WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Wisconsin's 2022 Open Water Sportfishing Effort And Harvest From Lake Michigan And Green Bay

MAY 2023

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OVERVIEW

The Wisconsin Department of Natural Resources (DNR) documented the sport fishery in Wisconsin waters of Lake Michigan and Green Bay from March 2023 through November 2023. Fishing effort, harvest and harvest rates were determined from 1) a stratified-random creel survey of launched-boat, pier, shore and stream anglers; 2) a randomized mail survey of moored-boat anglers; and 3) mandatory charter-boat reporting. For a detailed description of methods, see Eggold, 1995.

RESULTS

Anglers spent an estimated 2,489,286 hours fishing on Lake Michigan and Green Bay during 2022, with boat-angler effort at 2,063,188 hours or 83% of the total hours. The estimated angler hours for the pier fishery were 86,733 hours, 70,561 angler hours for the shore fishery and 268,804 hours for the stream fishery. Fishing effort during 2022 was within 2% of the ten-year average.

The estimated harvest of 599,252 fish was dominated by yellow perch (156,880), followed by walleye (133,239). The combined walleye and yellow perch harvest was 48% of the total estimated harvest. The boat fishery, comprised of launched-boat, moored-boat and charter-boat anglers, dominated the fishery by harvesting an estimated 538,392 fish or 90% of the total harvest and was again led by yellow perch (144,526), followed by walleye (117,675). Pier anglers harvested 5,731 fish, primarily yellow perch (2,647), followed by Chinook salmon (1,427). Stream anglers harvested 44,462 fish, dominated by walleye (15,413) and followed by Chinook salmon (11,224). Shore anglers harvested 10,598 fish, primarily yellow perch (5,528), followed by coho salmon (1,859) and Chinook salmon (1,439).

Overall harvest rates were highest for yellow perch at 0.0630 fish/hour, followed by walleye (0.0535 fish/hour) and Chinook salmon (0.0483 fish/hour). These three species have had the highest harvest rates for the past four years.

The 2022 Chinook harvest of 120,148 fish was the highest Chinook harvest on record since 2016 and approximately 13% above the ten-year average. The overall harvest rate for salmonids in 2022 was 0.1174, which is slightly above the ten-year average harvest rate of 0.1129.

Coho harvest in 2022 was 104,692 fish, the highest on record since 2017 and approximately 36% higher than the ten-year average. The 2022 rainbow trout harvest of 35,304 fish decreased from 2021 and was approximately 40% below the ten-year average. Brown trout harvest in 2022 was 9,013 fish, 39% below the ten-year average. A total of 23,067 lake trout were harvested in 2022, which was a decrease from 2021. The ten-year average lake trout harvest was 29,027 fish. A total of eight brook trout were harvested in 2022. Brook trout have been stocked in two Lake Michigan tributaries since 2020.

The 2022 harvest of yellow perch in Green Bay was 151,037, a decrease from 2021 but still above the ten-year average harvest. The Lake Michigan yellow perch harvest in 2022 was 5,843 fish, an increase from 2021 and the highest Lake Michigan yellow perch harvest since 2015. Perch harvest in Lake Michigan remains on an overall downward trend observed since 1993.

In 2022, the standard weight of a 30-inch Chinook was 9.6 pounds, which was approximately 5% below the ten-year average. The standard weight of a 23-inch coho was 4.4 pounds, which was approximately 9% above the ten-year average. The standard weight of a 25-inch rainbow trout was 4.6 pounds, which was 10% above the ten-year average. The standard weight of a 27-inch lake trout was 6.3 pounds, an increase from 2021 and approximately 8% above the ten-year average.

REFERENCES

Eggold, B.T. 1995. Wisconsin's 1995 open water sportfishing effort and catch from Lake Michigan and Green Bay. Wisconsin Department of Natural Resources, Plymouth, Wisconsin. 18 pages.

Table 1. Estimated angler effort (hours) by location in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2013 through 2022*. Standard deviations are in italics.

