

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

LAKE SUPERIOR STATE-LICENSED COMMERCIAL FISHERY REPORT 2023

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BACKGROUND

The 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 comprise 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 the 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 Chippewa, which stipulates several management practices for fisheries in Wisconsin waters of Lake Superior. The Agreement includes methods for harvest limitations, commercial gear limitations, commercial fishing seasons, designated refuges, restricted-use areas, law enforcement patrols, commercial monitoring and exchange of data and information for all parties.

State-licensed commercial fishers in Wisconsin waters of Lake Superior primarily operate out of ports in Bayfield, Cornucopia and Port Wing. Commercial fishers report all harvest and fishing effort to the DNR, and in addition, team members collect fish biological data onboard 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 ten total licenses available for commercial fishing on Lake Superior. A commercial fishing license is required for any commercial fishing activity. This 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 and chub species (deepwater ciscoes) and can be between 2 3/8-inch and 3-inch mesh size. Large-mesh gill nets are generally used to target lake whitefish and siscowet (fats) and can be 4 7/16-inch 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. Small-mesh gill nets may be fished all year. However, for other gear, the commercial fishing season is split into three periods: Period 1 (Nov. 28 to March 31), Period 2 (April 1 to May 31) and Period 3 (June 1 to Sept. 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. 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. 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, and are either prohibited or limited within ten restricted-use areas (Figure 1).

The amount of harvest and targeted fishing effort is also limited for commercial fishing in the Wisconsin waters of Lake Superior. Fishers may only operate ten 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 an incentive for commercial fishers to avoid catching lake trout in gill nets (more lake trout means less gill net footage is allowed in following years), ultimately creating an upper limit to the gill net harvest of other fish found in similar habitats, like lake whitefish. Lake whitefish have a minimum size limit of 17 inches. 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 allocated 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. 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 Oct. 1 and Dec. 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 ten 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 includes the area fished (reporting grids; 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 Nov. 28 to Sept. 30 of the following year and is used to track the 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.

