of whitefish (113,059 dressed pounds) was below the 1985-2008 average (191,561 dressed pounds). Target harvest of lake trout (46,669 dressed pounds) was also below the 1985-2008 average (70,210 dressed pounds).

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing in the ten grids fished ranged from 19-225 pounds (Table 4). Whitefish CPE for the ten grids combined was 77 pounds and above the average CPE of 61 for this unit for the 24 year period 1985-2008 (Table 5). Lake trout CPE for targeted fishing ranged from 10-47 pounds and was 32 for all grids combined, above the 1985-2008 average CPE of 22 pounds.

Unit MI-5

Harvest. Three percent of the overall harvest was taken in MI-5 (Table 1). Of the 24,356 round pounds harvested in MI-5, 37% were whitefish and 61.3% lake (Table 2). Harvest occurred in three statistical grids. Lake trout harvest was highest in grid 1529 (10,203 dressed pounds) (Figure 2). Whitefish harvest was also highest in grid 1529 (5,832 dressed pounds) (Figure 3).

Effort. Eleven percent of the overall gill-net effort occurred in MI-5 (Table 1) which was fished by one tribe (Table 3). Fishing effort in MI-5 was 508,500 feet with 84.2% (428,000 feet) occurring in grid 1529 (Figure 4). Gill-nets of 4 ½ inch mesh accounted for all of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort was targeted at whitefish and lake trout (Table 4). Target gill-net effort (508,500 feet) was higher than the 1985-2008 average of 0.4 million feet (Table 5). Target harvest of whitefish (7,691 dressed pounds) well below the 1986-2008 average (27,469 dressed pounds). Target harvest of lake trout (11,949 dressed pounds) was also below the 1986-2008 average (20,566 dressed pounds).

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing was 15 for the three grids combined (Table 4), below the average CPE of 65 pounds for this unit for the 23 year period 1986-2008 (Table 5). Lake trout CPE for targeted fishing in the three grids combined was 23 pounds which is below the 1986-2008 average CPE of 48 pounds.

Biological Statistics

Lake Trout MI-2

Eight year classes of wild trout (6, 8, 10, 12, 14, 15, 17, 19) were represented in a sample of 11 lake trout aged from MI-2 (Table 6). Mean age of wild fish was 11.9 years with fish ten years and older representing 64% of the catch.

Mean length for the 12 fish measured was 22.6 inches and mean weight for the 12 fish weighed was 4.9 pounds round. Average length at age of wild lake trout has decreased and become narrower since 1985. In 2008 average length at age is based upon a low sample size (Figure 6).

Lamprey marking rates were 8.3 wounds and 0.0 scars/100 fish (Table 7). Annual total mortality was estimated to be 25% ($Z=0.28 \pm 0.16$) for wild fish ages 8-12 (Table 8).

Lake Trout MI-3

One hatchery fish (age 16) and nine year classes of wild trout (5-8, 10-12, 15, 26) were represented in a sample of 19 lake trout aged from MI-3 (Table 9). Mean age of wild fish was 10.2 years. Fish ten years and older made up 56% of the wild component of the catch.

For wild fish mean length for 20 fish measured was 23.3 inches and mean weight for the 20 fish weighed was 4.9 pounds round. Average length at age of 7-10 year old wild lake trout has decreased and become narrower since 1985 (Figure 6).

Overall lamprey-marking rates were 4.5 wounds and 0.0 scars/100 fish (Table 7). Annual total mortality rate was estimated at 27% ($Z=0.32, \pm 0.09$) for wild fish ages 11-15 (Table 8).

Lake Trout MI-4

Six age groups of hatchery fish (4, 5, 7, 9, 11, 15) and seven year classes of wild trout (6-8, 10, 13, 14, 16) were represented in a sample of 24 lake trout aged from MI-4 (Table 10). Mean age of hatchery and wild fish was 7.4 and 9.5 years, respectively. Fish ten years and older made up 39% of the wild component of the catch.

Mean length of the 26 fish sampled was 23.0 inches and mean weight of the 26 fish weighed was 4.2 round pounds (Table 10). The average size of wild fish (24.1 inches, 4.6 pounds) was larger than that of hatchery fish (21.6 inches, 3.6 pounds). Average length of wild fish at ages 7-10 has generally decreased and become narrower since 1985 (Figure 6).

Lamprey marking rates were 0.0 (Table 7) compared to 1.6 wounds and 3.3 scars/100 fish in 2007 and 4.3 wounds and 4.6 scars/100 fish in 2006 (Mattes et al. 2008a, Mattes et al. 2008b). Annual total mortality for wild fish ages 8-13 was estimated to be 18% ($Z=0.20 \pm 0.15$) and for wild and hatchery fish combined ages 7-11 was estimated to be 38% ($Z=0.47 \pm 0.14$) (Table 8).

Lake Trout MI-5

Fourteen year classes of wild trout (5-17, 20) were represented in a sample of 78 lake trout aged from MI-5 (Table 11). Mean age of wild fish was 9.3 years with fish ten years and older representing 35% of the catch.

Mean length for the 82 wild fish measured was 23.1 inches and mean weight for the 41 wild fish weighed was 3.8 pounds round. Average length of wild fish at ages 7-10 has become narrower since 1987 (Figure 6). One hatchery fish measured was 28.9 inches and 8.3 pounds round.

Lamprey marking rates were 3.6 wounds and 4.8 scars/100 fish (Table 7) compared to 6.3 wounds and 0.0 scars/100 fish in 2007 and 3.3 wounds and 9.0 scars/100 fish in 2006 (Mattes et al. 2008a, Mattes et al. 2008b). Annual total mortality was estimated to be 30% ($Z=0.35 \pm 0.03$) for wild fish ages 8-17 (Table 8).

Lake Whitefish MI-2

Eleven age groups (7-17) were represented in the 111 whitefish aged in MI-2 which had a mean age of 10.9 years (Table 12). Mean length of the 111 fish measured was 19.7 inches and mean weight of the 33 fish weighed was 2.4 round pounds. The average length of age 7 to 10 year old fish has generally been similar since 1995 (Figure 7). Annual total mortality was estimated at 34% ($Z=0.41 \pm 0.05$) for ages 10-17.

Lake Whitefish MI-3

Twelve age groups (7-18) were represented in the 583 whitefish aged in MI-3, which had a mean age of 10.2 years (Table 12). The 1999 and 1998 year classes (ages 9 and 10) comprised 25% and 20% of the sample, respectively, while the 1997 and 1996 year classes (ages 11 and 12) comprised 18% and 11% of the sample, respectively. Average length of 824 lake whitefish measured was 19.8 inches and weight for 621 lake whitefish sampled averaged 2.3 round pounds. The average length of age 7 to 10 year old fish has generally been similar since 1995 (Figure 7). Annual total mortality was estimated at 40% ($Z=0.51 \pm 0.05$) for ages 9-18.

Lake Whitefish MI-4

Ten age groups (5-14) were represented in the 286 whitefish aged in MI-4, which had a mean age of 8.4 years (Table 12). The 2000 and 1999 year classes (ages 8 and 9) comprised 23% and 24% of the sample, respectively, while the 1998 and 1997 year classes (ages 10 and 11) comprised 13% and 7% of the sample, respectively. Average length of 368 lake whitefish measured was 20.6 inches and weight for 293 lake whitefish sampled averaged 2.8 round pounds. The average length of age 7 to 10 year old fish has generally been similar since 1997 (Figure 7). Annual total mortality was estimated at 56% ($Z=0.83 \pm 0.07$) for ages 9-14.

Lake Whitefish MI-5

Eight age groups (6-13) were represented in the 35 whitefish aged in MI-5 (Table 12), where mean age was 9.3 years. Average length for the 37 lake whitefish measured was 22.9 inches, and weight for the 35 lake whitefish weighed averaged 4.1 round pounds. The average length of age 7 to 10 year old fish has generally shown the most variation of any of the units since 1995 (Figure 7). Annual total mortality was estimated at 32% ($Z=0.39 \pm 0.12$) for ages 8-13.

Siscowet

There were eleven age groups of siscowet in the 22 fish sampled in units MI-2 and MI-3 (Table 13) which had a mean age of 17.4 years. Mean length and weight for 26 fish sampled was 21.9 inches and 3.1 round pounds, respectively. Annual total mortality was estimated at 42% ($Z=0.54 \pm 0.01$) for ages 19-22 for the two units combined.

Lake Herring and Menominee Whitefish

Eight age groups (4-10, 14) were represented in 31 lake herring aged from units MI-3 and MI-4 where mean age was 9.0 ($N=7$) and 7.0 ($N=24$), respectively (Table 14). For MI-3 and MI-4 lake herring mean length was 14.9 and 16.5 inches and mean weight was 1.1 and 1.2 round pounds, respectively. For the ninth consecutive year otoliths replaced scale samples as the aging structure used to assign age to individual fish. Total annual mortality was estimated at 33% ($Z=0.40 \pm 0.04$) for ages 7-10 in both units combined.

Two age four menominee whitefish were sampled in 2008 with a mean length of 12.4 inches and a mean weight of 0.8 pounds round (Table 15).

Coho and Chinook Salmon

One coho salmon was sampled from MI-5 in 2008 (Table 16) at 4.0 years old 21.3 inches and 3.3 pounds round. In addition, two chinook salmon were sampled from MI-4 with a mean age of 4.0 years, mean length of 26.8 inches, and mean weight of 6.9 round pounds (Table 17).

