

# WISCONSIN DEPARTMENT OF NATURAL RESOURCES

## LAKE SUPERIOR STATE-LICENSED COMMERCIAL FISHERY REPORT 2022

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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 chiefly 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 (Lake Herring) and Chub species 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 Refuges, 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, 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 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. 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 in reports 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.

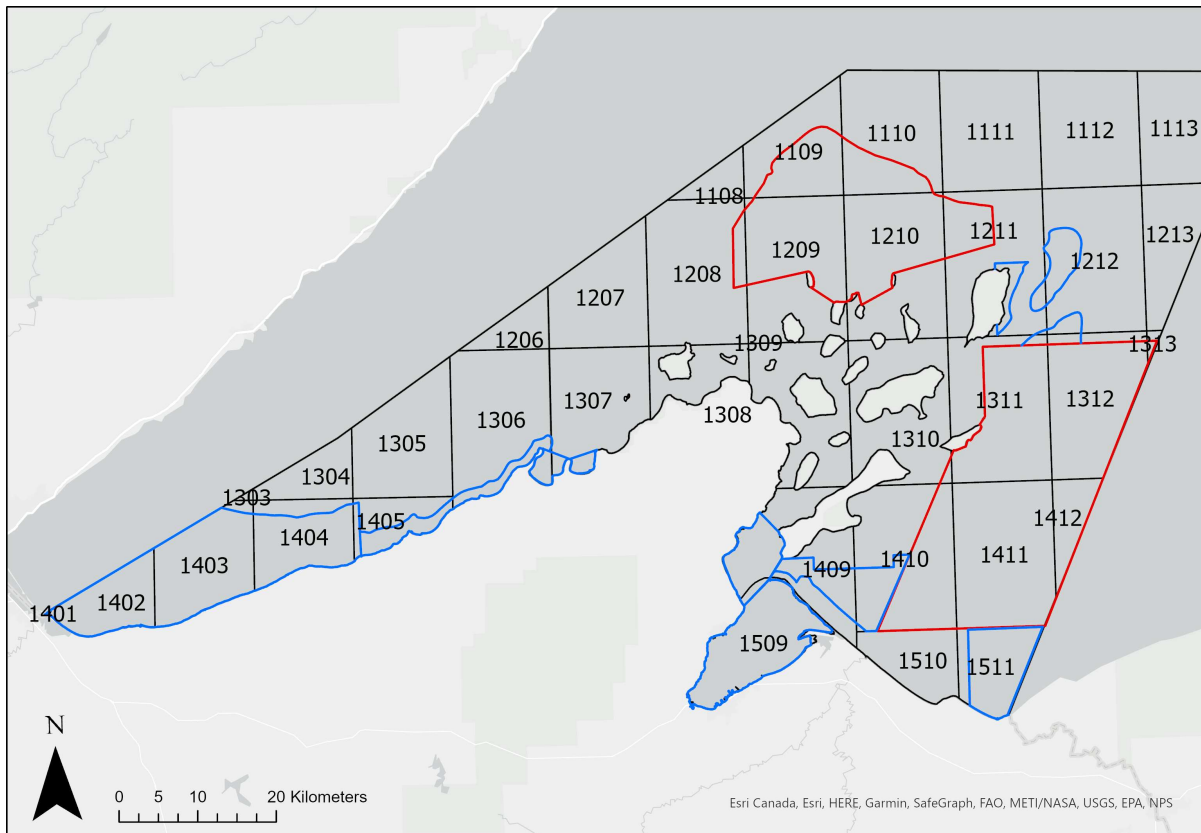


Figure 1. Wisconsin waters of Lake Superior and management units WI-1 (Western Arm) and WI-2 (Apostle Islands Region; line between Grid 1306 and 1307 separates units), reporting grids used for commercial harvest reporting (black lines and 4-digit numbers), fish refuges (commercial fishing prohibited,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

## RESULTS

During the 2022 calendar year, state-licensed commercial fishermen reported harvesting annual totals of 682,069 pounds of Lake Whitefish, 29,654 pounds of Lake Trout, 85,752 pounds of Siscowet, 445,562 pounds of Cisco, 2,060 pounds of Cisco eggs, 56,607 pounds of Chubs, 0 pounds of Rainbow Smelt and 1,479 pounds of Burbot (Figure 2, Table 1).

Large-mesh gill net effort targeting Lake Whitefish (< 330 ft. depth) totaled 652,100 feet and caught 158,362 pounds of Lake Whitefish and 11,800 pounds of Lake Trout (Figures 3 and 4, Table 2). Large-mesh gill net effort targeting Siscowet (> 330 ft. depth) totaled 383,800 feet of gill net with a resulting harvest of 62,860 pounds (Figures 3 and 4, Table 2).

