



**Biological and Commercial Catch Statistics
from the Chippewa Inter-Tribal Gill Net Fishery
within Michigan Waters of Lake Superior
During 2014**

by
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ABSTRACT

The 2014 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 primary gear used in the fishery.

The fishing season for whitefish and lake trout was closed from November 1 through November 27 for Bad River and Keweenaw Bay and from November 6 to November 27 for Red Cliff; 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 4.6 million feet of gill net and harvesting 697,289 round pounds of fish. Whitefish was the primary target species, making up 84.9% of the total, followed by lake trout (12.8%), cisco or lake herring (1.2%), and with the remaining 1.0% consisting of siscowet, salmon, rainbow trout, brown trout, walleye, and burbot.

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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 followed the lake trout quota allocation formula 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 2014 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 2014 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 primary gear used in the fishery during 2014.

The fishing season for whitefish and lake trout was closed from November 1 through November 27 for Bad River and Keweenaw Bay and from November 6 to November 27 for Red Cliff. 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. 2011- Oct. 2016 ^{7,8,9}
		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	
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

⁹Mattes. 2013

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, the Bad River Natural Resources Department, and the Great Lakes Indian Fish and Wildlife Commission.

RESULTS AND DISCUSSION

Commercial Catch and Effort Statistics

Fishermen reported fishing 4.6 million feet of gill net and harvesting 697,289 round pounds of fish (Table 1). Whitefish was the primary target species, making up 84.9% of the total, followed by lake trout (12.8%), cisco or lake herring (1.2%), and with the remaining 1.0% consisting of siscowet, salmon, rainbow trout, brown trout, walleye, and burbot (Table 2).

Unit MI-2

Harvest. Thirty percent of the overall harvest was taken in MI-2 (Table 1). Of the 208,987 round pounds harvested in MI-2, 91.8% were whitefish, 4.6% lake trout, 3.3% cisco, and 0.4% siscowet (Table 2). Harvest occurred in seven statistical grids. Lake trout harvest was greatest in grid 1414 (2,686 dressed pounds) and less than 2,500 dressed pounds in each of the remaining six grids fished (Figure 2). Whitefish harvest was greatest in grids 1413, 1414 and 1316 (38,580, 34,522 and 34,121 dressed pounds respectively), followed by grid 1315 (22,136 dressed pounds). Less than 15,000 dressed pounds were harvested in each of the remaining three grids fished (Figure 3).

Effort. Twenty-seven percent of the overall gill-net effort occurred in MI-2 (Tables 1 and 2) which was fished by two tribes (Table 3). Fishing effort in MI-2 was 1,236,160 feet with 31.4% (388,400 feet) occurring in grid 1414 and 20.1% (248,880 feet) occurring in grid 1413. Greater than 100,000 feet was fished in three other grids (1412, 1315 and 1316: 116,480, 135,200 and 199,200 feet, respectively) (Figure 4). One-hundred thousand (100,000) feet or less were fished in the remaining two grids. 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 (1,236,160) was targeted at whitefish and lake trout (Tables 4 and 5). Target effort (1.24 million feet) and harvest of whitefish (163,896 dressed pounds) was above the 1985-2014 average (472,040 feet and 85,874 dressed pounds, respectively). Target lake trout harvest (7,700 dressed pounds) was above the 1985-2014 average of 6,878 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 85-253 pounds (Table 4). Whitefish CPE for the eight grids combined was 133, below the average CPE of 182 for this unit for the 30 year period 1985-2014 (Table 5). Lake trout CPE for targeted fishing ranged from 1-10 per grid and was 6 for all grids combined, below the 1985-2014 average CPE of 15 pounds.

Unit MI-3

Harvest. Thirty-nine percent of the overall harvest was taken in MI-3 (Table 1). Of the 271,412 round pounds harvested in MI-3, 94.8% were whitefish, 3.8% lake trout and 1.4% siscowet (Table 2). Harvest occurred in nine statistical grids. Lake trout harvest was greatest in grid 1122 (2,994 dressed pounds) and was less than 2,500 dressed pounds in each of the other grids

fished (Figure 2). Whitefish harvest was greatest in grid 1220 (55,481 dressed pounds) followed by grids 1121 and 1023 (54,040 and 45,416 dressed pounds, respectively). Greater than 15,000 pounds was taken in grids 1219 and 1024 (16,452 and 26,735 dressed pounds respectively) while less than 10,000 dressed pounds was taken in the remaining four grids (Figure 3).

Effort. Thirty-seven percent of the overall gill-net effort occurred in MI-3 (Tables 1 and 2) which was fished by three tribes (Table 3). Fishing effort in MI-3 was 1,693,400 feet with 34.0% (576,000 feet) occurring in grid 1220 followed by 20.1% (339,800 feet) in grid 1023 and 18.0% (305,000 feet) in grid 1121. Effort was less than 250,000 feet in the remaining grids fished (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 98.6% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. All fishing effort (1,693,400 feet) was targeted at whitefish and lake trout (Tables 4 and 5). Both target effort (1.7 million feet) and harvest of lake trout (8,196 dressed pounds) were below the 1985-2014 averages of 1.9 million feet and 16,453 dressed pounds. Target whitefish harvest, 219,986 dressed pounds was near the 1985-2014 average of 210,324 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 ranged from 77-219 pounds (Table 4). Whitefish CPE for the nine grids combined was 130 pounds and above the 1985-2014 average CPE of 111 (Table 5). Lake trout CPE for targeted fishing ranged from 2-36 pounds and was 5 for all grids combined, below the 1985-2014 average CPE of 9 pounds.

Unit MI-4

Harvest. Twenty-seven percent of the overall harvest was taken in MI-4 (Table 1). Of the 190,120 round pounds harvested, 67.3% were whitefish, 31.2% lake trout, 3.0% cisco, and 2.5% salmon and trout species (Table 2). Harvest occurred in nine statistical grids. Lake trout harvests were highest in grids 1224, 1125 and 1324 (13,055, 8,960 and 8,191 dressed pounds, respectively (Figure 2) followed by grids 1423 (5,847 dressed pounds). Less than 5,000 dressed pounds were harvested in each of the other five grids fished. Whitefish harvests were greatest in grids 1224, 1125 and 1324 (37,311, 27,057 and 14,132 dressed pounds, respectively). Less than 10,000 dressed pounds of whitefish were harvested from the remaining six grids fished (Figure 3).

Effort. Thirty-two percent of the overall gill-net effort occurred in MI-4 (Tables 1 and 2) which was fished by all three tribes (Table 3). Fishing effort in MI-4 was 1,465,600 feet with 26.7% (391,700 feet) occurring in grid 1224, followed by 17.6% (258,500 feet) in grid 1125 and 15.2% (222,500 feet) in grid 1423. Greater than 100,000 feet were also fished in grids 1323 and 1324 (206,200 and 193,500 feet, respectively). Less than 100,000 feet were fished in each of the remaining four grids fished (Figure 4). Gill-nets of 4 ½ inch mesh accounted for 98.1% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. The majority of fishing effort (1,463,200 feet) was targeted at whitefish and lake trout with 1,800 feet directed at cisco (Table 4). Target effort for whitefish and lake trout (1.5 million feet) was lower than the 1985-2014 average of 2.8 million feet (Table 5).

Target harvest of whitefish (109,432 dressed pounds) was below the 1985-2014 average (172,318 dressed pounds). Target harvest of lake trout (47,399 dressed pounds) was below the 1985-2014 average (65,664 dressed pounds). Target harvest was 150 dressed pounds for cisco.

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing in the nine grids fished ranged from 24-139 pounds (Table 4). Whitefish CPE for all grids combined was 75 pounds which is above the 1985-2014 average CPE of 61 for this unit (Table 5). Lake trout CPE for targeted fishing ranged from 17-80 pounds and was 32 for all grids combined, above the 1985-2014 average CPE of 23 pounds. CPE for targeted fishing of cisco was 83 pounds for the one grid fished.