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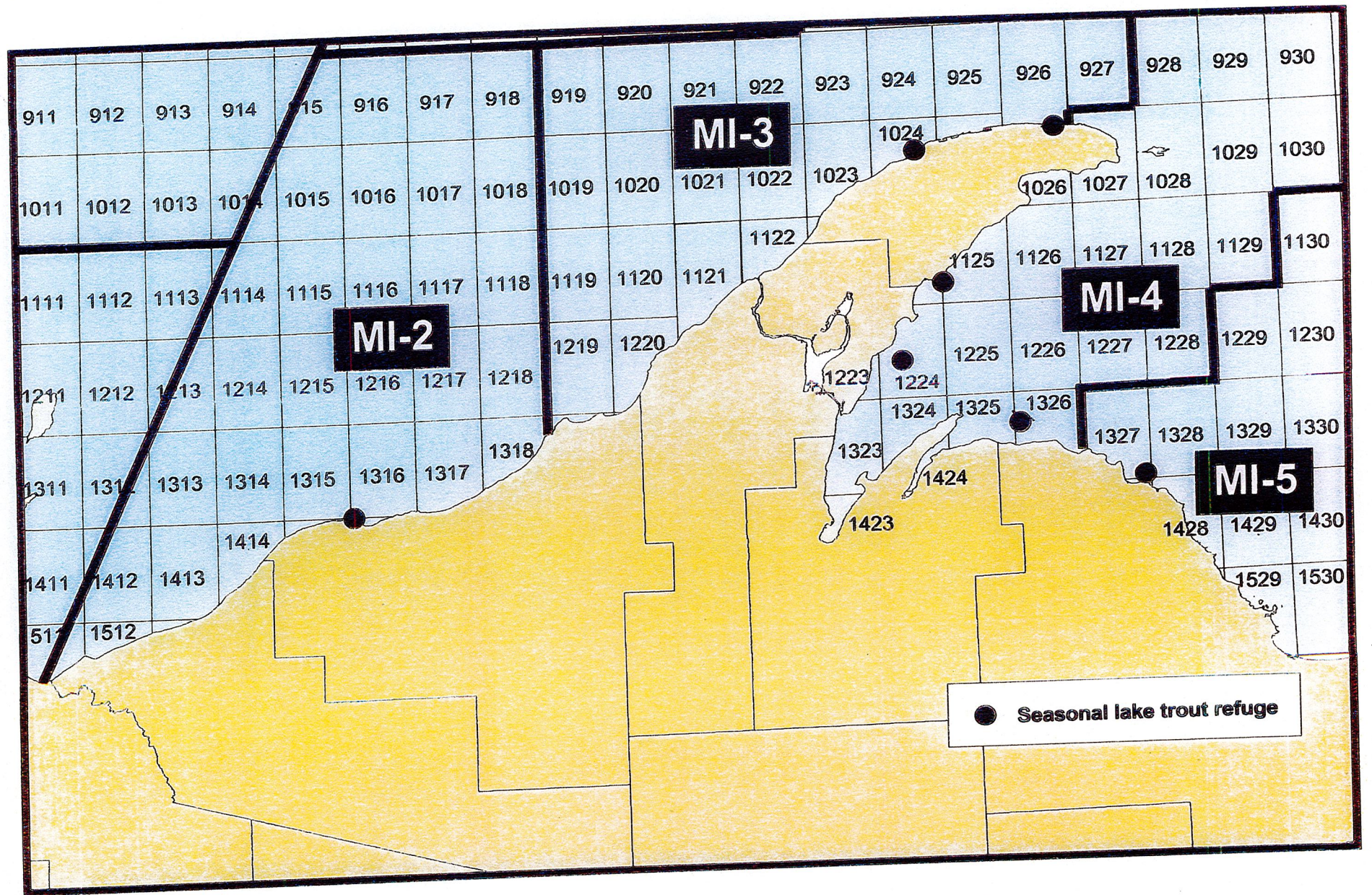


Figure 1. Management units and statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior.

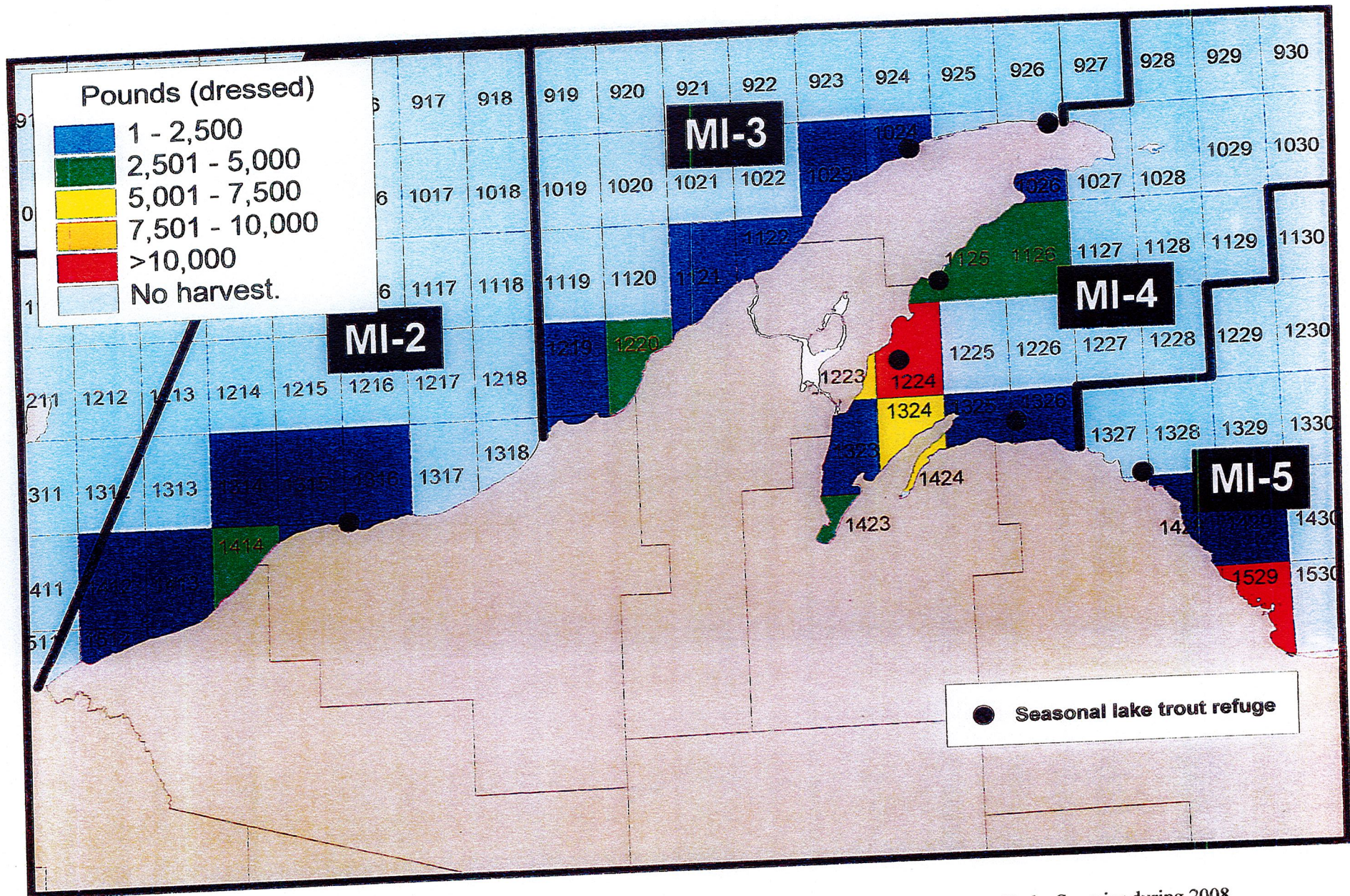


Figure 2. Lake trout harvest (dressed pounds) by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2008.

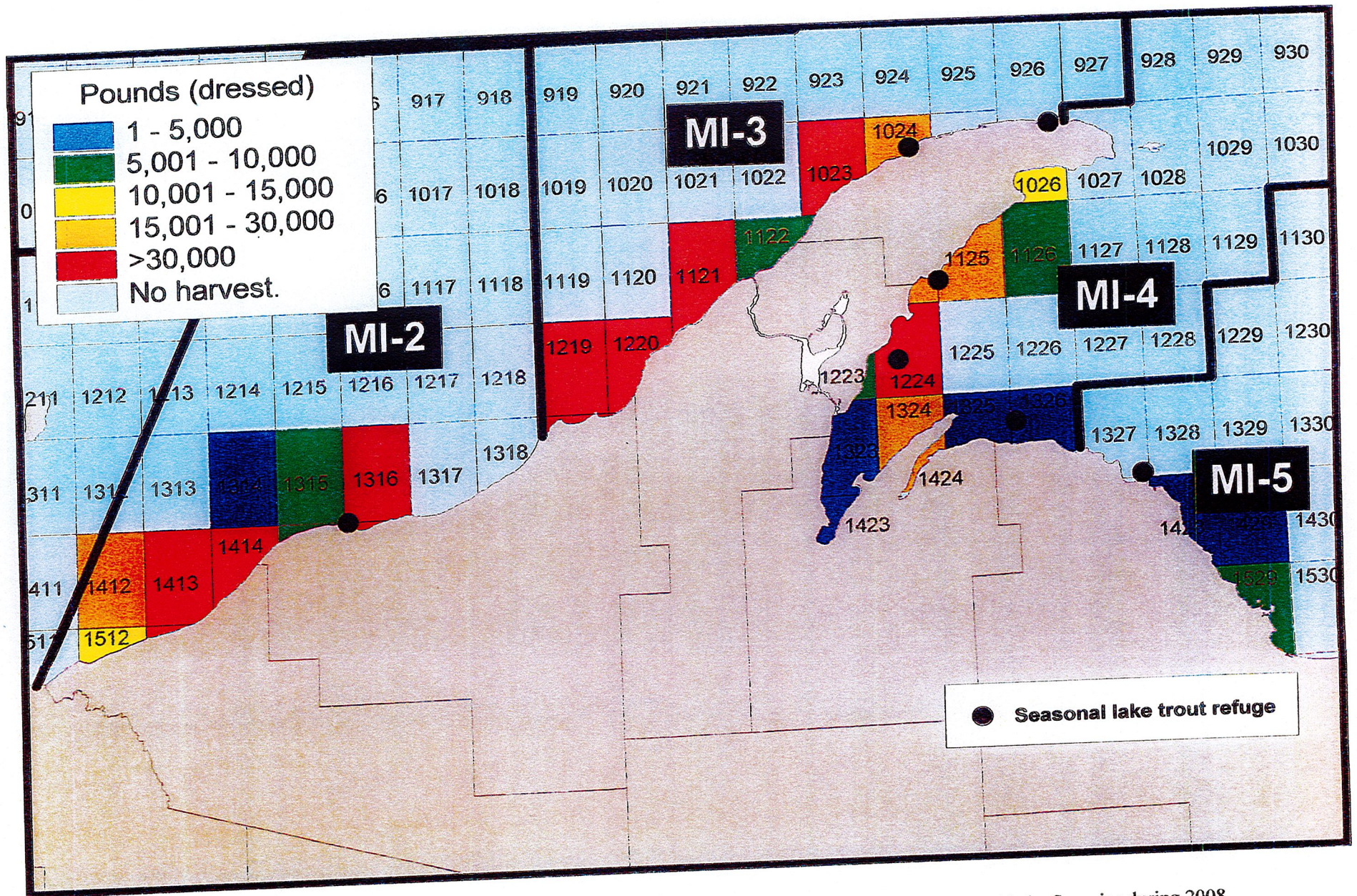


Figure 3. Whitefish harvest (dressed pounds) by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2008.

