



**Biological and Commercial Catch Statistics
from the Chippewa Inter-Tribal Gill Net Fishery
within Michigan Waters of Lake Superior
During 2012**

by
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ABSTRACT

The 2012 commercial inter-tribal fishery in the 1842 treaty-ceded waters of Michigan consisted of 10 large boats and 10 small boats, representing 20 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 less than 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 cisco (lake herring) fishery through a quota system.

Fishermen reported fishing 6.2 million feet of gill net and harvesting 1,079,712 round pounds of fish. Whitefish was the primary target species, making up 85.5% of the total, followed by lake trout (11.1%), cisco or lake herring (3.2%), and with the remaining 0.2% consisting siscowet, salmon, rainbow trout, brown trout, walleye, burbot and yellow perch.

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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 has managed its 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 2012 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 2012 commercial inter-tribal fishery in the 1842 treaty-ceded waters of Michigan consisted of 10 large boats and 10 small boats, representing 20 tribal licensees from the Keweenaw Bay, Bad River, and Red Cliff Bands of Lake Superior Chippewa. 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 2012.

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 cisco (lake herring) harvest by its fishermen. The Bad River and Red Cliff tribes did not use this system for cisco. Also, the three bands allowed fishing for cisco 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. 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 1-6 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. 2010 ⁶	Nov. 2010- Oct. 2011 ⁷	Nov. 2011- Oct. 2012 ^{7,8}
MI-2	TAC	19,800	10,400	9,700	6,606	6,606	2,500	6,000
	Tribal	9,900	5,200	4,850	3,303	3,303	1,250	3,000
MI-3	TAC	5,000	7,600	6,600	4,950	4,950	5,000	5,000
	Tribal	2,500	3,800	3,300	2,475	2,475	2,500	2,500
MI-4	TAC	20,600	53,400	46,920	40,440	43,200	50,000	50,000
	Tribal	10,300	26,700	23,460	20,220	21,600	25,000	25,000
MI-5	TAC	16,100	15,700	17,080	33,130	33,130	34,000	34,000
	Tribal	4,830	4,710	5,124	16,565	16,565	17,000	17,000
Total	TAC	61,500	87,100	80,300	85,126	87,886	91,500	95,000
	Tribal	27,530	40,410	36,734	42,563	43,943	45,750	47,500

¹GLIFWC. 1987.

²Ebener et al. 1989.

³Mattes. 1994.

⁴Mattes. 2000.

⁵Mattes. 2004.

⁶Mattes. 2006.

⁷Mattes. 2010

⁸Mattes. 2011

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
Cisco	1.20

Harvests of other species (walleye 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 6.2 million feet of gill net and harvesting 1,079,712 round pounds of fish (Table 1). Whitefish was the primary target species, making up 85.5% of the total, followed by lake trout (11.1%), cisco or lake herring (3.2%), and with the remaining 0.2% consisting of siscowet, salmon, rainbow trout, brown trout, walleye, burbot and yellow perch (Table 2).

Unit MI-2

Harvest. Thirty percent of the overall harvest was taken in MI-2 (Table 1). Of the 324,532 round pounds harvested in MI-2, 96.9% were whitefish and 3.1% were lake trout (Table 2). Harvest occurred in nine statistical grids. Lake trout harvest was less than 2,500 dressed pounds in each of these grids fished (Figure 2). Whitefish harvest was greatest in grid 1413 (109,015 dressed pounds), followed by grid 1316 (59,126 dressed pounds) and grid 1512 (50,828 dressed pounds). Greater than 10,000 pounds were taken in two other grids (1317 and 1318; 15,587 and 12,665 dressed pounds respectively), while less than 10,000 pounds of whitefish were taken in each of the other four grids fished (Figure 3).

Effort. Twenty-two 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 1,376,600 feet with 32.7% (450,400 feet) occurring in grid 1413 and 31.7% (436,000 feet) occurring in grid 1316. Greater than 100,000 feet was fished in two other grids (1512 and 1317; 168,000 and 127,000 feet, respectively) (Figure 4). Less than 100,000 feet were fished in the remaining five grids. Gill-nets of 4 ½ inch mesh accounted for 98% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort (1,376,600 feet) was targeted at whitefish and lake trout (Tables 4 and 5). Target effort (1.4 million feet) and harvest of whitefish (268,914 dressed pounds) was three times the 1985-2012 average (434,866 feet and 80,590 dressed pounds, respectively). Target lake trout harvest (7,922 dressed pounds) was above the 1985-2012 average of 6,804 dressed pounds.

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing in the nine grids fished in MI-2 ranged from 98-303 pounds (Table 4). Whitefish CPE for the nine grids combined was 195, similar to the average CPE of 185 for this unit for the 28 year period 1985-2012 (Table 5). Lake trout CPE for targeted fishing ranged from 2-13 per grid and was 6 for all grids combined, below the 1985-2012 average CPE of 16 pounds.

Unit MI-3

Harvest. Forty-four percent of the overall harvest was taken in MI-3 (Table 1). Of the 478,668 round pounds harvested in MI-3, 98.1% were whitefish, 1.8% lake trout, and 0.1% siscowet and walleye (Table 2). Harvest occurred in eight statistical grids. Lake trout harvest was greatest in grid 1023 (3,154 dressed pounds) and was less than 2,500 dressed pounds in each of the other grids fished (Figure 2). Whitefish harvest was greatest in grids 1023 (171,788 dressed pounds), followed by grids 1121 and 1122 (109,075 and 52,800 dressed pounds, respectively). Greater than 10,000 pounds were taken in two other grids (1219 and 1024) while

less than 10,000 dressed pounds taken in each of the other three grids fished (Figure 3).

Effort. Forty-two percent of the overall gill-net effort occurred in MI-3 (Table 1) which was fished by one tribe (Table 3). Fishing effort in MI-3 was 2,604,000 feet with 39.7% (1,035,000 feet) occurring in grid 1121 followed by 31.6% (823,000 feet) in grid 1023. Effort exceeded 100,000 feet in two other grids (1122 and 1219) and was less than 100,000 feet in each of the remaining four grids (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 96.5% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort (2,604,000 feet) was targeted at whitefish and lake trout (Tables 4 and 5). Both target effort (2.6 million feet) and harvest of whitefish (401,374 dressed pounds) were above the 1985-2012 averages of 1.8 million feet and 201,579 dressed pounds, respectively. Target lake trout harvest, 7,083 dressed pounds, was below the 1985-2012 average of 17,021 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 ranged from 44-248 pounds (Table 4). Whitefish CPE for the eight grids combined was 154 pounds and above the 1985-2012 average CPE of 107 (Table 5). Lake trout CPE for targeted fishing ranged from 2-12 pounds and was 3 for all grids combined, below the 1985-2012 average CPE of 9 pounds.

Unit MI-4

Harvest. Twenty-one percent of the overall harvest was taken in MI-4 (Table 1). Of the 223,523 round pounds harvested, 51.8% were whitefish, 34.7% lake trout, 12.9% cisco, and 0.6% a mix of other species (Table 2). Harvest occurred in eleven statistical grids. Lake trout harvest was highest in grid 1224 (35,670 dressed pounds) followed by grids 1423 and 1323 (16,808 and 5,704 dressed pounds, respectively) (Figure 2). Less than 2,500 dressed pounds were harvested in each of the other eight grids fished. Whitefish harvest was greatest in grid 1224 (44,774 dressed pounds) followed by grid 1423 (24,649 dressed pounds (Figure 3). Less than 10,000 dressed pounds of whitefish were harvested in each of the other nine 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 1,853,850 feet with 44.8% (830,000 feet) occurring in grid 1224, followed by 27.3% (506,600 feet) in grid 1423 and 14.7% (272,050 feet) in grid 1323. Less than 100,000 feet were fished in each of the remaining eight grids (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 93.6% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. The majority of fishing effort (1,750,850 feet) was targeted at whitefish and lake trout with 102,000 feet directed at cisco and 1,000 feet directed at salmon (Table 4). Target effort for whitefish and lake trout (1.75 million feet) was lower than the 1985-2012 average of 2.91 million feet (Table 5). Target harvest of whitefish (98,882 dressed pounds) was below the 1985-2012 average (180,786 dressed pounds). Target harvest of lake trout (62,018 dressed pounds) was near the 1985-2012 average (69,521 dressed pounds). Target harvest was 22,280 pounds for cisco and 11 pounds for salmon.

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 24-220 pounds (Table 4). Whitefish CPE for the ten grids combined was 57 pounds and near the 1985-2012 average CPE of 61 for this unit

(Table 5). Lake trout CPE for targeted fishing ranged from 2-48 pounds and was 35 for all grids combined, above the 1985-2012 average CPE of 23 pounds. CPE for targeted fishing of cisco averaged 218 pounds for the two grids fished (grid 1223, 356 pounds; grid 1224, 183 pounds). Targeted fishing for salmon occurred in one grid (1423) and CPE was 11 pounds.