Unit MI-5

Harvest. Four percent of the overall harvest was taken in MI-5 (Table 1). Of the 26,768 round pounds harvested in MI-5, 55.6% were whitefish, 38.9% lake trout, 3.0% cisco, and 2.5% salmon, brown trout and rainbow trout (Table 2). Harvest occurred in two statistical grids. Lake trout harvest was 5,289 dressed pounds in grid 1529 and 3,048 pounds in grid 1327 (Figure 2). Whitefish harvest was 4,822 dressed pounds in grid 1529 and 7,890 in grid 1327 (Figure 3). Target harvest of cisco from grid 1529 was 674 dressed pounds.

Effort. Four percent of the overall gill-net effort occurred in MI-5 (Tables 1 and 2) which was fished by two tribes (Table 3). Fishing effort was 204,900 feet with 51.8% (106,100 feet) occurring in grid 1529 and 48.2% (98,800 feet) occurring in grid 1327 (Table 1 and Figure 4). Gill-nets of 4 ½ inch mesh accounted for 87.4% of the unit's effort (Table 2 and Figure 5).

Target Effort and Harvest. The majority of fishing effort (201,300 feet) was targeted at whitefish and lake trout with 2,700 feet directed at cisco (Table 4). Target effort for whitefish and lake trout (0.20 million feet) was below the 1985-2014 average of 0.42 million feet (Table 5). Target harvest of whitefish (12,368 dressed pounds) was below the 1986-2014 average (25,543 dressed pounds). Target harvest of lake trout (8,330 dressed pounds) was below the 1986-2014 average (19,780 dressed pounds).

Catch Per Effort (CPE). Whitefish CPE (pounds harvested per 1,000 feet of gill-net) for targeted fishing was 80 in grid 1327 and 44 in grid 1529 (Table 4). Whitefish CPE for both grids combined was 61 pounds which is the same as the 1986-2014 average CPE for this unit (Table 5). Lake trout CPE for targeted fishing was 52 in grid 1529 and 31 in grid 1327 (Table 4). Lake trout CPE for the two grids combined was 41 pounds, near the 1986-2014 average CPE of 47 pounds. Cisco CPE for targeted fishing was 244 pounds in the one grid fished.

Biological Statistics

Lake Trout

MI-2. Nine year classes of wild trout (10, 12, 15, 17-20, 26, 30) were represented in a sample of 17 lake trout aged from MI-2 (Table 6). Mean age was 19.0 years. Fish ten years and older made up 100% of the sample. Mean length was 31.6 inches and mean weight was 12.7 round pounds for 35 fish sampled. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 7). Annual total mortality rate could not be estimated due to small sample size (Table 8).

MI-3. Ten year classes of wild trout (6, 8-15, 27) were represented in a sample of 14 lake trout aged from MI-3 (Table 6). Mean age was 12.0 years. Fish ten years and older made up 71% of the sample. Mean length was 25.6 inches and mean weight was 5.2 round pounds for the 16 fish sampled. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 7). Annual total mortality rate could not be estimated due to small sample size (Table 8).

MI-4. Nine year classes of wild trout (4-12) were represented in a sample of 17 lake trout aged from MI-4 (Table 6). Mean age was 8.8 years. Fish ten years and older made up 47% of the sample. Mean length was 24.0 inches and mean weight was 4.3 round pounds for the 20 fish sampled. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 7). Annual total mortality rate could not be estimated due to small sample size (Table 8).

MI-5. No lake trout were sampled from MI-5 in 2014.

Whitefish

MI-2. Fifteen age groups (4-15, 18-20) were represented in the 89 whitefish aged in MI-2, which had a mean age of 9.2 years (Table 9). Mean length of 197 whitefish measured was 19.8 inches and mean weight of 168 weighed was 2.6 round pounds. Annual total mortality was estimated at 32% ($Z=0.38 \pm 0.5$) for ages 9-15 (Table 10).

MI-3. Sixteen age groups (6-21) were represented in the 179 whitefish aged in MI-3, which had a mean age of 10.7 years (Table 9). Mean length of 443 whitefish measured was 19.7 inches and the mean weight was 2.4 round pounds. Annual total mortality was estimated at 26% ($Z=0.30 \pm 0.04$) for ages 9-21 (Table 10).

MI-4. Twelve age groups (5-15, 20) were represented in the 131 whitefish aged in MI-4, which had a mean age of 9.0 years (Table 9). Mean length and weight of 159 lake whitefish sampled was 20.7 inches and 3.0 round pounds, respectively. Annual total mortality was estimated at 35% ($Z=0.43 \pm 0.09$) for ages 8-15 (Table 10).

MI-5. No lake whitefish were sampled from MI-5 in 2014.

Other Species

Cisco

Nine age groups (5-11, 13, 15) were represented in the 50 cisco aged from MI-2 where the mean age was 9.5 years. Mean length and weight for the 147 cisco sampled was 14.9 inches and 1.1 round pounds (Table 11). Annual total mortality was estimated at 61% ($Z=0.94 \pm 0.74$) for ages 9-11.

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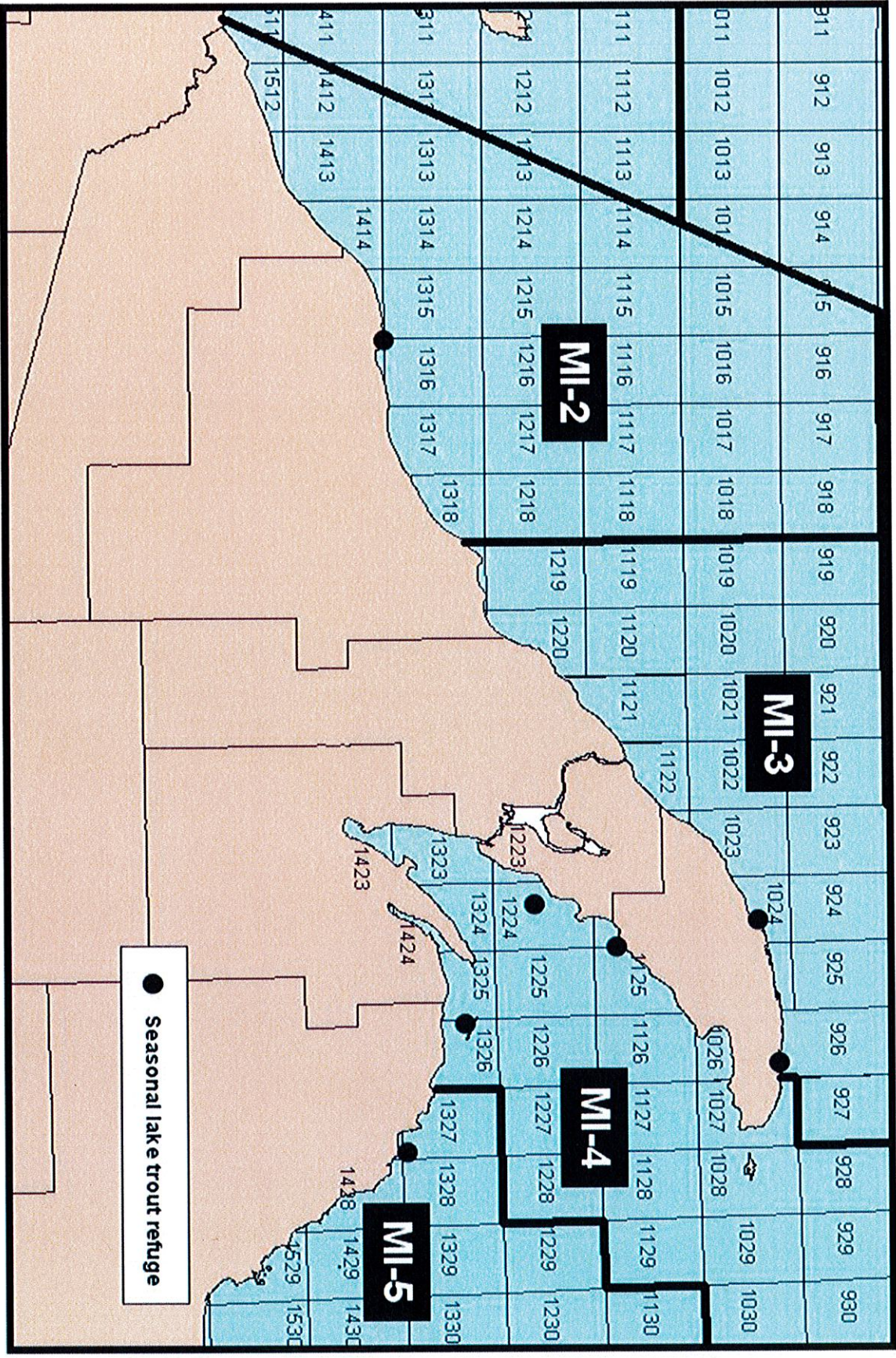


Figure 1. Management units and statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior.