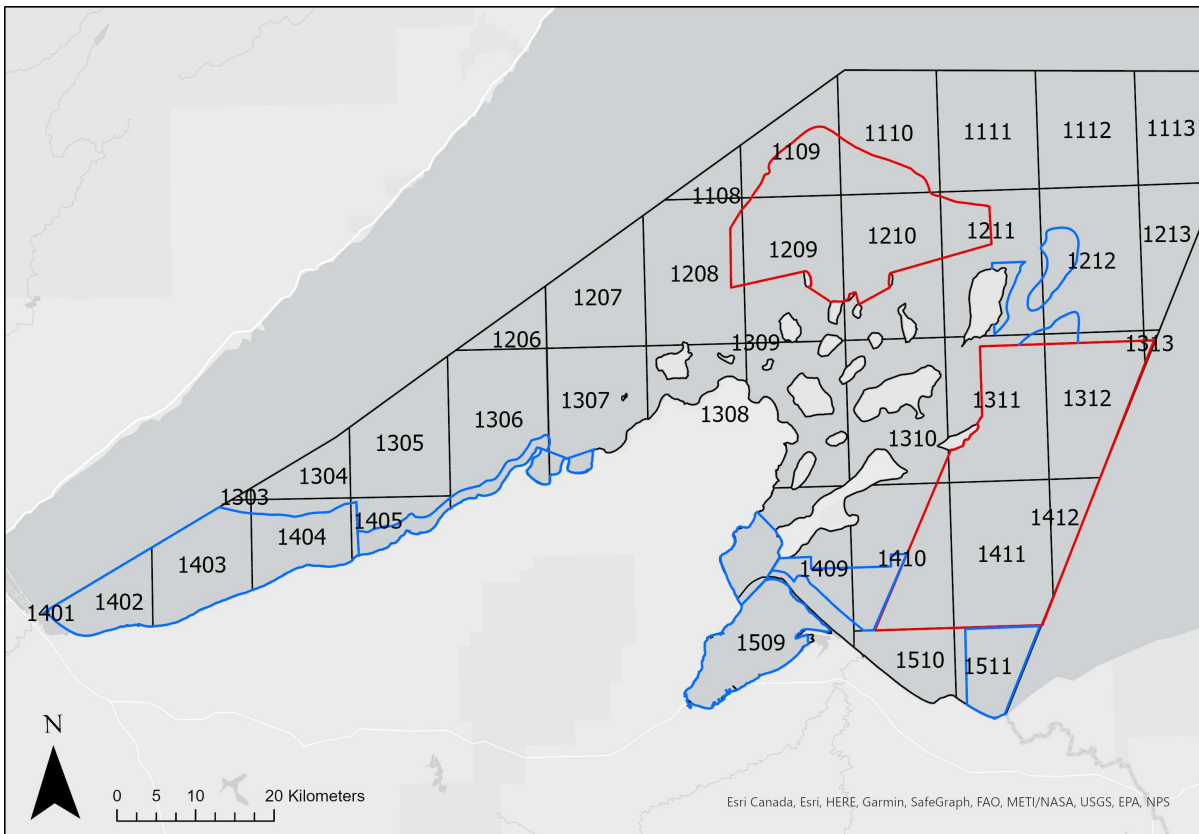


Figure 1. Wisconsin waters of Lake Superior and management units WI-1 (Western Arm) and WI-2 (Apostle Islands Region; line between Grid 1306 and 1307 separates units), reporting grids used for commercial harvest reporting (black lines and 4-digit numbers), fish refuges (commercial fishing prohibited, red lines) and restricted-use areas (commercial fishing prohibited or limited, blue lines).

RESULTS

During the 2023 calendar year, state-licensed commercial fishermen reported annual yields of 743,259 pounds of lake whitefish, 32,485 pounds of lake trout, 91,995 pounds of siscowet, 596,888 pounds of cisco, 3,364 pounds of cisco eggs, 49,091 pounds of chubs, 213 pounds of rainbow smelt and 3,021 pounds of burbot (Figure 2, Table 1).

Large-mesh gill net effort targeting lake whitefish (< 330 feet depth) totaled 816,390 feet and yielded 247,520 pounds of lake whitefish and 15,646 pounds of lake trout (Figures 3 and 4, Table 2). Large-mesh gill net effort targeting siscowet (> 330 feet depth) totaled 643,725 feet of gill net yielding 65,428 pounds (Figures 3 and 4, Table 2).

Small-mesh gill net effort targeting cisco (floated) totaled 892,200 feet and yielded 575,705 pounds of cisco and 3,316 pounds of cisco eggs (Figures 3 and 4, Table 2). Small-mesh gill net effort targeting chubs (> 210 feet depth) totaled 941,100 feet and yielded 48,308 pounds of chubs, 16,735 pounds of cisco and 6,903 pounds of siscowet (Figures 3 and 4, Table 2).

State-licensed trap net fishers made 939 lifts, yielding 494,106 pounds of lake whitefish, 14,671 pounds of lake trout, 1,842 pounds of siscowet, 1,622 pounds of cisco and 1,529 pounds of burbot (Figures 3 and 4, Table 3).

Commercial fishers harvested 3,206 of the 4,000 lake trout quota in management unit WI-1 and 5,631 of the 6,330 lake trout quota in management unit WI-2 in 2023 (Figure 5). Commercial fishers also harvested 689,091 round pounds of the 850,000-pound cisco quota in 2023 (Figure 6).