Unit MI-5

Harvest. Five percent of the overall harvest was taken in MI-5 (Table 1). Of the 52,989 round pounds harvested in MI-5, 43.4% were whitefish, 45.2% lake trout, 10.2% cisco, 1.2% salmon, and <1% walleye and perch (Table 2). Harvest occurred in three statistical grids. Lake trout harvest was 19,009 dressed pounds in grid 1529 and 135 pounds in grid 1328 (Figure 2). Whitefish harvest was 17,865 dressed pounds in grid 1529 and 1,780 in grid 1328 (Figure 3). Two-thousand dressed pounds of cisco were harvested from grid 1327.

Effort. Six percent of the overall gill-net effort occurred in MI-5 (Table 1) which was fished by two tribes (Table 3). Fishing effort was 403,700 feet with 93.3% (376,700 feet) occurring in grid 1529 (Table 2 and Figure 4). Gill-nets of 4 ½ inch mesh accounted for 96.6% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. The majority of fishing effort (390,100 feet) was targeted at whitefish and lake trout with 13,600 feet directed at cisco (Table 4). Target effort for whitefish and lake trout (0.39 million feet) was near the 1985-2012 average of 0.42 million feet (Table 5). Target harvest of whitefish (19,645 dressed pounds) was below the 1986-2012 average (26,184 dressed pounds). Target harvest of lake trout (19,144 dressed pounds) was near the 1986-2012 average (19,937 dressed pounds).

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing was 49 in grid 1529 and 74 in grid 1328 (Table 4). Whitefish CPE for the two grids combined was 50 pounds which was below the 1986-2012 average CPE of 62 for this unit (Table 5). Lake trout CPE for targeted fishing was 52 in grid 1529 and 6 in grid 1328 (Table 4). Lake trout CPE for the two grids combined was 49 pounds, near the 1986-2012 average CPE of 47 pounds. Cisco CPE for targeted fishing was 667 pounds and 208 pounds in grids 1327 and 1529, respectively.

Biological Statistics

Lake Trout

MI-2 and MI-3. No lake trout were monitored from MI-2 and MI-3 in 2012.

MI-4. Twelve year classes of wild trout (3-14) and five year classes of hatchery fish (7-11) were represented in a sample of 190 lake trout aged from MI-4 (Table 6). Mean age was 8.0 years. Fish ten years and older made up 17% of the wild component of the catch. Mean length was 22.2 inches and mean weight was 3.5 round pounds for the 355 fish sampled. Overall lamprey-marking rates were 3.4 wounds/100 fish (Table 7). Annual total mortality rate was estimated at 54% ($Z=0.79, \pm 0.33$) for wild fish ages 10-13 (Table 8).

MI-5. Eleven year classes of wild trout (5-11, 13, 15-17) were represented in a sample of 99 lake trout aged from MI-5 (Table 6). Mean age was 8.8 years. Fish ten years and older made up 29% of the catch. Mean length was 23.9 inches and mean weight was 4.4 round pounds for the 113 fish measured and 105 fish weighed. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 7). Annual total mortality rate was estimated at 49% ($Z=0.68, \pm 0.36$) for wild fish ages 9-12 (Table 8).

Whitefish

MI-2. Eight age groups (6-13) were represented in the 25 whitefish aged in MI-2, which had a mean age of 8.7 years (Table 9). Mean length of 147 lake whitefish measured was 20.0 inches and the mean weight of 25 whitefish weighed was 2.2 round pounds. Annual total mortality was estimated at 62% ($Z=0.97 \pm 0.24$) for ages 8-10 (Table 10).

MI-3. Eighteen age groups (6-23) were represented in the 166 whitefish aged in MI-3, which had a mean age of 11.9 years (Table 9). Mean length of 239 lake whitefish measured was 20.2 inches and the mean weight of 169 whitefish weighed was 2.8 round pounds. Annual total mortality was estimated at 21% ($Z=0.24 \pm 0.00$) for ages 9-11 (Table 10).

MI-4. Thirteen age groups (4-16) were represented in the 320 whitefish aged in MI-4, which had a mean age of 8.5 years (Table 9). Mean length and weight of 354 lake whitefish sampled was 20.8 inches and 3.1 round pounds, respectively. Annual total mortality was estimated at 44% ($Z=0.58 \pm 0.03$) for ages 8-10 (Table 10).

MI-5. Twelve age groups (5-16) were represented in the 88 whitefish aged in MI-5, which had a mean age of 8.1 years (Table 9). Mean length and weight of 122 lake whitefish sampled was 21.3 inches and 3.4 round pounds, respectively. Annual total mortality was estimated at 23% ($Z=0.26 \pm 0.09$) for ages 7-9 (Table 10).

Other Species

Siscowet

Sixteen siscowet were aged from MI-4 and four from MI-5; mean age was 11.6 and 18.5, respectively (Table 11). Mean length and weight for the nineteen fish sampled in MI-4 was 19.5 inches and 2.1 round pounds; for the five fish sampled in MI-5 respective values were 20.4 inches and 2.3 round pounds (Table 11).

Cisco

Thirteen age groups (3-15) were represented in the 92 cisco aged from MI-3 where the mean age was 7.5 years. Mean length and weight for the 95 cisco sampled was 14.8 inches and 1.1 round pounds (Table 12). Annual total mortality was estimated at 37% ($Z=0.46 \pm 0.08$) for ages 8-13. Also three cisco were sampled in both MI-4 and MI-5 which had a mean length of 14.2 and 17.4 inches and mean weight of 0.8 and 1.8 round pounds, respectively.

Coho salmon

Three coho salmon were sampled from MI-4 and MI-5 which had a mean age of 4.0, mean length of 16.3 inches and mean weight of 5.2 round pounds (Table 13).

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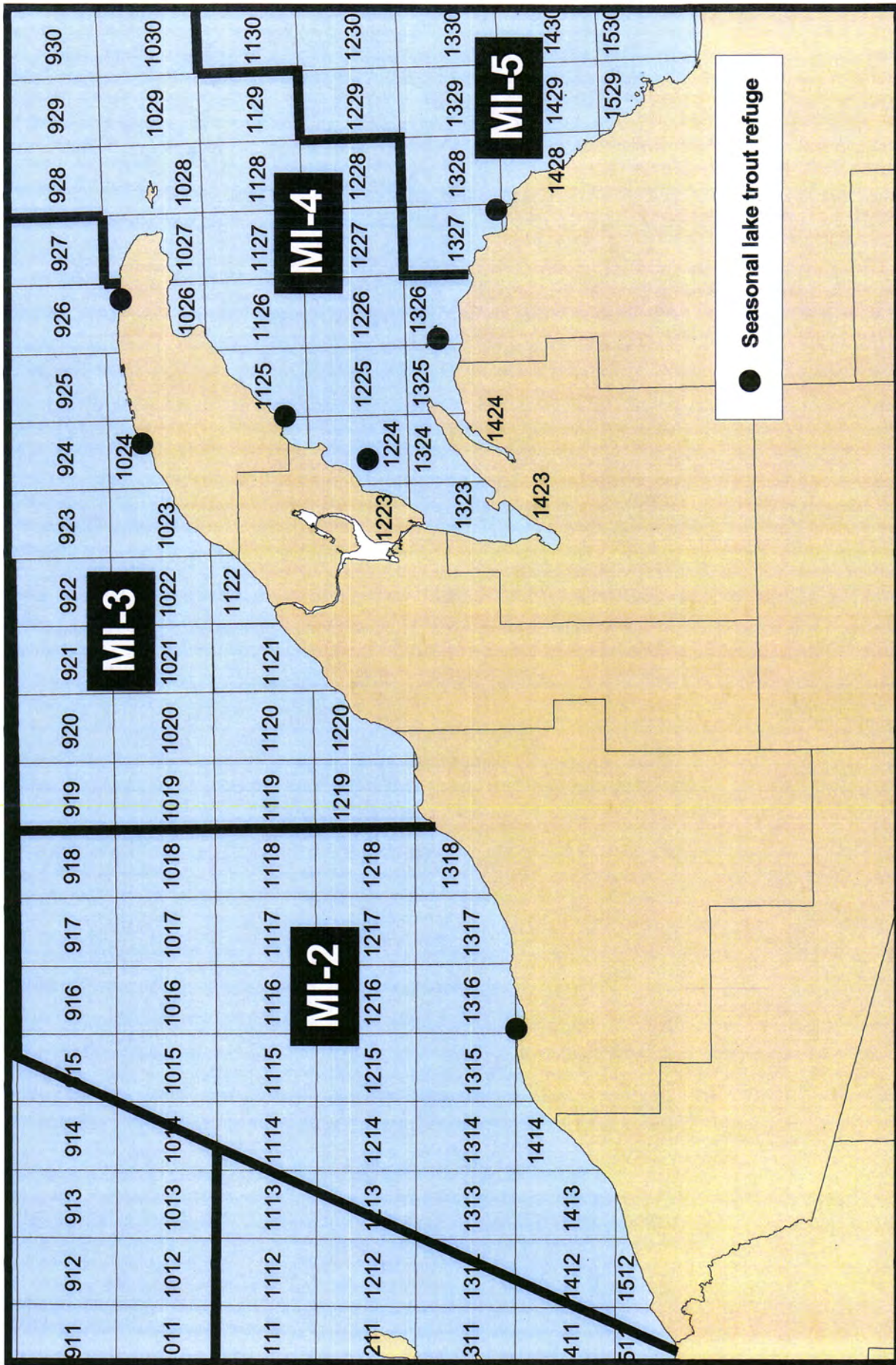


Figure 1. Management units and statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior.

