

Wisconsin's 2013 open water sportfishing effort and harvest from Lake Michigan and Green Bay

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Abstract - The sport fishery in Wisconsin waters of Lake Michigan and Green Bay was documented from March 1, 2013 through December 31, 2013. 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.

Anglers spent an estimated 2,779,161 hours fishing on Lake Michigan and Green Bay during 2013 with boat-angler effort at 2,175,134 hours, or 78% of the total hours. Fishing effort during 2013 was 2% above the ten-year average and was the highest since 2010.

The estimated harvest of 661,638 fish was dominated by yellow perch (224,252), followed by Chinook salmon (145,301), walleye (91,524) and coho salmon (89,061). The boat fishery, comprised of launched-boat, moored-boat and charter-boat anglers, dominated the fishery by harvesting an estimated 590,700 fish, which was 89% of the total harvest and was led by yellow perch (205,182), Chinook salmon (124,478), walleye (82,714) and coho salmon (82,597). Pier, shore and stream anglers harvested primarily Chinook salmon and yellow perch, followed by walleye and rainbow trout. Overall harvest-rates were highest for yellow perch at 0.0807 fish/hour and Chinook salmon at 0.0523 fish/hour.

The 2013 Chinook harvest of 145,301 was the lowest since 2000, when 136,379 Chinooks were harvested. The harvest in 2013 was also 53% below the ten-year average for Chinook. Overall, Chinook fishing in the past 10 years has been among the best Lake Michigan anglers have ever seen. The top three harvest years were in 2005, 2006, and 2007, and six of the top ten harvests have occurred since 2003. Chinook stocking numbers were reduced lake-wide by about half in 2013 in order to better balance the number of predators with available prey and to account for a significant amount of natural reproduction of Chinooks. The recent reduction may not impact the fishery until 2015, as those fish will only be "shaker" size in 2014. Chinook size, harvest, and forage fish biomass will be monitored closely over the next several years in order to appropriately adjust Chinook stocking levels in the future.

Coho harvest in 2013 was 89,061, which was 24% above the ten-year average coho

harvest. The 2013 rainbow trout harvest of 58,311 was 10% above the ten-year average. Brown trout harvest in 2013 was 17,094, which was 17% below the ten-year average. A total of 27,240 lake trout were harvested in 2013, which was 53% above the ten-year lake trout average. The 2013 harvest-rate for all salmonids combined was 0.1213 fish/hour.

The 2013 harvest of yellow perch in Green Bay was 215,422, which was 24% below the ten-year average but was 45% above the 2012 harvest of 148,980. The Lake Michigan yellow perch harvest in 2013 was 8,830; the lowest on record and 76% below the ten-year average. Perch harvest in Lake Michigan has been on a downward trend since 1993. The sport catch is becoming less focused on the 2005 year-class, and is now mainly comprised of the 2010 and 2008 year-classes. Age was assigned using the anal spines of 127 Lake Michigan angler-caught yellow perch during 2013. The 2010 year-class represented 55% of the total, and the 2008 year-class represented 17%. The 2005 year-class also made up an additional 8% of the sport harvest, and the 2011 and 2012 year-classes each contributed 5% to the fishery.

Despite low numbers of Chinooks harvested, they were larger in 2013. The standard weight of a 30 inch Chinook was 10.24 pounds, which was 8% above the ten-year average. The standard weight for a 22 inch coho was 4.07 pounds, which was 3% above the ten-year average. The standard weight for a 22 inch rainbow was 4.04 pounds and for a 25 inch lake trout was 5.36 pounds, which were 3% and 4% below their ten-year averages, respectively. The standard weight for a 20 inch brown was 3.92 pounds, which is within 1% of 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. 19 pages.



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Table 1. Estimated angler effort (hours) by location in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2004 through 2013. Standard deviations are in *Italics*.

