Biological and Commercial Catch Statistics from the Ojibwe Inter-Tribal Gill Net Fishery within Michigan Waters of Lake Superior During 2017

by
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ABSTRACT

The 2017 commercial inter-tribal fishery in the 1842 treaty-ceded waters of Michigan consisted of ten large boats and seven small boats, representing nineteen 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 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 5.2 million feet of gill net and harvesting 418,261 round pounds of fish. Whitefish was the primary target species, making up 69.3% of the total, followed by lake trout (24.8%) with the remaining 15% a mix of siscowet lake trout (3.0%), cisco or lake herring (1.0%), sucker species (0.9%), salmon and trout (0.4%) and a mix of other unspecified species (0.7%).

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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 the tribes' 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 2017 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 2017 commercial inter-tribal fishery in the 1842 treaty-ceded waters of Michigan consisted of ten large boats and seven small boats, representing seventeen 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 was open only to Keweenaw Bay small boat fishermen (Figure 1). Gill nets were the only gear used in the fishery during 2017.

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 to reduce the impact of fishing on spawning stocks of whitefish. 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.

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. 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 than lean lake trout, was not regulated by quotas. The Keweenaw Bay Indian Community has also used a quota management system for regulating cisco (lake herring) harvest by its fishermen. For lake trout, each gill net tug was assigned a lake trout quota of 3,750 or 15,000 pounds depending on tribal affiliation in 1985 and 1986. 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. TAC's and tribal quotas were generated from stock assessment model outputs developed by an ad hoc modeling group consisting of Tribal and State biologists. This group recommended TAC's for each management unit and for each fishing year within a 1-6 year period (Table 1).

METHODS

Commercial catch and effort statistics 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, suckers, burbot, northern pike, and menominee) were reported by fishermen as round pounds.

Biological statistics were derived from monitoring data collected via on-board and dock-side measurements of individual fish. Annual total mortality was estimated from the abundance of successive age groups (Ricker 1975). Biological monitoring of catches occurred through the cooperation of 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 5.2 million feet of gill net and harvesting 418,261 round pounds of fish (Table 2). Whitefish was the primary target species, making up 69.3% of the total, followed by lake trout (24.8%) with the remaining 15% a mix of siscowet lake trout (3.0%), cisco or lake herring (1.0%), sucker species (0.9%), salmon and trout (0.4%) and a mix of other unspecified species (0.7%) (Tables 3 and 4).

Unit MI-2

Harvest. Thirty percent of the overall harvest was taken in MI-2, which was fished by two tribes (Tables 3 and 4). Of the 124,693 round pounds harvested in MI-2, 93.9% were whitefish, 4.9% lake trout, 0.5% siscowet, and 0.7% a mix of cisco, salmon and trout, suckers and other fish (Table 3). Harvest occurred in thirteen statistical grids (Table 5). Lake trout harvest was greatest in grid 1315 (1,034 dressed pounds) followed by grid 1413 (1,012 dressed pounds) and less than 1,000 dressed pounds in each of the remaining grids fished (Table 2). Whitefish harvest was greatest in grid 1315 (18,684 dressed pounds), followed by grids 1413 (16,805 dressed pounds), 1314 (14,599 dressed pounds) and 1316 (14,168 dressed pounds). Less than 9,000 dressed pounds were harvested in each of the remaining grids fished (Table 2).

Effort. Twenty percent (20.1%) of the overall gill-net effort occurred in MI-2 (Tables 2 and 3). Fishing effort in MI-2 was 1,037,500 feet with 21.0% (218,200 feet) occurring in grid 1413, 18.4% (190,800 feet) occurring in grid 1315, 15.4% (159,600 feet) occurring in grid 1316, and 13.3% (137,600 feet) occurring in grid 1314. Greater than 75,000 feet was fished in grids 1414, 1313 and 1317 while lesser amounts of effort were fished in the remaining grids (Table 2). Gill-nets of 5 ½ inch mesh accounted for 66.9% and 4 ½ inch mesh 33.1% of the unit's effort (Table 3).

Target Effort and Harvest. All fishing effort (1,037,500 feet) was targeted at whitefish and lake trout (Tables 5 and 6). Target effort (1.0 million feet) was above the 2003-2017 average (925,914 feet) while target harvest of whitefish (100,108 dressed pounds) and lake trout (4,868 dressed pounds) were below the 2003-2017 average (155,651 and 5,942 dressed pounds, respectively).

Catch Per Effort (CPE). Whitefish CPE (dressed pounds harvested per 1,000 feet of gill-net) for targeted fishing in the ten grids fished in MI-2 ranged from 15-277 pounds (Table 5). Whitefish CPE for the thirteen grids combined was 97 and was highest in grids 1415 followed by grid 1218 (CPE 176) (Tables 5 and 6). Lake trout CPE for targeted fishing ranged from 0-15 per grid, was 5 for all grids combined, and was highest in grid 1511 (CPE 15) followed by grid 1512 (CPE 14).

Unit MI-3

Harvest. Twenty-three percent of the overall harvest was taken in MI-3, which was fished by two tribes (Tables 2 and 4). Of the 98,226 round pounds harvested in MI-3, 84.8% were whitefish, 6.1% lake trout, 5.9% siscowet, 3.0% suckers, and 0.1% a mix of salmon, trout, walleye and cisco (Table 3). Harvest occurred in ten statistical grids. Lake trout harvest was

greatest in grid 1121 (1,499 dressed pounds) and was less than 1,000 dressed pounds in each of the other grids fished. Whitefish harvest was greatest in grids 1220 and 1121 (17,800 and 17,046 dressed pounds, respectively) followed by grid 1122 (15,790 dressed pounds). Less than 6,000 dressed pounds were taken in each of the remaining grids fished (Table 1).

