WISCONSIN DEPARTMENT OF NATURAL RESOURCES

LAKE SUPERIOR STATE-LICENSED COMMERCIAL FISHERY REPORT 2020

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DNR Lake Superior Fisheries Management Team April 6, 2021

BACKGROUND

Wisconsin waters of Lake Superior are relatively shallow with a high degree of habitat complexity (e.g., Apostle Islands) compared to much of Lake Superior, and this habitat supports a highly productive ecosystem and successful commercial fishery. Over the past 25 years, the Wisconsin Department of Natural Resources (DNR) and Red Cliff and Bad River Bands of Lake Superior Chippewa have moved toward a smaller and better-regulated commercial fishery. Today, the Lake Whitefish and Cisco ("Lake Herring") fisheries make up the majority of the catch and value of the Lake Superior commercial fishery, and these species are targeted using a combination of trap nets and gill nets. Since reaffirmation of Treaty fishing rights in the Ceded Territory, the DNR has maintained a Lake Superior Fishing Agreement with both Red Cliff and Bad River Bands of Lake Superior. The agreement includes methods for harvest limitations, commercial fishing seasons, designated refuges, restrictive use areas, law enforcement patrols, commercial monitoring, exchange of data and information, etc. for all parties.

State-licensed commercial fishers in Wisconsin waters of Lake Superior chiefly operate out of ports in Bayfield, Cornucopia and Port Wing. Commercial fishers report all harvest and fishing efforts to our team, and in addition, team members collect fish biological data aboard commercial fishing vessels and dockside at commercial fishing facilities. Wisconsin commercial fishing management is built on three principles: limited entry, annual harvest and gear limitations and individual transferable quotas.

Since 1997, there have been 10 total licenses available for commercial fishing on Lake Superior. A commercial fishing license is required for any commercial fishing activity, which restricts the size of the commercial fleet (i.e., "limited entry") and helps maintain the value of a commercial fishing license.

Commercial fishers are limited by how, when and where they can target and harvest Lake Superior fish. Three main types of gear are allowed in depths less than 330 feet: small-mesh gill nets, large-mesh gill nets and trap nets. Small-mesh gill nets are generally used to target Cisco ("Lake Herring") and Chub species and can be between 2 3/8" and 3" mesh size. Large-mesh gill nets are generally used to target Lake Whitefish and Siscowet ("Fats") and can be 4 7/16" mesh size or greater. Trap nets are generally used to target Lake Whitefish and can be fished with the pot end of the net in 90 feet or shallower. Rules also apply to the height of gill nets, how often nets should be checked or emptied, how nets should be marked and labeled, and more. Small-mesh gill nets may be fished all year. However, for other gears the commercial fishing season is split into three periods: Period 1 (November 28 to March 31), Period 2 (April 1 to May 31), and Period 3 (June 1 to September 30). Large-mesh gill nets are only allowed during these periods (i.e., excludes Lake Trout spawning season), and trap nets are only allowed in Periods 2 and 3. Pound nets (smaller, entrapment-style nets) and 1.5-inch gill nets are sometimes used for targeting Rainbow Smelt in the spring. Commercial fishing operations are prohibited within the boundaries of two large fishing refuges, Gull Island and Devils Island Refuges, and either prohibited or limited within 10 Restricted Sport Fishing Areas (Figure 1).

The amount of harvest and targeted fishing effort is also limited for commercial fishing in Wisconsin waters of Lake Superior. Fishers may only operate 10 total trap nets at a time, and the amount of large-mesh gill net footage they are allowed to set annually is determined by Lake Trout catch rates observed by onboard commercial monitoring. This provides incentive for commercial fishers to avoid catching Lake Trout in gill nets (more Lake Trout = less gill net footage allowed in following years) but ultimately, creates an upper limit to the amount of other fish (e.g., Lake Whitefish) harvested with gill nets. Lake Trout must also be less than or equal to 25 inches to harvest out of trap nets. Annually, a total allowable catch (TAC) is set for Lake Trout in both management units (WI-1 and WI-2), which represents the maximum number of Lake Trout that can be harvested by all fisheries (i.e., commercial, recreational, home-use, assessment). One-third of the state (non-tribal) allotment of Lake Trout is allocated to commercial fishers, and each commercial fisher receives a specific number of individual Lake Trout jaw tags. When individual commercial fishers run out of either Lake Trout jaw tags or allowable gill net footage, they can not set any more large-mesh gill net in depths less than 330 feet for the remainder of the commercial fishing season. Lake Whitefish have a minimum size limit of 17 inches. Cisco harvest is limited with an annual TAC and commercial fishing quota. The TAC is determined using hydroacoustic survey estimates of Cisco spawning stock biomass. Targeted commercial Cisco harvest (defined as harvest between October 1 and December 31) is limited to the commercial fishing quota and is monitored closely. A portion of the overall Cisco TAC is set aside as an allowance for recreational harvest and commercial bycatch throughout the other times of the year. Total effort for large-mesh and small-mesh gill nets fished in depths greater than 330 feet is not regulated and may be fished at any time of the year.