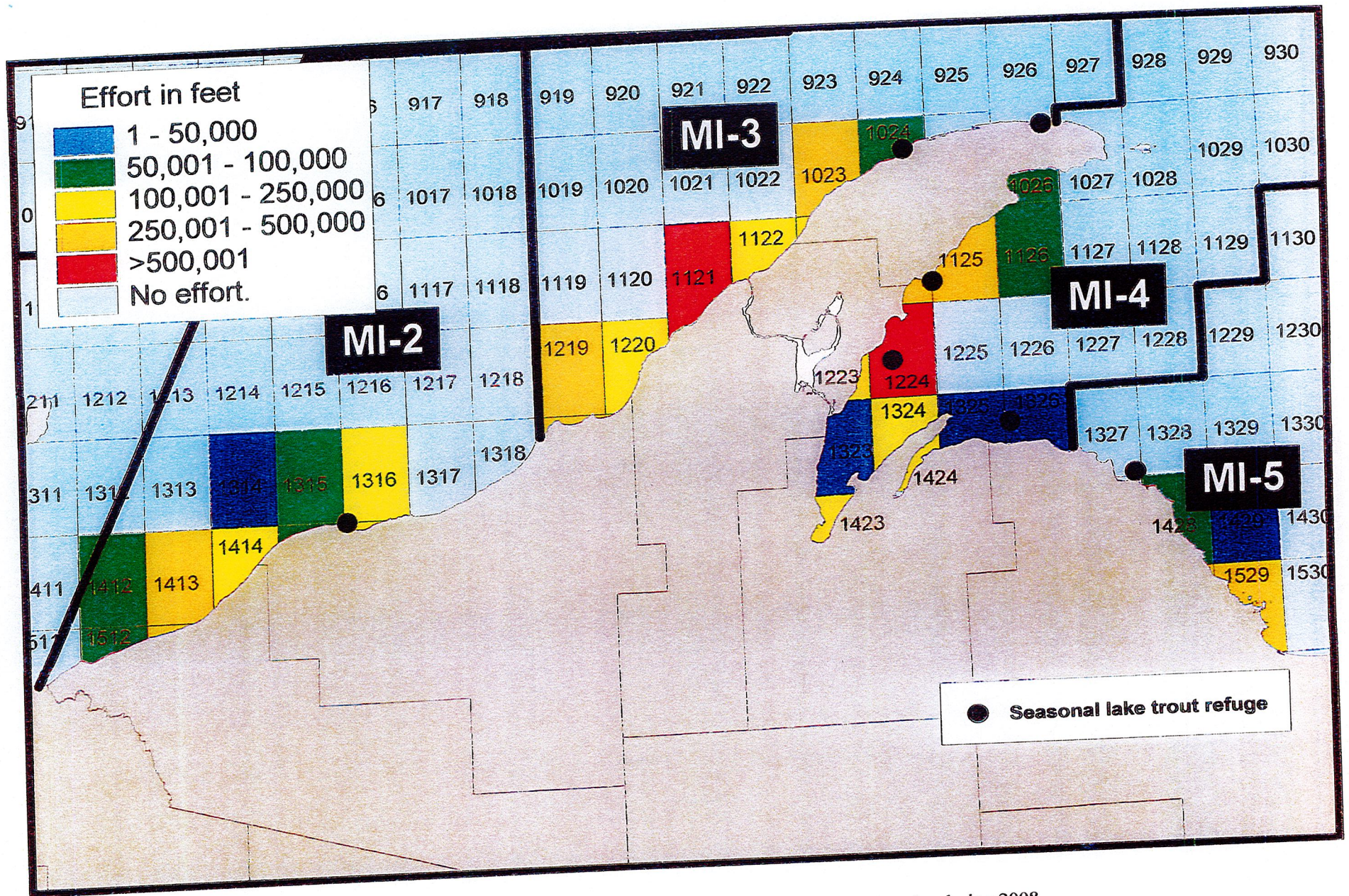


Figure 4. Effort in feet by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2008.

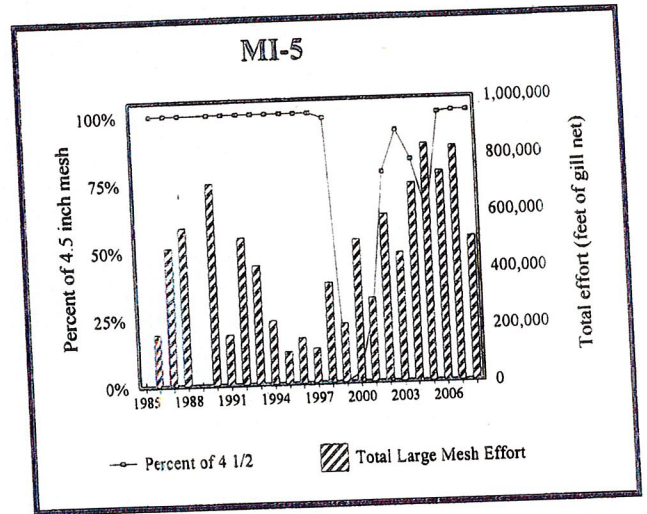
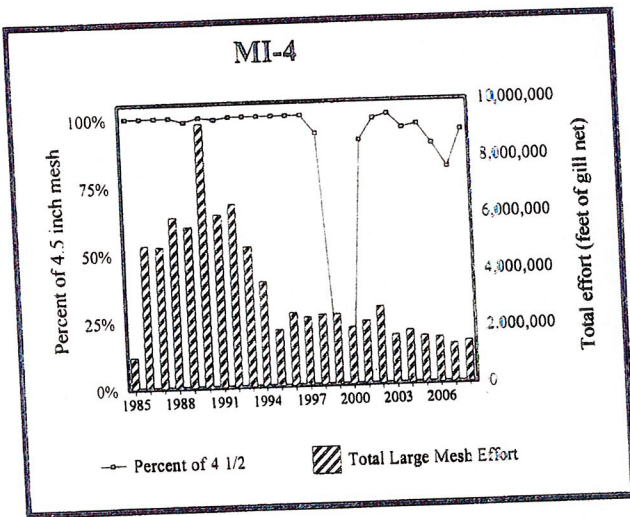
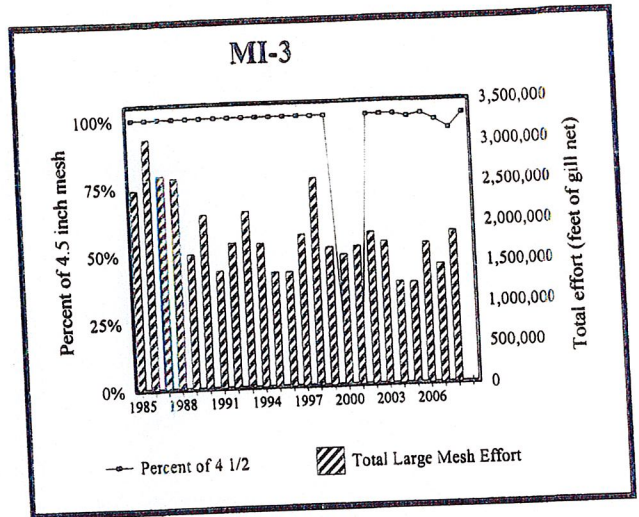
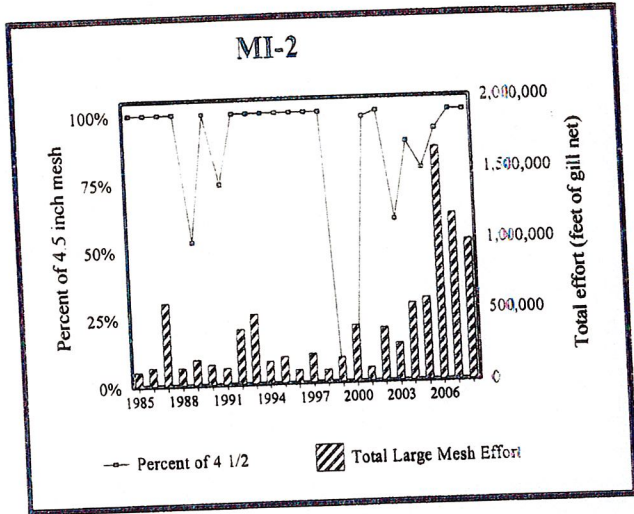
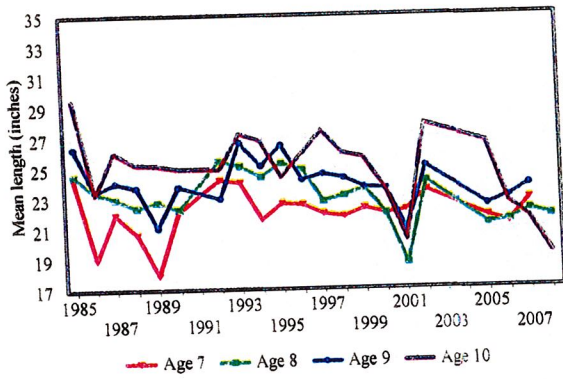
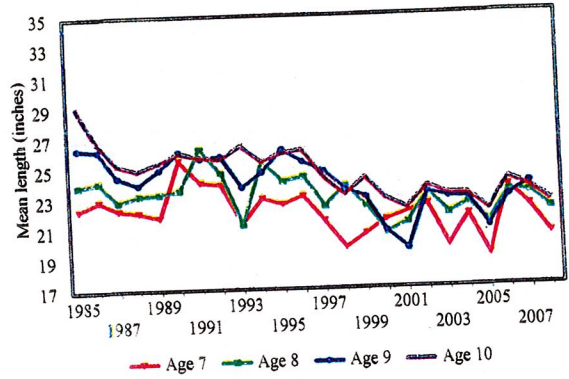


Figure 5. Total tribal large mesh gill net effort and percent composed of 4 1/2 inch mesh by management unit, 1985 to 2008.