Effort. Thirty-three percent (32.6%) of the overall gill-net effort occurred in MI-3 (Tables 2 and 3). Fishing effort in MI-3 was 1,687,300 feet with 26.1% (440,967 feet) occurring in grid 1121 followed by 25.4% (428,000 feet) in grid 1220, 22.9% (385,667 feet) in grid 1122, and 8.3% (140,000 feet) in grid 1023. Effort was less than 125,000 feet in the remaining grids fished (Table 2). Gill-nets of 5 ½ inch mesh accounted for 73.9% and 4 ½ inch mesh 26.1% of the unit's effort (Table 3).

Target Effort and Harvest. All fishing effort (1,687,300 feet) was targeted at whitefish and lake trout (Tables 5 and 6). Target effort (1.7 million feet) was below the 2003-2017 average of 1,941,170. Target harvest of whitefish (71,226 dressed pounds) and lake trout (4,778 dressed pounds) were below the 2003-2017 averages (256,286 and 8,273 dressed pounds, respectively).

Catch Per Effort (CPE). Whitefish CPE (dressed pounds harvested per 1,000 feet of gill-net) for targeted fishing in the ten grids fished ranged from 34-81 pounds (Table 5). Whitefish CPE for the ten grids combined was 42 pounds and was highest in grid 1022 (CPE 81) followed by grids 926, 1025 and 1219 (CPE 68, 68 and 65, respectively) (Tables 5 and 6). Lake trout CPE for targeted fishing ranged from 1-11 pounds, was 3 for all grids combined and was highest in grids 926 and 1219 (CPE 11 and 10, respectively).

Unit MI-4

Harvest. Thirty-nine percent of the overall harvest was taken in MI-4, which was fished by all three tribes (Tables 2 and 4). Of the 163,242 round pounds harvested, 46.9% were whitefish, 44.6% lake trout, 3.3% siscowet, and 2.6% cisco, with the remaining 2.5% a mix of salmon, trout, walleye, suckers, and other species (Table 3). Harvest occurred in twelve statistical grids. Lake trout harvests were highest in grids 1423, 1224 and 1324 (15,727, 11,715 and 10,293 dressed pounds, respectively) followed by grid 1323 (8,571 dressed pounds). Less than 5,000 dressed pounds were harvested in each of the other grids fished. Whitefish harvests were greatest in grids 1224 and 1423 (13,740 and 13,554 dressed pounds, respectively). Less than 7,500 dressed pounds of whitefish were harvested from the remaining grids fished (Table 1).

Effort. Fourty percent (39.7%) of the overall gill-net effort occurred in MI-4 (Tables 2 and 3). Fishing effort in MI-4 was 2,053,450 feet with 22.8% (467,450 feet) and 19.2% (393,400 feet) occurring in grids 1423 and 1224, respectively. This was followed by 13.6% (279,900 feet) in grid 1323 and 11.9% (245,300 feet) in grid 1027. Less than 200,000 feet were fished in each of the remaining grids fished (Table 2). Gill-nets of 4 ½ inch mesh accounted for 81.4%, 5 ½ inch mesh 17.7%, 5.5 inch mesh 0.6%, and 2.5 inch mesh 0.3% of the unit's effort (Table 3).

Target Effort and Harvest. The majority of fishing effort (2,047,450 feet) was targeted at whitefish and lake trout with 6,000 feet directed at cisco (Table 5). Target effort for whitefish and lake trout (2.0 million feet) and target harvest of lake trout (58,264 dressed pounds) were above the 2003-2017 averages (1.7 million feet and 49,822 dressed pounds, respectively). Target harvest of whitefish (65,497 dressed pounds) was below the 2003-2017 average (113,372 dressed pounds) (Table 6). Target harvest was 850 dressed pounds for cisco (Table 5).

Catch Per Effort (CPE). Whitefish CPE (dressed pounds harvested per 1,000 feet of gill-net) for targeted fishing in the thirteen grids fished ranged from 24-69 pounds (Table 5). Whitefish CPE for all grids combined was 32 pounds and was greatest in grid 1223 (CPE 69) followed by grids 1026 and 1326 (CPE 61 and 46, respectively) (Tables 5 and 6). Lake trout CPE for targeted fishing ranged from 2-55 pounds, was 28 for all grids combined and was highest in grid 1324 (CPE 55) followed by grids 1423 (CPE 34), 1323 (CPE 31) and 1224 (CPE 30). CPE for targeted fishing of cisco was 142 pounds for the three grids fished (Table 5).

Unit MI-5

Harvest. Eight percent of the overall harvest was taken in MI-5 which was fished by three tribes (Tables 1 and 3). Of the 32,100 round pounds harvested in MI-5, 39.2% were whitefish, 59.1% lake trout, 1.6% siscowet, and 0.1% salmon, trout, walleye and other fish (Table 3). Harvest occurred in two statistical grids. Lake trout harvest was 15,107 dressed pounds in grid 1327 and 71 dressed pounds in grid 1529 (Table 2). Whitefish harvest was 9,945 dressed pounds in grid 1327 and 799 dressed pounds in grid 1529 (Table 2).