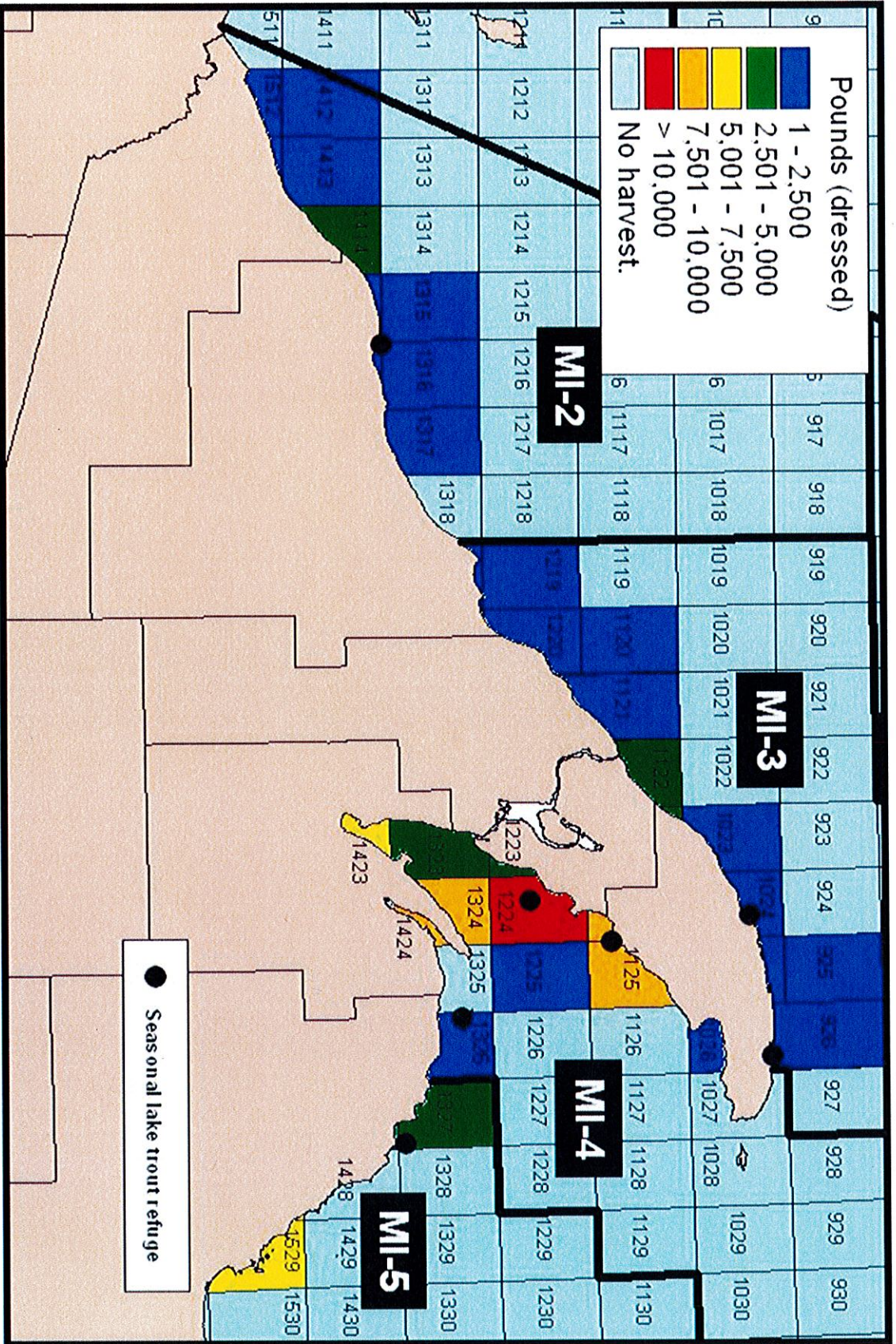


Figure 2. Lake trout harvest (dressed pounds) by statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2014.

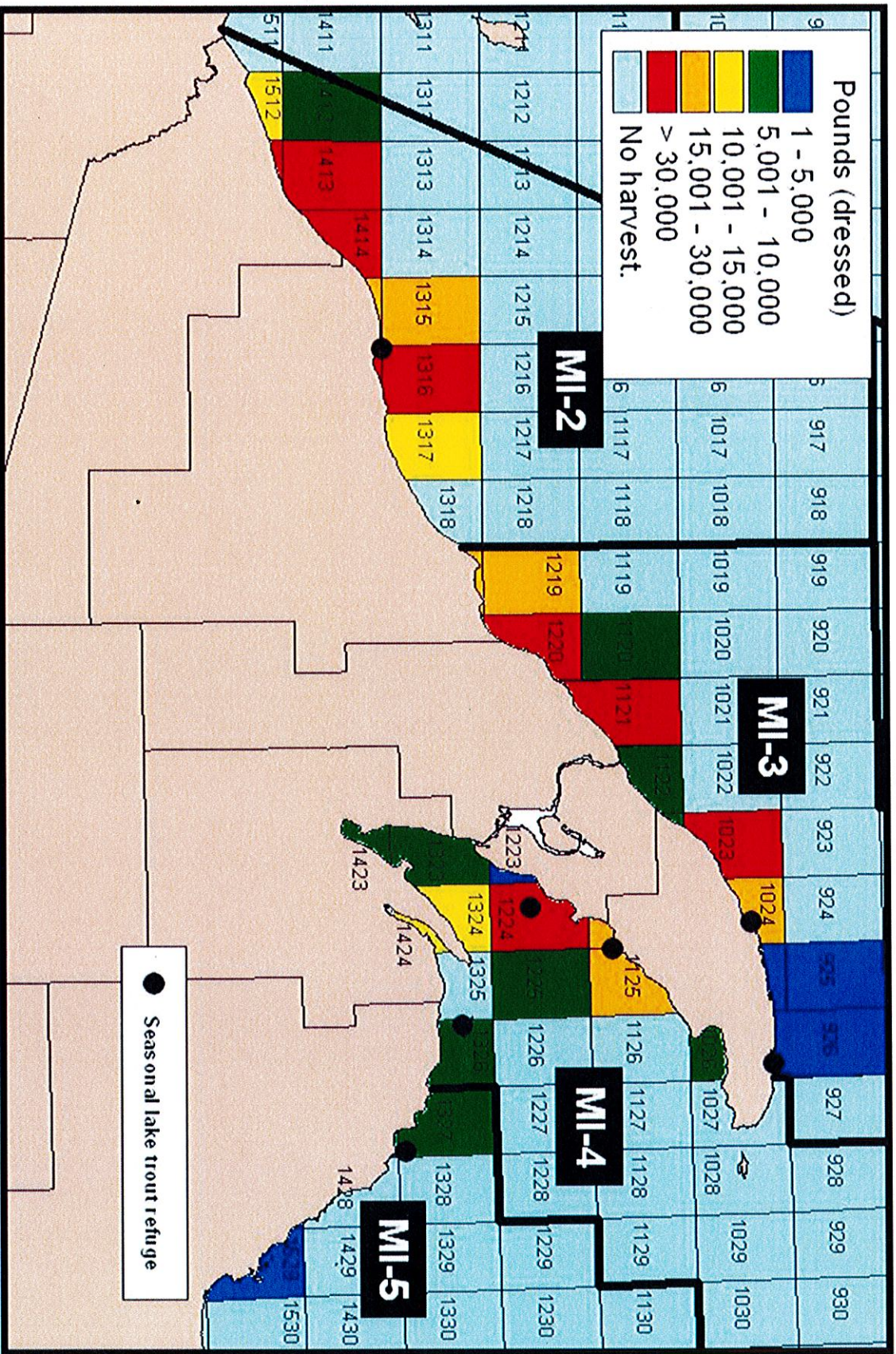


Figure 3. Whitefish harvest (dressed pounds) by statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2014.