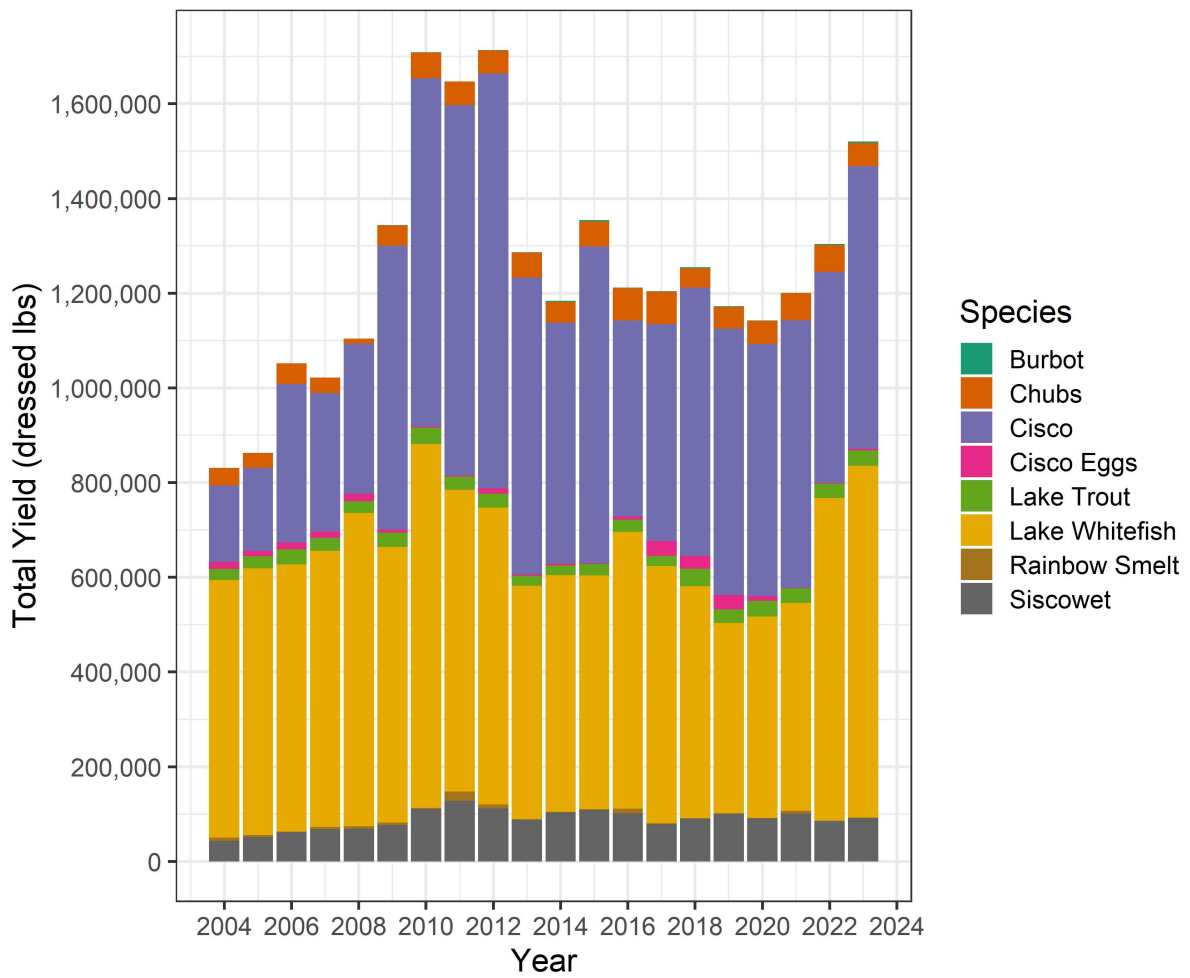


Figure 2. Total reported state-licensed commercial yield of the primary eight commercially viable species (represented by different colors) in Wisconsin waters of Lake Superior from 2004 to 2023 from all allowable gear types. Yield is expressed in dressed pounds, except for cisco eggs and rainbow smelt.