Wisconsin state-licensed commercial fishing is managed using individual transferable quotas (ITQs). This is a common strategy in commercial fishing management and means that the total commercial fishing quota (e.g., Lake Trout, Cisco) or total allowable large-mesh gill net footage is split evenly among the 10 commercial fishing licenses. Afterward, fishers are free to trade or sell their individual shares to other license-holders. This strategy avoids a "derby" style fishery and produces a fishery that is safer for fishers, is more profitable and has a longer fishing season.

METHODS

This report only includes state-licensed commercial fishing effort and harvest. Daily harvest and effort (feet of gill net or trap net lifts) are reported by state-licensed commercial fishers. Additional information provided in reports includes the area fished (Statistical Grid; Figure 1), gear specifications and depths fished.

All effort and harvest statistics were summarized by calendar year, with the exception of the Lake Trout harvest number and quota in Figure 5. The Lake Trout harvest number and quota in Figure 5 are summarized by "fishing year," which runs from November 28 to September 30 the following year and is used to track harvest of the Lake Trout quota. Commercial fishers generally report harvest in dressed weight, and dressed weights are used in this report. Any harvest reported by commercial fishers as round weight was converted to dressed weight using known conversion factors for this report, with the exception of Cisco Eggs and Rainbow Smelt. Cisco harvest during the targeted Cisco season (October-December) is tracked and reported in round weight in Figure 6 because the Cisco quota is calculated in round weight.

Effort for gill nets is reported in total feet of net lifted. Effort for trap and pound nets is reported as the number of lifts, and a lift is defined as lifting and emptying the entire pot end of the net.



Figure 1. Wisconsin waters of Lake Superior and management units WI-1 (Western Arm) and WI-2 (Apostle Islands Region; black lines), statistical grids used for commercial harvest reporting (grey lines and 4-digit numbers), fish refuges (commercial fishing prohibited, blue lines), and restricted sport fishing areas (commercial fishing prohibited or limited, orange lines).

RESULTS

During the 2020 calendar year, state-licensed commercial fishermen reported catching annual totals of 424,097 pounds of Lake Whitefish, 34,545 pounds of Lake Trout, 90,866 pounds of Siscowet, 532,375 pounds of Cisco, 9,276 pounds of Cisco Eggs, 49,080 pounds of Chubs, 1,135 pounds of Rainbow Smelt, and 1,285 pounds of Burbot (Figure 2, Table 1).

Large-mesh gill net effort targeting Lake Whitefish (< 330 ft. depth) totaled 690,375 feet and caught 109,460 pounds of Lake Whitefish and 12,505 pounds of Lake Trout (Figure 3, Table 2). Large-mesh gill net effort targeting Siscowet (> 330 ft. depth) totaled 497,000 feet of gill net with a resulting harvest of 62,449 pounds (Figure 3, Table 2).

Small-mesh gill net effort targeting Cisco totaled 623,500 feet and caught 506,780 pounds of Cisco and 9,276 pounds of Cisco Eggs (Figure 3, Table 2). Small-mesh gill net effort targeting Chubs (> 210 ft. depth) totaled 1,568,400 feet with a resulting catch of 48,714 pounds of Chubs (Figure 3, Table 2). Small-mesh gill net effort targeting Rainbow Smelt (1.5-inch mesh) totaled 30,300 feet and produced 1,135 pounds (Figure 3, Table 2).

State-licensed trap net fishers made 851 lifts, producing 313,095 pounds of Lake Whitefish, 19,530 pounds of Lake Trout, 1,989 pounds of Siscowet, 820 pounds of Cisco, and 1,058 pounds of Burbot (Figure 3, Table 3). There were no pound nets fished for Rainbow Smelt during 2020.

Commercial fishers harvested 2,943 of the 4,000 Lake Trout quota in management unit WI-1 and 8,394 of the 8,500 Lake Trout quota in management unit WI-2 in 2020 (Figure 5). Commercial fishers also harvested 700,488 round pounds of the 1,317,900 round pounds Cisco quota in 2020 (Figure 6).