Small-mesh gill net effort targeting Cisco (floated) totaled 599,980 feet and caught 417,206 pounds of Cisco and 2,060 pounds of Cisco Eggs (Figures 3 and 4, Table 2). Small-mesh gill net effort targeting Chubs (> 210 ft. depth) totaled 1,002,650 feet with a resulting catch of 56,292 pounds of Chubs, 21,775 pounds of Cisco and 9,557 pounds of Siscowet (Figures 3 and 4, Table 2).

State-licensed trap net fishers made 856 lifts, producing 523,550 pounds of Lake Whitefish, 16,154 pounds of Lake Trout, 962 pounds of Siscowet, 1,652 pounds of Cisco and 806 pounds of Burbot (Figures 3 and 4, Table 3).

Commercial fishers harvested 3,047 of the 4,000 Lake Trout quota in management unit WI-1 and 5,837 of the 6,330 Lake Trout quota in management unit WI-2 in 2022 (Figure 5). Commercial fishers also harvested 513,389 round pounds of the 850,000 round pounds Cisco quota in 2022 (Figure 6).

Commercial harvest for Chubs and Siscowet was concentrated in areas west of Bark Point in management unit WI-1 (Figure 7). Commercial harvest of Cisco was concentrated in the western Apostle Islands, Port Wing area and Stockton/Madeline Island area. Commercial harvest of Lake Whitefish was more ubiquitous with higher concentrations in the western Apostle Islands and Devils Island areas. Commercial harvest of Lake Trout was relatively uniform with highest concentrations in grids 1405, 1211 and 1307.