Effort. Eight percent (7.6%) of the overall gill-net effort occurred in MI-5 (Tables 2 and 3). Fishing effort was 391,400 feet with 94.2% (368,800 feet) occurring in grid 1327 and 5.8% (22,600 feet) occurring in grid 1529 (Table 2). Gill-nets of 5 ½ inch mesh accounted for 54.7% and 4 ½ inch mesh accounted for 45.3% of the unit's effort (Table 3).

Target Effort and Harvest. All the fishing effort (391,400 feet) was targeted at whitefish and lake trout (Table 4). Target effort for whitefish and lake trout (0.4 million feet) was below the 2003-2017 average of 0.52 million feet (Table 6). Target harvests of whitefish (10,744 dressed pounds) and lake trout (15,507 dressed pounds) were below the 2003-2017 averages (20,528 and 21,507 dressed pounds, respectively).

Catch Per Effort (CPE). Whitefish CPE (dressed pounds harvested per 1,000 feet of gill-net) for targeted fishing was 35 in grid 1529 and 27 in grid 1327 (Table 5). Whitefish CPE for both grids combined was 28 pounds (Table 6). Lake trout CPE for targeted fishing was 41 in grid 1327 and 3 in grid 1529 (Table 5). Lake trout CPE for both grids combined was 39 pounds.

Biological Statistics

Lake Trout

MI-2. Five year classes of lake trout (5-9) were represented in a sample of nine lake trout aged from MI-2 (Table 7). Mean age was 7.1 years. Mean length was 20.8 inches and mean weight was 2.9 pounds for the eleven fish measured and weighed. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 8). Annual total mortality rate could not be estimated due to a small sample size.

MI-3. Seven year classes of lake trout (5-10, 21) were represented in a sample of 15 lake trout aged from MI-3 (Table 7). Mean age was 8.3 years. Fish ten years and older made up 16% of the sample. Mean length was 23.1 inches and mean weight was 3.6 round pounds for eighteen fish measured and weighed. Overall lamprey-marking rates were 0.0 wounds/100 fish (Table 8). Annual total mortality rate could not be estimated due to a small sample size.

MI-4. Nine year classes of lake trout (6-10, 13, 15, 16, 31) were represented in a sample of 20 lake trout aged from MI-4 (Table7). Mean age was 9.7 years. Fish ten years and older made up 25% of the sample. Mean length was 20.3 inches and mean weight was 3.5 round pounds for fifty-two fish measured and weighed. Overall lamprey-marking rates were 17.0 wounds/100 fish (Table 8). Annual total mortality rate was estimated at 30% (Z=0.35, $\pm$ 0.10) for fish ages 6-13.

MI-5. Six year classes of lake trout (6-11) were represented in a sample of thirteen lake trout aged from MI-3 (Table 7). Mean age was 8.5 years. Fish ten years and older made up 31% of the sample. Mean length was 23.7 inches and mean weight was 4.9 round pounds for twenty-nine fish measured and weighed. Overall lamprey-marking rates were 6.9 wounds/100 fish (Table 8). Annual total mortality rate could not be estimated due to a small sample size.

Whitefish

MI-2. Seven age groups (5-11) were represented in the 108 whitefish aged in MI-2, which had a mean age of 7.5 years (Table 9). Mean length of 135 whitefish measured was 18.7 inches and mean weight of 114 weighed was 2.3 round pounds. Annual total mortality was estimated at 38% (Z=0.47 +/-0.10) for ages 6-11.

MI-3. Nine age groups (6-13, 16) were represented in the 124 whitefish aged in MI-3, which had a mean age of 8.9 years (Table 9). Mean length of 303 whitefish measured was 19.5 inches and mean weight of 302 weighed was 2.4 round pounds. Annual total mortality was estimated at 56% (Z=0.83 +/-0.15) for ages 9-13.

MI-4. Fifteen age groups (4-16, 18, 19) were represented in the 215 whitefish aged in MI-4, which had a mean age of 9.5 years (Table 9). Mean length of 325 whitefish sampled was 20.4 inches and mean weight was 2.9 round pounds, respectively. Annual total mortality was estimated at 34% (Z=0.42 +/-0.07) for ages 10-16.

MI-5. Ten age groups (5-12, 14, 15) were represented in the 69 whitefish aged in MI-5, which had a mean age of 9.3 years (Table 9). Mean length and weight of 69 whitefish sampled was 21.5 inches and 3.6 round pounds, respectively. Annual total mortality was estimated at 32% (Z=0.39 +/-0.05) for ages 9-12.