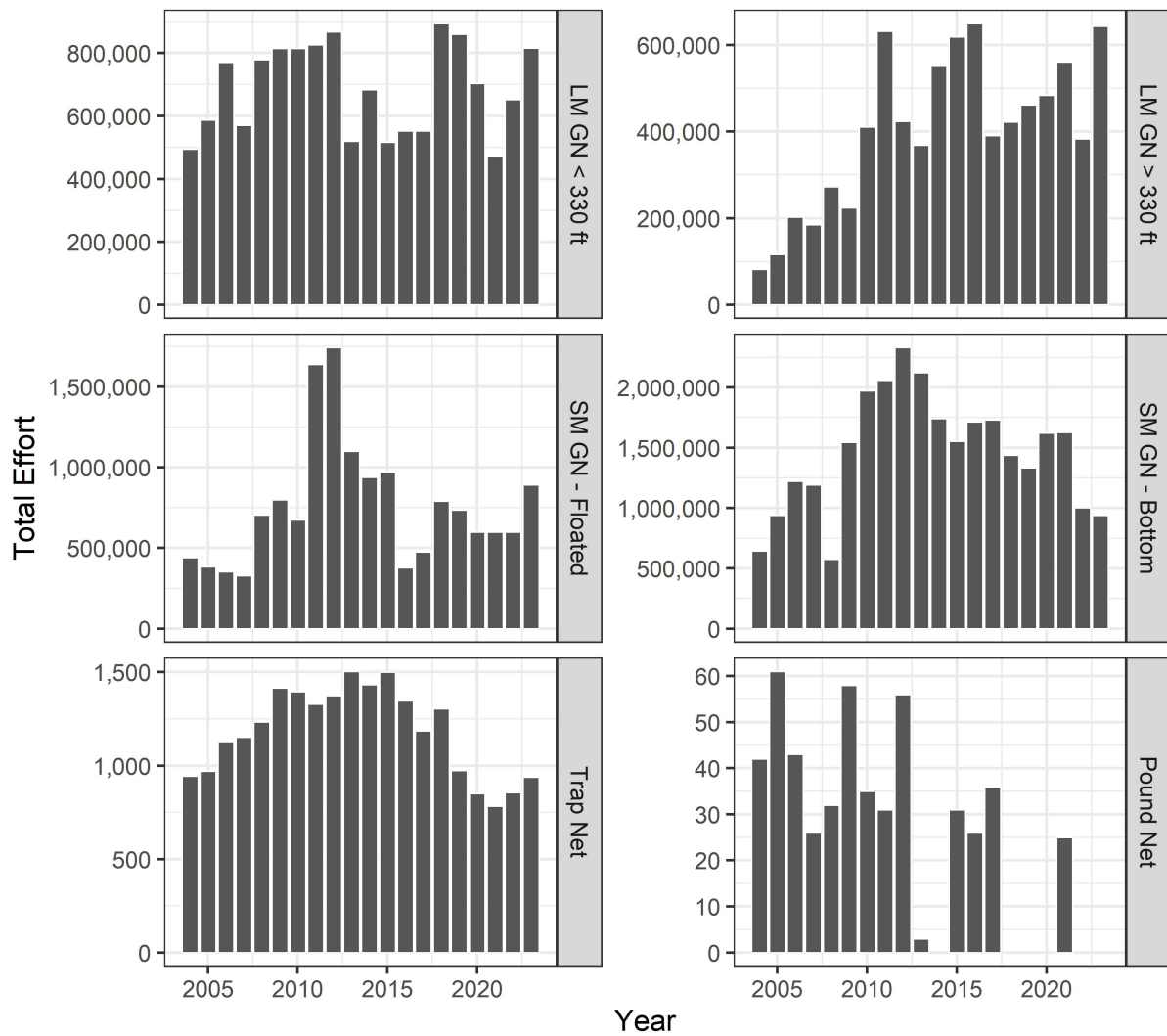


Figure 3. Total reported effort fished by state-licensed commercial fishers in Wisconsin waters of Lake Superior from 2004 to 2023 by gear categorization. Effort for large-mesh gill nets and small-mesh gill nets is represented in total footage of gill net, and effort for trap and pound nets is represented 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. Large-mesh gill net effort less than 330 feet is generally targeting lake whitefish, and large-mesh gill net effort greater than 330 feet is generally targeting siscowet. Small-mesh gill net effort is split between floated nets (targeting cisco in the fall) and bottom-set nets (targeting deepwater chubs > 210 feet).



Figure 4. Total reported state-licensed commercial yield of eight commercial species in Wisconsin waters of Lake Superior from 2004 to 2023. Colors represent the gear type used during yield (see Figure 3). Harvest is expressed in dressed pounds, except for cisco eggs and rainbow smelt.