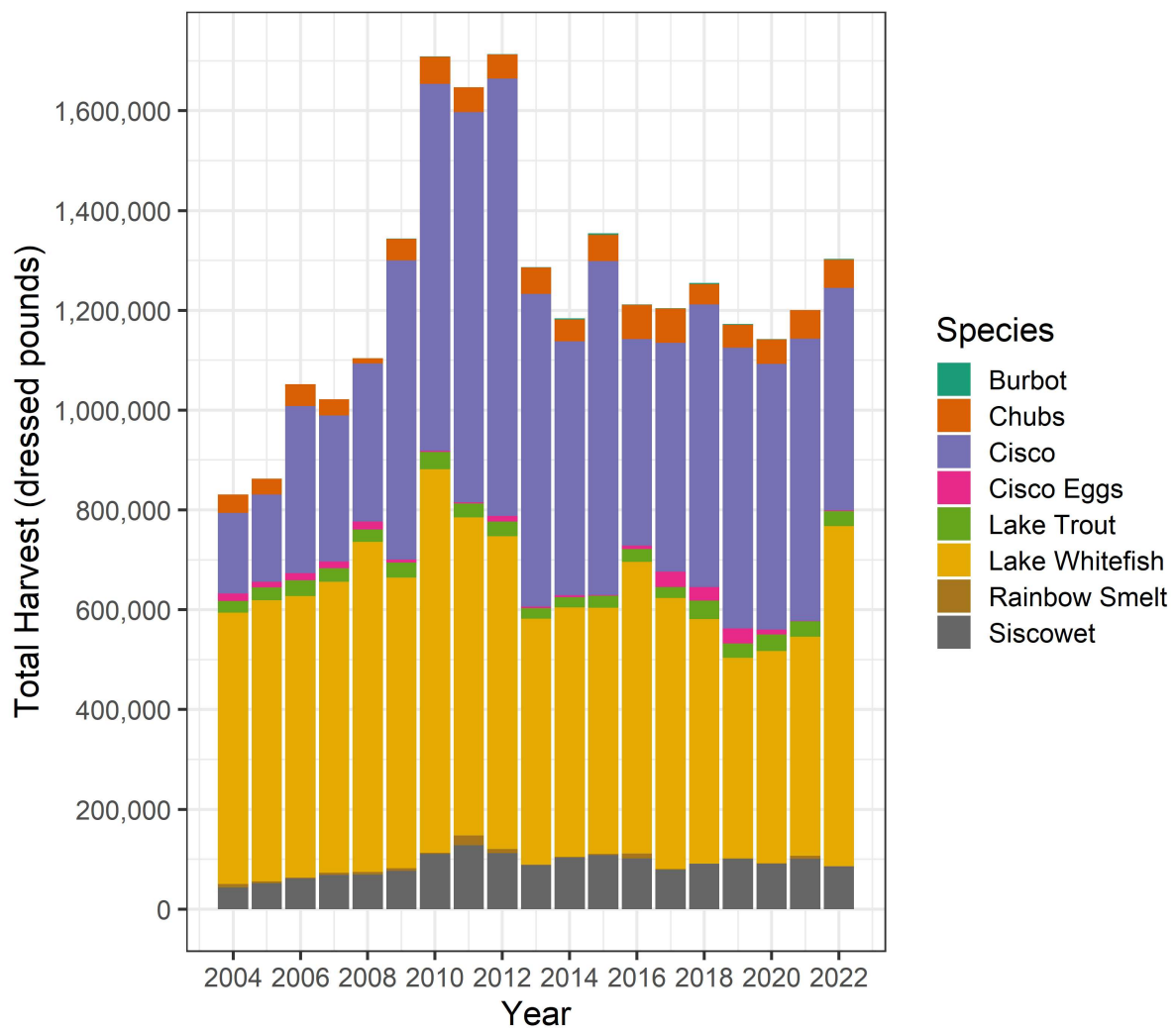


Figure 2. Total reported state-licensed commercial harvest of the chief eight commercially viable species (represented by different colors) in Wisconsin waters of Lake Superior from 2004 to 2022 from all allowable gear types. Harvest is expressed in dressed pounds, except for Cisco eggs and Rainbow Smelt.