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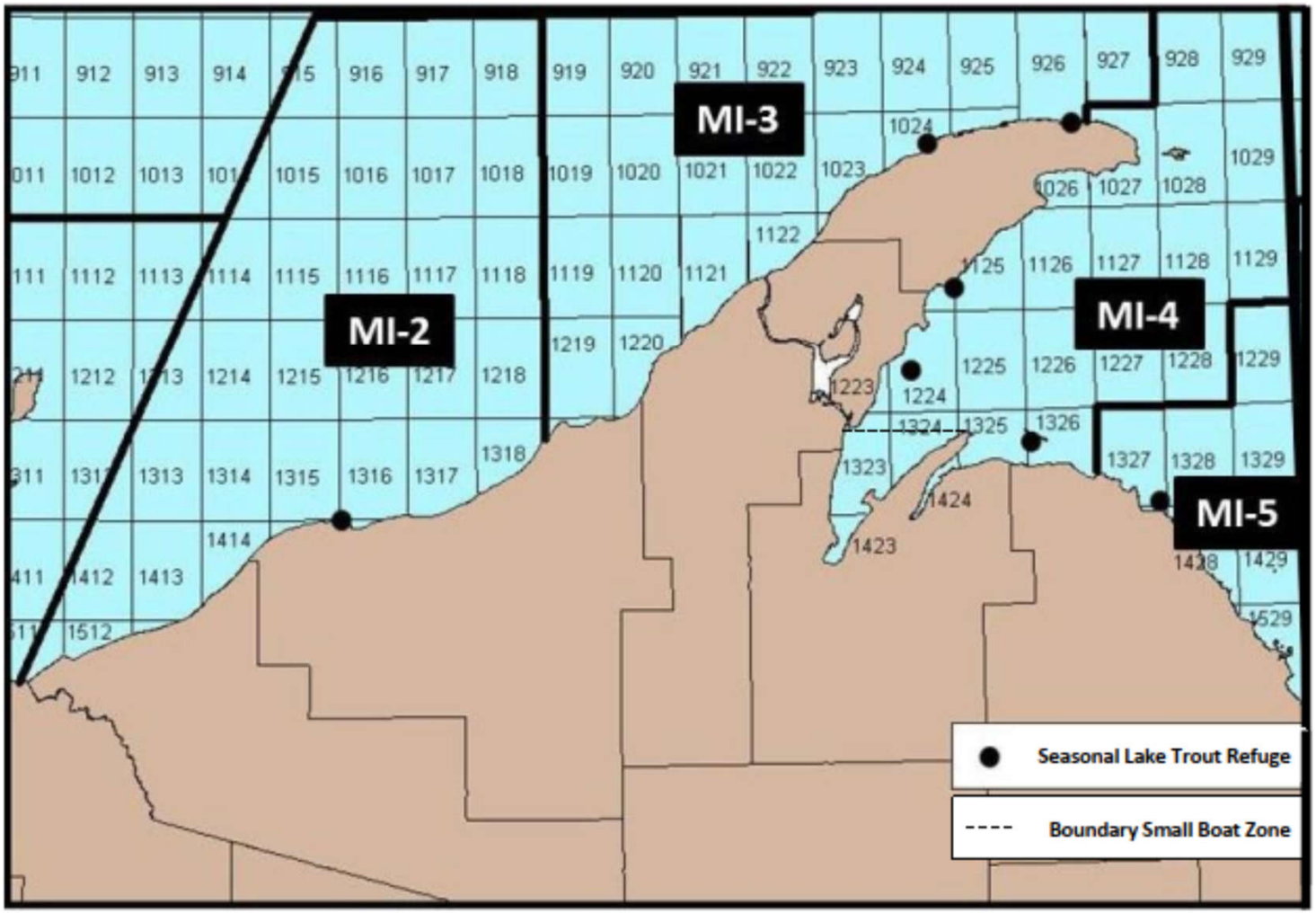

Figure 1. Management units and statistical grids in the 1842 treaty ceded area within Michigan waters of Lake Superior.

Table 1. Recommended total allowable catch (TAC) by fishing years and management unit for the Ojibwe Inter-Tribal Gill Net Fishery within Michigan Waters of Lake Superior.

UNIT		YEARS						
		Nov. 1987 Oct. 1990	Nov. 1990 Oct. 1994	Nov. 1994 Oct. 1999	Nov. 1999 Oct. 2005	Nov. 2006 Oct. 2010	Nov. 2010 Oct. 2011	Nov. 2011 Oct. 2017
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

Table 2. 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 2017.