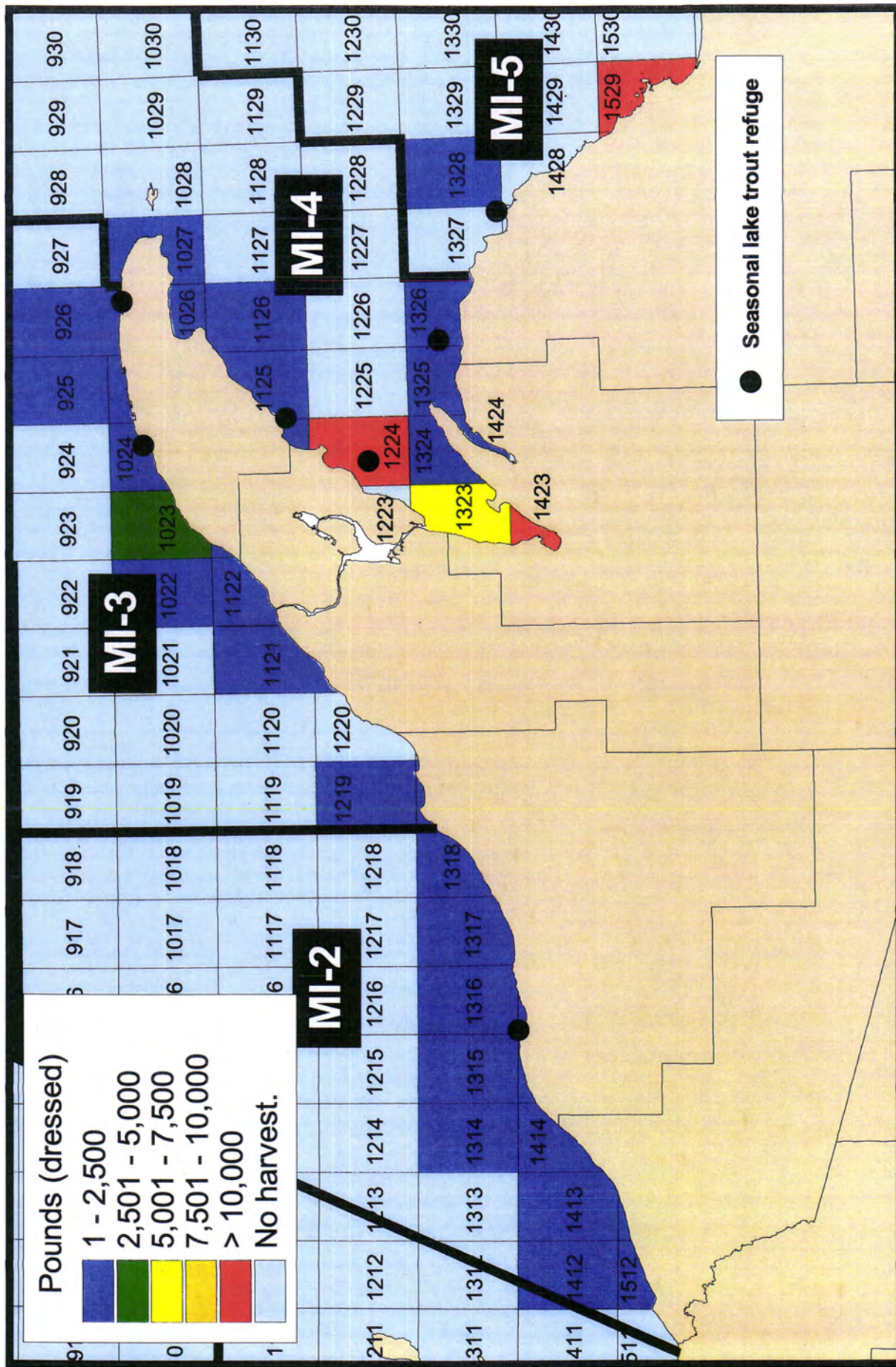


Figure 2. Lake trout harvest (dressed pounds) by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2012.

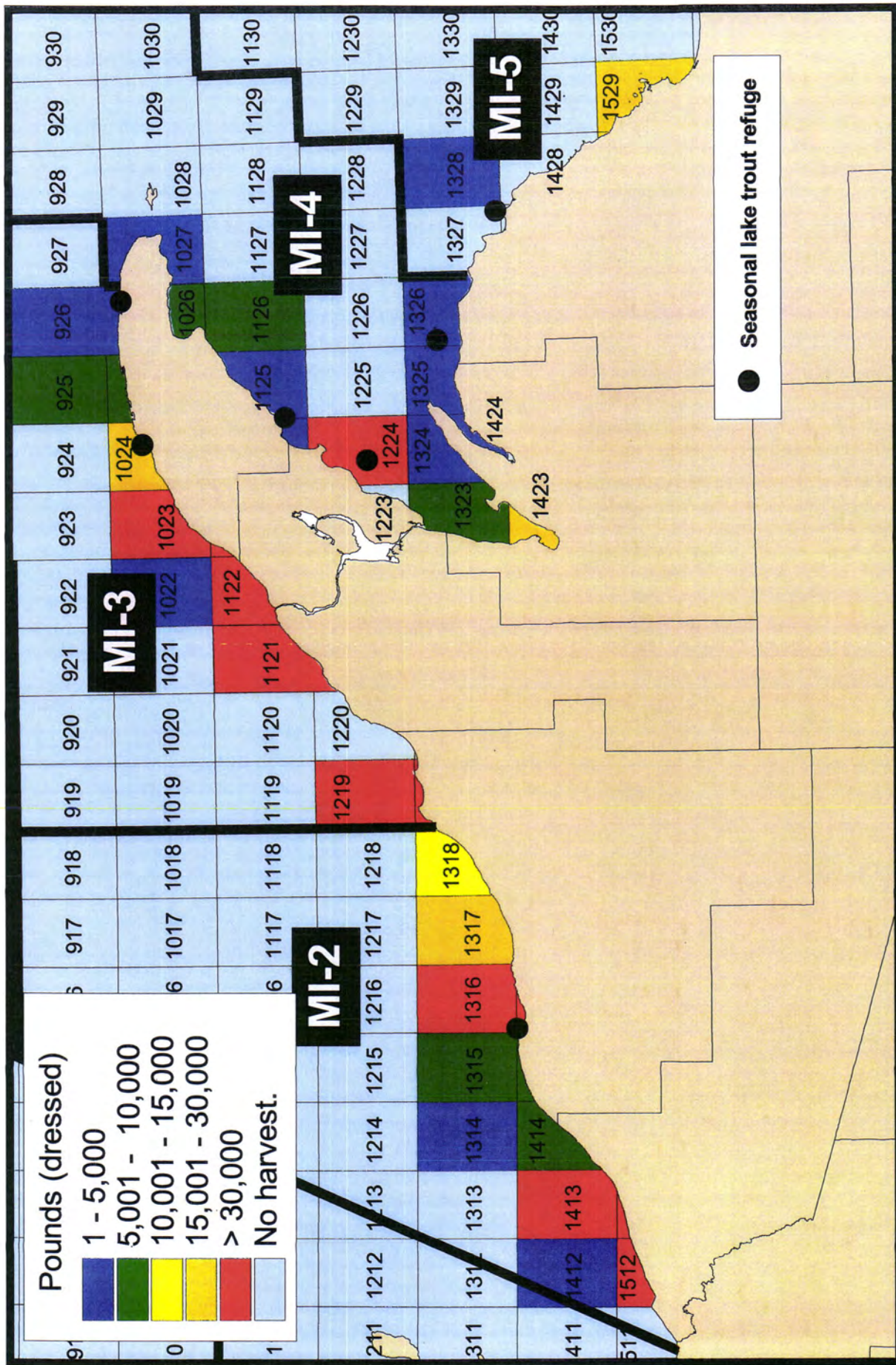


Figure 3. Whitefish harvest (dressed pounds) by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2012.