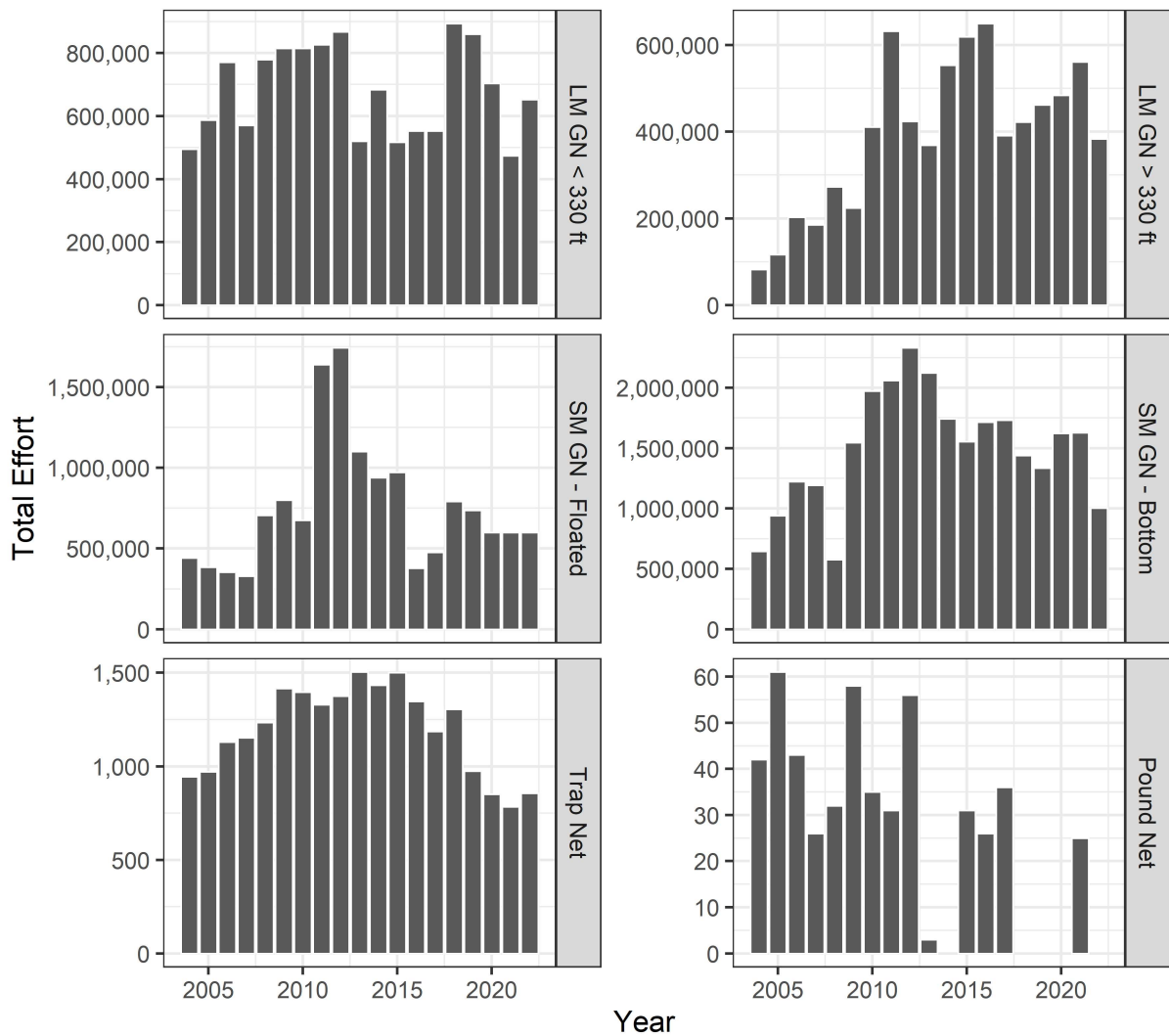


Figure 3. Total reported effort fished by state-licensed commercial fishers in Wisconsin waters of Lake Superior from 2004 to 2022 by gear categorization. Effort for large-mesh gill nets and small-mesh gill nets is represented in total footage of gill net, and effort for trap and pound nets is represented 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 is split by depth because gill net effort limitation applies to gill nets less than 330 feet. 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 harvest of eight commercial species in Wisconsin waters of Lake Superior from 2004 to 2022. Colors represent the gear type used during harvest (see Figure 3). Harvest is expressed in dressed pounds, except for Cisco eggs and Rainbow Smelt.

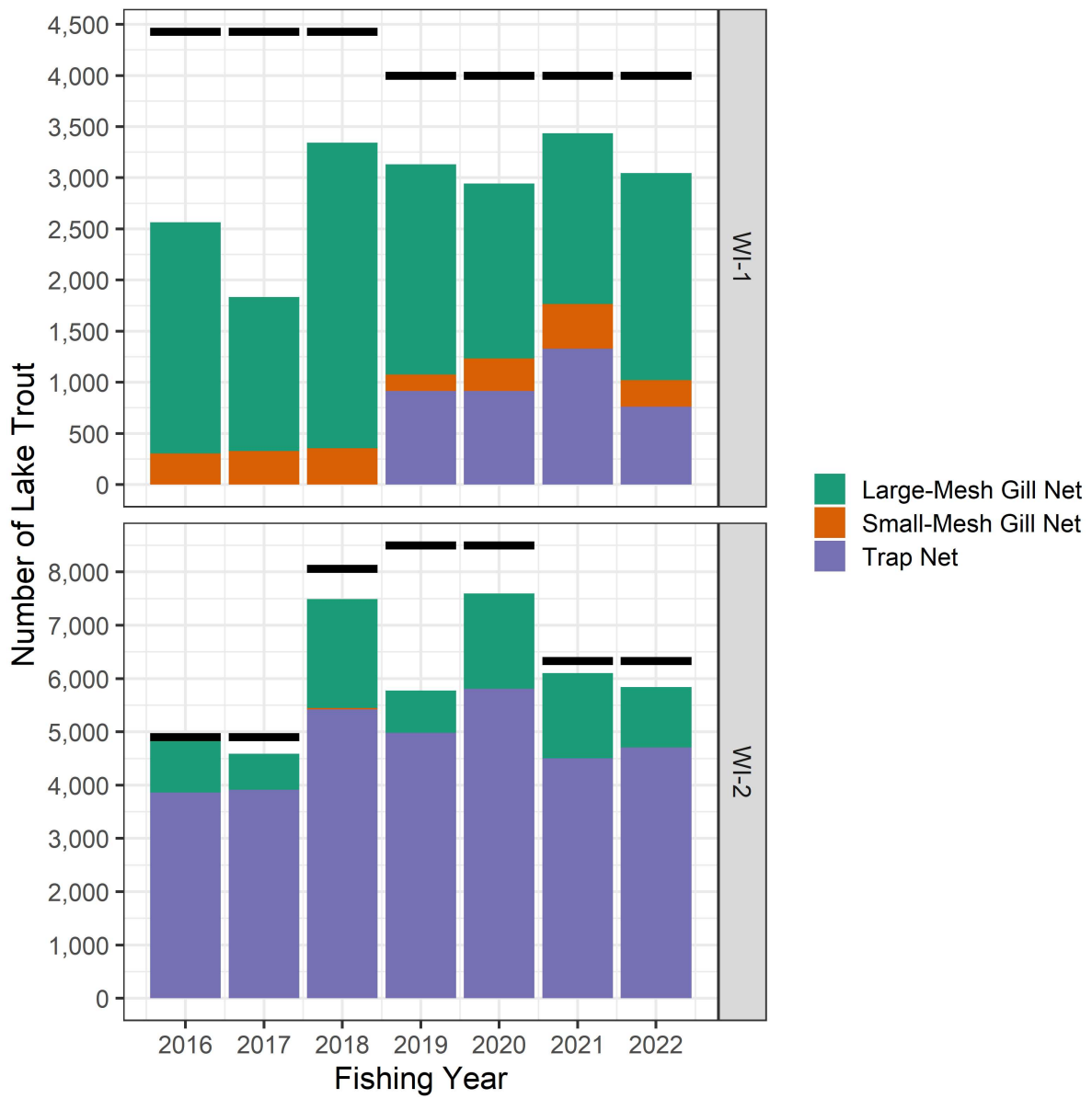


Figure 5. Total reported state-licensed commercial harvest of Lake Trout in Wisconsin waters of Lake Superior from fishing year 2016 (Nov. 28, 2015 - Sep. 30, 2016) to 2022 (Nov. 28, 2021 - Sep. 30, 2022) within each management unit. Harvest is expressed as the actual number of Lake Trout. Colors represent the gear type used during harvest. Black lines represent the quota allotted to the commercial fishery for each fishing year within each management unit.