Management Unit	Grid	Effort	Percent of Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Salmon Trout	Walleye	Suckers	Other	Total Harvest Round Pounds	Percent of Total Harvest
MI-2	1218	24,600	2.4%	4,328	144	0	0	0	0	0	0		
	1313	80,000	7.7%	7,658	282	0	0	0	0	0	0		
	1314	137,600	13.3%	14,599	378	0	0	0	0	0	0		
	1315	190,800	18.4%	18,684	1,034	213	0	0	0	32	13		
	1316	159,600	15.4%	14,168	697	138	0	50	0	60	305		
	1317	78,000	7.5%	8,723	654	0	0	0	0	0	0		
	1318	36,000	3.5%	3,200	300	0	0	0	0	0	0		
	1412	16,800	1.6%	2,121	64	0	0	0	0	10	0		
	1413	218,200	21.0%	16,805	1,012	165	20	0	0	106	20		
	1414	82,300	7.9%	8,519	166	0	2	0	0	96	21		
	1415	4,000	0.4%	1,109	0	0	0	0	0	0	0		
	1511	4,800	0.5%	125	74	0	0	0	0	0	86		
	1512	4,800	0.5%	70	65	0	0	0	0	0	0		
Subtotals:	Effort:	1,037,500	20.1%										
	Dressed Pounds:			100,108	4,868	515	22	50					
	Round Pounds:			117,126.4	6,085.0	643.8	26.4	62.5	0	304	445	124,693.0	29.8%
MI-3	926	9,600	0.6%	659	103	164	0	0	0	0	0		
	1022	23,000	1.4%	1,871	75	9	0	15	17	115	0		
	1023	140,000	8.3%	5,738	730	662	0	5	14	761	0		
	1024	124,867	7.4%	4,696	304	406	0	0	0	62	0		
	1025	39,200	2.3%	2,653	248	893	0	0	0	0	0		
	1120	42,000	2.5%	1,451	104	0	0	0	0	0	0		
	1121	440,967	26.1%	17,046	1,499	2,379	0	15	0	231	0		
	1122	385,667	22.9%	15,790	828	90	0	20	2	1,117	0		
	1219	54,000	3.2%	3,522	538	0	2	0	0	709	0		
	1220	428,000	25.4%	17,800	350	55	0	0	0	0	0		
Subtotals:	Effort:	1,687,300	32.6%										
	Dressed Pounds:			71,226	4,778	4,658	2	54					
	Round Pounds:			83,334.4	5,972.5	5,822.5	2.4	67.5	33	2,994	0	98,226.3	23.5%
MI-4	1026	29,000	1.4%	1,588	591	0	150	0	0	0	0		
	1027	245,300	11.9%	7,405	3,041	1,672	0	0	0	7	122		
	1125	133,000	6.5%	3,487	3,648	260	50	6	14	130	0		
	1126	26,500	1.3%	863	475	75	350	0	0	25	0		
	1127	1,500	0.1%	0	0	0	350	0	0	0	0		
	1223	59,800	2.9%	4,114	115	0	0	0	0	113	0		
	1224	393,400	19.2%	13,740	11,715	1,100	67	0	0	113	0		
	1323	279,900	13.6%	6,773	8,571	18	11	340	0	0	110		
	1324	186,100	9.1%	5,959	10,293	746	0	204	0	0	113		
	1325	155,800	7.6%	4,563	2,178	0	0	0	0	0	1,743		
	1326	75,700	3.7%	3,451	1,912	0	0	41	1	0	13		
	1423	467,450	22.8%	13,554	15,727	443	2,530	498	0	0	313		
Subtotals:	Effort:	2,053,450	39.7%										
	Dressed Pounds:			65,497	58,264	4,314	3,508	1,089					
	Round Pounds:			76,631.1	72,830.4	5,392.5	4,209.6	1,361.3	15	388	2,414	163,241.9	39.0%
MI-5	1327	368,800	94.2%	9,945	15,107	410	0	0	1	0	16		
	1529	22,600	5.8%	799	71	0	0	22	0	0	0		
Subtotals:	Effort:	391,400	7.6%										
	Dressed Pounds:			10,744	15,178	410	0	22					
	Round Pounds:			12,570.9	18,972.1	512.5	0.0	27.5	1	0	16	32,100.0	7.7%
Grand Totals:	Effort:	5,169,650											
	Dressed Pounds:			247,575	83,088	9,897	3,532	1,215					
	Round Pounds:			289,662.8	103,860.0	12,371.3	4,238.4	1,518.8	49.0	3,686.0	2,875.0	418,261.2	

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

Table 3. Tribal commercial gill net effort (feet) and harvest (pounds) by management unit, gill net mesh size, and species from the 1842 ceded area within Michigan waters of Lake Superior in 2017.

Unit	Mesh	Effort	Percent of Total Effort*	Whitefish	Lake trout	Siscowet	Cisco	Salmon Trout	Walleye	Suckers	Other	Total Harvest Round Pounds
MI-2	4.5	343,400	33.1%	28,020	1,867	0	22	0	0	0	140	
MI-2	5.5	694,100	66.9%	72,088	3,001	515	0	50	0	304	305	
Subtotals:	Effort:	1,037,500	20.1%									
	Dressed Pounds:			100,108	4,868	515	22	50				
	Round Pounds:			117,126.4	6,085.0	643.8	26.4	62.5	0.0	304.0	445.0	124,693.0
	Percent of Unit Harvest:			93.9%	4.9%	0.5%	0.0%	0.1%	0.0%	0.2%	0.4%	
MI-3	4.5	440,800	26.1%	19,821	2,163	4,361	0	0	0	0	0	
MI-3	5.5	1,246,500	73.9%	51,405	2,615	297	2	54	33	2,994	0	
Subtotals:	Effort:	1,687,300	32.6%									
	Dressed Pounds:			71,226	4,778	4,658	2	54				
	Round Pounds:			83,334.4	5,972.5	5,822.5	2.4	67.5	33.0	2,994.0	0.0	98,226.3
	Percent of Unit Harvest:			84.8%	6.1%	5.9%	0.0%	0.1%	0.0%	3.0%	0.0%	
MI-4	2.5	6,000	0.3%	0	0	0	850	0	0	0	0	
MI-4	4.5	1,672,250	81.4%	50,142	50,151	3,904	2,608	1,083	0	0	2,292	
MI-4	5	12,000	0.6%	710	490	0	0	0	0	0	0	
MI-4	5.5	363,200	17.7%	14,645	7,623	410	50	6	15	388	122	
Subtotals:	Effort:	2,053,450	39.7%									
	Dressed Pounds:			65,497	58,264	4,314	3,508	1,089				
	Round Pounds:			76,631.1	72,830.4	5,392.5	4,209.6	1,361.3	15.0	388.0	2,414.0	163,241.9
	Percent of Unit Harvest:			46.9%	44.6%	3.3%	2.6%	0.8%	0.0%	0.2%	1.5%	
MI-5	4.5	177,400	45.3%	6,761	8,665	160	0	22	0	0	16	
MI-5	5.5	214,000	54.7%	3,983	6,513	250	0	0	1	0	0	
Subtotals:	Effort:	391,400	7.6%									
	Dressed Pounds:			10,744	15,178	410	0	22				
	Round Pounds:			12,570.9	18,972.1	512.5	0.0	27.5	1.0	0.0	16.0	32,100.0
	Percent of Unit Harvest:			39.2%	59.1%	1.6%	0.0%	0.1%	0.0%	0.0%	0.0%	
Totals:	Effort:	5,169,650										
	Dressed Pounds:			247,575	83,088	9,897	3,532	1,215				
	Round Pounds:			289,662.8	103,860.0	12,371.3	4,238.4	1,518.8	49.0	3,686.0	2,875.0	418,261.2
	Percent of Total Harvest:			69.3%	24.8%	3.0%	1.0%	0.4%	0.0%	0.9%	0.7%	