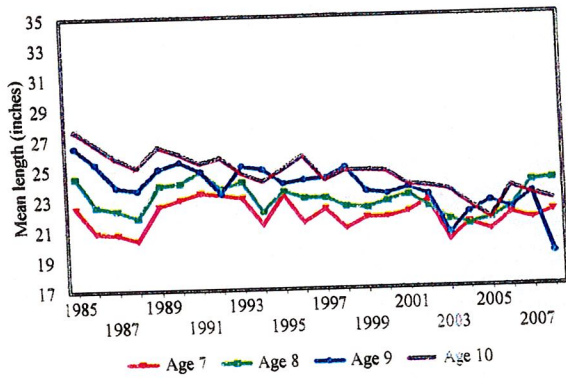
Wild Lake Trout MI-2



Wild Lake Trout MI-3



Wild Lake Trout MI-4



Wild Lake Trout MI-5

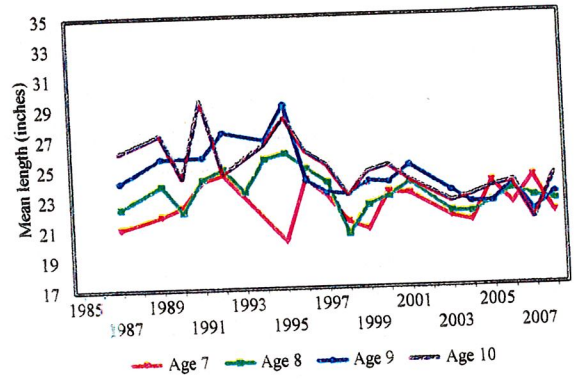
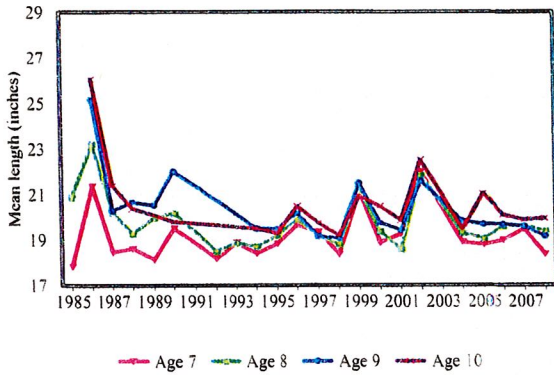
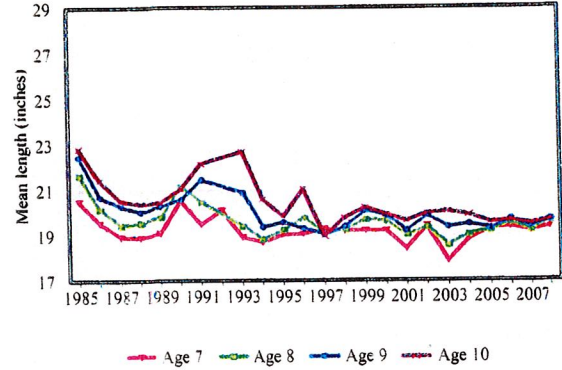


Figure 6. Trends in average length (inches) of wild lake trout (ages 7-10) in Michigan management units within the 1842 treaty ceded area, from 1985-2008.

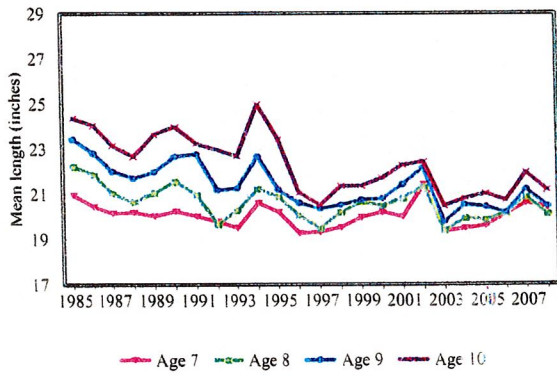
Whitefish MI-2



Whitefish MI-3



Whitefish MI-4



Whitefish MI-5

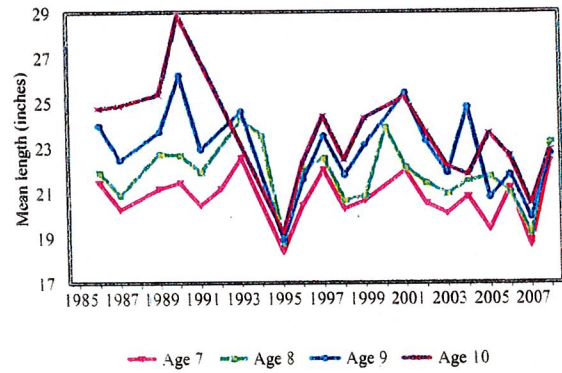


Figure 7. Trends in average length (inches) of whitefish (ages 7-10) in Michigan management units within the 1842 treaty ceded area, from 1985-2008.

Table 1. Total tribal commercial gill net effort (feet) and harvest (pounds) by management unit, grid, and species from the 1842 ceded area within Michigan waters of Lake Superior in 2008.

Management Unit	Grid	Effort	Percent of Total Effort*	Lake trout	Whitefish	Siscowet	Herring	Salmon	Chub	Menominee	Walleye	Sucker	Smelt	Burbot	Total Harvest Round Pounds	Percent of Total Harvest
MI-2	1314	3,000	0.3%	200	306	0	0	0	0	0	0	0	0	0		
	1315	52,400	5.3%	408	5,409	5	9	0	0	0	0	0	0	0		
	1316	128,000	13.0%	211	30,721	191	338	0	85	0	0	0	0	0		
	1412	58,800	6.0%	1,455	20,637	46	31	0	0	0	0	0	0	0		
	1413	453,200	45.9%	1,686	104,464	753	745	0	0	0	38	0	0	0		
	1414	210,600	21.3%	2,774	40,293	0	0	0	0	4	0	0	0	0		
	1512	81,600	8.3%	926	11,436	82	29	0	1	0	0	0	0	0		
	Effort:	987,600	20.4%													
Subtotals:				7,660	213,266	1,077	1,152	0	0	0	38	0	0	0	261,970.9	28.0%
	Dressed Pounds:			9,575.0	249,521.2	1,346.3	1,382.4	0.0	103.2	5	0	0	0	0		
	Round Pounds:															
MI-3	1023	284,000	15.2%	1,778	70,165	1,000	0	0	0	0	0	0	0	0		
	1024	99,750	5.3%	1,212	25,984	0	0	0	0	0	0	0	0	0		
	1121	678,000	36.2%	2,177	125,810	0	0	0	0	0	0	0	0	0		
	1122	106,200	5.7%	1,975	8,750	150	10	0	0	0	0	0	0	0		
	1219	493,200	26.4%	2,008	89,690	5	10	0	0	0	0	0	0	0		
	1220	210,000	11.2%	3,547	53,012	0	0	0	0	0	0	0	0	0		
	Effort:	1,871,150	38.7%													
Subtotals:				12,697	373,411	1,155	10	0	0	0	0	0	0	0	454,217.9	48.6%
	Dressed Pounds:			15,871.3	436,890.9	1,443.8	12.0	0.0	0.0	0	0	0	0	0		
	Round Pounds:															
MI-4	1026	72,000	4.9%	1,975	12,073	0	0	0	0	0	0	0	0	0		
	1125	295,200	20.1%	4,416	22,080	0	0	0	0	0	0	0	0	0		
	1126	82,000	5.6%	3,854	9,152	0	0	0	0	0	0	0	0	0		
	1223	130,000	8.9%	5,600	8,950	0	0	0	0	0	0	0	0	0		
	1224	527,000	36.0%	20,841	35,480	1,089	0	0	0	0	95	0	0	0		
	1323	44,600	3.0%	1,281	3,051	0	0	50	0	0	15	0	0	0		
	1324	190,400	13.0%	5,412	15,866	1,350	0	0	0	0	0	0	0	0		
	1325	3,400	0.2%	33	64	0	0	0	0	0	0	0	0	0		
	1326	8,000	0.5%	100	1,800	0	400	0	0	0	0	0	0	0		
	1423	113,150	7.7%	3,157	4,543	41	0	37	0	0	31	0	0	0		
	Effort:	1,465,750	30.3%													
Subtotals:				46,669	113,059	2,480	400	87	0	0	141	0	0	50	194,495.0	20.8%
	Dressed Pounds:			58,336.3	132,279.0	3,100.0	480.0	108.8	0.0	2	36	0	0	4		
	Round Pounds:															
MI-5	1428	72,500	14.3%	1,558	1,749	0	41	258	0	2	0	0	0	0		
	1429	8,000	1.6%	188	110	0	0	0	0	0	0	0	0	0		
	1529	428,000	84.2%	10,203	5,832	0	6	0	0	0	0	0	0	0		
Effort:	508,500	10.5%														
Subtotals:				11,949	7,691	0	47	258	0	2	36	0	0	4	24,356.0	2.6%
	Dressed Pounds:			14,936.3	8,998.5	0.0	56.4	322.5	0.0	2	0	0	0	0		
	Round Pounds:															
Grand Totals:	Effort:	4,833,000														
	Dressed Pounds:			78,975	707,427	4,712	1,609	345	0	0	215	0	0	54	935,039.8	
	Round Pounds:			98,718.8	827,689.6	5,890.0	1,930.8	431.3	103.2	7	0	0	0	0		

*For subtotals, percentage refers to percent of overall effort fished in unit.

Table 2. Tribal commercial gill net effort (feet) harvest (pounds) by management unit, gill net mesh size, and species from the 1842 ceded area within Michigan waters of Lake Superior in 2008.

Unit	Mesh	Effort	Percent of									Total Harvest Round Pounds
			Total Effort*	Lake trout	Whitefish	Siscowet	Herring	Salmon	Chub	Menominee	Walleye	
MI-2	4.5	985,600	99.8%	7,660	213,266	1,077	1,152	0	86	4	38	
MI-2	5.25	2,000	0.2%	0	0	0	0	0	0	0		
Subtotals:	Effort:	987,600	20.4%	7,660	213,266	1,077	1,152	0	86	4	38	
	Dressed Pounds:			9,575.0	249,521.2	1,346.3	1,382.4	0.0	103.2	4.8	38.0	261,970.9
	Round Pounds:			3.7%	95.2%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	
Percent of Unit Harvest:												
MI-3	4.5	1,867,600	99.8%	12,675	372,884	1,155	10	0	0	0	0	
MI-3	5.25	3,550	0.2%	22	527	0	0	0	0	0	0	
Subtotals:	Effort:	1,871,150	38.7%	12,697	373,411	1,155	10	0	0	0	0	
	Dressed Pounds:			15,871.3	436,890.9	1,443.8	12.0	0.0	0.0	0.0	0.0	454,217.9
	Round Pounds:			3.5%	96.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
Percent of Unit Harvest:												
MI-4	4.5	1,372,000	93.6%	46,000	95,999	2,439	400	66	0	0	115	
MI-4	5.0	20,030	1.4%	487	837	41	0	21	0	0	10	
MI-4	5.5	1,720	0.1%	5	0	0	0	0	0	0	16	
MI-4	4.5-5	72,000	4.9%	177	16,223							
Subtotals:	Effort:	1,465,750	30.3%	46,669	113,059	2,480	400	87	0	0	141.0	194,445.0
	Dressed Pounds:			58,336.3	132,279.0	3,100.0	480.0	108.8	0.0	0.0	0.1%	
	Round Pounds:			30.0%	68.0%	1.6%	0.2%	0.1%	0.0%	0.0%	0.1%	
Percent of Unit Harvest:												
MI-5	4.5	508,500	100.0%	11,949	7,691	0	47	258	0	2	36	
Subtotals:	Effort:	508,500	10.5%	11,949	7,691	0	47	258	0	2	36	
	Dressed Pounds:			14,936.3	8,998.5	0.0	56.4	322.5	0.0	2.4	36.0	24,352.0
	Round Pounds:			61.3%	37.0%	0.0%	0.2%	1.3%	0.0%	0.0%	0.1%	
Percent of Unit Harvest:												
Totals:	Effort:	4,833,000		78,975	707,427	4,712	1,609	345	86	6	215.0	934,985.8
	Dressed Pounds:			98,718.8	827,689.6	5,890.0	1,930.8	431.3	103.2	7.2	0.0%	
	Round Pounds:			10.6%	88.5%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	
Percent of Total Harvest:												

*For subtotals, percentage refers to percent of overall effort fished in unit.