Figure 2. Total reported state-licensed commercial harvest of the chief eight commercially viable species (represented by different colors) in Wisconsin waters of Lake Superior from 2004 to 2020 from all allowable gear types. Harvest is expressed in dressed pounds, except for Cisco Eggs and Rainbow Smelt.



Figure 3. Total reported effort fished by state-licensed commercial fishers in Wisconsin waters of Lake Superior from 2004 to 2020 by gear categorization. Effort for large-mesh gill nets and small-mesh gill nets is represented in total footage of gill net, and effort for trap and pound nets is represented as number of lifts. A lift is defined as the act of lifting up and emptying the pot-end of the trap or pound net.



Figure 4. Total reported state-licensed commercial harvest of the chief eight commercially viable species in Wisconsin waters of Lake Superior from 2004 to 2020. Colors represent the gear type used during harvest. Harvest is expressed in dressed pounds, except for Cisco Eggs and Rainbow Smelt.



Figure 5. Total reported state-licensed commercial harvest of Lake Trout in Wisconsin waters of Lake Superior from fishing year 2016 (November 28, 2015 - September 30, 2016) to 2020 (November 28, 2019 - September 30, 2020) within each management unit. Harvest is expressed as the actual number of Lake Trout. Colors represent the gear type used during harvest. Black lines represent the quota allotted to the commercial fishery in a given year within each management unit.



Figure 6. Total reported state-licensed commercial harvest of Cisco (Lake Herring) during the targeted Cisco season (October to December) in Wisconsin waters of Lake Superior from 2016 (first year of quota) to 2020. Harvest is expressed as round pounds of Cisco. Black lines represent the quota allotted to the commercial fishery in a given year in round pounds.

Table 1. Total reported state-licensed commercial harvest of Lake Whitefish, Cisco (Lake Herring), Lake Trout, Siscowet, Chubs, Cisco Eggs (Roe), Rainbow Smelt, and Burbot from all gears in Wiscsonsin waters of Lake Superior during calendar year 2020. All harvest is expressed in dressed weight, except for Cisco Eggs and Rainbow Smelt. See Figure 1 for locations of Statistical Grids.

Gear	Month	Grid	Lake Whitefish	Cisco	Lake Trout	Siscowet	Chubs	Cisco Eggs	Rainbow Smelt	Burbot
All Gears	January	All Grids	48,364	52	1,789	1,764	70			78
	February	All Grids	1,147	3	52	4				
	March	All Grids	5,339	2,392	1,010	3,230	3,710			
	April	All Grids	14,867	6,105	3,492	11,494	14,508		622	70
	Мау	All Grids	20,834	3,751	5,554	8,258	6,784		513	13
	June	All Grids	27,303	3,201	2,219	7,713	3,566			44
	July	All Grids	81,360	610	5,096	8,188	592			57
	August	All Grids	86,609	673	6,318	10,014	1,598			205
	September	All Grids	125,293	1,430	7,933	10,491	3,778			752
	October	All Grids		6,330		15,276	8,658	55		
	November	All Grids		418,763		7,925	5,816	8,371		
	December	All Grids	12,981	89,065	1,082	6,509		850		66
	All Months	1208	28,777	26,810	1,084	3,495	2			40
		1209	52,160		3,172	235				195
		1210	5,063		758	25				51
		1211	54,551	17	4,580	1,923	1			59
		1304	10	13,985	895	9,226	31,602	152		
		1305	2,215	62,497	3,189	38,795	15,867	2,876		
		1306	16,837	20,987	3,328	19,057	1,544	1,198		99
		1307	73,989	247,909	6,114	14,833	58	3,501	1,135	319
		1308	70,116	109	2,706	504				341
		1309	35,450	85	1,301	500				151
		1310	18,663	15,355	1,027	1,978				5
		1405	4,750	38,274	2,865	295	6	1,242		
		1409	34,817	1,215	1,166				0	25
		1410	26,698	105,131	2,360			307		
		All Grids	424,097	532,375	34,545	90,866	49,080	9,276	1,135	1,285

Table 2. Total reported state-licensed commercial effort (feet of gill net) and harvest of Lake Whitefish, Cisco (Lake Herring), Lake Trout, Siscowet, Chubs, Cisco Eggs (Roe), Rainbow Smelt, and Burbot from gill nets in Wiscsonsin waters of Lake Superior during calendar year 2020. All harvest is expressed in dressed weight, except for Cisco Eggs and Rainbow Smelt. See Figure 1 for locations of Statistical Grids.