Location	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Kenosha Co.	178,733 <i>6,785</i>	149,044 <i>6,744</i>	160,145 <i>7,114</i>	169,253 <i>7,378</i>	123,931 <i>5,748</i>	141,626 <i>8,197</i>	146,762 <i>8,287</i>	116,032 <i>5,801</i>	135,980 <i>2,851</i>	128,865 <i>5,255</i>	145,037 <i>6,594</i>
Racine Co.	166,653 <i>9,197</i>	157,571 <i>8,415</i>	148,919 <i>9,293</i>	154,228 <i>8,678</i>	120,828 <i>5,968</i>	175,220 <i>9,991</i>	161,959 <i>9,422</i>	151,135 <i>7,225</i>	131,342 <i>10,091</i>	122,651 <i>8,484</i>	149,051 <i>8,759</i>
Milwaukee Co.	323,797 <i>10,194</i>	277,583 <i>13,694</i>	289,698 <i>11,476</i>	355,727 <i>13,893</i>	244,716 <i>9,890</i>	302,368 <i>13,669</i>	340,503 <i>14,174</i>	276,843 <i>15,204</i>	324,011 <i>14,704</i>	290,866 <i>11,427</i>	302,611 <i>12,960</i>
Ozaukee Co.	199,405 <i>10,273</i>	219,929 <i>11,199</i>	190,431 <i>10,156</i>	221,062 <i>10,577</i>	178,438 <i>8,175</i>	209,223 <i>11,968</i>	215,809 <i>10,210</i>	256,961 <i>19,364</i>	208,450 <i>12,203</i>	203,739 <i>9,651</i>	210,345 <i>11,736</i>
Sheboygan Co.	183,880 <i>10,713</i>	224,373 <i>13,536</i>	236,400 <i>12,525</i>	269,932 <i>15,383</i>	214,928 <i>10,367</i>	222,741 <i>11,542</i>	238,132 <i>12,909</i>	199,350 <i>9,537</i>	225,384 <i>11,503</i>	206,006 <i>9,124</i>	222,113 <i>11,846</i>
Manitowoc Co.	244,227 <i>13,142</i>	246,770 <i>12,523</i>	208,400 <i>12,619</i>	233,155 <i>13,626</i>	162,851 <i>9,415</i>	198,420 <i>10,255</i>	206,362 <i>9,591</i>	179,525 <i>8,336</i>	212,739 <i>10,796</i>	178,186 <i>8,370</i>	207,064 <i>11,029</i>
Kewaunee Co.	428,023 <i>18,769</i>	463,532 <i>22,719</i>	401,030 <i>17,521</i>	480,792 <i>21,041</i>	409,096 <i>16,508</i>	405,917 <i>17,954</i>	382,614 <i>22,200</i>	323,860 <i>12,740</i>	311,407 <i>7,780</i>	373,777 <i>14,969</i>	398,005 <i>17,756</i>
E. Door Co.	222,330 <i>11,613</i>	233,079 <i>15,585</i>	260,107 <i>12,469</i>	246,522 <i>11,672</i>	167,331 <i>13,149</i>	184,720 <i>9,653</i>	213,147 <i>14,552</i>	151,136 <i>7,001</i>	204,549 <i>23,159</i>	197,007 <i>12,272</i>	207,993 <i>13,163</i>
Green Bay	671,652 <i>25,288</i>	819,005 <i>42,854</i>	880,607 <i>33,282</i>	930,708 <i>33,729</i>	874,362 <i>35,185</i>	1,017,143 <i>38,890</i>	936,050 <i>42,151</i>	886,143 <i>40,835</i>	771,724 <i>26,553</i>	1,078,064 <i>46,108</i>	886,546 <i>37,077</i>
Total Effort	2,618,700 <i>41,882</i>	2,790,886 <i>58,007</i>	2,775,737 <i>47,519</i>	3,061,379 <i>50,730</i>	2,496,481 <i>45,967</i>	2,857,378 <i>51,588</i>	2,841,338 <i>56,591</i>	2,540,985 <i>52,261</i>	2,525,586 <i>45,010</i>	2,779,161 <i>54,564</i>	2,728,763 <i>50,657</i>

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 2004 through 2013. Standard deviations are in Italics.