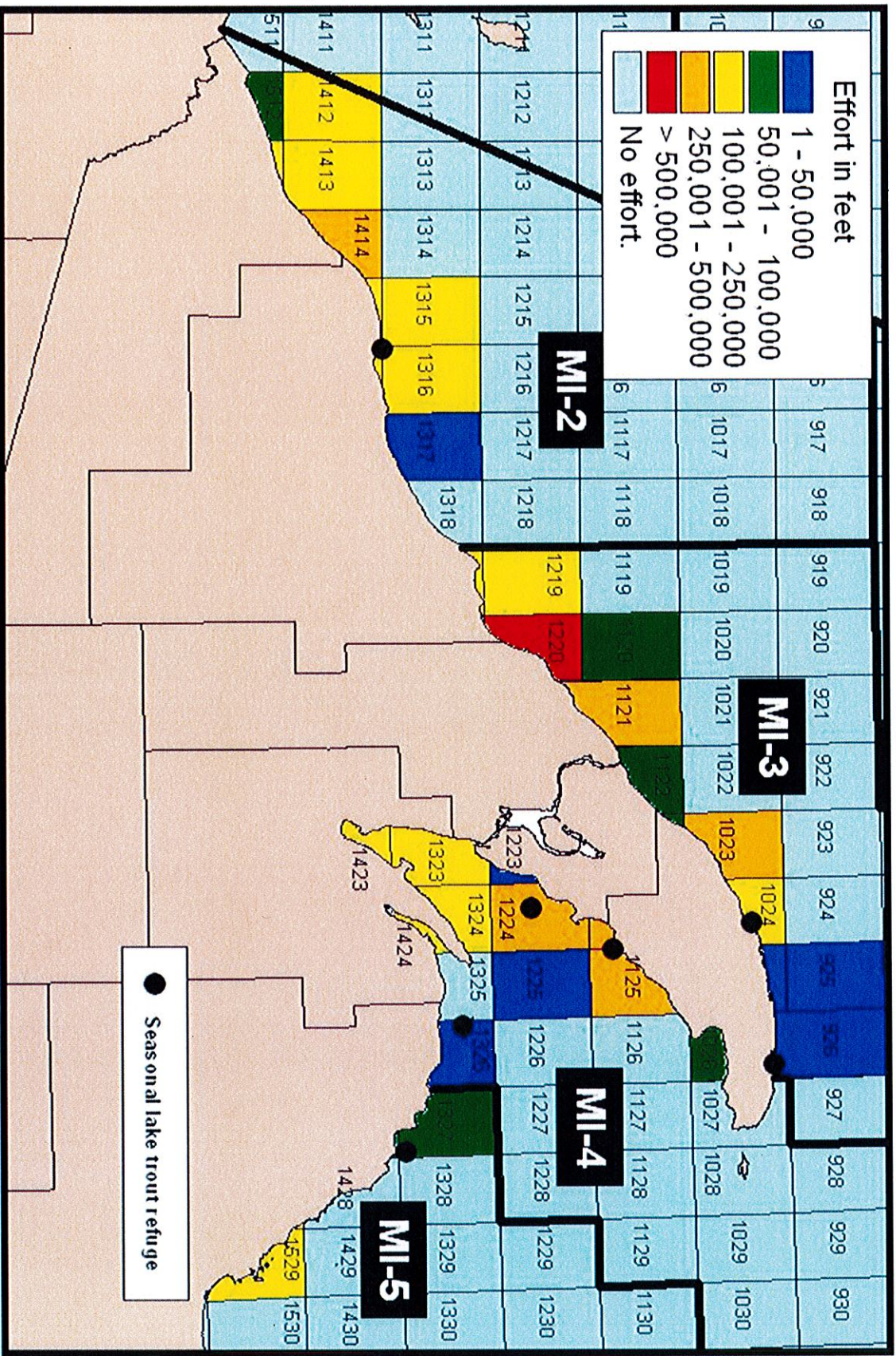
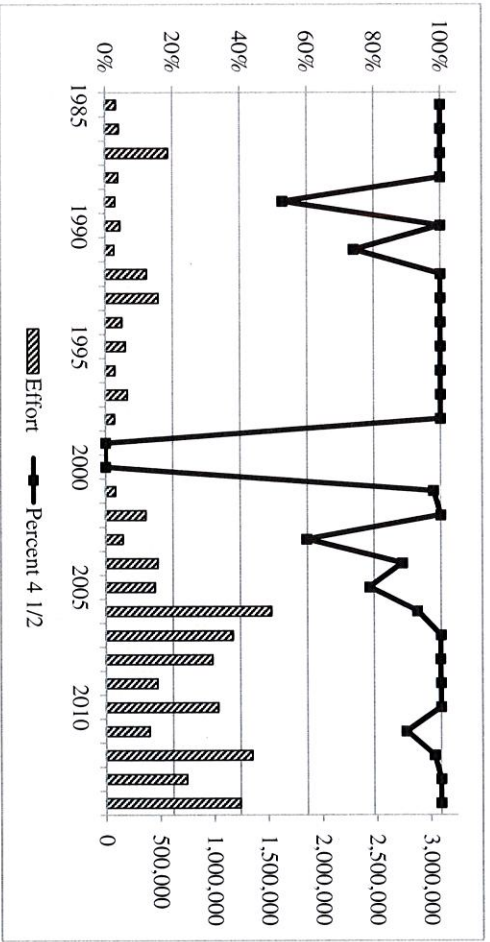
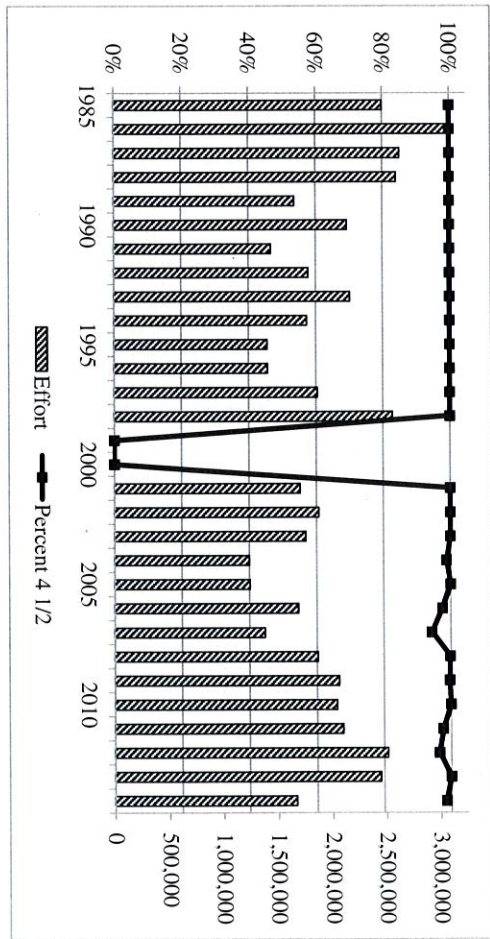


Figure 4. Effort in feet by statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior during 2014.