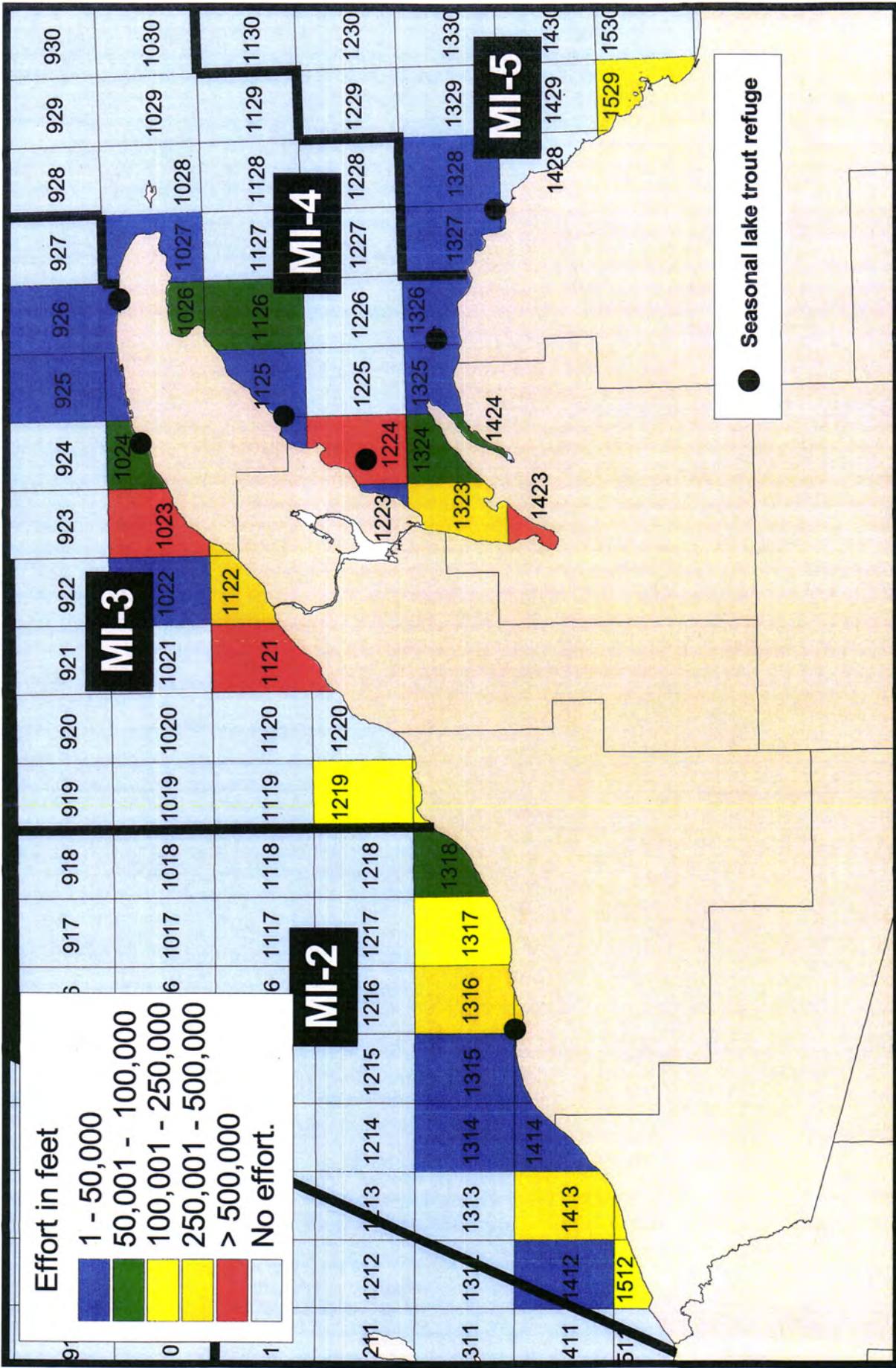


Figure 4. Effort in feet by statistical grid in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2012.

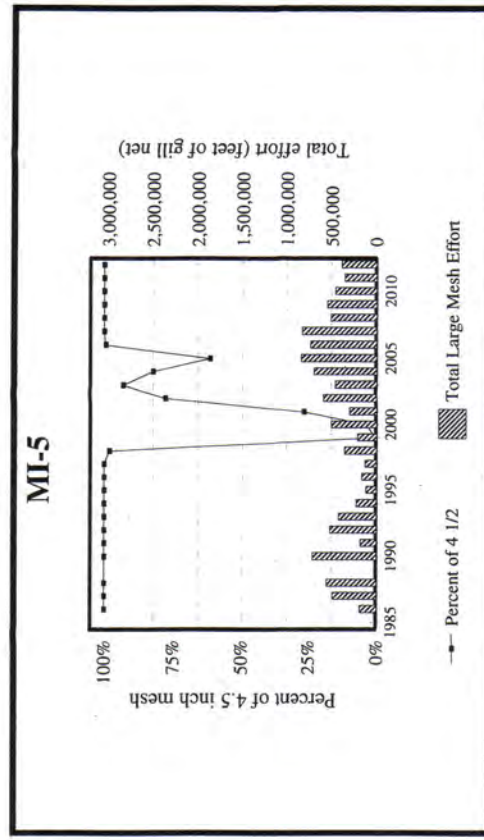
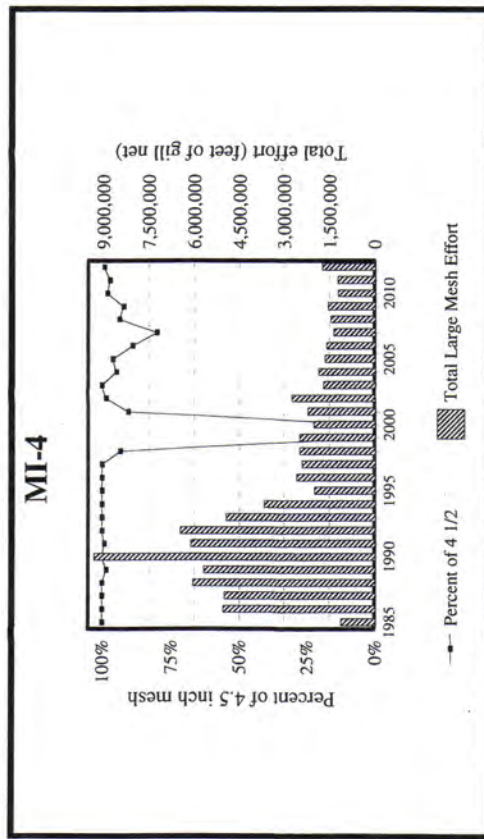
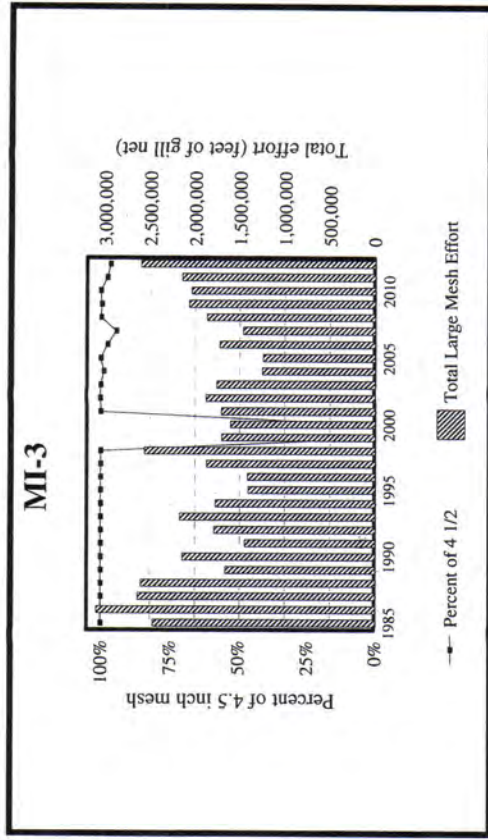
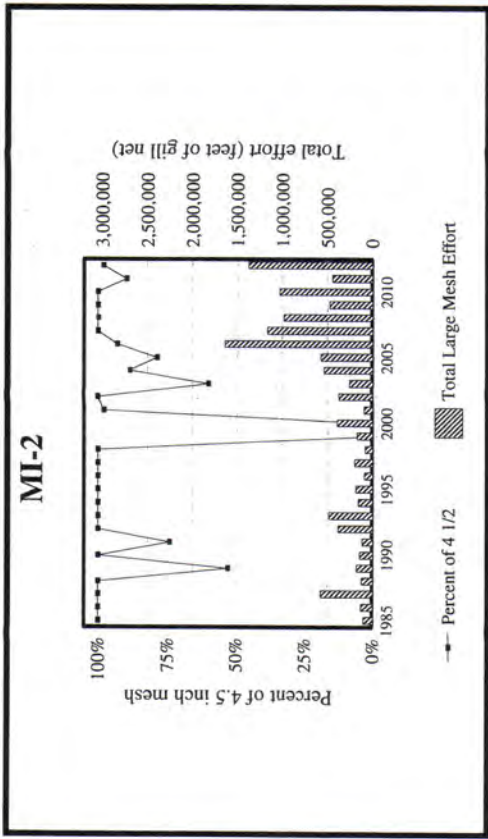


Figure 5. Total tribal large mesh gill net effort and percent composed of 4 1/2 inch mesh by management unit, 1985 to 2012.

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 2012.