Species	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Coho Salmon	76,944 <i>2,792</i>	59,244 <i>2,690</i>	56,136 <i>2,693</i>	94,677 <i>3,776</i>	25,453 <i>1,222</i>	42,690 <i>1,989</i>	42,445 <i>2,039</i>	157,367 <i>11,432</i>	73,395 <i>3,114</i>	89,061 <i>3,927</i>	71,741 <i>4,494</i>
Chinook Salmon	360,991 <i>8,260</i>	418,918 <i>10,781</i>	398,905 <i>8,658</i>	431,143 <i>10,425</i>	256,796 <i>6,658</i>	214,621 <i>5,645</i>	315,294 <i>8,164</i>	169,752 <i>4,083</i>	390,385 <i>9,058</i>	145,301 <i>4,363</i>	310,211 <i>7,929</i>
Rainbow Trout	25,529 <i>1,194</i>	48,490 <i>3,539</i>	48,420 <i>1,700</i>	62,249 <i>2,212</i>	41,552 <i>1,635</i>	46,529 <i>2,063</i>	49,121 <i>2,023</i>	75,442 <i>2,588</i>	75,981 <i>2,592</i>	58,311 <i>1,969</i>	53,162 <i>2,237</i>
Brown Trout	20,918 <i>1,457</i>	27,489 <i>6,235</i>	17,769 <i>1,102</i>	37,947 <i>2,580</i>	23,763 <i>2,146</i>	15,792 <i>958</i>	13,029 <i>1,114</i>	9,936 <i>846</i>	21,337 <i>1,768</i>	17,094 <i>1,303</i>	20,507 <i>2,473</i>
Brook Trout	1 <i>0</i>	18 <i>12</i>	17 <i>8</i>	62 <i>24</i>	13 <i>14</i>	27 <i>0</i>	0 <i>0</i>	26 <i>0</i>	18 <i>0</i>	0 <i>0</i>	18 <i>10</i>
Lake Trout	14,209 <i>709</i>	14,139 <i>737</i>	10,638 <i>533</i>	19,281 <i>893</i>	12,763 <i>554</i>	14,946 <i>803</i>	17,483 <i>775</i>	17,788 <i>1,236</i>	29,094 <i>1,261</i>	27,240 <i>1,005</i>	17,758 <i>884</i>
Total Harvest	498,592 <i>8,948</i>	568,298 <i>13,244</i>	531,885 <i>9,306</i>	645,359 <i>11,631</i>	360,340 <i>7,308</i>	334,605 <i>6,453</i>	437,372 <i>8,760</i>	430,311 <i>12,502</i>	590,210 <i>10,158</i>	337,007 <i>6,406</i>	473,398 <i>9,745</i>
Harvest-Rate	0.1904	0.2036	0.1916	0.2108	0.1443	0.1171	0.1539	0.1693	0.2337	0.1213	0.1736

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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 2004 through 2013. Standard deviations are in Italics.

Location	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Green Bay	66,343 <i>6,261</i>	274,956 <i>19,231</i>	757,698 <i>55,220</i>	501,646 <i>36,032</i>	196,852 <i>15,560</i>	204,209 <i>19,361</i>	225,995 <i>21,042</i>	254,942 <i>24,973</i>	148,980 <i>13,685</i>	215,422 <i>18,974</i>	284,704 <i>26,434</i>
Harvest-Rate	0.0988	0.3357	0.8604	0.5390	0.2251	0.2008	0.2414	0.2877	0.1930	0.1998	0.3182
Lake Michigan	41,950 <i>5,105</i>	32,848 <i>8,472</i>	67,660 <i>9,285</i>	66,240 <i>5,327</i>	20,648 <i>2,562</i>	50,744 <i>5,122</i>	51,265 <i>4,787</i>	16,982 <i>2,296</i>	9,115 <i>1,071</i>	8,830 <i>1,221</i>	36,628 <i>5,254</i>
Harvest-Rate	0.0215	0.0167	0.0357	0.0311	0.0127	0.0276	0.0269	0.0103	0.0052	0.0052	0.0193
Total Harvest	108,293 <i>8,078</i>	307,804 <i>21,015</i>	825,358 <i>55,995</i>	567,886 <i>36,424</i>	217,500 <i>15,769</i>	254,953 <i>20,027</i>	277,260 <i>21,579</i>	271,924 <i>25,078</i>	158,095 <i>13,727</i>	224,252 <i>19,013</i>	321,333 <i>26,951</i>
Harvest-Rate	0.0414	0.1103	0.2973	0.1855	0.0871	0.0892	0.0976	0.1070	0.0626	0.0807	0.1159

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

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 2013. Standard deviations are in *Italics*.