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

Table 4. Total and target gill net harvest and effort statistics by tribe for lake trout, whitefish, and siscowet in Michigan waters of Lake Superior in 2017.*

		TOTAL HARVEST							TARGET HARVEST							
			Whitefish		Lake trout		Siscowet			Whitefish		Lake trout		Siscowet		
Unit	Tribe	Effort	pounds	CPE	pounds	CPE	pounds	CPE	Effort	pounds	CPE	pounds	CPE	Effort	pounds	CPE
MI-2	Bad River	353,000	28,020	79	1,867	5	0	0	353,000	28,020	79	1,867	5	0	0	0
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff	684,500	72,088	105	3,001	4	515	1	684,500	72,088	105	3,001	4	0	0	0
	subtotal	1,037,500	100,108	96	4,868	5	515	0	1,037,500	100,108	96	4,868	5	0	0	0
MI-3	Bad River	440,800	19,821	45	2,163	5	4,361	10	440,800	19,821	45	2,163	5	0	0	0
	Keweenaw Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red Cliff	1,246,500	51,405	41	2,615	2	297	0	1,246,500	51,405	41	2,615	2	0	0	0
	subtotal	1,687,300	71,226	42	4,778	3	4,658	3	1,687,300	71,226	42	4,778	3	0	0	0
MI-4	Bad River	756,100	25,012	33	16,483	22	2,697	4	756,100	25,012	33	16,483	22	0	0	0
	Keweenaw Bay	931,350	26,030	28	34,443	37	1,207	1	931,350	26,030	28	34,443	37	0	0	0
	Red Cliff	366,000	14,455	39	7,338	20	410	1	360,000	14,455	40	7,338	20	0	0	0
	subtotal	2,053,450	65,497	32	58,264	28	4,314	2	2,047,450	65,497	32	58,264	28	0	0	0
MI-5	Bad River	154,800	5,962	39	8,594	56	160	1	154,800	5,962	39	8,594	56	0	0	0
	Keweenaw Bay	22,600	799	35	71	3	0	0	22,600	799	35	71	3	0	0	0
	Red Cliff	214,000	3,983	19	6,513	30	250	1	214,000	3,983	19	6,513	30	0	0	0
	subtotal	391,400	10,744	27	15,178	39	410	1	391,400	10,744	27	15,178	39	0	0	0
Total	Bad River	1,704,700	78,815	46	29,107	17	7,218	4	1,704,700	78,815	46	29,107	17	0	0	0
	Keweenaw Bay	953,950	26,829	28	34,514	36	1,207	1	953,950	26,829	28	34,514	36	0	0	0
	Red Cliff	2,511,000	141,931	57	19,467	8	1,472	1	2,505,000	141,931	57	19,467	8	0	0	0
	All Tribes	5,169,650	247,575	48	83,088	16	9,897	2	5,163,650	247,575	48	83,088	16	0	0	0

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

Table 5. Gill net harvest and effort statistics for target species by grid and management unit in Michigan waters of Lake Superior in 2017.*

		Whitefish			Lake trout			Cisco			Salmon		
Unit	Grid	Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE	Effort	pounds	CPE
MI-2	1218	24,600	4,328	176	24,600	144	6						
	1313	80,000	7,658	96	80,000	282	4						
	1314	137,600	14,599	106	137,600	378	3						
	1315	190,800	18,684	98	190,800	1,034	5						
	1316	159,600	14,168	89	159,600	697	4						
	1317	78,000	8,723	112	78,000	654	8						
	1318	36,000	3,200	89	36,000	300	8						
	1412	16,800	2,121	126	16,800	64	4						
	1413	218,200	16,805	77	218,200	1,012	5						
	1414	82,300	8,519	104	82,300	166	2						
	1415	4,000	1,109	277	4,000	0	0						
	1511	4,800	125	26	4,800	74	15						
	1512	4,800	70	15	4,800	65	14						
	subtotal	1,037,500	100,108	96	1,037,500	4,868	5	0	0	0	0	0	0
MI-3	926	9,600	659	69	9,600	103	11						
	1022	23,000	1,871	81	23,000	75	3						
	1023	140,000	5,738	41	140,000	730	5						
	1024	124,867	4,696	38	124,867	304	2						
	1025	39,200	2,653	68	39,200	248	6						
	1120	42,000	1,451	35	42,000	104	2						
	1121	440,967	17,046	39	440,967	1,499	3						
	1122	385,667	15,790	41	385,667	828	2						
	1219	54,000	3,522	65	54,000	538	10						
	1220	428,000	17,800	42	428,000	350	1						
	subtotal	1,687,300	71,226	42	1,687,300	4,778	3	0	0	0	0	0	0
MI-4	1026	26,000	1,588	61	26,000	591	23	3,000	150	50			
	1027	245,300	7,405	30	245,300	3,041	12						
	1125	133,000	3,487	26	133,000	3,648	27						
	1126	25,000	863	35	25,000	475	19	1,500	350	233			
	1127	0	0	0	0	0	0	1,500	350	233			
	1223	59,800	4,114	69	59,800	115	2						
	1224	393,400	13,740	35	393,400	11,715	30						
	1323	279,900	6,773	24	279,900	8,571	31						
	1324	186,100	5,959	32	186,100	10,293	55						
	1325	155,800	4,563	29	155,800	2,178	14						
	1326	75,700	3,451	46	75,700	1,912	25						
	1423	467,450	13,554	29	467,450	15,727	34						
	subtotal	2,047,450	65,497	32	2,047,450	58,264	28	6,000	850	142	0	0	0
MI-5	1327	368,800	9,945	27	368,800	15,107	41						
	1529	22,600	799	35	22,600	71	3						
	subtotal	391,400	10,744	27	391,400	15,178	39	0	0	0	0	0	0
Grand Total		5,163,650	247,575	48	5,163,650	83,088	16	6,000	850	142	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 6. 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 2003-2017. Target effort for whitefish and lake trout was combined.