Location	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Kenosha Co.	128,467	129,736	101,058	108,874	90,700	92,655	99,315	91,284	113,635	87,191	104,292
	5,199	5,422	4,990	5,432	3,810	4,185	4,417	4,797	7,514	4,069	5,083
Racine Co.	121,473	122,082	102,948	106,901	95,490	110,575	98,387	78,832	93,231	95,394	102,531
	8,394	7,073	9243	7,928	6,787	11,954	6,374	6,721	5,784	8,166	8,023
Milwaukee Co.	290,544	255,140	267,451	295,517	267,191	233,031	180,123	179,950	217,505	194,492	238,094
	11,332	10,894	10,279	12,743	14,736	13,192	8,028	10,877	8,552	12,092	11,439
Ozaukee Co.	203,861	189,524	172,896	215,153	179,360	167,683	156,411	160,473	175,610	194,123	181,509
	9,749	9,532	8,481	13,880	13,185	10,435	10,337	8,465	9,436	14,724	11,034
Sheboygan Co.	205,563	214,111	216,378	210,632	179,246	163,946	176,289	148,393	175,574	213,660	190,379
	9,122	10,191	11,974	11,803	9,027	9,813	16,500	9,720	10,928	12,679	11,377
Manitowoc Co.	177,336	187,654	168,961	183,440	139,241	141,366	132,408	141,855	157,011	162,635	159,191
	8,230	9,404	8,303	10,233	7,010	8,009	6,735	12,574	9,201	9,750	9,090
Kewaunee Co.	372,305	352,498	367,149	288,935	318,589	327,150	222,088	236,238	255,212	248,542	298,871
	14,837	15,032	15,581	13,131	13,337	13,794	9,598	11,413	11,511	13,922	13,335
E. Door Co.	195,887	172,324	218,354	204,769	193,014	187,941	181,342	127,333	200,707	161,460	184,313
	12,008	8,761	19,796	10839	9,108	10,802	12,741	10,704	11,516	11,385	13,696
Green Bay	1,084,541	990,101	1,127,400	1,016,928	1,087,056	1,032,530	1,115,720	799,727	1,345,874	1,131,789	1,073,167
	45,814	46,164	36,334	35,232	40,209	34,218	38,818	30,260	43,556	41,711	39,546
Total Effort	2,779,977	2,613,170	2,742,595	2,631,149	2,549,887	2,456,877	2,362,083	1,964,085	2,734,359	2,489,286	2,532,347
	54,178	53,991	49,548	47,145	49,597	45,624	48,065	40,880	51,171	52,586	49,431

^{*}Note: Sport fishing estimates for 2020 are for May – December only.

Table 2. Estimated harvest and total harvest rate (number per hour, all anglers combined) of salmonids in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2013 through 2022*. Standard deviations are in italics.

Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Coho Salmon	88,933	52,297	41,067	125,748	119,788	85,459	32,197	40,349	80,009	104,692	77,054
	3,922	6,577	4,339	5,572	7,135	5,176	2,003	2,585	4,716	6,842	4,784
Chinook Salmon	144,807	130,231	114,528	138,110	84,163	84,228	63,043	80,890	100,323	120,148	106,047
	4,330	3,562	3,549	4,725	3,132	3,262	4,012	3,782	3,552	4,701	4,603
Rainbow Trout	58,429	72,724	59,127	77,004	66,599	57,141	50,258	54,430	58,597	35,304	58,961
	1,978	2,259	1,714	2,962	2,661	2,011	3,105	1,996	2,814	1,644	2,452
Brown Trout	17,052	23,511	20,335	23,885	20,404	12,625	8,013	3,317	9,178	9,013	14,733
	1,273	1,813	1,894	2,632	1,715	1,116	969	519	1,742	1,276	1,642
Brook Trout	0	0	0	0	0	0	0	0	0	8	1
	0	0	0	0	0	0	0	0	0	0	0
Lake Trout	27,246	25,424	35,778	19,046	20,345	26,747	34,197	38,271	40,145	23,067	29,027
	1,003	1,098	1,482	865	1,115	1,236	2,438	1,645	1,859	1,216	1,470
Total Harvest	336,467	304,187	270,835	383,793	311,299	266,200	187,708	217,257	288,252	292,232	285,823
	6,406	8,104	6,285	8,356	8,484	6,652	6,052	5,286	7,019	8,644	7,411
Harvest Rate	0.121	0.1164	0.0988	0.1459	0.1221	0.1083	0.0795	0.1106	0.1054	0.1174	0.1129

^{*}Note: Sport fishing estimates for 2020 are for May – December only.

Table 3. Estimated harvest and total harvest rate (number per hour, all anglers combined) of yellow perch in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2013 through 2022*. Standard deviations are in italics.