Management Unit	Grid	Effort	Percent of Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Salmon	Walleye	Sucker	Total Harvest Round Pounds	Percent of Total Harvest	
MI-2	1314	20,000	1.5%	1,965	260	0	0	0	0	0	0		
	1315	45,800	3.3%	8,021	531	0	0	0	0	0	0		
	1316	436,000	31.7%	59,126	2,335	0	0	0	0	0	0		
	1317	127,000	9.2%	15,587	1,487	0	0	0	0	0	0		
	1318	68,000	4.9%	12,665	911	0	0	0	0	0	0		
	1412	14,400	1.0%	4,175	32	0	0	0	0	0	0		
	1413	450,400	32.7%	109,015	1,357	0	0	0	0	0	0		
	1414	47,000	3.4%	7,532	402	0	0	0	0	0	0		
	1512	168,000	12.2%	50,828	607	0	0	0	0	0	0		
	Effort:	1,376,600	22.1%										
	Dressed Pounds:				268,914	7,922	0	0	0	0	0	324,531.9	30.1%
	Round Pounds:				314,629.4	9,902.5	0.0	0.0	0.0	0	0		
	MI-3	925	24,000	0.9%	5,959	272	0	0	0	21	0	0	
		926	10,000	0.4%	435	120	0	0	0	0	0	0	
		1022	28,000	1.1%	3,580	110	0	0	0	0	0	0	
1023		823,000	31.6%	171,788	3,154	26	0	0	50	0	0		
1024		70,000	2.7%	19,053	197	71	0	0	14	0	0		
1121		1,035,000	39.7%	109,075	1,599	0	0	0	0	0	0		
1122		431,000	16.6%	52,800	1,197	0	0	0	0	0	0		
1219		183,000	7.0%	38,684	434	0	0	0	0	0	0		
Effort:		2,604,000	41.7%										
Dressed Pounds:					401,374	7,083	97	0	0	85	0	478,667.6	44.3%
Round Pounds:					469,607.6	8,853.8	121.3	0.0	0.0	0	0		
MI-4		1026	58,000	3.1%	6,839	637	0	0	0	0	0	0	
		1027	20,000	1.1%	973	475	0	0	0	0	0	0	
		1125	19,000	1.0%	1,617	115	0	0	0	0	0	0	
		1126	62,000	3.3%	7,026	1,801	0	0	0	0	0	0	
	1223	21,000	1.1%	0	0	0	7,480	0	0	0	0		
	1224	830,000	44.8%	44,774	35,670	0	14,812	20	0	0	0		
	1323	272,050	14.7%	6,547	5,704	0	0	151	0	0	0		
	1324	52,400	2.8%	4,150	627	0	600	0	0	0	0		
	1325	4,800	0.3%	550	50	0	0	0	0	0	0		
	1326	8,000	0.4%	1,757	131	0	1,000	0	0	0	0		
	1423	506,600	27.3%	24,649	16,808	52	216	555	40	0	0		
	Effort:	1,853,850	29.7%										
	Dressed Pounds:				98,882	62,018	52	24,108	726	40	0	223,156.5	20.7%
	Round Pounds:				115,691.9	77,522.5	65.0	28,929.6	907.5	40	0		
	MI-5	1327	3,000	0.7%	0	0	0	2,000	0	0	0	0	
1328		24,000	5.9%	1,780	135	0	0	0	0	0	0		
1529		376,700	93.3%	17,865	19,009	0	2,511	496	2	0	0		
Effort:		403,700	6.5%										
Dressed Pounds:					19,645	19,144	0	4,511	496	2	0	52,949.9	4.9%
Round Pounds:				22,984.7	23,930.0	0.0	5,413.2	620.0	2	0			
Grand Totals:	Effort:	6,238,150											
Dressed Pounds:				788,815	96,167	149	28,619	1,222	127.0	0.0	1,079,305.9		
Round Pounds:				922,913.6	120,208.8	186.3	34,342.8	1,527.5	127.0	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 2012.

Unit	Mesh	Effort	Percent of							Total Harvest Round Pounds	
			Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Trout	Walleye		Burbot/ Perch
MI-2	4.5	1,349,600	98.0%	262,712	7,879	0	0	0	0	0	0
MI-2	4.5-5.0	27,000	2.0%	6,202	43	0	0	0	0	0	0
Subtotals:	Effort:	1,376,600	22.1%								
	Dressed Pounds:			268,914	7,922	0	0	0	0	0	
	Round Pounds:			314,629.4	9,902.5	0.0	0.0	0.0	0.0	0.0	324,531.9
	Percent of Unit Harvest:			96.9%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
MI-3	4.5	2,513,000	96.5%	379,366	6,506	97	0	0	57	0	0
MI-3	4.5-5.0	91,000	3.5%	22,008	577	0	0	0	28	0	0
Subtotals:	Effort:	2,604,000	41.7%								
	Dressed Pounds:			401,374	7,083	97	0	0	85.0	0.0	478,667.6
	Round Pounds:			469,607.6	8,853.8	121.3	0.0	0.0	0.0%	0.0%	
	Percent of Unit Harvest:			98.1%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	
MI-4	3.0	102,000	5.5%	0	0	0	22,280	0	0	0	0
MI-4	4.5	1,735,850	93.6%	95,165	61,857	52	816	732	40	359	0
MI-4	4.5-5.0	16,000	0.9%	3,717	161	0	1,012	0	0	0	0
Subtotals:	Effort:	1,853,850	29.7%								
	Dressed Pounds:			98,882	62,018	52	24,108	732	40.0	359.0	223,523.0
	Round Pounds:			115,691.9	77,522.5	65.0	28,929.6	915.0	0.0%	0.2%	
	Percent of Unit Harvest:			51.8%	34.7%	0.0%	12.9%	0.4%	0.0%	0.0%	
MI-5	2.5625	3,000	0.7%	0	0	0	2,000	0	0	0	0
MI-5	3.0	10,600	2.6%	0	0	0	2,209	0	0	0	0
MI-5	4.5	390,100	96.6%	19,645	19,144	0	302	525	2	3	0
Subtotals:	Effort:	403,700	6.5%								
	Dressed Pounds:			19,645	19,144	0	4,511	525	2.0	3.0	52,989.1
	Round Pounds:			22,984.7	23,930.0	0.0	5,413.2	656.3	0.0%	0.0%	
	Percent of Unit Harvest:			43.4%	45.2%	0.0%	10.2%	1.2%	0.0%	0.0%	
Totals:	Effort:	6,238,150									
	Dressed Pounds:			788,815	96,167	149	28,619	1,257	127.0	362.0	1,079,711.6
	Round Pounds:			922,913.6	120,208.8	186.3	34,342.8	1,571.3	0.0%	0.0%	
	Percent of Total Harvest:			85.5%	11.1%	0.0%	3.2%	0.1%	0.0%	0.0%	

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

Table 3. Total and target gill net harvest and effort statistics by tribe for lake trout, whitefish, and siscowet in Michigan waters of Lake Superior in 2012.*

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	731,600	143,465	196	2,887	4	0	0	0	0	0	0	731,600	143,465	196	2,887	4	0	0	0	
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff	645,000	125,449	194	5,035	8	0	0	0	0	0	0	645,000	125,449	194	5,035	8	0	0	0	0
	subtotal	1,376,600	268,914	195	7,922	6	0	0	0	0	0	0	1,376,600	268,914	195	7,922	6	0	0	0	0
MI-3	Bad River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff	2,604,000	401,374	154	7,083	3	97	0	0	0	0	0	2,604,000	401,374	154	7,083	3	0	0	0	0
	subtotal	2,604,000	401,374	154	7,083	3	97	0	0	0	0	0	2,604,000	401,374	154	7,083	3	0	0	0	0
MI-4	Bad River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Keweenaw Bay	1,282,850	52,425	41	50,182	39	52	0	0	0	0	0	1,282,850	52,425	41	50,182	39	0	0	0	0
	Red Cliff	571,000	46,457	81	11,836	21	0	0	0	0	0	0	469,000	46,457	99	11,836	25	0	0	0	0
	subtotal	1,853,850	98,882	53	62,018	33	52	0	0	0	0	0	1,750,850	98,882	56	62,018	35	0	0	0	0
MI-5	Bad River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Keweenaw Bay	379,700	17,865	47	19,009	50	0	0	0	0	0	0	366,100	17,865	49	19,009	52	0	0	0	0
	Red Cliff	24,000	1,780	74	135	6	0	0	0	0	0	24,000	1,780	74	135	6	0	0	0	0	0
	subtotal	403,700	19,645	49	19,144	47	0	0	0	0	0	0	390,100	19,645	50	19,144	49	0	0	0	0
Total	Bad River	731,600	143,465	196	2,887	4	0	0	0	0	0	0	731,600	143,465	196	2,887	4	0	0	0	0
	Keweenaw Bay	1,662,550	70,290	42	69,191	42	52	0	0	0	0	0	1,647,950	70,290	43	69,191	42	0	0	0	0
	Red Cliff	3,844,000	575,060	150	24,089	6	97	0	0	0	0	0	3,742,000	575,060	154	24,089	6	0	0	0	0
	All Tribes	6,238,150	788,815	126	96,167	15	149	0	0	0	0	0	6,121,550	788,815	129	96,167	16	0	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 and effort statistics for target species by grid and management unit in Michigan waters of Lake Superior in 2012*