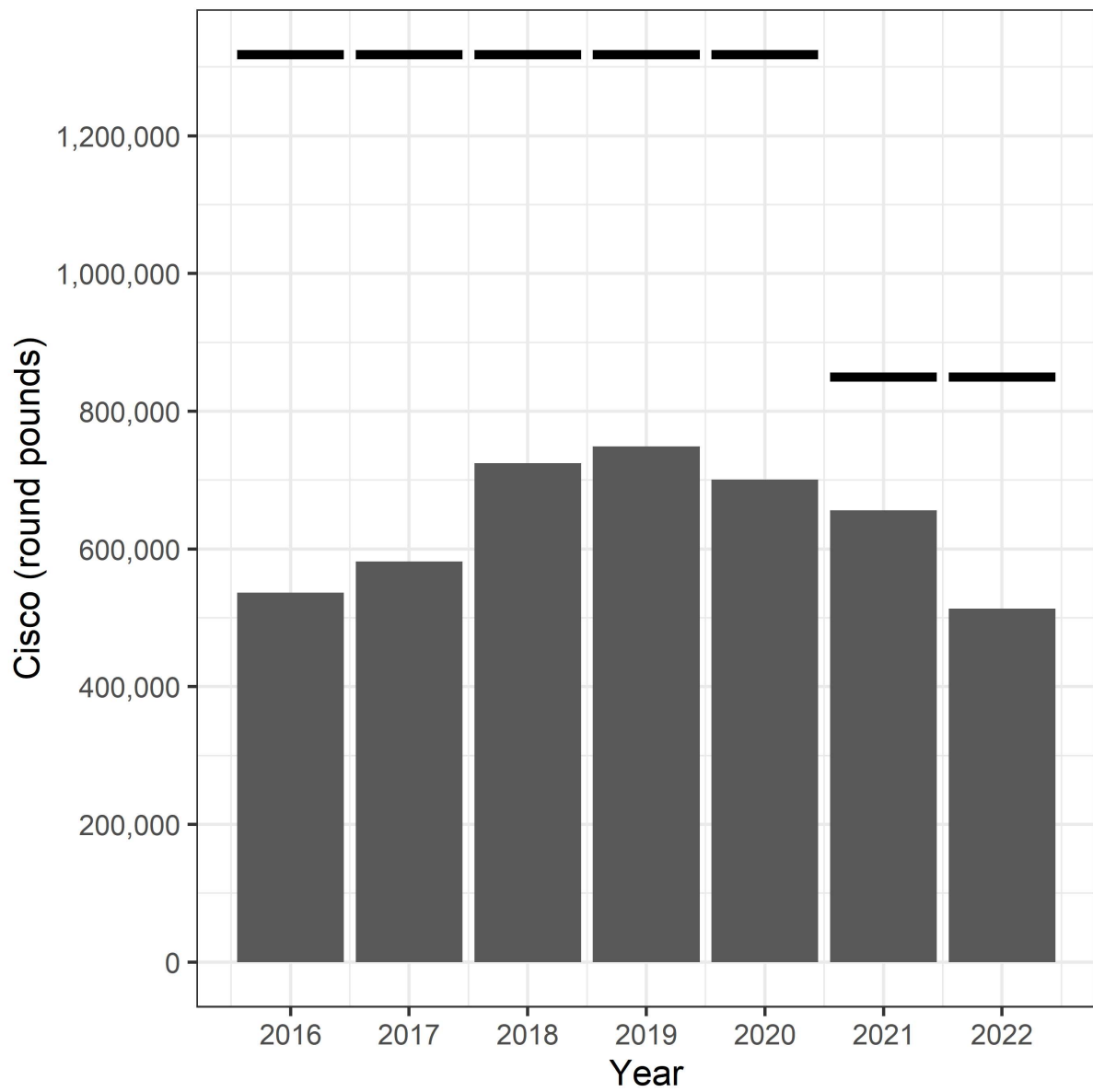


Figure 6. Total reported state-licensed commercial harvest of Cisco (Lake Herring) during the targeted Cisco season (October to December) in Wisconsin waters of Lake Superior from 2016 (first year of quota) to 2022. Harvest is expressed as round pounds of Cisco. Black lines represent the quota allotted to the commercial fishery in a given year in round pounds.