Location	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Green Bay	221,158	117,012	98,263	76,281	117,412	115,896	84,200	253,278	258,025	151,037	149,051
	18,974	12,283	10,029	9,289	12,404	11,044	15,389	21,751	19,871	13,538	15,794
Harvest-Rate	0.2039	0.1182	0.0872	0.075	0.108	0.1122	0.0755	0.3167	0.1917	0.1334	0.1481
Lake Michigan	8,796	9,277	5,257	2,089	2,481	4,026	3,600	2,013	3,676	5,843	5,033
	1,221	1,108	1,000	586	537	787	882	674	1,232	2,336	1,123
Harvest-Rate	0.0052	0.0057	0.0033	0.0013	0.0017	0.0028	0.0029	0.0017	0.0026	0.0043	0.0032
Total Harvest	229,954	126,289	103,520	78,370	119,893	119,922	87,800	255,291	261,701	156,880	178,704
	19,013	12,333	10,079	9,307	12,416	11,072	15,414	21,761	19,909	13,738	15,082
Harvest Rate	0.0827	0.0483	0.0377	0.0298	0.047	0.0488	0.0372	0.13	0.0957	0.0630	0.0620

Note: Table 3 reflects that some Door County sites represent Green Bay for yellow perch harvest statistics.

^{*}Note: Sport Fishing estimates for 2020 are for May – December only.

Table 4. Estimated harvest rate (harvest per hour), harvest and effort for all survey areas and **ALL FISHERY TYPES** for Wisconsin waters of Lake Michigan and Green Bay during 2022. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0421	744 194	32,631 5,769	38,840 3,083	17,378 1,668	6,608 ₅₈₀	8,491 928	0	104,692 6,842
Chinook Salmon	0.0483	0	1,001 276	5,864 589	48,920 3,003	35 , 337 2,686	29,025 2,334	1	120,148 4,701
Rainbow Trout	0.0142	3,366	832	3,343	13,209	7,470	7,084	0	35,304
Brown Trout	0.0036	529 4,806 1,231	228 503 156	330 288 143	907 794 192	1,008 564 96	652 2,058 147	0 0 0	1,644 9,013 1,276
Brook Trout	0.0000	0	8	0	0	0 0	0	0	8
Lake Trout	0.0093	25 5	763 ₁₄₆	4,015 359	9,736 793	5,097 739	3,416 392	15 0	23,067 1,216
Northern Pike	0.0022	1,512	904	397	549	400	1,738	0	5,500
White Perch	0.0015	833 0 0	296 39 39	280 3 ,227 1,750	280 40 40	160 41 39	912 446 412	0 0 0	1,340 3,793 1,799
Smallmouth Bass	0.0031	0	247 107	3,250 808	1,542 1,009	2,255 849	314 156	0	7,608 1,558
Yellow Perch	0.0630	251 240	5,268 1,976	17,917 3,282	26,583 4,150	39 , 432 9,041	65,824 8,579	1,605 1,184	156,880 13,737
Walleye	0.0535	16,300 5,003	39,234 7,620	13,167 2,507	20,876 4,665	26 , 837 4,434	15,640 3,571	1,185 827	133,239 12,010
Total Harvest	0.2407	27,004	81,430	90,308	139,627	124,041	134,036	2,806	599,252
Angler Hours		5,255 2 79,159 19,743	9,774 270,058 18,215	5,564 402,763 17,620	7,306 647,514 31,778	10,548 412,191 20,681	9,710 465,380 16,972	1,444 12,221 2,765	20,375 2,489,286 52,586