Induct From <	Gear	Month	Grid	Effort	Lake	Cisco	Lake	Siscowet	Chubs	Cisco	Rainbow	Burbot
nt pintary 200 12,00 12,04 10,00 10,	c :	lanuan/	120.9	E2 E00	10 554		FG	0//		Eggs	Smell	
1306 3,600 64 78 All 148,350 48,364 52 1,769 1,764 70 78 March 1305 88,500 280 2,382 715 2,641 3,710 </td <td>Net</td> <td>January</td> <td>1208</td> <td>52,500</td> <td>19,554</td> <td></td> <td>564</td> <td>+ 844</td> <td></td> <td></td> <td>-</td> <td></td>	Net	January	1208	52,500	19,554		564	+ 844			-	
1307 92,250 28,810 52 1,225 920 6 78 All 148,350 48,364 52 1,789 1,764 70 78 March 1305 88,500 280 2,382 715 2,641 3,710			1306	3,600					64		-	
All 148,350 48,364 52 1,789 1,764 70 78 February 1307 3,375 1,147 3 52 4			1307	92,250	28,810	52	1,225	5 920	6		-	- 78
Grids February 1307 3,375 1,147 3 52 4			All	148,350	48,364	52	1,789	9 1,764	70		-	- 78
February 1307 3,375 1,147 3 52 4 <td></td> <td></td> <td>Grids</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			Grids									
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Ali Grids 116,250 5,339 2,392 1,010 3,230 3,710 April 1304 170,000 10 3,445 616 714 10,656 1306 30,500 799 306 463 1,71 135 2 1307 73,675 9,002 104 923 3,939 21 35 1310 1,500 10 12 5 327 35 1409 13,000 1,334 115 25 <t< td=""><td></td><td></td><td>1409</td><td>4,000</td><td>377</td><td></td><td>3</td><td>3</td><td></td><td></td><td>-</td><td></td></t<>			1409	4,000	377		3	3			-	
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1309 75,000 6,840 139 110			1307	62,450	5,007	1,022	1,188	3 1,194	23		513	39
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1307 32,000 2,681 38 413 743 5			1306	58,000	5	290	54	2,247	670		-	
1310 39,875 1,806 219 1,220 </td <td></td> <td></td> <td>1307</td> <td>32,000</td> <td>2,681</td> <td>38</td> <td>413</td> <td>3 743</td> <td>5</td> <td></td> <td>-</td> <td></td>			1307	32,000	2,681	38	413	3 743	5		-	
1409 3,375 190			1310	39,875	1,806		219	9 1,220			-	
All 304,250 4,767 2,414 972 7,702 3,566 10 130 1300 155 265 591 11405 2,600 7 25 <td></td> <td></td> <td>1409</td> <td>3,375</td> <td>190</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>			1409	3,375	190						-	
Grids July 1210 2,600 404 169			All	304,250	4,767	2,414	972	2 7,702	3,566		-	
July 1210 2,600 404 169 10 1300 10 13,000 2,714 585 832 7,767 592			Grids									
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1305 11,000 155 265 69 435			1211	19,800	1,592	5	52	I 1,844	1		-	
1306 77,000 315 48 4,897 591 <td></td> <td></td> <td>1305</td> <td>11,000</td> <td>155</td> <td>265</td> <td>69</td> <td>435</td> <td></td> <td></td> <td>-</td> <td></td>			1305	11,000	155	265	69	435			-	
1310 18,000 556 591			1306	77,000		315	48	3 4,897	591		-	
1405 2,600 7 25			1310	18,000	556			- 591			-	
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August 1208 13,500 17 1,425 2			All Grids	131,000	2,714	585	832	2 7,767	592		-	
		August	1208	13,500			17	7 1,425	2		-	