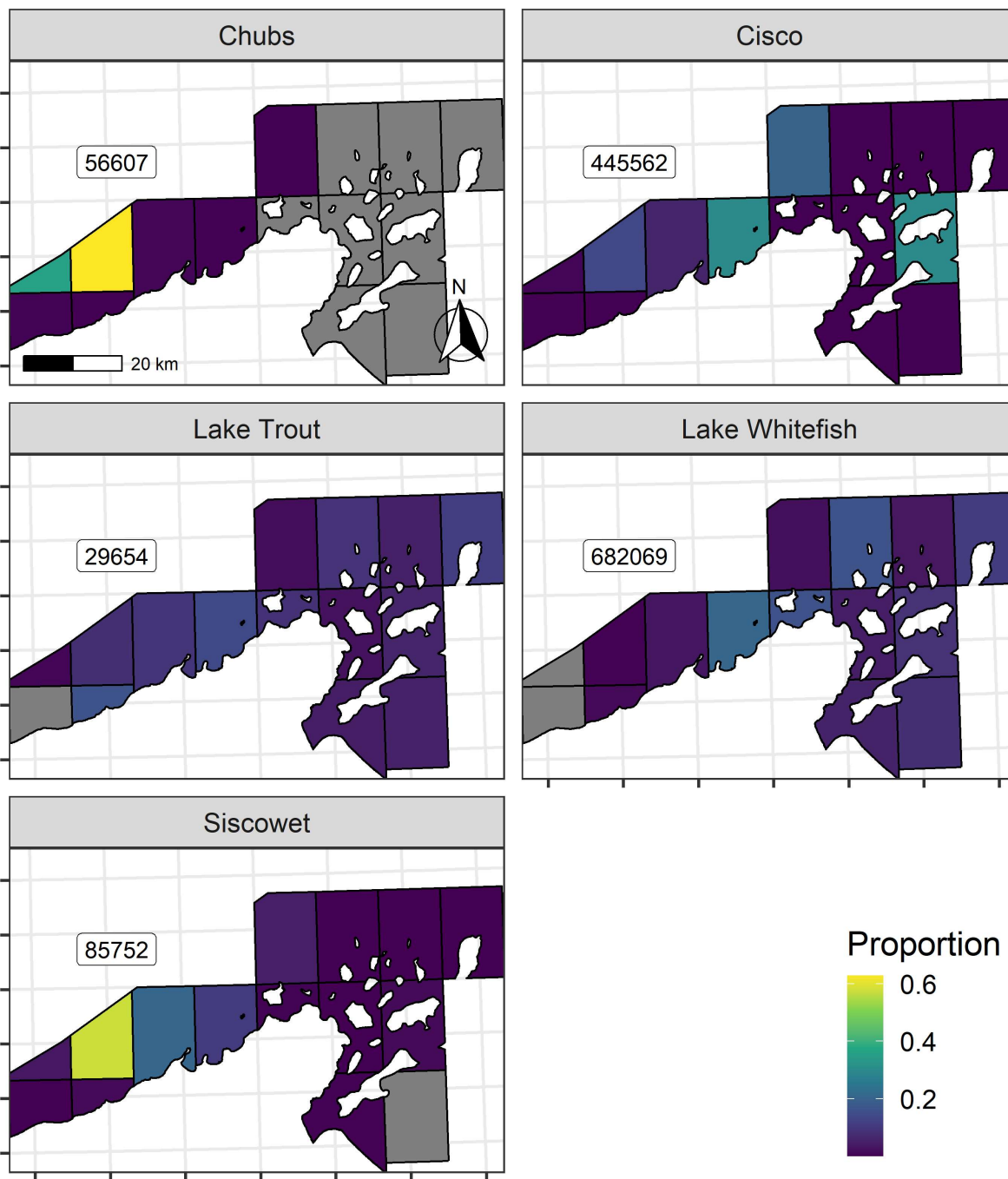


Figure 7. Proportion of harvest (color scale in bottom-right) for Chubs, Cisco, Lake Trout, Lake Whitefish and Siscowet by reporting grids in 2022 (Lake Superior 10-minute grids). Total harvest for 2022 is expressed in white boxes. Grids shaded gray had no commercial harvest for a given species, and grids not shown had no commercial harvest of any species.