Table 5. Estimated harvest rate (harvest per hour), harvest and effort for the **BOAT FISHERY** with all surveys combined for Wisconsin waters of Lake Michigan and Green Bay during 2022. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0482	282	32,367	38,840	17,288	6,504	4,204	0	99,485
Chinook Salmon	0.0514	26 0 0	5,769 929 271	3,083 5,864 589	1,667 48,621 3,001	578 34,650 2,680	733 15,993 1,981	0 1 0	6,814 106,058 4,532
Rainbow Trout	0.0135	48 28	779 228	3,315 329	13,139 906	7,461 1,008	3,174 560	0	27,916 1,520
Brown Trout	0.0020	2,053 441	386 ₁₄₀	272 ₁₄₂	722 186	448 80	311 113	0	4,192 537
Brook Trout	0.0000	0	0 0	0	0	0	0	0	0
Lake Trout	0.0111	25 5	759 146	3,970 358	9,696 792	5,097 739	3,393 ³⁹¹	15 0	22,955 1,215
Northern Pike	0.0025	1,369 832	843 293	397 280	549 280	329 ₁₅₄	1,584 911	0	5,071 1,337
White Perch	0.0018	0	39 39	3,227 1,750	40 40	0	426 411	0	3,732 _{1,798}
Smallmouth Bass	0.0033	0	169 107	3,022 800	1,407 1,006	1,998 841	186 138	0	6,782 1,546
Yellow Perch	0.0700	240 ₂₄₀	4,860 1,970	16,108 3,196	25,642 4,131	38 , 470 9,031	57,801 8,473	1,405 1,173	144,526 13,636
Walleye	0.0570	2,545 791	39,035 7,619	13,167 2,507	20,876 4,665	26,768 _{4,433}	15,284 3,567	0	117,675 10,913
Total Harvest	0.2610	6,562 1,254	80,166 9,771	88,182 <i>5,513</i>	137,980 7,293	121,725 10,537	102,356 9,512	1,421 1,173	538,392 19,583
Angler Hours		155 , 023 15,401	246,506 18,043	373 , 554 17,409	616,213 31,680	377 , 548 20,431	287,060 14,988	7,284 2,695	2,063,188 50,187

Table 6. Estimated harvest rate (harvest per hour), harvest and effort for the **PIER FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2022. Standard deviations are in Italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0065	80 52	185 74	0 0	90 52	104 50	106 50	0	565 126
Chinook Salmon	0.0165	0	72 48	0	299 108	680 178	376 100	0	1,427 ²³⁶
Rainbow Trout	0.0009	0	0	0	70 47	9	0	0	79 48
Brown Trout	0.0030	0	74 65	16 17	21 17	116 53	37 21	0	264 90
Brook Trout	0.0000	0	0	0	0	0	0	0	0
Lake Trout	0.0010	0	4	17 12	40 40	0	23 20	0	84 46
Northern Pike	0.0012	59 0	0 0	0	0	7 6	40 24	0	106 25
White Perch	0.0002	0	0 0	0	0	0	20 19	0	20 19
Smallmouth Bass	0.0053	0	0 0	118 89	17 17	216 109	106 70	0	457 158
Yellow Perch	0.0305	0	174 111	364 187	576 333	501 315	1,032 667	0	2,647 838
Walleye	0.0009	20 12	62 63	0	0	0	0	0	82 84
Total Harvest	0.0661	159 53	571 168	515 208	1,113 360	1,633	1,740	0	5,731
Angler Hours		2,471 528	6,421 1,059	7,336 785	17,621 1,853	22,930 2,917	29,954 3,029	0	86,733 4,810

Table 7. Estimated harvest rate (harvest per hour), harvest and effort for the **SHORE FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2022. Standard deviations are in Italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0263	382 185	79 44	0	0	0	1,398 344	0 0	1,859 393
Chinook Salmon	0.0204	0	0	0 0	0	7 8	1,432 339	0	1,439 339
Rainbow Trout	0.0042	186 65	5 5	28 19	0	0	78 43	0	297 81
Brown Trout	0.0145	888 560	43 27	0	51 43	0	42 24	0 0	1,024 563
Brook Trout	0.0000	0	0	0	0	0	0	0	0
Lake Trout	0.0004	0	0	28 19	0	0	0	0 0	28 19
Northern Pike	0.0036	60 46	61 39	0	0	64 43	70 37	0 0	255 83
White Perch	0.0000	0	0	0	0	0	0	0	0
Smallmouth Bass	0.0024	0	0	110 66	36 34	0	22 21	0	168 77
Yellow Perch	0.0783	11 11	10 10	1,445 724	333 215	73 38	3,656 12	0	5,528 756
Walleye	0.0010	0	0	0	0	69 65	65 0	0	69 65
Total Harvest	0.1502	1,527 595	198	1,611	420 222	213	6,763 487	0	10,598 1,087
Angler Hours		13 ,22 5 2,174	4,922 675	7,953 979	7,818 1,292	5,910 787	30,733 2,934	0	70,561 4,128