Unit	Grid	Whitefish pounds	Effort	CPE	Lake trout pounds	Effort	CPE	Cisco pounds	Effort	CPE	Salmon pounds	Effort	CPE	
MI-2	1314	1,965	20,000	98	260	20,000	13							
	1315	8,021	45,800	175	531	45,800	12							
	1316	59,126	436,000	136	2,335	436,000	5							
	1317	15,587	127,000	123	1,487	127,000	12							
	1318	12,665	68,000	186	911	68,000	13							
	1412	4,175	14,400	290	32	14,400	2							
	1413	109,015	450,400	242	1,357	450,400	3							
	1414	7,532	47,000	160	402	47,000	9							
	1512	50,828	168,000	303	607	168,000	4							
	subtotal		268,914	1,376,600	195	7,922	1,376,600	6	0	0	0	0	0	0
MI-3	925	5,959	24,000	248	272	24,000	11							
	926	435	10,000	44	120	10,000	12							
	1022	3,580	28,000	128	110	28,000	4							
	1023	171,788	823,000	209	3,154	823,000	4							
	1024	19,053	70,000	272	197	70,000	3							
	1121	109,075	1,035,000	105	1,599	1,035,000	2							
	1122	52,800	431,000	123	1,197	431,000	3							
	1219	38,684	183,000	211	434	183,000	2							
	subtotal		401,374	2,604,000	154	7,083	2,604,000	3	0	0	0	0	0	0
	MI-4	1026	6,839	58,000	118	637	58,000	11						
1027		973	20,000	49	475	20,000	24							
1125		1,617	19,000	85	115	19,000	6							
1126		7,026	62,000	113	1,801	62,000	29							
1223								21,000	7,480	356				
1224		44,774	749,000	60	35,670	749,000	48	81,000	14,800	183				
1323		6,547	272,050	24	5,704	272,050	21							
1324		4,150	52,400	79	627	52,400	12							
1325		550	4,800	115	50	4,800	10							
1326		1,757	8,000	220	131	8,000	16							
1423	24,649	505,600	49	16,808	505,600	33				1,000	1,000	11		
subtotal		98,882	1,750,850	57	62,018	1,750,850	35	102,000	22,280	218	1,000	1,000	11	
MI-5	1327							3,000	2,000	667				
	1328	1,780	24,000	74	135	24,000	6							
	1529	17,865	366,100	49	19,009	366,100	52	10,600	2,209	208				
	subtotal		390,100	50	19,144	390,100	49	13,600	4,209	309	0	0	0	
Grand Total		788,815	6,121,550	129	96,167	6,121,550	16	115,600	26,489	229	1,000	1,000	11	

*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 1985-2012. 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
	2009	475,900	112,789	237	112,789	475,900	1,830	4	1,830	0	0	0	561
	2010	1,036,800	173,173	167	173,173	1,036,800	2,221	2	2,221	0	0	0	144
	2011	448,800	84,596	188	84,596	448,800	1,919	4	1,919	0	0	0	0
	2012	1,376,600	268,914	195	268,914	1,376,600	7,922	6	7,922	0	0	0	0
Average:		434,866	80,590	185	80,693	434,866	6,804	16	6,878	10,707	1,955	183	3,748
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
	2009	2,073,300	475,227	229	475,227	2,073,300	15,392	7	15,392	0	0	0	3,881
	2010	2,042,500	265,459	130	265,459	2,042,500	5,547	3	5,547	0	0	0	1,439
	2011	2,148,400	353,164	164	353,164	2,148,400	5,334	3	5,334	0	0	0	400
	2012	2,604,000	401,374	154	401,374	2,604,000	7,083	3	7,083	0	0	0	400
Average:		1,884,013	200,861	107	201,579	1,884,013	17,021	9	17,233	49,657	5,677	114	14,137

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-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	
2009	1,553,550	122,643	79	122,717	1,553,550	46,568	30	46,572	0	0	0	3,175	
2010	1,211,300	72,394	60	72,832	1,211,300	33,990	28	34,428	2,400	82	34	1,569	
2011	1,217,600	95,936	79	96,026	1,217,600	37,065	30	37,160	7,200	210	29	1,593	
2012	1,750,850	98,882	57	98,882	1,750,850	62,018	35	62,018	0	0	0	52	
Average:		2,908,057	178,118	61	180,786	2,908,057	66,596	23	69,521	216,562	21,526	99	36,760
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	11,949	0	0	0	0	
2009	551,722	21,070	38	21,134	551,722	21,042	38	21,042	0	0	0	0	
2010	450,000	18,554	41	18,708	450,000	12,966	29	12,966	0	0	0	0	
2011	353,900	15,896	45	15,906	353,900	18,293	52	18,293	0	0	0	0	
2012	390,100	19,645	50	19,645	390,100	19,144	49	19,144	0	0	0	0	
Average:		424,337	26,184	62	26,394	424,337	19,937	47	20,165	10,766	426	40	2,557

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
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
	2009	4,654,472	731,729	157	731,867	4,654,472	84,832	18	84,836	0	0	0	7,617
	2010	4,740,600	529,580	112	530,172	4,740,600	54,724	12	55,162	2,400	82	34	3,152
	2011	4,168,700	549,592	132	549,692	4,168,700	62,611	15	62,706	7,200	210	29	1,993
	2012	6,121,550	788,815	129	788,815	6,121,550	96,167	16	96,167	0	0	0	1,993
Average:		5,636,118	484,817	86	488,510	5,636,118	109,646	19	113,077	287,308	29,568	103	57,166

Table 6. Age and size composition of hatchery and wild lake trout by unit from tribal commercial harvests during 2012. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Origin	Age	Number Aged	Number Measured	Length (in.) mean	sd	Number Weighed	Weight (lbs) mean	sd
MI-4									
Hatchery									
			0	5	22.3	2.3	5	3.3	0.9
		7	3	3	25.1	6.7	3	6.8	6.4
		8	2	2	22.6	0.4	2	3.9	0.8
		9	3	3	22.0	3.0	3	3.3	1.6
		10	1	1	30.4		1	11.2	
		11	2	2	22.3	3.6	2	3.9	0.4
Wild									
			0	160	22.6	2.3	160	3.6	1.4
		3	1	1	21.5		1	3.2	
		4	2	2	18.4	1.8	2	1.9	0.6
		5	7	7	21.0	1.0	7	3.0	0.4
		6	34	34	21.6	2.1	34	3.3	1.0
		7	37	37	21.2	1.7	37	3.2	0.9
		8	36	36	22.3	2.3	36	3.6	1.1
		9	29	29	22.6	2.9	29	3.8	1.7
		10	17	17	21.9	2.2	17	3.6	1.1
		11	4	4	22.5	1.8	4	3.3	1.0
		12	7	7	22.9	1.7	7	3.8	0.7
		13	1	1	19.7		1	5.0	
		14	4	4	21.9	2.6	4	2.6	2.0
Sample Size:			190	355			355		
Means:			8.0		22.2	2.4		3.5	1.4
MI-5									
Hatchery									
		7	1	1	26.5		1	5.5	
Wild									
			0	14	25.4	3.1	6	4.8	2.5
		5	2	2	23.5	1.8	2	3.9	0.7
		6	20	20	22.6	2.2	20	3.7	1.1
		7	13	13	22.0	1.9	13	3.2	0.9
		8	24	24	22.2	1.5	24	3.3	0.7
		9	10	10	24.3	1.9	10	4.8	1.3
		10	8	8	23.4	1.9	8	4.2	1.1
		11	9	9	26.1	1.9	9	5.6	1.4
		13	3	3	28.7	4.9	3	8.5	4.0
		15	4	4	26.1	5.1	4	6.8	3.7
		16	1	1	28.0		1	6.9	
		17	4	4	28.2	5.0	4	7.6	4.3
Sample Size:			99	113			105		
Means:			8.8		23.9	3.0		4.4	2.1

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 2012.

Unit	Length Category (Inches)	Fish Examined	Type AI, AII, AIII Wounds	Wounds per 100 fish	Scars	Scars per 100 fish
MI-4						
	1: < 17	4	0	0.0	0	0.0
	2: 17-20.9	99	2	2.0	3	3.0
	3: 21-24.9	208	4	1.9	4	1.9
	4: 25-28.9	38	5	13.2	1	2.6
	5: > 29	6	1	16.7	0	0.0
	Total:	355	12	3.4	8	2.3
MI-5						
	2: 17-20.9	15	0	0.0	0	0.0
	3: 21-24.9	64	0	0.0	1	1.6
	4: 25-28.9	28	0	0.0	0	0.0
	5: > 29	6	0	0.0	0	0.0
	Total:	113	0	0.0	1	0.9

Table 8. Catch curve mortality and survival rates for wild lake trout from management units in the 1842 ceded area within Michigan waters of Lake Superior, during 1996-2012.