		Whitefish				Lake trout				Siscowet			
Unit	Year	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest
MI-2	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
	2015	1,429,300	168,408	118	168,408	1,429,300	5,265	4	5,265	0	0	0	446
	2016	931,100	77,705	83	77,705	931,100	5,216	6	5,216	0	0	0	2,570
	2017	1,037,500	100,108	97	100,108	1,037,500	4,868	5	4,868	0	0	0	515
Average:		925,914	155,651	168	155,651	925,914	5,942	6	5,942	0	0	0	666
MI-3	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
	2015	3,585,100	273,638	76	273,638	3,585,100	7,315	2	7,315	0	0	0	2,879
	2016	1,507,400	69,221	46	69,221	1,507,400	3,527	2	3,527	0	0	0	2,836
	2017	1,687,300	71,226	42	71,226	1,687,300	4,778	3	4,778	0	0	0	4,658
Average:		1,941,170	256,286	132	256,286	1,941,170	8,273	4	8,273	0	0	0	1,343
MI-4	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
	2015	2,611,900	185,643	71	185,676	2,611,900	52,794	20	52,824	0	0	0	4,809
	2016	3,141,150	137,106	44	137,237	3,141,150	66,381	21	66,517	0	0	0	5,458
	2017	2,047,450	65,497	32	65,497	2,047,450	58,264	29	58,264	0	0	0	4,314
Average:		1,743,289	113,372	65	113,437	1,743,289	49,214	28	49,272	865	30	35	1,886

Table 6. Continued.

		Whitefish				Lake trout				Siscowet			
Unit	Year	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest	Target effort	Target harvest	CPE	Total Harvest
MI-5	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
	2015	469,550	30,949	66	30,949	469,550	13,444	29	13,444	0	0	0	172
	2016	501,800	15,815	32	15,815	501,800	12,778	26	12,778	0	0	0	380
	2017	391,400	10,744	28	10,744	391,400	15,178	39	15,178	0	0	0	410
Average:		518,349	20,528	61	20,571	518,349	21,507	47	21,510	79	4	40	180
All units	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
	2015	8,095,850	658,638	81	658,671	8,095,850	78,818	10	78,848	0	0	0	8,306
	2016	6,081,450	299,847	49	299,978	6,081,450	87,902	14	88,038	0	0	0	11,244
	2017	5,163,650	247,575	48	247,575	5,163,650	83,088	16	83,088	0	0	0	9,897
Average:		5,170,576	553,377	107	545,943	5,170,576	84,923	16	84,984	944	34	36	4,074

Table 7. Age and size composition of wild lake trout by unit from tribal commercial harvests during 2017. Weight is in round pounds, length is in inches, and sd=standard deviation.

		Number	Number	Length (in.)		Number	Weight (lbs)	
Unit	Age	Aged	Measured	mean	sd	Weighed	mean	sd
MI-2								
		0	2	20.0	3.8	2	2.4	1.1
	5	1	1	22.4		1	3.3	
	6	2	2	22.0	4.1	2	3.7	2.1
	7	2	2	19.6	1.3	2	2.4	0.5
	8	3	3	21.5	2.3	3	3.3	1.1
	9	1	1	18.7		1	2.0	
Sample Size:		9	11			11		
Means:	7.1			20.8	2.4		2.9	1.1
MI-3								
		0	3	26.2	5.4	3	6.5	4.5
	5	1	1	21.0		1	3.5	
	6	3	3	20.7	1.9	3	2.8	0.7
	7	5	5	22.1	2.6	5	3.7	1.3
	8	1	1	21.3		1	2.9	
	9	2	2	20.3	3.7	2	2.8	1.6
	10	2	2	17.9	0.7	2	2.0	0.5
	21	1	1	20.5		1	2.6	
Sample Size:		15	18			18		
Means:	8.3			21.7	3.5		3.6	2.3
MI-4								
		0	32	17.5	5.3	32	2.1	2.2
	6	5	5	23.5	2.5	5	4.6	1.4
	7	4	4	23.0	2.3	4	4.5	1.4
	8	3	3	23.6	1.4	3	4.8	1.6
	9	3	3	23.5	3.4	3	4.9	2.2
	10	1	1	24.5		1	5.8	
	13	1	1	24.3		1	4.9	
	15	1	1	27.0		1	7.9	
	16	1	1	25.3		1	6.1	
	31	1	1	42.5		1	18.1	
Sample Size:		20	52			52		
Means:	9.7			20.3	6.2		3.5	3.2
MI-5								
		0	16	24.4	4.3	16	5.6	3.3
	6	1	1	22.7		1	4.4	
	7	3	3	21.1	0.8	3	3.1	0.2
	8	4	4	22.7	1.2	4	4.2	0.8
	9	1	1	24.1		1	4.3	
	10	2	2	24.2	1.9	2	4.7	1.2
	11	2	2	23.6	1.6	2	4.4	1.2
Sample Size:		13	29			29		
Means:	8.5			23.7	3.4		4.9	2.6