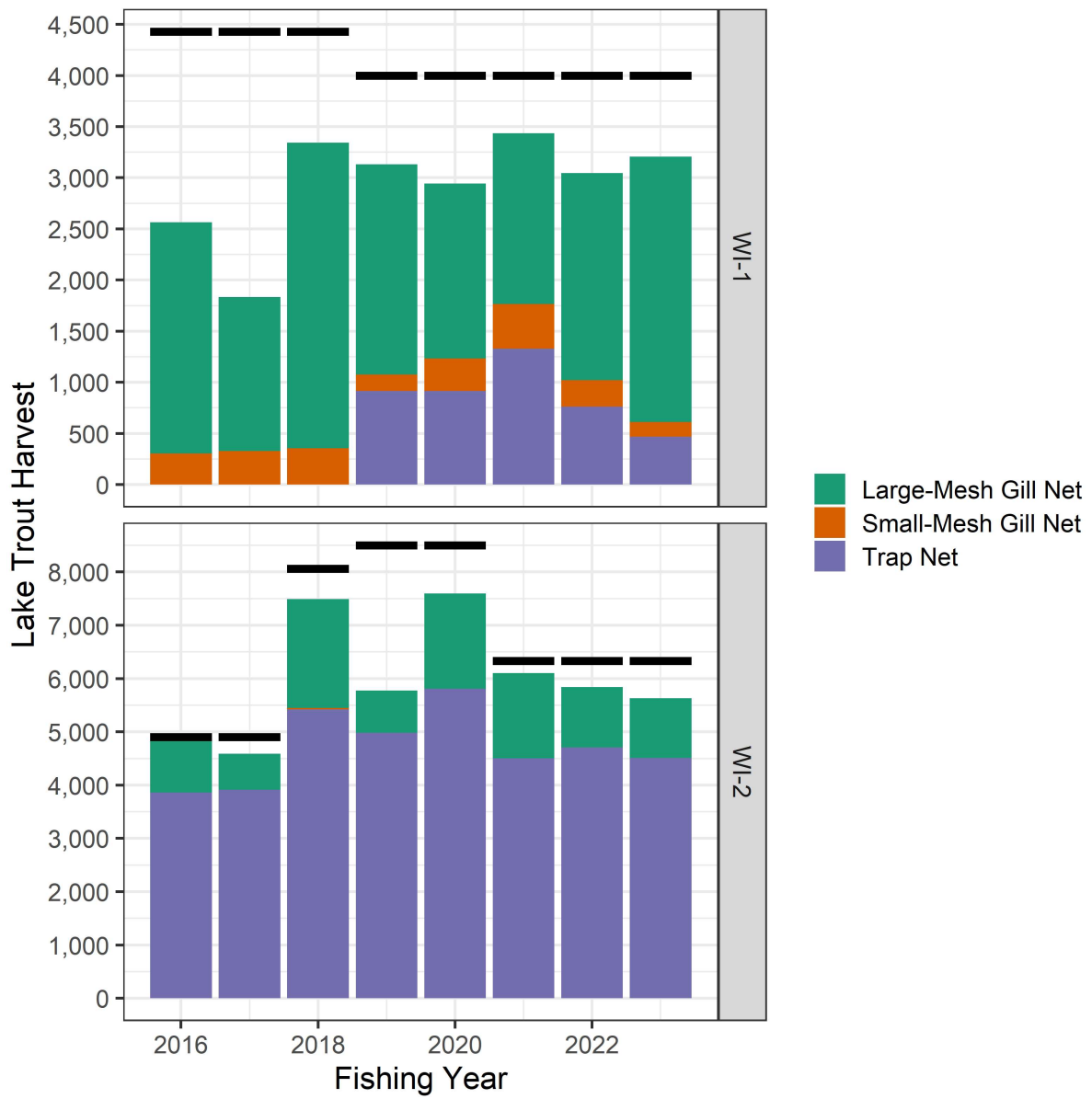


Figure 5. Total reported state-licensed commercial harvest of Lake Trout in Wisconsin waters of Lake Superior from fishing year 2016 (Nov. 28, 2015 - Sep. 30, 2016) to 2023 (Nov. 28, 2022 - Sep. 30, 2023) within each management unit. Harvest is expressed as the actual number of lake trout. Colors represent the gear type used during harvest. Black lines represent the quota allotted to the commercial fishery for each fishing year within each management unit.