Table 3. Total and target harvest, effort, and CPE by management unit and tribe for lake trout, whitefish, and siscowet in Michigan waters of Lake Superior in 2008.*

Unit	Tribe	TOTAL HARVEST							TARGET HARVEST							
		Effort	Whitefish pounds	CPE	Lake trout pounds	CPE	Siscowet pounds	CPE	Effort	Whitefish pounds	CPE	Lake trout pounds	CPE	Effort	Siscowet pounds	CPE
MI-2	Bad River	413,800	89,308	216	868	2	1,077	3	413,800	89,308	216	868	2	0	0	0
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff	573,800	123,958	216	6,792	12	0	0	573,800	123,958	216	6,792	12	0	0	0
	subtotal	✓987,600	213,266	216	7,660	8	1,077	1	✓987,600	213,266	216	7,660	8	0	0	0
MI-3	Bad River	33,950	8,790	259	314	9	5	0	33,950	8,790	259	314	9	0	0	0
	Keweenaw Bay	170,000	28,650	169	3,245	19	1,150	7	170,000	28,650	169	3,245	19	0	0	0
	Red Cliff	1,667,200	335,971	202	9,138	5	0	0	1,667,200	335,971	202	9,138	5	0	0	0
	subtotal	✓1,871,150	373,411	200	12,697	7	1,155	1	✓1,871,150	373,411	200	12,697	7	0	0	0
MI-4	Bad River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Keweenaw Bay	944,550	53,531	57	36,247	38	2,480	3	944,550	53,531	57	36,247	38	0	0	0
	Red Cliff	521,200	59,528	114	10,422	20	0	0	521,200	59,528	114	10,422	20	0	0	0
	subtotal	✓1,465,750	113,059	77	46,669	32	2,480	2	✓1,465,750	113,059	77	46,669	32	0	0	0
MI-5	Bad River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Keweenaw Bay	508,500	7,691	15	11,949	23	0	0	508,500	7,691	15	11,949	23	0	0	0
	Red Cliff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	subtotal	✓508,500	7,691	15	11,949	23	0	0	✓508,500	7,691	15	11,949	23	0	0	0
Total	Bad River	447,750	98,098	219	1,182	3	1,082	2	447,750	98,098	219	1,182	3	0	0	0
	Keweenaw Bay	1,623,050	89,872	55	51,441	32	3,630	2	1,623,050	89,872	55	51,441	32	0	0	0
	Red Cliff	2,762,200	519,457	188	26,352	10	0	0	2,762,200	519,457	188	26,352	10	0	0	0
	All Tribes	✓4,833,000	707,427	146	78,975	16	4,712	1	✓4,833,000	707,427	146	78,975	16	0	0	0

*Pounds are in dressed weight, effort is feet of net lifted and CPE is pounds/1000 ft of net lifted. Target species was assigned to each lift based on reported target species from individual catch reports. Target effort for whitefish and lake trout was combined.

Table 4. Gill net harvest, effort, and CPE for target species by management unit and grid in Michigan waters of Lake Superior in 2008.*

Unit	Grid	Whitefish			Lake trout			Siscowet			Salmon			Herring		
		Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE
MI-2	1314	3,000	306	102	3,000	200	67									
	1315	52,400	5,409	103	52,400	408	8									
	1316	128,000	30,721	240	128,000	211	2									
	1412	58,800	20,637	351	58,800	1,455	25									
	1413	453,200	104,464	231	453,200	1,686	4									
	1414	210,600	40,293	191	210,600	2,774	13									
	1512	81,600	11,436	140	81,600	926	11									
	subtotal	987,600	213,266	216	987,600	7,660	8	0	0	0	0	0	0	0	0	0
MI-3	1023	284,000	70,165	247	284,000	1,778	6									
	1024	99,750	25,984	260	99,750	1,212	12									
	1121	678,000	125,810	186	678,000	2,177	3									
	1122	106,200	8,750	82	106,200	1,975	19									
	1219	493,200	89,690	182	493,200	2,008	4									
	1220	210,000	53,012	252	210,000	3,547	17									
	subtotal	1,871,150	373,411	200	1,871,150	12,697	7	0	0	0	0	0	0	0	0	0
MI-4	1026	72,000	12,073	168	72,000	1,975	27									
	1125	295,200	22,080	75	295,200	4,416	15									
	1126	82,000	9,152	112	82,000	3,854	47									
	1223	130,000	8,950	69	130,000	5,600	43									
	1224	527,000	35,480	67	527,000	20,841	40									
	1323	44,600	3,051	68	44,600	1,281	29									
	1324	190,400	15,866	83	190,400	5,412	28									
	1325	3,400	64	19	3,400	33	10									
	1326	8,000	1,800	225	8,000	100	13									
	1423	113,150	4,543	40	113,150	3,157	28									
	subtotal	1,465,750	113,059	77	1,465,750	46,669	32	0	0	0	0	0	0	0	0	0
MI-5	1428	72,500	1,749	24	72,500	1,558	21									
	1429	8,000	110	14	8,000	188	24									
	1529	428,000	5,832	14	428,000	10,203	24									
	subtotal	508,500	7,691	15	508,500	11,949	24	0	0	0	0	0	0	0	0	0
Grand Total		4,833,000	707,427	146	4,833,000	78,975	16	0	0	0	0	0	0	0	0	0

*Pounds are in dressed weight, effort is feet of net lifted and CPE is pounds/1,000 ft of net lifted. Target species was assigned to each lift based on reported target species from individual catch reports. Target effort for whitefish and lake trout was combined.

Table 5.

Tribal commercial gill net effort (feet), harvest (dressed pounds), and catch per unit effort (CPE, pounds/1,000 feet) for whitefish, lake trout and siscowet by management unit and year from the 1842 ceded area within Michigan waters of Lake Superior from 1985-2008. Target effort for whitefish and lake trout was combined.