Table 8. 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 2017.

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	6	0	0.0	0	0.0
	3: 21-24.9	5	0	0.0	0	0.0
	Total:	11	0	0.0	0	0.0
MI-3						
	2: 17-20.9	7	0	0.0	0	0.0
	3: 21-24.9	9	0	0.0	0	0.0
	4: 25-28.9	1	0	0.0	0	0.0
	5: > 29	1	0	0.0	0	0.0
	Total:	18	0	0.0	0	0.0
MI-4						
	1: < 17	19	0	0.0	0	0.0
	2: 17-20.9	7	0	0.0	0	0.0
	3: 21-24.9	17	0	0.0	0	0.0
	4: 25-28.9	8	0	0.0	3	37.5
	5: > 29	2	5	250.0	6	300.0
	Total:	53	5	9.4	9	17.0
MI-5						
	2: 17-20.9	5	0	0.0	0	0.0
	3: 21-24.9	17	1	5.9	0	0.0
	4: 25-28.9	5	0	0.0	0	0.0
	5: > 29	2	1	50.0	2	100.0
	Total:	29	2	6.9	2	6.9

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 2017. Weight is in round pounds, length is in inches, and sd=standard deviation.

		Number	Number	Length (in.)		Number	Weight (lbs)	
Unit	Age	Aged	Measured	mean	sd	Weighed	mean	sd
MI-2								
		0	27	18.3	0.8	6	2.1	0.2
	5	1	1	20.6		1	2.9	
	6	28	28	17.7	0.5	28	1.9	0.2
	7	27	27	18.5	0.6	27	2.2	0.3
	8	29	29	19.2	0.6	29	2.4	0.4
	9	14	14	20.0	1.5	14	2.7	0.3
	10	6	6	19.8	1.9	6	2.9	0.8
	11	3	3	20.8	2.1	3	2.9	0.6
Sample Size:		108	135			114		
Means:	7.5			18.7	1.2		2.3	0.5
MI-3								
		0	179	19.4	1.3	178	2.4	0.6
	6	7	7	19.4	1.1	7	2.1	0.3
	7	23	23	19.3	1.1	23	2.3	0.5
	8	19	19	19.1	1.1	19	2.1	0.6
	9	33	33	19.4	0.9	33	2.2	0.3
	10	22	22	19.7	1.4	22	2.4	0.5
	11	12	12	20.4	1.3	12	2.6	0.5
	12	6	6	19.2	1.1	6	2.2	0.5
	13	1	1	22.9		1	3.6	
	16	1	1	22.7		1	3.5	
Sample Size:		124	303			302		
Means:	8.9			19.5	1.3		2.4	0.5

Table 9. Continued.

Unit	Age	Number Aged	Number Measured	Length (in.) mean	sd	Number Weighed	Weight (lbs) mean	sd
MI-4								
		0	110	19.9	4.3	110	3.0	1.9
	4	1	1	20.2		1	2.6	
	5	1	1	22.0		1	3.0	
	6	19	19	19.9	2.3	19	2.4	0.4
	7	23	23	19.4	0.5	23	2.3	0.3
	8	39	39	20.1	0.9	39	2.6	0.5
	9	35	35	20.5	0.8	35	2.7	0.5
	10	44	44	21.0	1.1	44	2.8	0.4
	11	17	17	21.7	0.9	17	3.3	0.5
	12	11	11	21.3	1.3	11	3.1	0.5
	13	6	6	21.9	2.9	6	3.9	2.0
	14	10	10	21.7	3.2	10	3.5	1.9
	15	3	3	23.2	3.3	3	4.3	2.0
	16	3	3	23.1	2.3	3	4.2	1.0
	18	2	2	24.4	2.3	2	5.4	1.7
	19	1	1	21.4		1	3.2	
Sample Size:		215	325			325		
Means:	9.5			20.4	2.9		2.9	1.3
MI-5								
	5	4	4	22.7	2.9	4	4.7	2.4
	6	2	2	22.6	0.6	2	4.1	0.4
	7	2	2	21.6	0.8	2	3.5	0.2
	8	13	13	20.1	1.5	13	2.9	0.7
	9	20	20	21.7	2.0	20	3.7	1.2
	10	11	11	20.9	1.4	11	3.2	0.6
	11	8	8	21.7	1.7	8	3.9	1.2
	12	6	6	22.3	1.5	6	3.8	0.8
	14	2	2	23.7	2.5	2	4.7	1.9
	15	1	1	26.9		1	7.9	
Sample Size:		69	69			69		
Means:	9.3			21.5	2.0		3.6	1.3