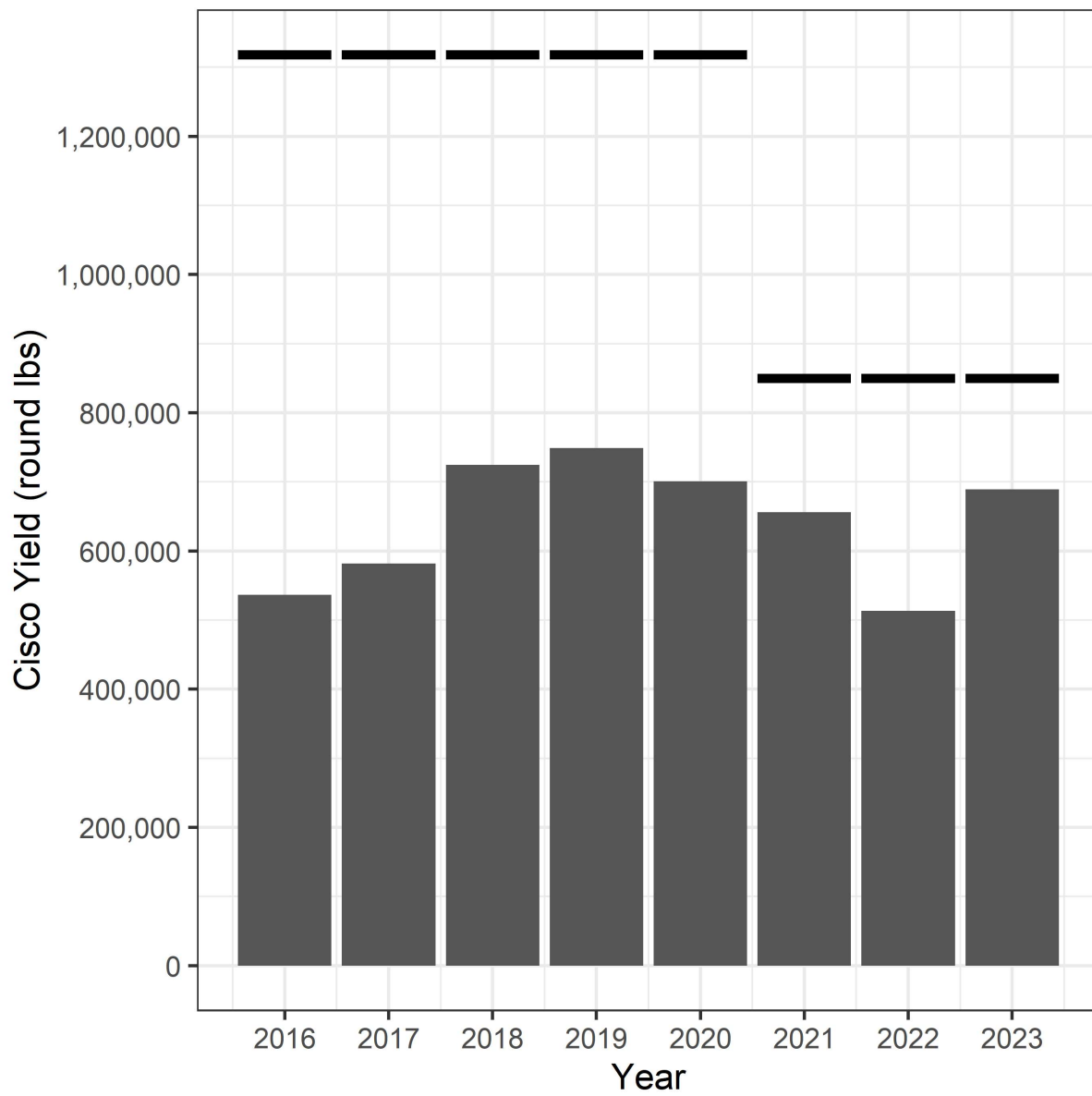


Figure 6. Total reported state-licensed commercial yield of cisco (lake herring) during the targeted cisco season (October to December) in Wisconsin waters of Lake Superior from 2016 (first year of quota) to 2023. Yield is expressed as round pounds of cisco. Black lines represent the quota allotted to the commercial fishery in a given year in round pounds.

Table 1. Total reported state-licensed commercial yield of lake whitefish, cisco (lake herring), lake trout, siscowet, chubs, cisco eggs (roe), rainbow smelt and burbot from all gear in Wisconsin waters of Lake Superior during the 2023 calendar year. All yield 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	59,355	953	4,910	19,655	76	--	--	258
	March	All Grids	14,879	37	655	916	4	--	--	47
	April	All Grids	87,046	1,730	2,401	6,400	8,008	--	--	665
	May	All Grids	40,576	1,077	5,138	11,819	7,326	--	210	405
	June	All Grids	63,320	18,148	2,900	8,175	2,720	--	--	352
	July	All Grids	144,752	433	2,987	10,254	850	--	2	201
	August	All Grids	183,509	238	5,140	12,131	764	--	--	367
	September	All Grids	118,440	258	6,011	5,479	3,040	--	--	618
	October	All Grids	--	1,124	--	3,401	15,948	--	--	--
	November	All Grids	--	241,055	--	9,916	10,345	909	--	28
	December	All Grids	31,384	331,835	2,343	3,848	10	2,455	1	80
	All Months	1207		--	66,262	17	1,463	7	--	--
1208			56,576	1,377	3,524	25,942	846	--	--	15
1209			120,757	782	4,438	9,061	158	--	--	283
1211			42,254	--	2,947	99	--	--	--	47
1304			15	770	126	1,701	10,977	--	--	--
1305			1,066	55,146	1,603	26,580	32,004	2,175	1	126
1306			51,092	32,830	5,373	18,218	4,928	1,185	--	378
1307			148,425	313,618	2,027	2,800	34	4	210	764
1308			93,543	58	1,886	459	--	--	--	240
1309			61,919	161	1,688	374	--	--	--	294
1310			29,401	124,743	627	515	43	--	--	293
1405			31,272	87	5,811	4,568	94	--	2	104
1409			76,790	554	315	120	--	--	--	256
1410			30,148	500	2,103	95	--	--	--	222
		All Grids	743,259	596,888	32,485	91,995	49,091	3,364	213	3,021

Table 2. Total reported state-licensed commercial effort (feet of gill net) and yield of lake whitefish, cisco (lake herring), lake trout, siscowet, chubs, cisco eggs (roe), rainbow smelt and burbot from gill nets in Wisconsin waters of Lake Superior during the 2023 calendar year. All yield is expressed in dressed weight, except for cisco eggs and rainbow smelt. See Figure 1 for locations of statistical grids.