Species	Harvest per Hour	Jan/Feb Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0320	22 <i>15</i>	25,913 <i>3,067</i>	30,197 <i>2,007</i>	13,058 <i>961</i>	9,870 <i>575</i>	10,001 <i>855</i>	0 <i>0</i>	89,061 <i>3,927</i>
Chinook Salmon	0.0523	0 <i>0</i>	3,994 <i>821</i>	15,267 <i>1,279</i>	41,161 <i>1,698</i>	47,637 <i>2,705</i>	37,240 <i>2,553</i>	2 <i>0</i>	145,301 <i>4,363</i>
Rainbow Trout	0.0210	4,714 <i>573</i>	1,495 <i>158</i>	8,017 <i>480</i>	14,007 <i>773</i>	21,571 <i>1,122</i>	8,507 <i>1,198</i>	0 <i>0</i>	58,311 <i>1,969</i>
Brown Trout	0.0062	3,616 <i>822</i>	1,114 <i>221</i>	1,240 <i>312</i>	2,522 <i>463</i>	2,551 <i>423</i>	5,988 <i>694</i>	63 <i>0</i>	17,094 <i>1,303</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0098	170 <i>45</i>	1,180 <i>274</i>	5,203 <i>374</i>	7,786 <i>477</i>	9,617 <i>638</i>	3,284 <i>397</i>	0 <i>0</i>	27,240 <i>1,005</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0005	410 <i>200</i>	411 <i>174</i>	38 <i>27</i>	0 <i>0</i>	220 <i>176</i>	384 <i>132</i>	0 <i>0</i>	1,463 <i>346</i>
White Perch	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	7 <i>7</i>	179 <i>179</i>	0 <i>0</i>	0 <i>0</i>	186 <i>179</i>
Smallmouth Bass	0.0026	0 <i>0</i>	1,464 <i>731</i>	1,786 <i>549</i>	1,510 <i>472</i>	1,786 <i>492</i>	660 <i>287</i>	0 <i>0</i>	7,206 <i>1,176</i>
Yellow Perch	0.0807	0 <i>0</i>	538 <i>470</i>	7,330 <i>1,539</i>	45,657 <i>6,574</i>	114,320 <i>15,134</i>	56,407 <i>9,308</i>	0 <i>0</i>	224,252 <i>19,013</i>
Walleye	0.0329	8,522 <i>2,478</i>	41,087 <i>7,099</i>	19,215 <i>3,310</i>	8,593 <i>2,397</i>	9,830 <i>2,324</i>	4,277 <i>1,259</i>	0 <i>0</i>	91,524 <i>8,957</i>
Total Harvest	0.2381	17,454 <i>2,681</i>	77,196 <i>7,837</i>	126,344 <i>4,445</i>	134,301 <i>7,351</i>	217,581 <i>15,628</i>	126,748 <i>9,882</i>	65 <i>0</i>	661,638 <i>22,007</i>
Angler Hours		225,794 <i>27,076</i>	321,222 <i>26,768</i>	422,689 <i>15,592</i>	623,836 <i>22,114</i>	628,687 <i>21,469</i>	556,821 <i>18,291</i>	112 <i>0</i>	2,779,161 <i>54,564</i>

Table 5. Estimated harvest-rate (harvest per hour), harvest and effort for the **BOAT FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2013. Standard deviations are in *Italics*.

Species	Harvest per hour	Jan/Feb Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0380	12 <i>11</i>	24,812 <i>3,056</i>	30,032 <i>2,006</i>	13,055 <i>961</i>	9,831 <i>574</i>	4,855 <i>567</i>	0 <i>0</i>	82,597 <i>3,865</i>
Chinook Salmon	0.0572	0 <i>0</i>	3,931 <i>820</i>	15,267 <i>1,279</i>	41,118 <i>1,698</i>	46,908 <i>2,701</i>	17,252 <i>1,737</i>	2 <i>0</i>	124,478 <i>3,938</i>
Rainbow Trout	0.0235	102 <i>43</i>	822 <i>147</i>	8,017 <i>480</i>	13,995 <i>773</i>	21,440 <i>1,120</i>	6,838 <i>927</i>	0 <i>0</i>	51,214 <i>1,722</i>
Brown Trout	0.0047	1,720 <i>299</i>	985 <i>217</i>	840 <i>284</i>	1,771 <i>426</i>	2,022 <i>386</i>	2,763 <i>541</i>	63 <i>0</i>	10,164 <i>916</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0124	157 <i>44</i>	1,180 <i>274</i>	5,203 <i>374</i>	7,786 <i>477</i>	9,617 <i>638</i>	3,110 <i>383</i>	0 <i>0</i>	27,053 <i>999</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0005	255 <i>123</i>	408 <i>174</i>	38 <i>27</i>	0 <i>0</i>	220 <i>176</i>	266 <i>121</i>	0 <i>0</i>	1,187 <i>303</i>
White Perch	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	179 <i>179</i>	0 <i>0</i>	0 <i>0</i>	179 <i>179</i>
Smallmouth Bass	0.0028	0 <i>0</i>	1,380 <i>727</i>	1,589 <i>532</i>	1,227 <i>459</i>	1,462 <i>464</i>	339 <i>215</i>	0 <i>0</i>	5,997 <i>1,133</i>
Yellow Perch	0.0943	0 <i>0</i>	538 <i>470</i>	6,138 <i>1,501</i>	43,765 <i>6,555</i>	113,463 <i>15,127</i>	41,278 <i>8,103</i>	0 <i>0</i>	205,182 <i>18,437</i>
Walleye	0.0380	1,075 <i>698</i>	40,045 <i>7,082</i>	18,894 <i>3,300</i>	8,593 <i>2,397</i>	9,830 <i>2,324</i>	4,277 <i>1,259</i>	0 <i>0</i>	82,714 <i>8,618</i>
Total Harvest	0.2716	3,321 <i>772</i>	74,101 <i>7,816</i>	86,018 <i>4,420</i>	131,310 <i>7,331</i>	214,972 <i>15,619</i>	80,978 <i>8,482</i>	65 <i>0</i>	590,700 <i>21,233</i>
Angler Hours		113,388 <i>24,727</i>	277,933 <i>26,387</i>	374,974 <i>15,225</i>	566,808 <i>21,703</i>	563,751 <i>21,064</i>	278,168 <i>15,134</i>	112 <i>0</i>	2,175,134 <i>51,800</i>