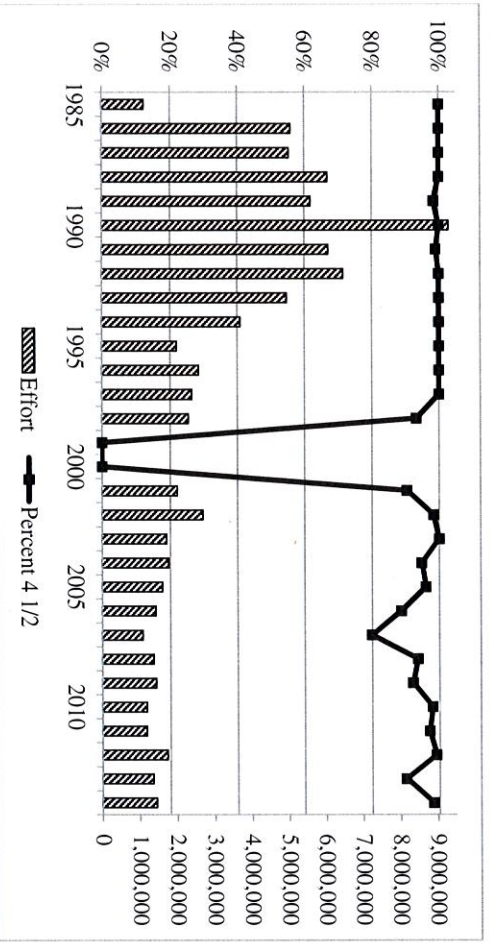
MI-2



MI-3



MI-4



MI-5

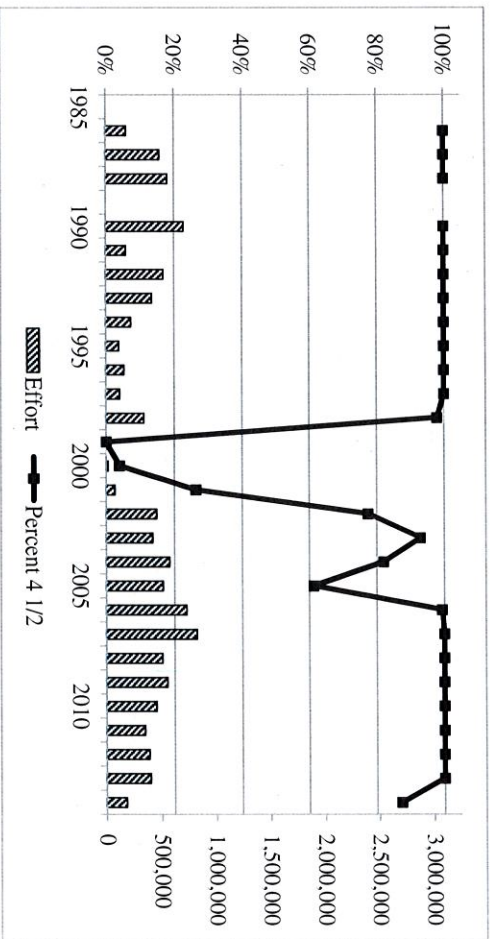


Figure 5. Total tribal large mesh gill net effort and percent composed of 4 1/2 inch mesh by management unit, 1985 to 2014.

Table 1. Total tribal commercial gill net effort (fee) and harvest (pounds) by management unit, grid, and species from the 1842 ceded area within Michigan waters of Lake Superior in 2014.

Management Unit	Grid	Effort	Total Effort*										Total Harvest Round Pounds	Percent of Total Harvest		
			Percent of Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Salmon/trout	Walleye	Barbot						
MI-2	1315	135,200	10.9%	22,136	1,012	0	0	0	0	0	0	0	0	0	208,986.8	30.0%
	1316	199,200	16.1%	34,121	1,415	0	0	0	0	0	0	0	0	0		
	1317	48,000	3.9%	12,135	65	0	0	0	0	0	0	0	0	0		
	1412	116,480	9.4%	9,926	1,177	0	0	0	0	0	0	0	0	0		
	1413	248,880	20.1%	38,580	931	0	5,680	0	0	0	0	0	0	0		
	1414	388,400	31.4%	34,522	2,686	0	0	0	0	0	0	0	0	0		
	1512	100,000	8.1%	12,476	414	630	0	0	0	0	0	0	0	0		
	Effort:	1,236,160	26.9%	163,896	7,700	630	5,680	0	0	0	0	0	0	0		
	Dressed Pounds:			191,758.3	9,625.0	787.5	6,816.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Round Pounds:			191,758.3	9,625.0	787.5	6,816.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
MI-3	925	18,000	1.1%	1,385	240	0	0	0	0	0	0	0	0	271,412.4	38.9%	
926	18,000	1.1%	3,933	238	0	0	0	0	0	0	0	0	0			
1023	339,800	20.1%	45,416	1,041	2,063	0	0	0	0	0	0	0	0			
1024	158,000	9.3%	26,735	311	945	0	0	0	0	0	0	0	0			
1120	62,000	3.7%	6,500	160	0	0	0	0	0	0	0	0	0			
1121	305,000	18.0%	54,040	1,178	0	0	0	0	0	0	0	0	0			
1122	83,000	4.9%	10,045	2,994	0	0	0	0	0	0	0	0	0			
1219	133,600	7.9%	16,452	627	0	0	0	0	0	0	0	0	0			
1220	576,000	34.0%	55,481	1,408	0	0	0	0	0	0	0	0	0			
Effort:	1,693,400	36.8%	219,986	8,195	3,008	0	20	25.0	0	0	0	0	0			
Dressed Pounds:			257,383.6	10,243.8	3,760.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0			
Round Pounds:			257,383.6	10,243.8	3,760.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0			
MI-4	1026	56,000	3.8%	6,556	1,278	0	0	0	0	0	0	0	0	190,119.8	27.3%	
1125	258,500	17.6%	27,057	8,960	0	0	0	0	0	0	0	0	0			
1223	46,000	3.1%	2,000	3,682	300	0	0	0	0	0	0	0	0			
1224	391,700	26.7%	37,311	13,055	450	334	0	0	17	0	0	0	0			
1225	42,000	2.9%	5,229	849	0	0	0	0	0	0	0	0	0			
1323	206,200	14.1%	5,067	4,695	410	70	42	40	0	0	0	0	0			
1324	193,500	13.2%	14,132	8,191	0	0	0	0	0	0	0	0	0			
1326	49,200	3.4%	6,824	842	0	0	0	0	0	0	0	0	0			
1423	222,500	15.2%	5,259	5,847	205	150	146	2	0	0	0	0	0			
Effort:	1,465,600	31.9%	109,435	47,399	1,365	554	188	59	167	0	0	0	0			
Dressed Pounds:			128,039.0	59,248.8	1,706.3	664.8	235.0	59	167	0	0	0	0			
Round Pounds:			128,039.0	59,248.8	1,706.3	664.8	235.0	59	167	0	0	0	0			
MI-5	1327	98,800	48.2%	7,890	3,048	0	0	0	0	0	0	0	0	26,768.6	3.8%	
1529	106,100	51.8%	4,822	5,289	0	674	526	8	0	0	0	0	0			
Effort:	204,900	4.5%	12,712	8,337	0	674	526	8	0	0	0	0	0			
Dressed Pounds:			14,873.0	10,421.3	0.0	808.8	657.5	8	0	0	0	0	0			
Round Pounds:			14,873.0	10,421.3	0.0	808.8	657.5	8	0	0	0	0	0			
Grand Totals:	Effort:	4,600,060		506,029	71,631	5,003	6,908	734	67.0	167.0	0	0	0			
Dressed Pounds:			592,053.9	89,538.8	6,253.8	8,289.6	917.5	67.0	167.0	0	0	0	0			
Round Pounds:			592,053.9	89,538.8	6,253.8	8,289.6	917.5	67.0	167.0	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 2014.