Gear	Month	Grid	Effort	Lake Whitefish	Cisco	Lake Trout	Siscowet	Chubs	Cisco Eggs	Rainbow Smelt	Burbot	
Gill Net	January	1208	73,200	31,166	510	1,769	8,082	--	--	--	4	
		1305	29,500	460	43	420	6,370	53	--	--	16	
		1306	54,500	22,582	372	2,565	4,881	23	--	--	223	
		1307	8,000	5,147	28	156	322	--	--	--	15	
		All Grids	165,200	59,355	953	4,910	19,655	76	--	--	258	
	March	1305	8,500	270	2	320	545	4	--	--	--	
		1307	12,000	7,424	8	191	213	--	--	--	5	
		1309	6,750	2,912	--	22	148	--	--	--	--	
		1310	10,125	4,273	27	122	10	--	--	--	42	
		All Grids	37,375	14,879	37	655	916	4	--	--	47	
	April	1305	146,000	--	912	222	4,165	5,812	--	--	22	
		1306	46,000	--	690	180	1,385	2,183	--	--	4	
		1307	70,875	33,574	67	651	384	12	--	--	174	
		1309	42,875	12,855	32	598	136	--	--	--	98	
		1310	29,250	16,878	27	189	145	--	--	--	145	
		1405	12,500	2,125	--	385	95	--	--	--	24	
		1409	87,300	21,614	2	176	90	--	--	--	198	
		All Grids	434,800	87,046	1,730	2,401	6,400	8,008	--	--	665	
		May	1207	7,250	--	--	17	1,030	7	--	--	--
			1208	7,250	3	--	80	1,539	15	--	--	--
	1305		145,000	9	515	98	3,016	4,723	--	--	52	
	1306		123,000	7,162	389	647	4,290	2,486	--	--	39	
	1307		47,650	12,749	85	315	838	22	--	--	210	
	1310		21,750	1,465	--	146	360	43	--	--	88	
	1405		75,465	14,617	86	3,773	716	30	--	--	75	
	1409		28,500	4,102	2	47	30	--	--	--	--	
	All Grids		455,865	40,107	1,077	5,123	11,819	7,326	--	--	210	
	403											
	June	1208	24,150	220	16	130	3,705	109	--	--	--	
		1305	152,500	9	8,305	153	1,342	2,583	--	--	4	
		1306	92,000	--	8,620	107	2,154	11	--	--	--	
		1307	2,000	472	4	104	56	--	--	--	1	
		1405	51,340	6,295	--	1,051	853	17	--	--	--	
		All Grids	321,990	6,996	16,945	1,545	8,110	2,720	--	--	5	
	July	1207	10,000	--	--	--	415	--	--	--	--	
		1208	67,600	22	50	--	3,125	722	--	--	--	
		1209	54,000	70	--	--	4,920	98	--	--	--	
		1306	600	--	5	--	10	10	--	--	--	
		1405	57,860	6,520	1	492	1,534	20	--	--	2	
		All Grids	190,060	6,612	56	492	10,004	850	--	--	2	
	2											
	August	1209	38,000	15	--	--	3,840	60	--	--	--	
		1304	13,000	--	28	--	45	153	--	--	--	
		1305	54,800	302	14	17	2,475	309	--	--	--	
		1306	80,000	712	160	53	3,725	215	--	--	2	
		1405	22,300	1,715	--	110	1,370	27	--	--	2	
		All Grids	208,100	2,744	202	180	11,455	764	--	--	4	
	September	1304	94,000	15	250	126	642	3,003	--	--	--	
		1305	98,700	16	2	27	3,097	37	--	--	--	
		1306	23,800	--	--	12	890	--	--	--	--	
All Grids		216,500	31	252	165	4,629	3,040	--	--	--		
October	1304	75,000	--	430	--	920	7,295	--	--	--		
	1305	158,000	--	694	--	2,111	8,653	--	--	--		
	1306	8,000	--	--	--	370	--	--	--	--		
	All Grids	241,000	--	1,124	--	3,401	15,948	--	--	--		
November	1207	32,400	--	28,846	--	18	--	--	--	--		
	1208	28,125	--	--	--	8,314	--	--	--	--		
	1304	15,600	--	62	--	94	526	--	--	--		
	1305	129,400	--	5,584	--	1,039	9,819	487	--	28		
	1306	20,500	--	4,502	--	25	--	418	--	--		
	1307	157,850	--	124,182	--	426	--	4	--	--		
	1310	189,000	--	77,420	--	--	--	--	--	--		
	1409	1,000	--	42	--	--	--	--	--	--		
	1410	2,000	--	417	--	--	--	--	--	--		
	All Grids	575,875	--	241,055	--	9,916	10,345	909	--	28		