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 2013. Standard deviations are in *italics*.

Species	Harvest per hour	Mar/Apr	May	June	July	August	Sept/Oct	Season
Coho Salmon	0.0097	0 <i>0</i>	1,070 <i>266</i>	111 <i>36</i>	3 <i>3</i>	39 <i>31</i>	350 <i>100</i>	1,573 <i>288</i>
Chinook Salmon	0.0111	0 <i>0</i>	63 <i>43</i>	0 <i>0</i>	43 <i>24</i>	542 <i>136</i>	1,142 <i>242</i>	1,790 <i>282</i>
Rainbow Trout	0.0027	93 <i>56</i>	36 <i>31</i>	0 <i>0</i>	0 <i>0</i>	125 <i>70</i>	190 <i>90</i>	444 <i>131</i>
Brown Trout	0.0133	215 <i>73</i>	34 <i>22</i>	205 <i>104</i>	745 <i>181</i>	477 <i>172</i>	478 <i>174</i>	2,154 <i>331</i>
Brook Trout	0.0000	0 <i>0</i>						
Lake Trout	0.0000	0 <i>0</i>						
Splake	0.0000	0 <i>0</i>						
Northern Pike	0.0003	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	51 <i>36</i>	51 <i>36</i>
White Perch	0.0000	0 <i>0</i>						
Smallmouth Bass	0.0029	0 <i>0</i>	78 <i>70</i>	29 <i>22</i>	0 <i>0</i>	264 <i>159</i>	95 <i>96</i>	466 <i>199</i>
Yellow Perch	0.0158	0 <i>0</i>	0 <i>0</i>	830 <i>308</i>	894 <i>343</i>	166 <i>72</i>	670 <i>366</i>	2,560 <i>593</i>
Walleye	0.0006	0 <i>0</i>	91 <i>91</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	91 <i>91</i>
Total Harvest	0.0565	308 <i>92</i>	1,372 <i>295</i>	1,175 <i>328</i>	1,685 <i>389</i>	1,613 <i>291</i>	2,976 <i>501</i>	9,129 <i>831</i>
Angler Hours		11,069 <i>1,111</i>	13,162 <i>1,333</i>	18,574 <i>1,540</i>	27,786 <i>2,102</i>	40,918 <i>3,563</i>	50,100 <i>3,990</i>	161,609 <i>6,198</i>

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 2013. Standard deviations are in italics.