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 gear in Wisconsin waters of Lake Superior during the 2022 calendar year. 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	Burbot	
All Gears	January	All Grids	17,450	443	484	5,136	10	--	144	
	April	All Grids	73,246	2,723	2,989	4,596	4,715	--	379	
	May	All Grids	57,946	9,879	7,079	15,746	21,336	--	151	
	June	All Grids	73,794	3,961	4,622	11,562	10,090	--	96	
	July	All Grids	125,775	716	4,286	6,789	2,845	--	95	
	August	All Grids	178,822	183	4,240	7,822	615	--	282	
	September	All Grids	142,035	4	5,089	6,518	5	--	329	
	October	All Grids	--	2,781	--	7,607	11,806	--	0	
	November	All Grids	--	254,893	--	8,971	5,175	1,315	0	
	December	All Grids	13,001	169,979	865	11,005	10	745	3	
	All Months	1208		12,649	90,196	493	3,845	10	--	3
		1209		110,492	83	2,607	94	--	--	153
	1210		21,265	208	1,452	18	--	--	23	
	1211		74,158	53	3,279	41	--	--	21	
	1304		--	3,322	173	2,757	20,310	--	0	
	1305		1,856	59,087	2,398	49,315	35,539	1,285	10	
	1306		20,829	26,162	2,723	18,035	403	743	22	
	1307		143,111	132,751	4,040	8,917	66	32	535	
	1308		108,530	141	2,409	366	--	--	300	
	1309		29,692	89	697	32	--	--	265	
	1310		58,538	133,017	1,732	1,097	--	--	78	
	1404		--	25	--	60	250	--	--	
	1405		8,655	60	4,808	945	29	--	25	
	1409		37,261	47	1,270	231	--	--	14	
	1410		55,034	320	1,572	--	--	--	30	
	All Grids		682,069	445,562	29,654	85,752	56,607	2,060	1,479	

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 Wisconsin waters of Lake Superior during the 2022 calendar year. 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	Effort	Lake Whitefish	Cisco	Lake Trout	Siscowet	Chubs	Cisco Eggs	Burbot
Gill Net	January	1307	38,400	17,450	443	484	5,136	10	--	144
		1305	88,750	460	2,343	821	3,770	4,715	--	--
	April	1307	69,375	29,037	308	897	387	--	--	84
		1309	31,000	13,820	52	317	17	--	--	219
	May	1310	51,375	20,194	20	464	276	--	--	76
		1409	40,775	9,735	--	490	146	--	--	--
	June	All Grids	281,275	73,246	2,723	2,989	4,596	4,715	--	379
		1304	29,500	--	630	57	170	2,295	--	--
	July	1305	294,700	295	7,670	629	6,530	18,560	--	10
		1306	35,000	201	314	235	5,205	398	--	--
	August	1307	196,450	39,298	533	1,685	3,093	56	--	112
		1310	3,750	80	--	30	190	--	--	--
	September	1405	40,325	4,615	58	3,663	480	27	--	25
		1409	50,425	4,071	--	307	78	--	--	--
	October	All Grids	650,150	48,560	9,205	6,606	15,746	21,336	--	147
		1304	91,500	--	1,445	110	660	3,730	--	--
	November	1305	191,400	1,080	1,742	603	6,550	6,108	--	--
		1306	22,000	--	--	69	3,800	--	--	--
	December	1404	7,000	--	25	--	60	250	--	--
		1405	27,050	4,040	2	1,145	465	2	--	0
	January	All Grids	338,950	5,120	3,214	1,927	11,535	10,090	--	0
		1305	153,000	--	517	141	4,725	2,845	--	--
	February	1306	13,000	--	--	18	1,670	--	--	--
		1310	8,925	440	--	190	290	--	--	--
	March	All Grids	174,925	440	517	349	6,685	2,845	--	--
		1304	11,000	--	20	6	50	115	--	--
	April	1305	86,400	--	135	55	5,620	500	--	--
		1306	16,000	48	--	35	1,455	--	--	--
	May	1310	8,500	615	--	65	330	--	--	--
		All Grids	121,900	663	155	161	7,455	615	--	--
	June	1305	58,000	16	--	104	5,350	--	--	--
		1306	6,000	23	--	15	705	5	--	--
	July	All Grids	64,000	39	--	119	6,055	5	--	--
		1304	138,000	--	942	--	1,387	10,733	--	0
	August	1305	82,000	--	497	--	6,220	1,073	--	--
		1310	8,000	--	1,342	--	--	--	--	--
	September	All Grids	228,000	--	2,781	--	7,607	11,806	--	0
		1208	35,400	--	26,449	--	48	--	--	--
	October	1304	49,000	--	285	--	490	3,437	--	0
		1305	107,000	--	38,659	--	8,370	1,738	1,285	0
	November	1307	128,610	--	86,081	--	63	--	30	--
		1310	170,000	--	103,419	--	--	--	--	--
	December	All Grids	490,010	--	254,893	--	8,971	5,175	1,315	0
		1208	81,059	12,649	63,747	493	3,797	10	--	3
	January	1305	14,750	5	7,523	45	2,180	--	--	0
		1306	61,000	--	25,363	291	5,015	--	743	--
	February	1307	42,110	347	45,287	36	13	--	2	--
		1310	52,000	--	28,057	--	--	--	--	--
	March	All Grids	250,919	13,001	169,979	865	11,005	10	745	3
		1208	116,459	12,649	90,196	493	3,845	10	--	3
	April	1304	319,000	--	3,322	173	2,757	20,310	--	0
		1305	1,076,000	1,856	59,087	2,398	49,315	35,539	1,285	10
	May	1306	153,000	272	25,677	663	17,850	403	743	--
		1307	474,945	86,133	132,652	3,102	8,692	66	32	340
	June	1309	31,000	13,820	52	317	17	--	--	219
		1310	302,550	21,329	132,838	749	1,086	--	--	76
	July	1404	7,000	--	25	--	60	250	--	--
		1405	67,375	8,655	60	4,808	945	29	--	25
	August	1409	91,200	13,806	--	797	224	--	--	--
		All Grids	2,638,529	158,519	443,910	13,500	84,791	56,607	2,060	673