Unit	Year	Whitefish				Lake trout				Siscowet			
		Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest
MI-2	1985	101,100	5,664	56	5,664	101,100	9,238	91	9,238	0	0	0	45
	1986	128,000	16,234	127	16,234	128,000	7,550	59	7,550	0	0	0	63
	1987	576,200	80,246	139	80,246	576,200	18,568	32	18,633	3,200	0	0	2,059
	1988	98,000	2,809	29	2,809	98,000	17,374	177	17,374	24,000	4,945	206	5,377
	1989	178,000	33,511	188	33,511	178,000	13,488	76	13,488	0	0	0	4,181
	1990	113,000	22,867	202	24,012	113,000	2,789	25	3,269	28,000	8,145	291	13,308
	1991	136,800	32,003	234	32,003	136,800	5,273	39	5,273	0	0	0	812
	1992	217,000	44,814	207	45,377	217,000	2,290	11	2,332	166,000	25,946	156	27,476
	1993	419,100	74,220	177	74,473	419,100	7,780	19	8,263	52,400	10,029	191	18,680
	1994	148,200	17,629	119	17,629	148,200	7,790	53	7,790	5,000	747	149	1,990
	1995	155,000	11,236	73	12,160	155,000	9,729	63	10,104	15,000	3,307	221	6,682
	1996	89,600	4,418	49	4,418	89,600	7,777	87	7,777	1,200	3	3	189
	1997	196,300	19,512	99	19,512	196,300	10,675	54	11,302	5,000	1,608	322	2,311
	1998	85,400	10,250	120	10,250	85,400	3,125	37	3,125	0	0	0	250
	1999	170,100	31,466	185	31,466	170,100	1,130	7	1,130	0	0	0	3,628
	2000	391,800	120,494	308	120,494	391,800	3,925	10	3,925	0	0	0	3,911
	2001	95,000	16,944	178	16,944	95,000	463	5	463	0	0	0	1,483
	2002	371,800	43,377	117	43,377	371,800	3,582	10	3,582	0	0	0	6,667
	2003	261,600	37,887	145	37,887	261,600	2,910	11	2,910	0	0	0	1,700
	2004	526,900	80,959	154	80,959	526,900	5,745	11	5,745	0	0	0	26
2005	577,600	129,062	223	129,062	577,600	7,103	12	7,103	0	0	0	280	
2006	1,642,450	360,434	219	360,434	1,642,450	9,072	6	9,072	0	0	0	705	
2007	1,171,600	207,745	177	207,745	1,171,600	11,582	10	11,582	0	0	0	1,339	
2008	987,600	213,266	216	213,266	987,600	7,660	8	7,660	0	0	0	1,077	
Average:		368,256	67,377	183	67,497	368,256	7,359	20	7,445	12,492	2,280	183	4,343
MI-3	1985	2,475,200	309,525	125	309,525	2,475,200	31,501	13	31,501	0	0	0	6,098
	1986	2,936,200	265,269	90	266,919	2,936,200	39,682	14	39,888	161,000	26,172	163	44,384
	1987	2,098,900	136,353	65	145,245	2,098,900	36,409	17	37,340	538,800	58,797	109	78,320
	1988	2,427,300	222,321	92	225,440	2,427,300	32,677	14	33,158	176,400	21,934	124	34,289
	1989	1,596,000	134,078	84	134,182	1,596,000	28,215	18	28,224	68,000	10,660	157	22,461
	1990	2,127,500	110,615	52	110,615	2,127,500	28,361	13	28,361	20,000	2,967	148	28,771
	1991	1,329,900	62,714	47	65,264	1,329,900	22,507	17	23,790	123,400	14,458	117	30,005
	1992	1,675,200	119,291	71	120,176	1,675,200	19,537	12	19,912	84,600	8,272	98	27,350
	1993	2,100,100	172,270	82	172,488	2,100,100	16,958	8	17,255	63,700	5,933	93	22,052
	1994	1,703,800	73,556	43	74,632	1,703,800	12,651	7	13,433	71,000	5,053	71	22,099
	1995	1,408,400	91,358	65	91,358	1,408,400	8,013	6	8,013	0	0	0	9,774
	1996	1,359,700	135,822	100	136,622	1,359,700	9,843	7	10,798	56,000	2,750	49	6,277
	1997	1,854,100	136,221	74	136,971	1,854,100	15,954	9	16,435	18,000	1,546	86	13,270
	1998	2,556,700	267,336	105	267,411	2,556,700	24,629	10	24,759	9,500	400	42	11,706
	1999	1,706,300	178,485	105	178,485	1,706,300	12,430	7	12,430	0	0	0	11,455
	2000	1,609,300	204,065	127	204,065	1,609,300	8,951	6	8,951	0	0	0	3,389
	2001	1,711,600	154,154	90	154,154	1,711,600	17,246	10	17,246	0	0	0	7,819
	2002	1,879,000	85,980	46	85,980	1,879,000	19,558	10	19,558	0	0	0	8,986
	2003	1,759,000	196,274	112	196,274	1,759,000	12,585	7	12,585	0	0	0	0
	2004	1,255,400	67,579	54	67,579	1,255,400	9,973	8	9,973	0	0	0	0
2005	1,246,000	118,185	95	118,185	1,246,000	4,738	4	4,738	0	0	0	0	
2006	1,731,000	264,460	153	264,460	1,731,000	12,714	7	12,714	0	0	0	56	
2007	1,466,400	249,555	170	249,555	1,466,400	5,414	4	5,414	0	0	0	0	
2008	1,871,150	373,411	200	373,411	1,871,150	12,697	7	12,697	0	0	0	1,155	
Average:		1,828,506	172,037	94	172,875	1,828,506	18,468	10	18,716	57,933	6,623	114	16,238
MI-4	1985	1,083,275	218,666	202	219,376	1,083,275	43,118	40	44,289	0	0	0	241
	1986	4,864,900	526,710	108	527,148	4,864,900	129,258	27	129,565	105,800	25,924	245	32,038
	1987	4,110,190	300,332	73	301,898	4,110,190	71,863	18	72,864	768,200	136,596	178	160,297
	1988	5,547,065	245,246	44	246,854	5,547,065	117,982	21	119,281	266,000	34,653	130	53,689
	1989	6,781,675	371,247	55	372,637	6,781,675	112,829	17	114,353	70,000	21,781	311	58,127
	1990	8,557,900	377,190	44	382,839	8,557,900	133,645	16	139,272	600,500	38,606	64	81,902
	1991	5,945,200	278,295	47	286,046	5,945,200	94,581	16	104,481	789,300	55,800	71	96,699
	1992	5,152,100	299,967	58	313,370	5,152,100	74,849	15	86,074	950,750	46,489	49	96,550
	1993	3,939,425	165,440	42	176,357	3,939,425	65,184	17	76,105	747,500	55,090	74	92,518
	1994	2,801,325	88,866	32	95,085	2,801,325	53,075	19	62,290	559,050	38,703	69	60,395
	1995	1,529,225	74,466	49	84,682	1,529,225	47,471	31	61,986	376,000	35,363	94	51,510
	1996	2,096,400	101,931	49	108,219	2,096,400	43,737	21	50,828	336,900	23,662	70	38,361
	1997	2,238,988	127,998	57	129,103	2,238,988	54,929	25	56,302	137,986	41,753	303	65,555
	1998	2,202,700	136,100	62	139,384	2,202,700	60,014	27	63,419	196,870	19,377	98	33,038
	1999	2,338,100	141,873	61	143,432	2,338,100	69,671	30	70,896	79,400	14,920	188	25,154
	2000	1,922,025	128,261	67	129,288	1,922,025	78,318	41	79,097	43,700	6,616	151	17,851
	2001	2,193,800	114,051	52	114,867	2,193,800	66,726	30	67,347	22,800	6,949	305	34,091
	2002	2,735,450	160,561	59	160,564	2,735,450	91,897	34	91,897	0	0	0	19,050
	2003	1,714,600	158,437	92	158,437	1,714,600	45,406	27	45,406	0	0	0	500
	2004	1,864,550	147,536	79	147,594	1,864,550	49,185	26	49,208	0	0	0	664
2005	1,660,670	142,676	86	142,676	1,660,670	41,026	25	41,026	0	0	0	123	
2006	1,601,855	90,777	57	90,833	1,601,855	52,758	33	52,857	3,375	165	49	1,538	
2007	1,345,140	87,772	65	87,807	1,345,140	40,856	30	40,891	0	0	0	514	
2008	1,465,750	113,059	77	113,059	1,465,750	46,669	32	46,669	0	0	0	2,480	
Average:		3,153,846	191,561	61	194,648	3,153,846	70,210	22	73,600	252,255	25,102	100	42,620

Table 5. Continued.

Unit	Year	Whitefish				Lake trout				Siscowet			
		Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest
MI-5	1986	180,000	25,205	140	25,205	180,000	10,667	59	10,667	4,000	750	188	1,772
	1987	440,000	32,095	73	33,126	440,000	13,509	31	13,509	48,000	2,502	52	6,269
	1988	551,900	47,233	86	47,363	551,900	32,105	58	32,105	6,000	333	56	5,449
	1989	225,500	42,809	190	42,809	225,500	12,661	56	12,661	0	0	0	2,785
	1990	706,000	80,394	114	80,394	706,000	18,490	26	18,490	0	0	0	10,026
	1991	305,500	24,355	80	24,540	305,500	7,789	26	7,899	36,000	405	11	9,787
	1992	426,000	35,827	84	37,169	426,000	8,042	19	8,977	72,000	2,970	41	8,672
	1993	416,000	21,375	51	21,522	416,000	25,555	61	25,597	4,500	206	46	2,833
	1994	211,000	5,318	25	5,388	211,000	24,974	118	24,974	14,000	290	21	2,878
	1995	113,400	9,288	82	9,288	113,400	8,445	75	8,445	0	0	0	1,839
	1996	161,400	7,672	48	7,672	161,400	8,040	50	8,040	0	0	0	1,033
	1997	102,300	17,997	176	18,831	102,300	5,249	51	6,105	8,000	200	25	1,855
	1998	280,300	23,950	85	24,452	280,300	14,942	53	16,247	74,000	1,989	27	4,023
	1999	178,000	12,213	69	12,813	178,000	18,342	103	19,824	15,500	1,222	79	4,038
	2000	481,800	44,454	92	44,842	481,800	48,030	100	48,479	7,500	578	77	3,073
	2001	292,700	22,949	78	22,949	292,700	6,377	22	7,321	0	0	0	0
	2002	576,600	31,159	54	31,329	576,600	23,010	40	23,010	0	0	0	1,849
2003	454,500	14,988	33	14,988	454,500	37,706	83	37,706	0	0	0	5	
2004	705,700	20,742	29	20,742	705,700	31,827	45	31,827	0	0	0	480	
2005	835,070	29,985	36	29,988	835,070	29,505	35	29,530	1,190	60	50	383	
2006	738,700	44,839	61	44,839	738,700	36,650	50	36,668	0	0	0	0	
2007	820,500	29,254	36	29,313	820,500	32,988	40	32,988	0	0	0	0	
2008	508,500	7,691	15	7,691	508,500	11,949	24.23	11,949	0	0	0	0	
Average:		422,233	27,469	65	27,707	422,233	20,298	48	20,566	12,639	500	40	3,002
All units	1985	3,659,575	533,855	146	534,565	3,659,575	83,857	23	85,028	0	0	0	6,384
	1986	8,109,100	833,418	103	835,506	8,109,100	187,157	23	187,670	270,800	52,846	195	78,257
	1987	7,225,290	549,026	76	560,515	7,225,290	140,349	19	142,346	1,358,200	197,895	146	246,945
	1988	8,624,265	517,609	60	522,466	8,624,265	200,138	23	201,918	472,400	61,865	131	98,804
	1989	8,781,175	581,645	66	583,139	8,781,175	167,193	19	168,726	138,000	32,441	235	87,554
	1990	11,504,400	591,066	51	597,860	11,504,400	183,285	16	189,392	648,500	49,718	77	134,007
	1991	7,717,400	397,367	51	407,853	7,717,400	130,150	17	141,443	948,700	70,663	74	137,303
	1992	7,470,300	499,899	67	516,092	7,470,300	104,718	14	117,295	1,273,350	83,677	66	160,048
	1993	6,874,625	433,305	63	444,840	6,874,625	115,477	17	127,220	868,100	71,258	82	136,083
	1994	4,864,325	185,369	38	192,734	4,864,325	98,490	20	108,487	649,050	44,793	69	87,362
	1995	3,206,025	186,348	58	197,488	3,206,025	73,658	23	88,548	391,000	38,670	99	69,805
	1996	3,707,100	249,843	67	256,931	3,707,100	69,397	19	77,443	394,100	26,415	67	45,860
	1997	4,391,688	301,728	69	304,417	4,391,688	86,807	20	90,144	168,986	45,107	267	82,991
	1998	5,125,100	437,636	85	441,497	5,125,100	102,710	20	107,550	280,370	21,766	78	49,017
	1999	4,392,500	364,037	83	366,196	4,392,500	101,573	23	104,280	94,900	16,142	170	44,275
	2000	4,404,925	497,274	113	498,689	4,404,925	139,224	32	140,452	51,200	7,194	141	28,224
	2001	4,293,100	308,098	72	308,914	4,293,100	90,812	21	92,377	22,800	6,949	305	43,393
2002	5,562,850	321,077	58	321,250	5,562,850	138,047	25	138,047	0	0	0	36,552	
2003	4,189,700	407,586	97	407,586	4,189,700	98,607	24	98,607	0	0	0	2,205	
2004	4,352,550	316,816	73	316,874	4,352,550	96,730	22	96,753	0	0	0	1,170	
2005	4,319,340	419,908	97	419,911	4,319,340	82,372	19	82,397	1,190	60	50	786	
2006	5,714,005	760,510	133	760,566	5,714,005	111,194	19	111,311	3,375	165	49	2,299	
2007	4,803,640	574,326	120	574,420	4,803,640	90,840	19	90,875	0	0	0	1,853	
2008	4,833,000	707,427	146	707,427	4,833,000	78,975	16	78,975	0	0	0	4,712	
Average:		5,755,249	457,299	79	461,572	5,755,249	115,490	20	119,470	334,793	34,484	103	66,079

Table 6. Age and size composition of hatchery (H) and wild (N) lake trout in tribal commercial harvests from unit MI-2 during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Origin	Age	Number		Length (in.)		Number Weighed	Weight (lbs)	
			Aged	Measured	mean	sd		mean	sd
MI-2									
	N								
			0	1	20.5		1	3.0	
		6	1	1	23.7		1	5.0	
		8	3	3	21.8	4.6	3	5.3	4.0
		10	1	1	19.3		1	3.0	
		12	1	1	25.7		1	9.6	
		14	2	2	23.3	2.1	2	4.5	1.3
		15	1	1	22.3		1	3.0	
		17	1	1	21.0		1	3.0	
		19	1	1	27.3		1	7.7	
Sample Size:			11	12			12		
Means:			11.9		22.6	3.0		4.9	2.7
Sample Size:			11	12			12		
Means:			11.9		22.6	3.0		4.9	2.7

Table 7. Lamprey wounding and scarring rates (marks/100 fish) on lake trout, per Lake Superior Technical Committee protocol, captured in the tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2008.