Species	Harvest per hour	Mar/Apr	May	June	July	August	Sept/Oct	Season
Coho Salmon	0.0076	10 <i>10</i>	31 <i>26</i>	54 <i>48</i>	0 <i>0</i>	0 <i>0</i>	1,023 <i>175</i>	1,118 <i>183</i>
Chinook Salmon	0.0351	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	187 <i>59</i>	4,990 <i>661</i>	5,177 <i>664</i>
Rainbow Trout	0.0068	291 <i>107</i>	21 <i>16</i>	0 <i>0</i>	12 <i>12</i>	6 <i>6</i>	667 <i>155</i>	997 <i>190</i>
Brown Trout	0.0186	495 <i>111</i>	95 <i>36</i>	195 <i>78</i>	6 <i>6</i>	52 <i>25</i>	1,896 <i>346</i>	2,739 <i>375</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0012	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	174 <i>102</i>	174 <i>102</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0005	4 <i>4</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	67 <i>40</i>	71 <i>40</i>
White Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	7 <i>7</i>	0 <i>0</i>	0 <i>0</i>	7 <i>7</i>
Smallmouth Bass	0.0036	0 <i>0</i>	0 <i>0</i>	168 <i>136</i>	283 <i>112</i>	60 <i>45</i>	21 <i>15</i>	532 <i>182</i>
Yellow Perch	0.0438	0 <i>0</i>	0 <i>0</i>	362 <i>149</i>	998 <i>361</i>	388 <i>355</i>	4,701 <i>1,742</i>	6,449 <i>1,821</i>
Walleye	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Total Harvest	0.1172	800 <i>155</i>	147 <i>47</i>	779 <i>222</i>	1,306 <i>378</i>	693 <i>364</i>	13,539 <i>1,913</i>	17,264 <i>2,003</i>
Angler Hours		12,201 <i>1,320</i>	7,831 <i>935</i>	12,948 <i>1,474</i>	14,023 <i>1,890</i>	14,475 <i>1,303</i>	85,811 <i>5,419</i>	147,289 <i>6,279</i>

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 2013. Standard deviations are in Italics.

Species	Harvest	Mar/Apr	May	June	July	August	Sept/Oct	Season
	per hour							
Coho Salmon	0.0128	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	3,773 <i>607</i>	3,773 <i>607</i>
Chinook Salmon	0.0469	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	13,856 <i>1,734</i>	13,856 <i>1,734</i>
Rainbow Trout	0.0192	4,228 <i>558</i>	616 <i>46</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	812 <i>737</i>	5,656 <i>926</i>
Brown Trout	0.0069	1,186 <i>754</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	851 <i>197</i>	2,037 <i>780</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0000	13 <i>12</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	13 <i>12</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0005	151 <i>158</i>	3 <i>3</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	154 <i>158</i>
White Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Smallmouth Bass	0.0007	0 <i>0</i>	6 <i>6</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	205 <i>165</i>	211 <i>165</i>
Yellow Perch	0.0341	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	303 <i>291</i>	9,758 <i>4,219</i>	10,061 <i>4,230</i>
Walleye	0.0295	7,447 <i>2,377</i>	951 <i>486</i>	321 <i>257</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	8,719 <i>2,440</i>
Total Harvest	0.1507	13,025 <i>2,560</i>	1,576 <i>488</i>	321 <i>257</i>	0 <i>0</i>	303 <i>291</i>	29,255 <i>4,667</i>	44,480 <i>5,361</i>
Angler Hours		89,136 <i>10,897</i>	22,296 <i>4,193</i>	16,193 <i>2,599</i>	15,219 <i>3,169</i>	9,543 <i>1,685</i>	142,742 <i>7,760</i>	295,129 <i>14,703</i>

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 2004 through 2013, all areas and fishery types combined. std = standard deviation.