Table 8. Estimated harvest rate (harvest per hour), harvest, and effort for the **STREAM FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2022. Standard deviations are in Italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0102	0	0	0	0	0	2,783 ₄₅₁	0	2,783 ₄₅₁
Chinook Salmon	0.0413	0	0	0	0	0	11,224 1,181	0	11,224 1,181
Rainbow Trout	0.0258	3,132 525	48 12	0	0	0	3,832 ³³¹	0	7,012 ₆₂₁
Brown Trout	0.0130	1,865 1,003	0	0	0	0	1,668	0	3,533 1,007
Brook Trout	0.0000	0	8	0	0	0	0	0	8
Lake Trout	0.0000	0	0	0	0	0	0	0	0
Northern Pike	0.0003	24 24	0	0	0	0	44 28	0	68 37
White Perch	0.0002	0	0	0	0	41 39	0	0	41 39
Smallmouth Bass	0.0007	0	78 0	0	82 70	41 42	0	0	201 81
Yellow Perch	0.0154	0	224 112	0	32 29	388 296	3,335 1,169	200 164	4,179 1,222
Walleye	0.0567	13,735 4,940	137 76	0	0	0	356 171	1,185 827	15,413 5,012
Total Harvest	0.1635	18,756 5,068	495	0	114 <i>76</i>	470 301	23,242 1,764	1,385 843	44,462 5,442
Angler Hours		131,485	19,933	8,631	6,004	7,189	96,347	2,401	271,990
		14,421	1,924	1,374	1,068	1,289	5,407	492	15,679

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 2012 through 2022, all areas and fishery types combined. std = standard deviation.

creet survey during		, all aleas allu	lisilely types collibi	11 0 0. 310 - 31a11	uaru uevialioii.
	Average	± 1	Average	± 1	Standard
Year	Weight	Std	Length (in.)	Std	Weight (lbs.)
	(lbs.)	Stu	Length (III.)	Stu	Weight (tbs.)
Coho Salmon					
2012	3.4466	1.4930	20.6385	2.8135	3.8802
2013	5.3848	2.6743	23.6931	3.4848	4.0654
2014	3.9803	1.9275	21.2898	3.0179	3.9316
2015	4.0000	1.8299	21.4375	3.3676	3.8470
2016	4.7300	1.9033	23.3117	2.6028	3.9260
2017	4.0892	2.1177	22.4113	2.6747	3.6520
2018	4.7184	2.5656	22.0095	3.8256	4.2930
2019	6.5305	2.8447	23.3983	3.3888	4.4539
2021	3.6335	1.6999	20.8590	2.3806	4.2560
2022	6.4098	3.0389	24.8315	3.7971	4.4371
Chinook Salmon					
2012	10.2651	4.0305	30.0844	4.6550	8.8881
2013	10.4966	7.0121	28.1742	6.7792	10.2408
2014	11.3915	5.0015	30.0012	4.8944	10.2321
2015	10.4108	4.5165	29.7477	5.4302	9.1940
2016	10.3154	6.0139	28.1910	5.9369	10.3142
2017	11.8211	6.0754	29.6128	5.8775	10.4097
2018	13.1493	7.0864	30.6361	6.6760	10.0109
2019	13.0167	8.0081	29.9058	6.2441	10.9404
2021	11.5833	7.3158	28.7720	6.9710	10.6334
2022	11.9323	6.2615	29.4304	6.5854	9.5772
Rainbow Trout	11.7525	0.2013	27.1301	0.3031	7.5772
2012	6.3634	2.4765	26.1214	3.7593	4.2812
2013	6.4838	2.6676	25.5596	3.7736	4.0376
2014	6.7767	2.8838	25.9776	3.8120	4.1739
2015	5.7588	2.4129	25.2419	4.4224	3.9037
2016	5.8938	2.5324	24.7988	3.8542	4.2855
2017	6.5706	2.7022	25.8441	4.0113	4.0464
2017	6.4566	2.7022	25.6198	4.1660	3.7403
2019	7.8170	4.6551	25.1044	4.2576	4.3547
2021					
2022	6.8752 6.6421	3.3082 2.8727	25.3329 24.8947	3.8655 3.7643	4.4091 4.5692
Brown Trout	0.0421	2.0/2/	24.0947	3.7043	4.3092
2012	4.7658	2.7347	20.7304	3.7789	4.0676
2013	5.8537	3.0350	22.0303	3.6793	3.9190
2014	5.8459		21.2050	4.6428	4.2392
		3.3608			
2015 2016	5.1532 5.3826	3.1955 4.0422	20.9572 20.7914	4.3664 5.2190	3.8568 3.9606
					3.9659
2017	5.7685	3.2424	21.9807	3.9553	
2018	6.1024	3.8362 5.2367	22.9790	4.4280 3.9499	3.4505
2019	10.7946		25.5988 23.2017		5.4836
2021	7.3147	4.6425		5.2133	3.9345
2022	5.2743	4.0971	22.0500	4.8082	3.2207
Lake Trout	6 7045	2 6440	26 47/0	/ 4700	F 227/
2012	6.7815	3.6110	26.1740	4.1798	5.3274
2013	5.8791	2.7630	25.0904	3.1524	5.3559
2014	6.3332	3.4466	24.7813	4.0396	5.8595
2015	7.4777	3.7718	26.8174	4.1894	5.6124
2016	6.6598	3.4108	25.7354	3.8402	5.8303
2017	6.7796	3.3955	25.8882	3.9219	5.6707
2018	8.4836	4.4129	27.2497	4.0781	6.0765
2019	10.1448	5.9126	27.3294	4.4485	6.3484
2021	7.4925	5.9333	25.1929	4.7050	5.8878
2022	7.8774	4.3128	25.8641	4.2673	6.2779