	1304	29,000		90	2	378	272			
	1305	124,000	215	515	54	1,610	1,259			
	1306	75,000		64	9	6,035	65			
	All	241,500	215	669	82	9,448	1,598			
	Grids									
Septembe	r 1208	6,/50			15	6/9				
	1304	225,000		1,426	64	1,/58	3,688			
	1305	67,000	1/0		82	4,070	85			
	1306	36,000			23	3,015	5			
	All	334,750	170	1,426	184	9,522	3,778			
	Grids									
October	1304	239,800		3,916		3,693	6,511	31		
	1305	118,000		1,350		8,887	2,144	24		
	1307	11,500				2,696	3			
	1409	3,000		976						
	1410	1,000		88						
	All	373,300		6,330		15,276	8,658	55		
	Grids									
		20 / 20		06.040						
November	1208	20,400		26,810						
	1304	81,000		3,533		1,464	4,498	121		
	1305	88,000		40,605		2,162	1,318	2,812		
	1306	12,000		11,553				695		
	1307	203,600		199,491		4,299		3,427		
	1310	36,000		15,355						
	1405	35,000		29,376				1,009		
	1410	131,000		92,040				307		
	All	607,000		418,/63		7,925	5,816	8,3/1		
	Grias									
December	1208	10,750	9,223		488	547				40
	1305	37,000		12,079	214	5,768		40		
	1306	13,000		8,273				503		
	1307	56,350	3,758	47,002	380	194		74		26
	1405	13,000		8,896				233		
	1410	19,000		12,816						
	All	149,100	12,981	89,065	1,082	6,509		850		66
	Grids									
All Months	1208	103 900	28 777	26 810	1 084	3 495	2			40
Aumonus	1210	2 600	20,777	20,010	1,004	5,475				
	1210	2,000	1 891	5	533	1 844	1			
	1304	951 800	10	13 985	895	9 226	31 602	152		
	1305	900.000	2 215	62 497	3189	38 795	15 867	2 876		
	1306	338,300	1.711	20.987	899	18,769	1.544	1,198		6
	1307	537 450	51 223	20,207	4 363	14 038	58	3 501	1135	141
	1309	118 625	9 602		235	437				35
	1310	145.000	8.147	15.355	415	1.978				5
	1405	102 350	4 750	38,274	2 865	295	6	1 747		
	1409	35.375	2,272	976	368				0	
	1410	151.000		104,944				307		
	All	3.409.575	111.002	531.555	15.015	88.877	49.080	9.276	1.135	227
	Grids	-,,0.0	,002		.5,0.0	, ,	.,	2,2.0	.,.55	

Table 3. Total reported state-licensed commercial effort (trap net lifts) and harvest of Lake Whitefish, Cisco (Lake Herring), Lake Trout, Siscowet, Chubs, and Burbot from entrapment nets in Wiscsonsin waters of Lake Superior during calendar year 2020. All harvest is expressed in dressed weight. See Figure 1 for locations of Statistical Grids.

Gear	Month	Grid	Effort	Lake Whitefish	Cisco	Lake Trout	Siscowet	Chubs I	Burbot
Entrapment Net	Мау	1308	1	158		15	11		
		1309	1	158		12	11		
		1409	2	30		3			
		1410	4	50		4			
		All Grids	8	396		34	22		
	June	1209	10	972		135			
		1211	9	1,276	12	319			1
		1307	14	2.063	169	61	4		5
		1308	21	5.803	101	145	5		19
		1309	11	1 902	82	69	2		4
		1409	36	7 343	235	223			15
		1410	17	3 177	187	295			
		All Grids	118	22 536	787	1 247	11		44
		Autonus	110	22,550	707	1,247			
	July	1209	20	6,868		213			
		1211	18	3,161		1,173	11		
		1306	18	3,503		875	51		6
		1307	27	8,806	16	306	216		13
		1308	42	27,890	5	536	130		29
		1309	19	6,635		237	13		4
		1310	5	1,149		137			
		1409	40	10,834	4	241			5
		1410	31	9,800		546			
		All Grids	220	78,646	25	4,264	421		57
	August	1209	25	11,536		468	6		2
	•	1211	24	13.857		1.223	26		2
		1306	12	1.896		1.061	70		21
		1307	27	4.816	1	723	276		38
		1308	44	22,988	2	1.104	166		89
		1309	23	12 712	1	509	22		48
		1310	18	3 902		381			
		14.00	24	0,037		2/7			5
		1/10	24	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		520			
		All Grids	221	86,394	4	6,236	566		205
	Sentember	1209	67	32 784		2 356	229		193
	September	1210	17	52,704 // 659		580	227		51
		1210	50	24,266		1 222	4.2		56
		1211	20	9 727		1,552	167		50 66
		1207	20	7,021	1	661	200		122
		1200	20	12 276	1	001	102		20%
		1200	JZ 1/	13,270	י ר	200	192		204
		1210	14	4,441	Z	239	15		60
		1/ 00	12	5,405		94			
		1409	25	4,401		84 005			
		All Grids	25 284	8,922		995 7,749	 969		752
			201	1201120		.,			
	All Months	1209	122	52,160		3,172	235		195
		1210	17	4,659		589	25		51
		1211	109	52,660	12	4,047	79		59
		1306	50	15,126		2,429	288		93
		1307	96	22,766	187	1,751	795		178
		1308	140	70,116	109	2,706	504		341
		1309	68	25,848	85	1,066	63		116
		1310	35	10,516		612			
		1409	113	32,545	239	798			25
		1410	101	26,698	187	2,360			
		All Grids	851	313,095	820	19,530	1,989		1,058