Year	Average weight (lbs.)	± 1 std	Average length (in.)	± 1 std	Standard weight (lbs.)
Coho salmon					
2004	4.8908	2.1299	23.7228	3.1697	3.7542
2005	3.5859	1.7365	21.5351	2.5803	3.7625
2006	3.7539	1.3560	21.6351	2.1038	3.8924
2007	4.5479	1.4540	22.9910	2.2278	3.7990
2008	4.4560	2.0490	22.4677	3.1329	3.9681
2009	4.9807	1.9220	23.2278	2.9728	4.2262
2010	4.5751	2.2101	22.8805	3.7821	3.9833
2011	4.2329	1.8161	22.1766	2.6627	3.9868
2012	3.4466	1.4930	20.6385	2.8135	3.8802
2013	5.3848	2.6743	23.6931	3.4848	4.0654
Chinook salmon					
2004	10.8366	4.8605	30.3981	5.2144	9.2655
2005	8.6770	4.3969	27.9173	5.2664	9.1806
2006	10.2487	4.7178	29.4031	4.9557	9.6769
2007	10.2004	4.4631	29.6011	4.8774	9.0942
2008	9.6660	4.7395	28.6085	4.9816	9.4565
2009	11.0706	5.3288	29.6812	5.5420	9.7943
2010	8.7700	4.3646	28.0374	5.5873	8.5914
2011	10.1487	5.8206	28.0507	6.0373	10.2631
2012	10.2651	4.0305	30.0844	4.6550	8.8881
2013	10.4966	7.0121	28.1742	6.7792	10.2408
Rainbow trout					
2004	6.6084	2.5308	25.8536	4.3064	4.3724
2005	6.2049	2.4847	25.9888	3.7545	3.8343
2006	6.7922	2.5199	25.7703	3.8482	4.3479
2007	6.5670	2.7310	25.9133	4.0252	3.8683
2008	5.8041	2.5126	24.6186	3.6684	3.8944
2009	6.4368	2.6692	25.1826	3.9525	4.5698
2010	6.2216	2.5984	25.6125	3.9888	4.3301
2011	6.1851	2.6215	24.8381	3.8826	4.2453
2012	6.3634	2.4765	26.1214	3.7593	4.2812
2013	6.4838	2.6676	25.5596	3.7736	4.0376
Brown trout					
2004	5.5489	3.6353	21.5438	5.1509	3.7367
2005	5.4529	3.8649	21.2167	5.6031	3.7473
2006	6.3170	3.5998	22.6715	4.7363	3.9029
2007	4.8583	2.9599	20.9185	3.7287	3.7323
2008	5.7157	3.1288	22.2123	3.7398	3.7529
2009	6.7666	3.9047	22.8051	4.3925	4.4162
2010	7.7499	4.3883	24.2774	5.0338	3.8949
2011	4.9160	4.0068	19.7757	5.5077	4.1725
2012	4.7658	2.7347	20.7304	3.7789	4.0676
2013	5.8537	3.0350	22.0303	3.6793	3.9190
Lake trout					
2004	5.6370	2.7429	24.5108	3.5812	5.6439
2005	4.7568	2.0300	23.4632	2.8051	5.4412
2006	5.3567	2.0533	24.2254	3.1010	5.5616
2007	5.8834	2.8582	24.7787	3.4032	5.4606
2008	6.0624	3.2897	24.5111	3.3282	5.9121
2009	6.0985	2.5753	25.1504	3.2636	5.5297
2010	5.9275	3.2344	24.2994	3.9970	5.9239
2011	6.1933	3.1017	25.0834	3.6291	5.6477
2012	6.7815	3.6110	26.1740	4.1798	5.3274
2013	5.8791	2.7630	25.0904	3.1524	5.3559

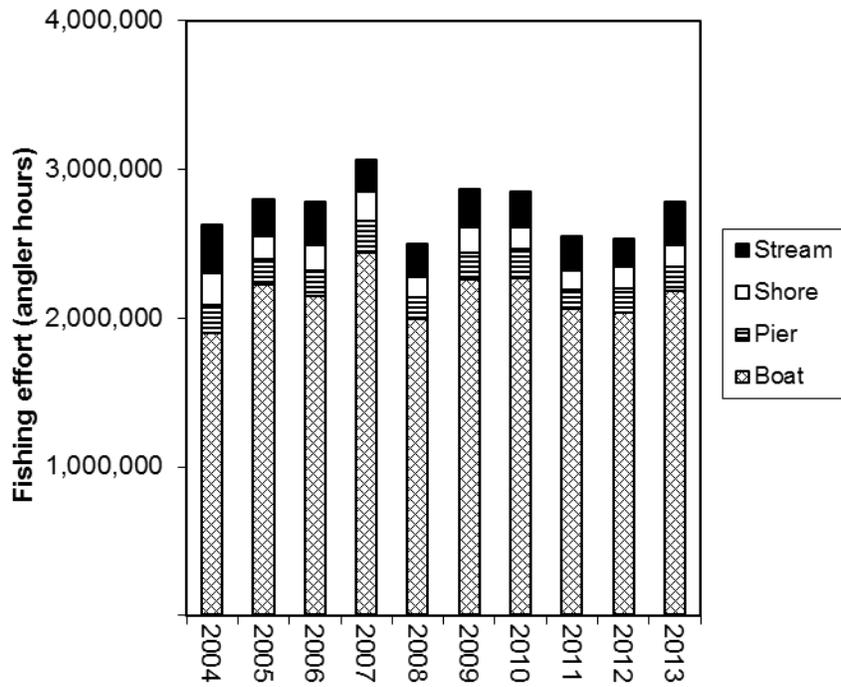


Figure 1. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay from 2004 through 2013.