Table 3. Total reported state-licensed commercial effort (entrapment net lifts) and harvest 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 2022 calendar year. 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	Burbot	
Entrapment Net	May	1209	4	1,501	--	108	--	--	--	
		1306	4	244	424	42	--	--	--	
		1307	4	1,768	--	72	--	--	3	
		1308	6	3,457	--	198	--	--	1	
		1409	6	1,492	22	14	--	--	--	
		1410	10	924	228	39	--	--	--	
		All Grids	34	9,386	674	473	--	--	4	
	June	1209	27	12,235	61	515	--	--	5	
		1210	15	9,088	175	321	--	--	--	
		1211	4	2,732	--	86	--	--	--	
		1306	10	2,444	58	237	1	--	--	
		1307	25	12,306	52	404	21	--	16	
		1308	31	15,456	88	399	5	--	36	
		1309	6	1,981	27	77	--	--	14	
		1310	15	3,545	178	149	--	--	--	
		1409	19	3,179	16	125	--	--	12	
		1410	23	5,707	92	382	--	--	13	
		All Grids	175	68,674	747	2,695	27	--	96	
		July	1209	31	20,412	22	709	--	--	4
			1210	12	4,506	33	462	--	--	2
	1211		33	17,531	53	1,068	4	--	10	
	1306		12	5,437	--	151	19	--	7	
	1307		22	16,179	32	70	42	--	50	
	1308		38	27,367	40	292	33	--	9	
	1309		5	3,347	10	46	3	--	--	
	1310		27	8,294	1	433	3	--	2	
	1409		28	9,378	8	215	--	--	2	
	1410		30	12,884	--	491	--	--	9	
	All Grids		238	125,335	199	3,937	104	--	95	
	August		1209	42	36,093	--	486	38	--	39
			1210	10	3,401	--	406	6	--	5
		1211	33	14,724	--	1,060	11	--	--	
		1306	12	8,340	3	624	80	--	7	
		1307	22	19,754	15	143	72	--	92	
		1308	37	41,840	9	519	141	--	118	
		1309	6	6,516	--	127	8	--	21	
		1310	28	14,260	--	270	5	--	--	
		1409	13	9,405	1	119	7	--	--	
		1410	32	23,827	--	324	--	--	--	
		All Grids	235	178,159	28	4,079	367	--	282	
		September	1209	32	40,251	--	789	56	--	105
			1210	5	4,270	--	263	12	--	16
	1211		38	39,171	--	1,065	26	--	11	
	1306		10	4,092	--	1,006	85	--	8	
	1307		15	6,971	--	249	90	--	34	
	1308		26	20,410	4	1,001	188	--	136	
	1309		5	4,028	--	130	4	--	11	
	1310		20	11,111	--	131	3	--	--	
	1410		23	11,692	--	336	--	--	8	
	All Grids		174	141,996	4	4,970	463	--	329	
	All Months		1209	136	110,492	83	2,607	94	--	153
			1210	42	21,265	208	1,452	18	--	23
			1211	108	74,158	53	3,279	41	--	21
		1306	48	20,557	485	2,060	185	--	22	
		1307	88	56,978	99	938	225	--	195	
		1308	138	108,530	141	2,409	366	--	300	
		1309	22	15,872	37	380	15	--	46	
		1310	90	37,210	179	983	11	--	2	
		1409	66	23,455	47	473	7	--	14	
		1410	118	55,034	320	1,572	--	--	30	
		All Grids	856	523,550	1,652	16,154	962	--	806	