Unit	Length Category (Inches)	Fish Examined	Type AI, AII, AIII Wounds	Wounds per 100 fish	Scars	Scars per 100 fish
MI-2						
	2: 17-20.9	4	0	0.0	0	0.0
	3: 21-24.9	5	1	20.0	0	0.0
	4: 25-28.9	3	0	0.0	0	0.0
	Total:	12	1	8.3	0	0.0
MI-3						
	2: 17-20.9	6	0	0.0	0	0.0
	3: 21-24.9	8	1	12.5	0	0.0
	4: 25-28.9	4	0	0.0	0	0.0
	5: > 29	4	0	0.0	0	0.0
	Total:	22	1	4.5	0	0.0
MI-4						
	2: 17-20.9	8	0	0.0	0	0.0
	3: 21-24.9	12	0	0.0	0	0.0
	4: 25-28.9	3	0	0.0	0	0.0
	5: > 29	3	0	0.0	0	0.0
	Total:	26	0	0.0	0	0.0
MI-5						
	2: 17-20.9	14	0	0.0	0	0.0
	3: 21-24.9	55	2	3.6	1	1.8
	4: 25-28.9	12	1	8.3	1	8.3
	5: > 29	2	0	0.0	2	100.0
	Total:	83	3	3.6	4	4.8

Table 8. Catch curve mortality and survival rates on lake trout from management units in the 1842 ceded area within Michigan waters of Lake Superior for data collected January-December 1988-2008.

Management Unit	Year	Wild and Hatchery Lake Trout Combined						Wild Lake Trout				
		Ages	Instantaneous	95% confidence	Annual total	Annual	Ages	Instantaneous	95% confidence	Annual total	Annual	
			total mortality	limit for	mortality	Survival		total mortality	limit for	mortality	Survival	
Z	Z	A	S	Z	Z	A	S					
MI-2	2008	8-12	0.28	+/- 0.16	0.25	0.75	8-12	0.28	+/- 0.16	0.25	0.75	
	2007	10-13	0.61	+/- 0.17	0.46	0.54	10-13	0.61	+/- 0.17	0.46	0.54	
	2006	7-13	0.25	+/- 0.03	0.22	0.78	7-13	0.25	+/- 0.03	0.22	0.78	
	2005	6-17	0.23	+/- 0.05	0.21	0.79	6-17	0.23	+/- 0.05	0.21	0.79	
	2002	9-11	0.46	+/- 0.03	0.37	0.63	9-11	0.46	+/- 0.03	0.37	0.63	
	2001	9-15	0.34	+/- 0.10	0.29	0.71	9-15	0.33	+/- 0.10	0.28	0.72	
	2000	9-13	0.22	+/- 0.30	0.20	0.80	9-13	0.22	+/- 0.34	0.20	0.80	
	1999	7-13	0.29	+/- 0.16	0.25	0.75	7-13	0.26	+/- 0.16	0.23	0.77	
	1998	7-13	0.39	+/- 0.11	0.32	0.68	7-13	0.39	+/- 0.11	0.32	0.68	
	1990	8-12	0.71	+/- 0.25	0.51	0.49	8-11	0.75	+/- 0.42	0.53	0.47	
	1988	9-13	0.41	+/- 0.31	0.33	0.67	9-13	0.41	+/- 0.31	0.33	0.67	
MI-3	2008	8-16	0.27	+/- 0.16	0.24	0.76	11-15	0.32	+/- 0.09	0.27	0.73	
	2007	10-13	0.41	+/- 0.10	0.34	0.66	10-13	0.40	+/- 0.09	0.33	0.67	
	2006	9-11	0.50	+/- 0.01	0.39	0.61	9-11	0.60	+/- 0.04	0.45	0.55	
	2005	9-15	0.32	+/- 0.08	0.27	0.73	9-15	0.32	+/- 0.08	0.27	0.73	
	2004	8-17	0.39	+/- 0.05	0.32	0.68	8-17	0.39	+/- 0.04	0.32	0.68	
	2003	7-14	0.29	+/- 0.07	0.25	0.87	7-14	0.28	+/- 0.08	0.24	0.87	
	2002	7-20	0.31	+/- 0.04	0.27	0.73	7-20	0.31	+/- 0.04	0.27	0.73	
	2000	7-11	0.20	+/- 0.45	0.18	0.82	7-11	0.20	+/- 0.45	0.18	0.81	
	1999	7-16	0.04	+/- 0.09	0.20	0.80	7-16	0.22	+/- 0.10	0.20	0.80	
	1997	7-11	0.21	+/- 0.20	0.19	0.81	7-11	0.18	+/- 0.21	0.17	0.84	
	1996	8-13	0.28	+/- 0.19	0.24	0.76	8-13	0.24	+/- 0.27	0.21	0.79	
	1995	8-11	0.56	+/- 0.33	0.43	0.57	8-11	0.52	+/- 0.33	0.41	0.60	
	1992	7-13	0.37	+/- 0.36	0.31	0.69	Insufficient data.					
	1991	8-11	0.40	+/- 0.33	0.33	0.67	8-11	0.47	+/- 0.35	0.38	0.63	
	1989	8-11	0.64	+/- 0.09	0.47	0.53	8-12	0.72	+/- 0.08	0.51	0.49	
	1988	11-13	0.78	+/- 0.45	0.54	0.46	9-13	0.65	+/- 0.40	0.48	0.52	

Table 8. Continued.

Management		Wild and Hatchery Lake Trout Combined					Wild Lake Trout				
		Instantaneous total mortality	95% confidence limit for	Annual total mortality	Annual Survival	Instantaneous total mortality	95% confidence limit for	Annual total mortality	Annual Survival		
Unit	Year	Ages	Z	Z	A	S	Ages	Z	Z	A	S
MI-4	2008	7-11	0.47	+/- 0.14	0.38	0.62	8-13	0.20	+/- 0.15	0.18	0.82
	2007	9-16	0.35	+/- 0.07	0.30	0.70	9-16	0.33	+/- 0.06	0.28	0.72
	2006	9-15	0.59	+/- 0.09	0.45	0.55	9-15	0.56	+/- 0.08	0.43	0.57
	2005	8-18	0.31	+/- 0.06	0.27	0.73	8-18	0.29	+/- 0.06	0.25	0.75
	2004	8-15	0.30	+/- 0.04	0.26	0.74	8-15	0.26	+/- 0.04	0.23	0.88
	2003	8-17	0.27	+/- 0.04	0.24	0.88	8-17	0.26	+/- 0.05	0.23	0.88
	2002	7-12	0.27	+/- 0.06	0.24	0.76	7-12	0.23	+/- 0.07	0.21	0.79
	2001	7-15	0.37	+/- 0.06	0.31	0.69	7-15	0.36	+/- 0.05	0.30	0.70
	2000	5-13	0.27	+/- 0.52	0.24	0.76	6-13	0.32	+/- 0.59	0.28	0.72
	1999	7-12	0.25	+/- 0.03	0.22	0.78	7-12	0.20	+/- 0.07	0.18	0.82
	1998	7-12	0.30	+/- 0.13	0.26	0.74	7-12	0.22	+/- 0.17	0.20	0.80
	1997	7-12	0.34	+/- 0.12	0.29	0.71	7-12	0.46	+/- 0.18	0.37	0.63
	1996	7-12	0.57	+/- 0.15	0.43	0.57	7-12	0.56	+/- 0.16	0.43	0.57
	1995	7-12	0.25	+/- 0.17	0.22	0.78	7-12	0.20	+/- 0.23	0.18	0.82
	1994	7-12	0.31	+/- 0.09	0.27	0.73	7-12	0.28	+/- 0.10	0.24	0.76
	1993	6-11	0.30	+/- 0.24	0.26	0.74	6-11	0.35	+/- 0.33	0.30	0.71
	1992	5-11	0.45	+/- 0.08	0.36	0.64	5-11	0.43	+/- 0.11	0.35	0.65
	1991	6-11	0.58	+/- 0.10	0.44	0.56	6-11	0.59	+/- 0.13	0.45	0.55
1990	6-11	0.59	+/- 0.09	0.45	0.55	6-11	0.72	+/- 0.15	0.51	0.49	
1989	7-11	0.71	+/- 0.22	0.51	0.49	7-11	0.79	+/- 0.40	0.55	0.45	
1988	8-13	0.54	+/- 0.28	0.42	0.58	9-13	0.91	+/- 0.13	0.60	0.40	
MI-5	2008	8-17	0.35	+/- 0.03	0.30	0.70	8-17	0.35	+/- 0.03	0.30	0.70
	2007	9-17	0.23	+/- 0.05	0.21	0.79	9-17	0.23	+/- 0.05	0.21	0.79
	2006	8-13	0.66	+/- 0.10	0.48	0.52	8-13	0.66	+/- 0.10	0.48	0.52
	2005	8-17	0.33	+/- 0.03	0.28	0.72	8-17	0.33	+/- 0.03	0.28	0.72
	2004	8-15	0.44	+/- 0.06	0.36	0.64	8-15	0.47	+/- 0.06	0.37	0.63
	2003	12-22	0.27	+/- 0.05	0.24	0.88	12-22	0.26	+/- 0.05	0.23	0.88
	2001	7-15	0.28	+/- 0.07	0.24	0.76	7-15	0.27	+/- 0.07	0.24	0.76
	2000	10-16	0.17	+/- 0.26	0.16	0.84	10-16	0.19	+/- 0.34	0.17	0.83
	1991	5-8	0.60	+/- 0.45	0.45	0.55	5-8	0.74	+/- 0.56	0.52	0.48