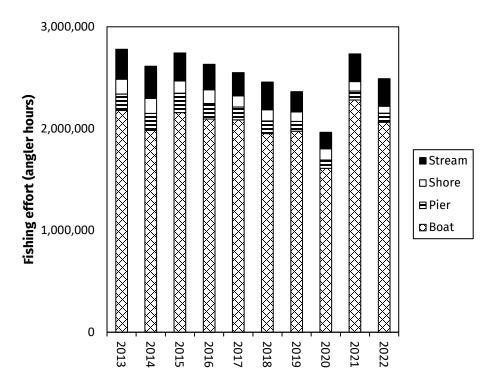


Figure 1. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay from 2013 through 2022. *Note: Sport Fishing estimates for 2020 are for May – December only.

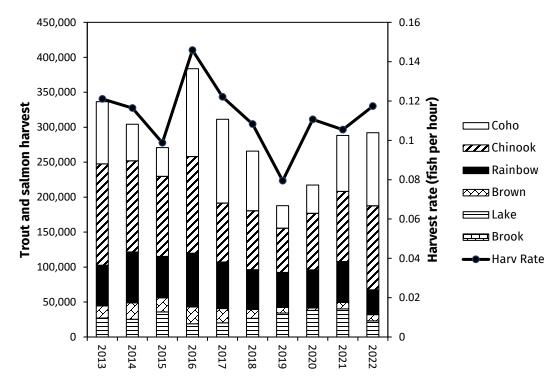


Figure 2. Trout and salmon harvest and harvest rate from Wisconsin waters of Lake Michigan and Green Bay from 2013 through 2022. *Note: Sport fishing estimates for 2020 are for May – December only.

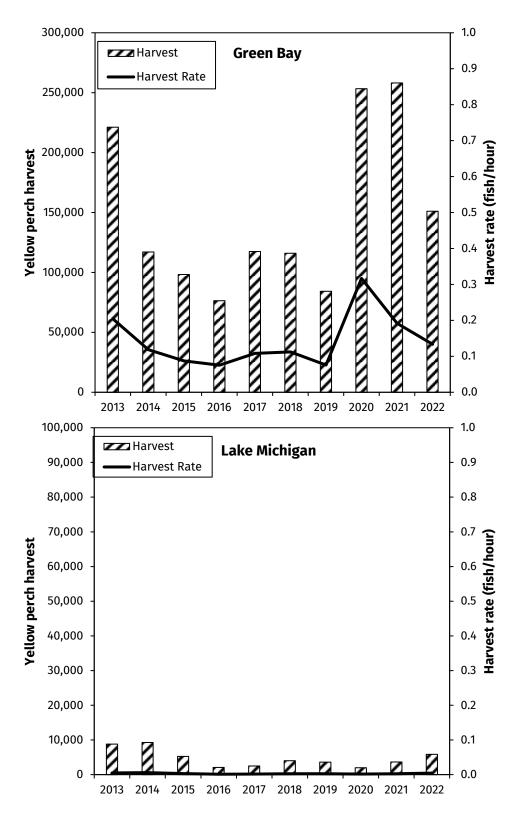


Figure 3. Yellow perch angler-harvest and harvest rate from Wisconsin waters of Green Bay and Lake Michigan from 2013 through 2022. Note: Figure 3 reflects that some Door County sites represent Green Bay for yellow perch harvest statistics. *Note: Sport fishing estimates for 2020 are for May – December only.