Management Unit	Year	Ages	Instantaneous			95% confidence			Management Unit	Year	Ages	Instantaneous			95% confidence		
			total mortality	Z	limit for	total mortality	Z	limit for				total mortality	Z	limit for	total mortality	Z	limit for
MI-2	1996				Insufficient data.			MI-4	1996	8-11							
	1997				Insufficient data.				1997	8-11	0.74	0.44	+/- 0.06	0.52	0.48		
	1998	9-12	0.30	+/- 0.03		0.26			1998	8-11	0.44	0.24	+/- 0.12	0.36	0.64		
	1999	10-13	0.38	+/- 0.17		0.32			1999	8-11	0.24	0.23	+/- 0.17	0.21	0.79		
	2000	9-12	0.27	+/- 0.10		0.24			2000	9-12	0.23	0.39	+/- 0.07	0.21	0.79		
	2001	9-12	0.36	+/- 0.50		0.30			2001	9-12	0.39	0.54	+/- 0.19	0.32	0.68		
	2002	9-11	0.46	+/- 0.03		0.37			2002	9-12	0.54	0.38	+/- 0.11	0.42	0.58		
	2003				Insufficient data.				2003	9-12	0.66	0.66	+/- 0.06	0.32	0.68		
	2004				Insufficient data.				2004	14-16	0.26	0.26	+/- 0.38	0.48	0.52		
	2005	12-15	0.51	+/- 0.15		0.40			2005	11-14	0.48	0.48	+/- 0.02	0.23	0.77		
	2006	10-13	0.15	+/- 0.04		0.14			2006	11-14	0.49	0.49	+/- 0.12	0.38	0.62		
	2007	10-13	0.61	+/- 0.17		0.46			2007	9-15	0.35	0.35	+/- 0.15	0.39	0.61		
2008	14-16	0.35	+/- 0.20		0.30			2008	14-16	0.35	0.35	+/- 0.20	0.30	0.70			
2009	13-16	0.42	+/- 0.24		0.34			2009	10-13	0.16	0.16	+/- 0.20	0.30	0.70			
2010	10-13	0.38	+/- 0.14		0.32			2010				Insufficient data.	0.15	0.85			
2011	10-13	1.16	+/- 0.12		0.69			2011	10-13	0.37	0.37	+/- 0.11	0.31	0.69			
2012								2012	10-13	0.79	0.79	+/- 0.33	0.54	0.46			
MI-3	1996	8-11	0.45	+/- 0.21		0.36		MI-5	1996	10-13	0.33	0.33	+/- 0.09	0.28	0.72		
	1997	8-11	0.32	+/- 0.10		0.27			1997	10-13	0.21	0.21	+/- 0.12	0.19	0.81		
	1998	9-12	0.52	+/- 0.09		0.41			1998	10-13	0.20	0.20	+/- 0.21	0.18	0.82		
	1999	9-12	0.18	+/- 0.04		0.60			1999				Insufficient data.				
	2000				Insufficient data.				2000	10-12	0.35	0.35	+/- 0.15	0.30	0.70		
	2001	9-11	0.35	+/- 0.20		0.30			2001	11-14	0.44	0.44	+/- 0.28	0.36	0.64		
	2002	9-12	0.21	+/- 0.05		0.19			2002				Insufficient data.				
	2003	9-11	0.29	+/- 0.17		0.25			2003	12-14	0.47	0.47	+/- 0.09	0.38	0.62		
	2004	10-13	0.67	+/- 0.10		0.49			2004	10-13	0.54	0.54	+/- 0.23	0.42	0.58		
	2005	10-13	0.70	+/- 0.07		0.50			2005	10-13	0.54	0.54	+/- 0.13	0.42	0.58		
	2006	10-13	1.05	+/- 0.12		0.65			2006	10-13	0.69	0.69	+/- 0.17	0.50	0.50		
	2007	10-13	0.40	+/- 0.09		0.33			2007	9-12	0.48	0.48	+/- 0.12	0.38	0.62		
2008	11-14	0.49	+/- 0.12		0.39			2008	12-15	0.62	0.62	+/- 0.06	0.46	0.54			
2009	13-16	0.65	+/- 0.15		0.48			2009	10-12	0.46	0.46	+/- 0.27	0.37	0.63			
2010	13-16	0.48	+/- 0.28		0.38			2010				Insufficient data.					
2011	8-11	0.93	+/- 0.22		0.61			2011	10-13	0.41	0.41	+/- 0.10	0.34	0.66			
2012				Insufficient data.				2012	9-12	0.68	0.68	+/- 0.36	0.49	0.51			

Table 9. 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 2012. 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									
		0	122	20.1	1.6	0			
	6	3	3	18.1	0.6	3	1.8	0.3	
	7	4	4	18.4	0.9	4	1.9	0.2	
	8	7	7	19.3	2.0	7	2.2	0.5	
	9	4	4	19.1	1.3	4	1.9	0.3	
	10	1	1	22.6		1	3.2		
	11	3	3	20.6	0.8	3	2.8	0.4	
	12	2	2	21.2	2.0	2	2.6	0.1	
	13	1	1	21.8		1	3.2		
Sample Size:		25	147			25			
Means:		8.7		20.0	1.6		2.2	0.5	
MI-3									
		0	73	20.0	0.8	3	2.7	0.6	
	6	1	1	18.5		1	2.5		
	7	7	7	18.8	1.0	7	2.7	0.8	
	8	18	18	19.9	2.1	18	2.6	0.6	
	9	24	24	19.7	0.9	24	2.5	0.3	
	10	19	19	20.0	1.1	19	2.6	0.5	
	11	15	15	20.1	1.2	15	2.8	0.8	
	12	13	13	20.1	1.0	13	2.8	0.6	
	13	17	17	20.4	1.3	17	2.8	0.7	
	14	20	20	20.5	1.3	20	3.0	0.6	
	15	9	9	21.2	1.5	9	3.4	1.0	
	16	9	9	21.7	1.5	9	3.6	0.9	
	17	2	2	22.3	0.4	2	3.6	0.4	
	18	5	5	21.3	1.0	5	2.9	0.4	
	19	1	1	20.9		1	3.2		
	20	2	2	20.9	1.1	2	2.9	0.6	
	21	2	2	21.5	0.8	2	3.4	0.0	
	22	1	1	20.4		1	2.8		
	23	1	1	21.7		1	3.6		
Sample Size:		166	239			169			
Means:		11.9		20.2	1.3		2.8	0.7	

Table 9. Continued.

Unit	Age	Number		Length (in.)		Number		Weight (lbs)	
		Aged	Measured	mean	sd	Weighed	mean	sd	
MI-4									
		0	34	20.8	1.7	34	2.8	1.1	
	4	1	1	20.3		1	3.6		
	5	4	4	20.5	0.7	4	2.2	1.2	
	6	25	25	20.0	0.9	25	2.6	0.5	
	7	70	70	20.4	1.1	70	2.8	0.5	
	8	93	93	20.5	1.5	93	2.9	0.7	
	9	55	55	20.9	2.1	55	3.1	1.0	
	10	29	29	21.6	1.9	29	3.6	1.0	
	11	17	17	22.3	2.2	17	4.1	1.2	
	12	13	13	21.4	1.8	13	3.4	1.0	
	13	7	7	22.2	4.0	7	4.5	1.7	
	14	1	1	16.0		1	2.7		
	15	3	3	23.0	2.8	3	4.4	2.1	
	16	2	2	23.3	0.2	2	4.1	1.0	
Sample Size:		320	354			354			
Means:		8.5		20.8	1.8		3.1	1.0	
MI-5									
		0	34	22.2	2.4	34	3.8	1.4	
	5	6	6	17.2	2.4	6	1.8	0.6	
	6	13	13	20.8	1.2	13	3.0	0.6	
	7	20	20	21.0	1.2	20	3.3	0.8	
	8	18	18	20.7	1.6	18	3.0	0.7	
	9	12	12	21.0	2.1	12	3.0	0.8	
	10	9	9	21.1	2.1	9	3.4	1.3	
	11	4	4	22.1	1.4	4	4.6	1.5	
	12	2	2	19.5	0.7	2	2.7	0.7	
	13	1	1	25.2		1	5.4		
	14	1	1	24.1		1	4.6		
	15	1	1	29.2		1	8.5		
	16	1	1	28.5		1	9.0		
Sample Size:		88	122			122			
Means:		8.1		21.3	2.4		3.4	1.3	

Table 10. Catch curve mortality and survival rates of whitefish from management units in the 1842 ceded area within Michigan waters of Lakes Superior during 1986-2012.