December	1207	29,700	--	37,417	--	--	--	--	--	--
	1208	27,000	25,166	801	1,545	1,177	--	--	--	11
	1305	93,000	--	39,075	346	2,420	10	1,688	1	4
	1306	54,500	6,219	18,071	452	148	--	767	--	65
	1307	158,450	--	189,217	--	103	--	--	--	--
	1310	84,000	--	47,254	--	--	--	--	--	--
	All Grids	446,650	31,384	331,835	2,343	3,848	10	2,455	1	80
	All Months	1207	79,350	--	66,262	17	1,463	7	--	--
	1208	227,325	56,576	1,377	3,524	25,942	846	--	--	15
	1209	92,000	85	--	--	8,760	158	--	--	--
	1304	197,600	15	770	126	1,701	10,977	--	--	--
	1305	1,015,400	1,066	55,146	1,603	26,580	32,004	2,175	1	126
	1306	502,900	36,675	32,809	4,016	17,878	4,928	1,185	--	332
	1307	456,825	59,366	313,592	1,417	2,342	34	4	210	344
	1309	49,625	15,766	32	620	284	--	--	--	98
	1310	334,125	22,615	124,728	457	515	43	--	--	275
	1405	219,465	31,272	87	5,811	4,568	94	--	2	104
	1409	116,800	25,716	46	223	120	--	--	--	198
	1410	2,000	--	417	--	--	--	--	--	--
	All Grids	3,293,415	249,153	595,266	17,814	90,153	49,091	3,364	213	1,492

Table 3. Total reported state-licensed commercial effort (entrapment net lifts) and yield of lake whitefish, cisco (Lake Herring), lake trout, siscowet, chubs, rainbow smelt and burbot from entrapment nets in Wisconsin waters of Lake Superior during the 2023 calendar year. All yield is expressed in dressed weight. See Figure 1 for locations of statistical grids.

Gear	Month	Grid	Effort	Lake Whitefish	Cisco	Lake Trout	Siscowet	Chubs	Rainbow Smelt	Burbot
Entrapment Net	May	1409	1	450	--	9	--	--	--	--
		1410	1	19	--	6	--	--	--	2
		All Grids	2	469	--	15	--	--	--	2
	June	1209	27	7,742	667	381	2	--	--	--
1211		2	14	--	--	--	--	--	--	2
1306		6	2,160	9	135	16	--	--	--	12
1307		38	19,678	8	57	33	--	--	--	179
1308		27	13,956	36	355	10	--	--	--	51
1309		16	4,465	88	95	4	--	--	--	29
1310		2	57	15	15	--	--	--	--	--
1409		24	5,660	316	44	--	--	--	--	29
1410		29	2,592	64	273	--	--	--	--	12
All Grids		171	56,324	1,203	1,355	65	--	--	--	347
July		1209	42	18,271	112	631	20	--	--	--
	1211	8	2,478	--	118	--	--	--	--	--
	1306	12	5,854	11	153	75	--	--	--	16
	1307	36	32,619	11	56	81	--	--	--	55
	1308	26	25,563	17	247	48	--	--	--	24
	1309	33	9,530	32	268	8	--	--	--	42
	1310	11	985	--	60	--	--	--	--	2
	1409	63	33,400	188	34	--	--	--	--	23
	1410	38	9,439	6	928	18	--	--	--	26
	All Grids	269	138,140	377	2,495	250	--	--	--	199
	August	1209	57	56,471	2	1,925	75	--	--	--
1211		21	9,650	--	755	23	--	--	--	2
1306		8	4,358	1	628	123	--	--	--	11
1307		36	27,153	4	253	207	--	--	--	70
1308		32	36,628	5	537	206	--	--	--	52
1309		32	20,403	7	215	29	--	--	--	57
1310		10	2,219	--	74	--	--	--	--	9
1409		25	10,969	4	5	--	--	--	--	6
1410		28	12,913	13	568	13	--	--	--	78
All Grids		249	180,765	36	4,960	676	--	--	--	363
September		1209	62	38,188	1	1,501	204	--	--	--
	1211	37	30,112	--	2,074	76	--	--	--	42
	1306	12	2,044	--	441	126	--	--	--	7
	1307	40	9,608	3	244	136	--	--	--	116
	1308	34	17,396	--	747	195	--	--	--	113
	1309	33	11,754	2	490	49	--	--	--	67
	1310	9	3,525	--	21	--	--	--	--	6
	1409	4	595	--	--	--	--	--	--	--
	1410	17	5,185	--	328	64	--	--	--	103
	All Grids	248	118,409	6	5,846	850	--	--	--	618

All Months	1209	188	120,672	782	4,438	301	--	--	283
	1211	68	42,254	--	2,947	99	--	--	47
	1306	38	14,417	21	1,357	340	--	--	46
	1307	150	89,059	26	610	458	--	--	420
	1308	119	93,543	58	1,886	459	--	--	240
	1309	114	46,152	129	1,068	90	--	--	196
	1310	32	6,786	15	170	--	--	--	18
	1409	117	51,074	508	92	--	--	--	58
	1410	113	30,148	83	2,103	95	--	--	222
	All Grids	939	494,106	1,622	14,671	1,842	--	--	1,529