Table 9. Age and size composition of hatchery (H) and wild (N) lake trout in tribal commercial harvests from unit MI-3 during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Origin	Age	Number		Length (in.)		Weight (lbs)		
			Aged	Measured	mean	sd	Number Weighed	mean	sd
MI-3									
	H								
			0	1	35.7		1	14.9	
		16	1	1	35.4		1	17.5	
Sample Size:			1	2			2		
Means:			16.0		35.6	0.3		16.2	1.9
	N								
			0	2	21.6	6.4	2	3.4	3.1
		5	2	2	20.6	1.4	2	2.8	0.9
		6	1	1	17.8		1	1.8	
		7	2	2	20.5	0.9	2	2.7	1.1
		8	3	3	22.2	3.4	3	3.5	1.5
		10	2	2	22.6	1.2	2	3.0	0.6
		11	4	4	23.9	3.2	4	4.7	2.0
		12	2	2	24.4	1.4	2	4.5	0.3
		15	1	1	32.0		1	12.1	
		26	1	1	34.5		1	20.9	
Sample Size:			18	20			20		
Means:			10.2		23.3	4.5		4.9	4.5
Sample Size:			19	22			22		
Means:			10.5		24.4	5.6		5.9	5.4

Table 10. Age and size composition of hatchery (H) and wild (N) lake trout in tribal commercial harvests from unit MI-4 during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Origin	Age	Number		Length (in.)		Weight (lbs)		
			Aged	Measured	mean	sd	Weighed	mean	sd
MI-4									
	H								
		4	2	2	18.6	2.1	2	2.0	0.9
		5	2	2	21.1	3.3	2	3.3	2.3
		7	4	4	22.1	1.4	4	3.9	0.5
		9	1	1	19.3		1	2.2	
		11	1	1	23.7		1	4.2	
		15	1	1	27.4		1	6.9	
Sample Size:			11	11			11		
Means:			7.4		21.6	2.9		3.6	1.6
	N								
			0	2	23.6	0.5	2	4.3	0.1
		6	3	3	19.7	1.3	3	2.6	0.5
		7	2	2	22.0	4.3	2	2.6	1.1
		8	3	3	24.1	3.3	3	4.4	1.5
		10	1	1	22.7		1	3.1	
		13	1	1	22.9		1	3.9	
		14	2	2	31.9	1.6	2	10.5	1.5
		16	1	1	29.1		1	5.9	
Sample Size:			13	15			15		
Means:			9.5		24.1	4.4		4.6	2.7
Sample Size:			24	26			26		
Means:			8.5		23.0	3.9		4.2	2.3

Table 11. Age and size composition of hatchery (H) and wild (N) lake trout in tribal commercial harvests from unit MI-5 during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Origin	Age	Number		Length (in.)		Number	Weight (lbs)	
			Aged	Measured	mean	sd	Weighed	mean	sd
MI-5									
	H								
			0	1	28.9		1	8.3	
Sample Size:			0	1			1		
Means:					28.9			8.3	
	N								
			0	4	24.2	3.3	3	4.0	0.2
		5	2	2	21.8	0.4	2	3.0	0.4
		6	8	8	20.8	2.0	5	2.2	0.4
		7	8	8	21.8	1.8	5	3.4	0.8
		8	19	19	22.7	1.9	13	3.6	1.3
		9	14	14	23.1	1.5	4	3.3	0.8
		10	7	7	24.3	1.7	4	4.8	1.1
		11	4	4	22.7	1.3	1	4.1	
		12	7	7	24.1	0.6	2	4.6	0.3
		13	3	3	24.2	1.1	0		
		14	2	2	26.0	1.7	0		
		15	1	1	22.0		1	3.9	
		16	1	1	34.8		1	13.8	
		17	1	1	23.2		0		
		20	1	1	25.7		0		
Sample Size:			78	82			41		
Means:			9.3		23.1	2.4		3.8	2.0
Sample Size:			78	83			42		
Means:			9.3		23.2	2.5		3.9	2.0

Table 12. Age and size composition of whitefish in tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Number Weighed	Weight (lbs)	
		Aged	Measured	mean	sd		mean	sd
MI-2								
	7	1	1	18.4		1	2.0	
	8	8	8	19.4	0.8	5	2.3	0.3
	9	21	21	19.2	0.8	8	2.2	0.2
	10	27	27	20.0	1.4	9	2.5	0.5
	11	16	16	19.9	1.1	7	2.5	0.4
	12	16	16	19.7	1.2	2	3.0	0.2
	13	7	7	19.4	1.8	0		
	14	6	6	20.0	1.3	1	2.3	
	15	4	4	19.8	1.1	0		
	16	4	4	19.9	0.5	0		
	17	1	1	19.1		0		
Sample Size:		111	111			33		
Means:		10.9		19.7	1.2		2.4	0.4
MI-3								
		0	241	19.7	0.9	38	2.4	0.5
	7	20	20	19.4	0.7	20	2.3	0.3
	8	76	76	19.6	1.0	76	2.3	0.4
	9	143	143	19.7	0.9	143	2.3	0.4
	10	116	116	19.7	0.7	116	2.3	0.3
	11	104	104	19.9	0.9	104	2.4	0.4
	12	64	64	19.9	0.9	64	2.3	0.4
	13	24	24	20.0	0.9	24	2.5	0.5
	14	19	19	20.3	0.8	19	2.4	0.4
	15	8	8	20.5	1.6	8	2.6	0.7
	16	3	3	20.0	1.0	3	2.5	0.5
	17	2	2	21.7	1.3	2	3.4	1.1
	18	4	4	20.7	0.7	4	2.3	0.1
Sample Size:		583	824			621		
Means:		10.2		19.8	0.9		2.3	0.4

Table 12. Continued.

Unit	Age	Number		Length (in.)		Number		Weight (lbs)	
		Aged	Measured	mean	sd	Weighed	mean	sd	
MI-4									
		0	82	20.6	1.7	7	3.6	0.9	
	5	8	8	19.3	1.2	8	2.7	1.0	
	6	23	23	19.7	1.2	23	2.6	0.7	
	7	55	55	20.4	1.5	55	2.7	0.8	
	8	66	66	20.1	1.5	66	2.6	0.7	
	9	68	68	20.5	1.6	68	2.7	0.7	
	10	38	38	21.2	2.0	38	3.1	1.0	
	11	18	18	21.9	2.0	18	3.4	1.0	
	12	5	5	21.9	2.0	5	3.5	1.2	
	13	4	4	22.2	1.3	4	3.4	1.1	
	14	1	1	27.8		1	9.5		
Sample Size:		286	368			293			
Means:		8.4		20.6	1.7		2.8	0.9	
MI-5									
		0	2	22.3	1.4	2	3.5	0.5	
	6	1	1	18.3		1	1.8		
	7	3	3	22.4	1.4	3	3.8	0.5	
	8	10	10	23.2	1.1	10	4.4	0.6	
	9	6	6	22.7	1.1	6	4.0	0.9	
	10	7	7	22.9	1.5	6	4.3	0.9	
	11	5	5	22.9	1.3	5	4.3	1.2	
	12	1	1	24.2		1	5.2		
	13	2	2	24.0	1.1	1	4.6		
Sample Size:		35	37			35			
Means:		9.3		22.9	1.4		4.1	0.9	

Table 13. Age and size composition of siscowet in tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Number		Weight (lbs)	
		Aged	Measured	mean	sd	Weighed	mean	sd	
MI-2									
	18	1	1	21.4		1	3.3		
	23	1	1	22.8		1	4.4		
Sample Size:		2	2			2			
Means:	20.5			22.1	1.0		3.9	0.8	
MI-3									
		0	4	22.2	2.5	4	3.1	0.9	
	11	2	2	19.3	2.1	2	2.9	0.0	
	13	1	1	23.5		1	3.9		
	14	1	1	17.5		1	1.5		
	15	1	1	21.2		1	2.6		
	16	2	2	22.6	2.3	2	3.6	0.8	
	17	4	4	20.4	2.1	4	2.5	0.9	
	19	5	5	23.8	1.7	5	3.7	0.8	
	20	3	3	22.1	1.0	3	3.1	0.8	
	22	1	1	22.5		1	2.5		
Sample Size:		20	24			24			
Means:	17.1			21.8	2.3		3.1	0.8	
Sample Size:		22	26			26			
Means:	17.4			21.9	2.2		3.1	0.9	

Table 14. Age and size composition of lake herring in tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Weight (lbs)		
		Aged	Measured	mean	sd	Weighed	mean	sd
MI-3								
	7	3	3	13.9	1.0	3	0.9	0.4
	9	2	2	15.6	1.9	2	1.3	0.2
	10	1	1	17.9		1	1.8	
	14	1	1	13.8		1	0.9	
Sample Size:		7	7			7		
Means:		9.0		14.9	1.8		1.1	0.4
MI-4								
	4	3	3	15.2	0.3	3	1.0	0.1
	5	2	2	17.9	2.4	2	1.1	0.1
	6	4	4	16.7	1.5	4	1.4	0.4
	7	5	5	15.6	1.4	5	1.1	0.2
	8	6	6	16.8	1.3	6	1.3	0.3
	9	2	2	17.0	0.7	2	1.3	0.1
	10	2	2	18.0	1.7	2	1.4	0.4
Sample Size:		24	24			24		
Means:		7.0		16.5	1.5		1.2	0.3

Table 15. Age and size composition of menominee in tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Weight (lbs)		
		Aged	Measured	mean	sd	Weighed	mean	sd
MI-4	4	2	2	12.4	0.0	2	0.8	0.1
Sample Size:		2	2			2		
Means:	4.0			12.4	0.0		0.8	0.1

Table 16. Age and size composition of coho salmon in tribal commercial harvests during 2008. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Number		Weight (lbs)	
		Aged	Measured	mean	sd	Weighed	mean	sd	
MI-5									
	4	1	1	21.3		1	3.3		
Sample Size:		1	1			1			
Means:	4.0			21.3			3.3		
Sample Size:		1	1			1			
Means:	4.0			21.3			3.3		

Table 17. Age and size composition of chinook salmon in tribal commercial harvests during 2008. Weight is in round pounds (rlbs), length is in inches (in), and sd=standard deviation.

Unit	Age	N(Age)	N(length)	Length		N(weight)	Weight	
				mean(in.)	sd(in.)		mean(lb.)	sd(lb.)
MI-4	3	1	1	27.3		1	7.3	
	5	1	1	26.4		1	6.6	
Sample Size:		2	2			2		
Means:	4.0			26.8	0.6		6.9	0.5