Management Unit	Year	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S	Management Unit	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S	
MI-2	1984	9-11	1.50	+/- 0.34	78%	22%	MI-4	6-8	0.60	+/- 0.18	45%	55%	
	1985			Insufficient Data				7-9	0.29	+/- 0.12	25%	75%	
	1986	9-11	1.59	+/- 0.12	80%	20%		7-9	0.47	+/- 0.22	38%	63%	
	1987	9-11	1.04	+/- 0.43	65%	35%		8-10	0.62	+/- 0.16	46%	54%	
	1988			Insufficient Data				7-9	0.71	+/- 0.15	51%	49%	
	1989			Insufficient Data				6-8	0.84	+/- 0.14	57%	43%	
	1990			Insufficient Data				7-9	1.39	+/- 0.15	75%	25%	
	1991			Insufficient Data				7-9	1.43	+/- 0.26	76%	24%	
	1992			Insufficient Data				6-8	0.54	+/- 0.13	42%	58%	
	1993	9-11	0.69	+/- 0.17	50%	50%		7-9	1.15	+/- 0.20	68%	32%	
	1994	9-11	0.59	+/- 0.06	45%	55%		6-8	0.42	+/- 0.22	34%	66%	
	1995			Insufficient Data				7-9	0.82	+/- 0.13	56%	44%	
	1996	7-9	0.90	+/- 0.28	59%	41%		7-9	1.21	+/- 0.17	70%	30%	
	1997			Insufficient Data				7-9	0.82	+/- 0.06	56%	44%	
	1998	10-12	0.61	+/- 0.28	46%	54%		7-9	0.58	+/- 0.23	44%	56%	
	1999	10-12	0.29	+/- 0.10	25%	75%		7-9	0.40	+/- 0.18	33%	67%	
	2000	8-10	0.38	+/- 0.08	32%	68%		8-10	0.52	+/- 0.05	41%	59%	
	2001	10-12	0.63	+/- 0.34	47%	53%		8-10	0.25	+/- 0.07	22%	78%	
	2002	10-12	0.55	+/- 0.02	42%	58%		10-12	0.23	+/- 0.11	21%	79%	
	2003			Insufficient Data				8-10	0.25	+/- 0.12	22%	78%	
	2004	8-10	0.38	+/- 0.14	32%	68%		8-10	0.64	+/- 0.00	47%	53%	
	2005	8-10	0.22	+/- 0.05	20%	80%		9-11	0.88	+/- 0.16	59%	41%	
	2006	9-11	0.66	+/- 0.10	48%	52%		8-10	0.29	+/- 0.04	25%	75%	
	2007	9-11	0.34	+/- 0.09	29%	71%		9-11	0.45	+/- 0.08	36%	64%	
2008	10-12	0.26	+/- 0.15	23%	77%	9-11	0.64	+/- 0.06	47%	53%			
2009	10-12	0.16	+/- 0.05	15%	85%	10-12	0.69	+/- 0.17	50%	50%			
2010	11-13	0.33	+/- 0.08	28%	72%	12-14	0.59	+/- 0.29	45%	55%			
2011			Insufficient Data			7-9	0.23	+/- 0.13	21%	79%			
2012	8-10	0.97	+/- 0.24	62%	38%	8-10	0.58	+/- 0.03	44%	56%			
MI-3	1984	8-10	0.44	+/- 0.12	36%	64%	MI-5			Insufficient Data			
	1985	10-12	0.86	+/- 0.32	58%	42%			Insufficient Data				
	1986	9-11	0.27	+/- 0.15	24%	76%		10-12	0.23	+/- 0.10	21%	79%	
	1987	7-9	1.27	+/- 0.46	72%	28%		8-10	0.51	+/- 0.11	40%	60%	
	1988	8-10	1.80	+/- 0.32	83%	17%				Insufficient Data			
	1989	9-11	1.61	+/- 0.41	80%	20%		7-9	0.46	+/- 0.07	37%	63%	
	1990	6-8	0.69	+/- 0.23	50%	50%		6-8	1.06	+/- 0.02	65%	35%	
	1991	7-9	1.46	+/- 0.21	77%	23%		7-9	1.17	+/- 0.04	69%	31%	
	1992	5-7	0.94	+/- 0.51	61%	39%		5-7	1.24	+/- 0.13	71%	29%	
	1993	7-9	2.38	+/- 0.67	91%	9%				Insufficient Data			
	1994	6-8	0.33	+/- 0.13	28%	72%				Insufficient Data			
	1995	7-9	0.71	+/- 0.11	51%	49%		8-10	0.77	+/- 0.16	54%	46%	
	1996	7-9	1.61	+/- 0.33	80%	20%		6-8	0.26	+/- 0.12	23%	77%	
	1997	7-9	0.37	+/- 0.10	31%	69%		10-12	0.78	+/- 0.00	54%	46%	
	1998	9-11	0.58	+/- 0.04	44%	56%		8-10	0.59	+/- 0.04	45%	55%	
	1999	8-10	0.16	+/- 0.06	15%	85%		7-9	0.87	+/- 0.13	58%	42%	
	2000	8-10	0.36	+/- 0.10	30%	70%				Insufficient Data			
	2001	10-12	0.73	+/- 0.21	52%	48%		8-11	0.53	+/- 0.23	41%	59%	
	2002	10-12	0.74	+/- 0.07	52%	48%		9-14	0.50	+/- 0.14	39%	61%	
	2003	9-11	0.43	+/- 0.10	35%	65%		7-9	0.07	+/- 0.04	7%	93%	
	2004	8-10	0.31	+/- 0.11	27%	73%		8-16	0.27	+/- 0.06	24%	76%	
	2005	8-10	0.33	+/- 0.16	28%	72%		12-14	0.90	+/- 0.52	41%	59%	
	2006	8-10	0.28	+/- 0.15	24%	76%		9-11	0.35	+/- 0.20	30%	70%	
	2007	9-11	0.47	+/- 0.20	38%	63%				Insufficient Data			
2008	9-11	0.16	+/- 0.03	15%	85%			Insufficient Data					
2009	13-15	0.62	+/- 0.23	46%	54%	10-12	0.31	+/- 0.05	27%	73%			
2010	12-14	0.19	+/- 0.10	17%	83%			Insufficient Data					
2011	15-17	1.06	+/- 0.32	65%	35%	7-9	0.12	+/- 0.04	11%	89%			
2012	9-11	0.24	+/- 0.00	21%	79%	7-9	0.26	+/- 0.09	23%	77%			

Table 11. 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 2012. 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								
		0	3	20.7	1.1	3	2.5	0.5
	7	3	3	20.0	2.3	3	2.3	1.9
	8	1	1	16.8		1	1.2	
	9	3	3	18.3	1.1	3	1.2	1.0
	10	3	3	18.6	0.8	3	2.0	0.4
	11	1	1	19.0		1	2.0	
	13	1	1	22.4		1	3.2	
	15	1	1	21.7		1	3.0	
	18	1	1	17.2		1	0.9	
	21	1	1	24.1		1	3.7	
	22	1	1	17.5		1	1.5	
Sample Size:		16	19			19		
Means:	11.6			19.5	2.1		2.1	1.1
MI-5								
		0	1	21.0		1	3.2	
	12	1	1	18.7		1	0.2	
	19	1	1	21.4		1	2.9	
	20	1	1	21.5		1	2.6	
	23	1	1	19.6		1	2.4	
Sample Size:		4	5			5		
Means:	18.5			20.4	1.2		2.3	1.2
Sample Size:		20	24			24		
Means:	13.0			19.7	2.0		2.1	1.1

Table 12. 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 2012. 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								
		0	3	13.6	0.2	3	1.0	0.1
	3	1	1	15.1		1	1.2	
	4	6	6	14.1	0.7	6	0.9	0.1
	5	18	18	14.6	1.4	18	1.1	0.3
	6	23	23	14.3	1.2	23	1.1	0.3
	7	4	4	15.0	1.0	4	1.2	0.3
	8	11	11	14.9	1.4	11	1.1	0.4
	9	8	8	15.5	1.6	8	1.3	0.4
	10	8	8	16.1	1.5	8	1.4	0.4
	11	3	3	15.4	0.8	3	1.2	0.2
	12	3	3	15.2	0.6	3	1.1	0.1
	13	1	1	14.9		1	1.0	
	14	2	2	16.8	1.5	2	1.7	0.4
	15	4	4	15.1	2.1	4	1.2	0.6
Sample Size:		92	95			95		
Means:	7.5			14.8	1.4		1.1	0.3
MI-4								
		0	3	14.2	1.3	3	0.8	0.1
Sample Size:		0	3			3		
Means:				14.2	1.3		0.8	0.1
MI-5								
	7	1	1	18.6		1	2.2	
	8	1	1	17.9		1	1.9	
	10	1	1	15.6		1	1.1	
Sample Size:		3	3			3		
Means:	8.3			17.4	1.6		1.8	0.5

Table 13. Age and size composition of coho salmon in tribal commercial harvests during 2012. Weight is in round pounds, length is in inches, and sd=standard deviation.

Unit	Age	Number		Length (in.)		Weight (lbs)		
		Aged	Measured	mean	sd	Number Weighed	mean	sd
MI-4	3	1	1	20.2		1	2.9	
Sample Size:		1	1			1		
Means:	3.0			20.2			2.9	
MI-5	4	1	1	12.9		1	0.6	
	5	1	1	15.7		1	12.1	
Sample Size:		2	2			2		
Means:	4.5			14.3	2.0		6.3	8.2
Sample Size:		3	3			3		
Means:	4.0			16.3	3.7		5.2	6.1