Unit	Mesh	Effort	Percent of						Total Harvest Round Pounds			
			Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Salmon/ Trout		Walleye	Burbot	
MI-2	4.5	1,236,160	100.0%	163,896	7,700	630	5,680	0	0	0	0	0
Subtotals:		Effort: 1,236,160	26.9%	163,896	7,700	630	5,680	0	0	0.0	0.0	0.0
Dressed Pounds:				163,896	7,700	630	5,680	0	0	0.0	0.0	0.0
Round Pounds:				191,758.3	9,625.0	787.5	6,816.0	0.0	0.0	0.0	0.0	208,986.8
Percent of Unit Harvest:				91.8%	4.6%	0.4%	3.3%	0.0%	0.0%	0.0%	0.0%	
MI-3	4.5	1,669,400	98.6%	216,471	8,065	3,008	0	20	0	0	0	0
MI-3	4.5-5.0	24,000	1.4%	3,515	130	0	0	0	0	0	0	0
Subtotals:		Effort: 1,693,400	36.8%	219,986	8,195	3,008	0	20	0	0	0	0
Dressed Pounds:				257,383.6	10,243.8	3,760.0	0.0	25.0	0.0	0.0	0.0	271,412.4
Round Pounds:				94.8%	3.8%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
Percent of Unit Harvest:				0	0	0	150	0	0	0	0	0
MI-4	2.5	1,800	0.1%	0	0	0	0	0	0	0	0	0
MI-4	4.5	1,437,400	98.1%	109,010	46,154	1,160	404	113	59	167	167	167
MI-4	5.5	26,400	1.8%	425	1,110	205	0	75	0	0	0	0
MI-4	Hook and Line	0	0.0%	0	135	0	0	0	0	0	0	0
Subtotals:		Effort: 1,465,600	31.9%	109,435	47,399	1,365	554	188	59.0	167.0	167.0	190,119.8
Dressed Pounds:				128,039.0	59,248.8	1,706.3	664.8	235.0	59.0	167.0	167.0	
Round Pounds:				67.3%	31.2%	0.9%	0.3%	0.1%	0.0%	0.1%	0.1%	
Percent of Unit Harvest:				9,956	8,118	0	659	470	8	0	0	0
MI-5	4.5	179,100	87.4%	9,956	8,118	0	659	470	8	0	0	0
MI-5	5.5	25,800	12.6%	2,756	219	0	15	56	0	0	0	0
Subtotals:		Effort: 204,900	4.5%	12,712	8,337	0	674	526	8.0	0.0	0.0	26,768.6
Dressed Pounds:				14,873.0	10,421.3	0.0	808.8	657.5	8.0	0.0	0.0	
Round Pounds:				55.6%	38.9%	0.0%	3.0%	2.5%	0.0%	0.0%	0.0%	
Percent of Unit Harvest:				Effort: 4,600,060								
Dressed Pounds:				506,029	71,631	5,003	6,908	734				
Round Pounds:				592,053.9	89,538.8	6,253.8	8,289.6	917.5	67.0	167.0	167.0	697,287.5
Percent of Total Harvest:				84.9%	12.8%	0.9%	1.2%	0.1%	0.0%	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 2014.*

Unit	Tribe	Effort	TOTAL HARVEST						TARGET HARVEST							
			Whitefish		Lake trout		Siscowet		Whitefish		Lake trout		Siscowet			
			pounds	CPE	pounds	CPE	pounds	CPE	pounds	CPE	pounds	CPE	pounds	CPE	pounds	CPE
MI-2	Bad River	750,160	59,251	79	6,295	8	630	1	750,160	59,251	79	6,295	8	0	0	0
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff subtotal	486,000	104,645	215	1,405	3	0	0	486,000	104,645	215	1,405	3	0	0	0
MI-3	Bad River	1,236,160	163,896	133	7,700	6	630	1	1,236,160	163,896	133	7,700	6	0	0	0
	Keweenaw Bay	288,000	36,029	125	560	2	3,008	10	288,000	36,029	125	560	2	0	0	0
	Red Cliff subtotal	45,600	6,219	136	2,800	61	0	0	45,600	6,219	136	2,800	61	0	0	0
MI-4	Bad River	1,359,800	177,738	131	4,836	4	0	0	1,359,800	177,738	131	4,836	4	0	0	0
	Keweenaw Bay	1,693,400	219,986	130	8,196	5	3,008	2	1,693,400	219,986	130	8,196	5	0	0	0
	Red Cliff subtotal	184,400	17,801	97	4,233	23	0	0	184,400	17,801	97	4,233	23	0	0	0
MI-5	Bad River	818,200	32,448	40	31,360	38	1,365	2	815,800	32,445	40	31,360	38	0	0	0
	Keweenaw Bay	463,000	59,186	128	11,806	25	0	0	463,000	59,186	128	11,806	25	0	0	0
	Red Cliff subtotal	1,465,600	109,435	75	47,399	32	1,365	1	1,463,200	109,432	75	47,399	32	0	0	0
Total	Bad River	98,800	7,890	80	3,048	31	0	0	98,800	7,890	80	3,048	31	0	0	0
	Keweenaw Bay	106,100	4,822	45	5,289	50	0	0	102,500	4,478	44	5,282	52	0	0	0
	Red Cliff subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Bad River	204,900	12,712	62	8,337	41	0	0	201,300	12,368	61	8,330	41	0	0	0
	Keweenaw Bay	1,321,360	120,971	92	14,136	11	3,638	3	1,321,360	120,971	92	14,136	11	0	0	0
	Red Cliff	969,900	43,489	45	39,449	41	1,365	1	963,900	43,142	45	39,442	41	0	0	0
All Tribes	Bad River	2,308,800	341,569	148	18,047	8	0	0	2,308,800	341,569	148	18,047	8	0	0	0
	Keweenaw Bay	4,600,060	506,029	110	71,632	16	5,003	1	4,594,060	505,682	110	71,625	16	0	0	0
	Red Cliff	0	0	0	0	0	0	0	0	0	0	0	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 2014*

Unit	Grid	Whitefish			Lake trout			Cisco		Salmon				
		Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE	
MI-2	1315	135,200	22,136	164	135,200	1,012	7							
	1316	199,200	34,121	171	199,200	1,415	7							
	1317	48,000	12,135	253	48,000	65	1							
	1412	116,480	9,926	85	116,480	1,177	10							
	1413	248,880	38,580	155	248,880	931	4							
	1414	388,400	34,522	89	388,400	2,686	7							
	1512	100,000	12,476	125	100,000	414	4							
	subtotal	1,236,160	163,896	133	1,236,160	7,700	6	0	0	0	0	0	0	
	MI-3	925	18,000	1,385	77	18,000	240	13						
		926	18,000	3,933	219	18,000	238	13						
1023		339,800	45,416	134	339,800	1,041	3							
1024		158,000	26,735	169	158,000	312	2							
1120		62,000	6,500	105	62,000	160	3							
1121		305,000	54,040	177	305,000	1,178	4							
1122		71,000	9,795	138	71,000	2,993	42							
1123		12,000	250	21	12,000	0	0							
1219		133,600	16,452	123	133,600	627	5							
1220		576,000	55,481	96	576,000	1,408	2							
subtotal	1,693,400	219,986	130	1,693,400	8,196	5	0	0	0	0	0	0		
MI-4	1026	56,000	6,556	117	56,000	1,278	23							
	1125	258,500	27,057	105	258,500	8,960	35							
	1223	46,000	2,000	43	46,000	3,682	80							
	1224	391,700	37,311	95	391,700	13,055	33							
	1225	42,000	5,229	125	42,000	849	20							
	1323	206,200	5,067	25	206,200	4,695	23							
	1324	193,500	14,132	73	193,500	8,191	42							
	1326	49,200	6,824	139	49,200	842	17							
	1423	220,100	5,256	24	220,100	5,847	27							
	subtotal	1,463,200	109,432	75	1,463,200	47,399	32	1,800	150	83	0	0	0	
MI-5	1327	98,800	7,890	80	98,800	3,048	31							
	1529	102,500	4,478	44	102,500	5,282	52							
	subtotal	201,300	12,368	61	201,300	8,330	41	2,700	659	244	0	0	0	
Grand Total		4,594,060	505,682	110	4,594,060	71,625	16	4,500	809	180	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) statistics for whitefish, lake trout and siscowet by management unit and year from the 1842 ceded area within Michigan waters of Lake Superior from 1985-2014. 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	432
	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	5,163
	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	1,530
	1993	419,100	74,220	177	74,473	419,100	7,780	19	8,263	52,400	10,029	191	8,201
	1994	148,200	17,629	119	17,629	148,200	7,790	53	7,790	5,000	747	149	1,243
	1995	155,000	11,236	73	12,160	155,000	9,729	63	10,104	15,000	3,307	221	3,025
	1996	89,600	4,418	49	4,418	89,600	7,777	87	7,777	1,200	3	3	186
	1997	196,300	19,512	99	19,512	196,300	10,675	54	11,302	5,000	1,608	322	703
	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	
2013	748,800	155,816	208	155,816	748,800	8,117	11	8,117	0	0	0	0	
2014	1,236,160	163,896	133	163,896	1,236,160	7,700	6	7,700	0	0	0	630	
Average:		472,040	85,874	182	85,971	472,040	6,878	15	6,947	9,993	1,824	183	1,668
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	0	
2012	2,604,000	401,374	154	401,374	2,604,000	7,083	3	7,083	0	0	0	97	
2013	2,447,200	445,528	182	445,528	2,447,200	8,808	4	8,808	0	0	0	131	
2014	1,693,400	219,986	130	219,986	1,693,400	8,196	5	8,196	0	0	0	3,008	
Average:		1,896,432	209,654	111	210,324	1,845,432	16,453	9	16,651	46,347	5,298	114	13,276

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
	2013	1,499,775	72,796	49	72,841	1,499,775	57,829	39	57,834	0	0	0	136
	2014	1,463,200	109,432	75	109,435	1,463,200	47,399	32	47,399	0	0	0	1,365
Average:		2,812,953	172,318	61	174,810	2,812,953	65,664	23	68,394	202,124	20,091	99	34,359
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	480
	2013	402,500	15,384	38	15,384	402,500	20,807	52	20,807	0	0	0	383
	2014	201,300	12,368	61	12,712	201,300	8,330	41	8,337	0	0	0	0
Average:		415,893	25,335	61	25,543	415,893	19,567	47	19,780	10,024	397	40	2,411

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	93,859
	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	125,862
	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	134,102
	1993	6,874,625	433,305	63	444,840	6,874,625	115,477	17	127,220	868,100	71,258	82	125,604
	1994	4,864,325	185,369	38	192,734	4,864,325	98,490	20	108,487	649,050	44,793	69	86,615
	1995	3,206,025	186,348	58	197,488	3,206,025	73,658	23	88,548	391,000	38,670	99	66,148
	1996	3,707,100	249,843	67	256,931	3,707,100	69,397	19	77,443	394,100	26,415	67	45,857
	1997	4,391,688	301,728	69	304,417	4,391,688	86,807	20	90,144	168,986	45,107	267	81,383
	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	1,593
	2012	6,121,550	788,815	129	788,815	6,121,550	96,167	17	96,167	0	0	0	629
	2013	5,726,075	802,622	140	689,569	5,726,075	95,366	17	95,371	0	0	0	650
	2014	4,594,060	505,682	110	506,029	4,594,060	71,625	16	71,632	0	0	0	5,003
Average:		5,604,381	496,106	89	495,796	5,604,381	107,903	19	111,105	268,154	27,597	103	51,633

Table 6. Age and size composition of wild lake trout by unit from tribal commercial harvests during 2014. 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-2									
Wild									
			0	18	31.2	4.0	18	12.4	5.2
		10	1	1	28.5		1	8.0	
		12	1	1	32.1		1	13.0	
		15	1	1	30.9		1	10.1	
		17	2	2	31.8	0.1	2	13.0	0.1
		18	1	1	31.8		1	12.7	
		19	2	2	34.4	0.6	2	16.3	0.0
		20	7	7	32.7	3.1	7	13.8	4.6
		26	1	1	31.5		1	11.3	
		30	1	1	30.4		1	12.1	
Sample Size:			17	35			35		
Means:		19.0			31.6	3.3		12.7	4.4
MI-3									
Wild									
			0	2	28.6	5.5	2	8.5	5.2
		6	1	1	23.6		1	3.7	
		8	1	1	25.3		1	5.0	
		9	2	2	22.8	4.0	2	3.7	2.2
		10	2	2	27.2	1.8	2	6.3	1.6
		11	2	2	26.9	1.9	2	5.4	0.2
		12	1	1	23.4		1	3.3	
		13	2	2	24.6	0.6	2	3.9	0.3
		14	1	1	24.6		1	4.4	
		15	1	1	23.3		1	3.7	
		27	1	1	28.9		1	7.7	
Sample Size:			14	16			16		
Means:		12.0			25.6	2.9		5.2	2.4
MI-4									
Wild									
			0	3	23.1	1.1	3	3.4	0.2
		4	1	1	20.2		1	2.8	
		5	1	1	25.5		1	4.4	
		6	1	1	25.2		1	5.1	
		7	2	2	21.8	0.6	2	3.7	0.5
		8	1	1	19.1		1	2.5	
		9	3	3	24.9	0.7	3	4.5	0.4
		10	5	5	24.8	1.9	5	4.6	0.9
		11	1	1	24.9		1	4.3	
		12	2	2	27.0	0.1	2	6.3	0.9
Sample Size:			17	20			20		
Means:		8.8			24.0	2.3		4.3	1.1

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 2014.

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	2	0	0.0	0	0.0
	3: 21-24.9	15	0	0.0	1	6.7
	4: 25-28.9	3	0	0.0	0	0.0
	5: > 29	2	0	0.0	0	0.0
	Total:	22	0	0.0	1	4.5
MI-3						
	2: 17-20.9	2	0	0.0	0	0.0
	3: 21-24.9	30	0	0.0	0	0.0
	4: 25-28.9	5	0	0.0	1	20.0
	5: > 29	1	0	0.0	1	100.0
	Total:	38	0	0.0	2	5.3
MI-4						
	2: 17-20.9	7	0	0.0	0	0.0
	3: 21-24.9	45	0	0.0	0	0.0
	4: 25-28.9	13	0	0.0	0	0.0
	5: > 29	2	0	0.0	0	0.0
	Total:	67	0	0.0	0	0.0

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 1996-2014.

Management Unit		Year	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S	Management Unit	Year	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S
MI-2	1996				Insufficient data.			MI-4	1996	8-11	0.74	+/- 0.06	0.52	0.48
	1997				Insufficient data.				1997	8-11	0.44	+/- 0.12	0.36	0.64
	1998	9-12	0.30	+/- 0.03	0.26	0.74			1998	8-11	0.24	+/- 0.17	0.21	0.79
	1999	10-13	0.38	+/- 0.17	0.32	0.68			1999	9-12	0.23	+/- 0.07	0.21	0.79
	2000	9-12	0.27	+/- 0.10	0.24	0.76			2000	9-12	0.39	+/- 0.19	0.32	0.68
	2001	9-12	0.36	+/- 0.50	0.30	0.70			2001	9-12	0.54	+/- 0.11	0.42	0.58
	2002	9-11	0.46	+/- 0.03	0.37	0.63			2002	9-12	0.38	+/- 0.06	0.32	0.68
	2003				Insufficient data.				2003	14-16	0.66	+/- 0.38	0.48	0.52
	2004				Insufficient data.				2004	11-14	0.26	+/- 0.02	0.23	0.77
	2005	12-15	0.51	+/- 0.15	0.40	0.60			2005	11-14	0.48	+/- 0.12	0.38	0.62
	2006	10-13	0.15	+/- 0.04	0.14	0.86			2006	9-15	0.49	+/- 0.15	0.39	0.61
	2007	10-13	0.61	+/- 0.17	0.46	0.54			2007	14-16	0.35	+/- 0.20	0.30	0.70
	2008	14-16	0.35	+/- 0.20	0.30	0.70			2008	14-16	0.35	+/- 0.20	0.30	0.70
	2009	13-16	0.42	+/- 0.24	0.34	0.66			2009	10-13	0.16	+/- 0.06	0.15	0.85
	2010	10-13	0.38	+/- 0.14	0.32	0.68			2010			Insufficient data.		
	2011	10-13	1.16	+/- 0.12	0.69	0.31			2011	10-13	0.37	+/- 0.11	0.31	0.69
2012				Insufficient data.			2012	10-13	0.79	+/- 0.33	0.54	0.46		
2013	8-10	0.35	+/- 0.20	0.30	0.70		2013	9-12	0.46	+/- 0.07	0.37	0.63		
2014				Insufficient data.			2014			Insufficient data.				
MI-3	1996	8-11	0.45	+/- 0.21	0.36	0.64		MI-5	1996	10-13	0.33	+/- 0.09	0.28	0.72
	1997	8-11	0.32	+/- 0.10	0.27	0.73			1997	10-13	0.21	+/- 0.12	0.19	0.81
	1998	9-12	0.52	+/- 0.09	0.41	0.59			1998	10-13	0.20	+/- 0.21	0.18	0.82
	1999	9-12	0.18	+/- 0.04	0.60	0.40			1999			Insufficient data.		
	2000				Insufficient data.				2000	10-12	0.35	+/- 0.15	0.30	0.70
	2001	9-11	0.35	+/- 0.20	0.30	0.70			2001	11-14	0.44	+/- 0.28	0.36	0.64
	2002	9-12	0.21	+/- 0.05	0.19	0.81			2002			Insufficient data.		
	2003	9-11	0.29	+/- 0.17	0.25	0.75			2003	12-14	0.47	+/- 0.09	0.38	0.62
	2004	10-13	0.67	+/- 0.10	0.49	0.51			2004	10-13	0.54	+/- 0.23	0.42	0.58
	2005	10-13	0.70	+/- 0.07	0.50	0.50			2005	10-13	0.54	+/- 0.13	0.42	0.58
	2006	10-13	1.05	+/- 0.12	0.65	0.35			2006	10-13	0.69	+/- 0.17	0.50	0.50
	2007	10-13	0.40	+/- 0.09	0.33	0.67			2007	9-12	0.48	+/- 0.12	0.38	0.62
	2008	11-14	0.49	+/- 0.12	0.39	0.61			2008	12-15	0.62	+/- 0.06	0.46	0.54
	2009	13-16	0.65	+/- 0.15	0.48	0.52			2009	10-12	0.46	+/- 0.27	0.37	0.63
	2010	13-16	0.48	+/- 0.28	0.38	0.62			2010			Insufficient data.		
	2011	8-11	0.93	+/- 0.22	0.61	0.39			2011	10-13	0.41	+/- 0.10	0.34	0.66
2012				Insufficient data.			2012	9-12	0.68	+/- 0.36	0.49	0.51		
2013	8-10	0.77	+/- 0.15	0.54	0.46		2013			Insufficient data.				
2014				Insufficient data.			2014			Insufficient data.				

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 2014. 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	108	20.2	1.9	79	2.9	0.9	
	4	1	1	17.8		1	1.8		
	5	6	6	18.3	0.8	6	2.0	0.2	
	6	10	10	19.2	1.5	10	2.3	0.7	
	7	10	10	18.3	0.8	10	2.0	0.3	
	8	10	10	19.1	1.1	10	2.2	0.5	
	9	15	15	19.4	1.3	15	2.5	0.5	
	10	11	11	19.6	1.1	11	2.4	0.4	
	11	12	12	19.2	1.5	12	2.2	0.6	
	12	4	4	18.8	0.8	4	2.2	0.2	
	13	3	3	21.5	2.1	3	3.4	1.1	
	14	2	2	21.0	1.1	2	3.0	0.5	
	15	2	2	19.0	0.2	2	2.5	0.4	
	18	1	1	22.0		1	3.4		
	19	1	1	22.1		1	3.6		
	20	1	1	23.1		1	4.1		
Sample Size:		89	197			168			
Means:		9.2		19.8	1.8		2.6	0.8	
MI-3									
		0	264	19.7	1.2	264	2.5	0.5	
	6	5	5	18.7	0.6	5	2.1	0.2	
	7	11	11	18.8	1.6	11	1.9	0.3	
	8	27	27	19.2	1.3	27	2.2	0.4	
	9	31	31	19.2	1.1	31	2.2	0.4	
	10	31	31	19.5	1.1	31	2.3	0.3	
	11	17	17	19.6	1.2	17	2.3	0.5	
	12	14	14	19.9	1.2	14	2.4	0.4	
	13	15	15	20.4	1.0	15	2.6	0.4	
	14	11	11	20.5	1.2	11	2.7	0.4	
	15	2	2	21.2	0.8	2	2.8	0.5	
	16	4	4	21.7	1.5	4	3.0	0.7	
	17	5	5	21.1	0.8	5	2.7	0.4	
	18	2	2	20.9	2.0	2	2.8	0.7	
	19	1	1	22.6		1	3.4		
	20	1	1	18.2		1	1.7		
	21	2	2	22.0	0.0	2	3.3	0.3	
Sample Size:		179	443			443			
Means:		10.7		19.7	1.2		2.4	0.5	

Table 9. Continued.

Unit	Age	Number		Length (in.)		Number		Weight (lbs)	
		Aged	Measured	mean	sd	Weighed	mean	sd	
MI-4									
		0	28	19.7	1.8	28	2.6	0.8	
	5	6	6	18.9	1.8	6	2.3	0.7	
	6	8	8	20.6	2.9	8	2.8	1.0	
	7	23	23	19.6	1.3	23	2.5	0.5	
	8	29	29	20.2	1.2	29	2.7	0.5	
	9	24	24	20.8	2.0	24	3.1	0.9	
	10	13	13	21.6	2.2	13	3.4	1.0	
	11	12	12	21.9	1.4	12	3.3	0.9	
	12	7	7	23.6	2.3	7	4.4	1.4	
	13	2	2	22.4	1.4	2	3.9	0.6	
	14	1	1	25.3		1	5.9		
	15	4	4	22.2	1.7	4	3.4	0.6	
	20	2	2	28.5	3.6	2	9.0	3.8	
Sample Size:		131	159			159			
Means:		9.0		20.7	2.2		3.0	1.2	

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 1996-2014.

Management Unit		Year	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S	Management Unit	Year	Ages	Instantaneous total mortality Z	95% confidence limit for Z	Annual total mortality A	Annual Survival S	
MI-2		1996	7-9	0.90	+/- 0.28	59%	41%	MI-4		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%					
2013	11-13	1.04	+/- 0.03	65%	35%	7-12	0.47	+/- 0.06	38%	63%					
2014	9-15	0.38	+/- 0.05	32%	68%	8-15	0.43	+/- 0.09	35%	35%					
MI-3		1996	7-9	1.61	+/- 0.33	80%	20%	MI-5		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%					
2013	8-14	0.42	+/- 0.05	34%	66%			Insufficient Data							
2014	9-21	0.30	+/- 0.04	26%	74%			Insufficient Data							

Table 11. Age and size composition of cisco (lake herring) in tribal commercial harvests from management units in the 1842 ceded area within Michigan waters of Lake Superior during 2014. 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	97	14.6	0.8	22	1.0	0.2	
	5	1	1	13.0		1	0.7		
	6	4	4	14.5	1.4	4	1.0	0.3	
	7	2	2	14.0	0.2	2	0.8	0.0	
	8	8	8	15.8	1.0	8	1.2	0.3	
	9	11	11	15.3	1.2	11	1.0	0.3	
	10	14	14	15.7	1.7	14	1.2	0.4	
	11	3	3	16.5	1.2	3	1.2	0.2	
	13	4	4	15.6	1.0	4	1.1	0.2	
	15	3	3	16.1	1.7	3	1.2	0.4	
Sample Size:		50	147			72			
Means:	9.5			14.9	1.1		1.1	0.3	