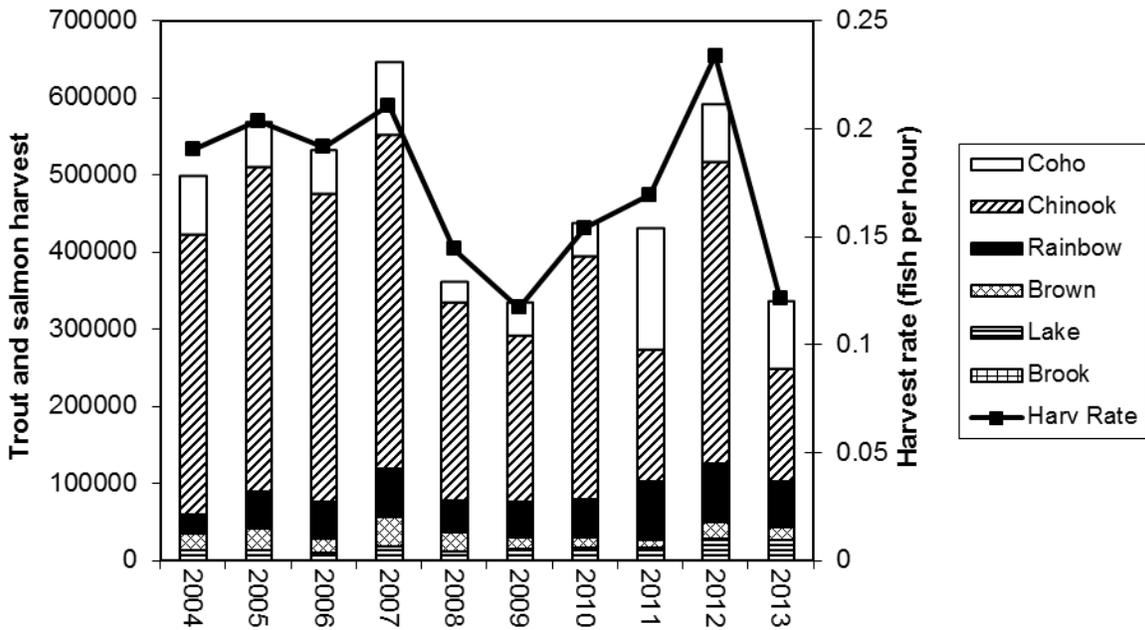


Figure 2. Trout and salmon harvest and harvest-rate from Wisconsin waters of Lake Michigan and Green Bay from 2004 through 2013.

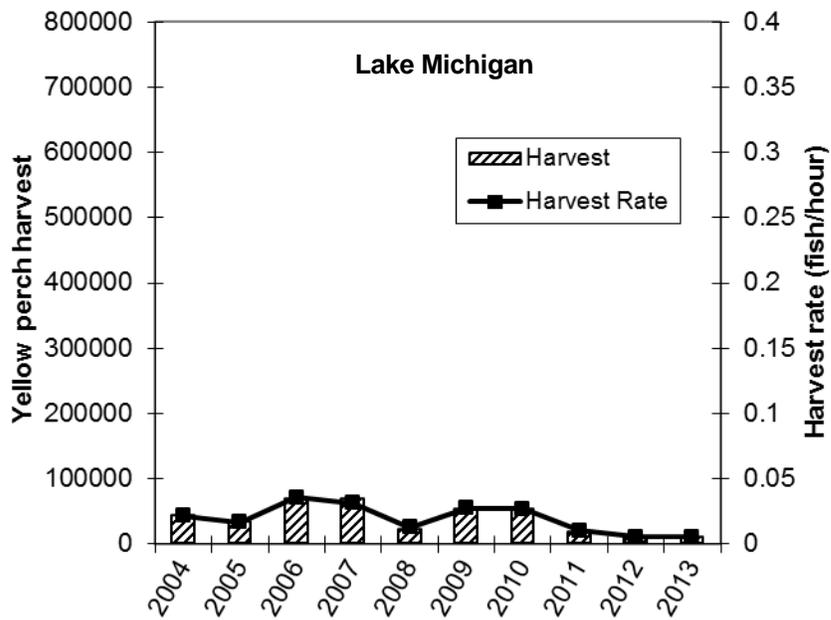
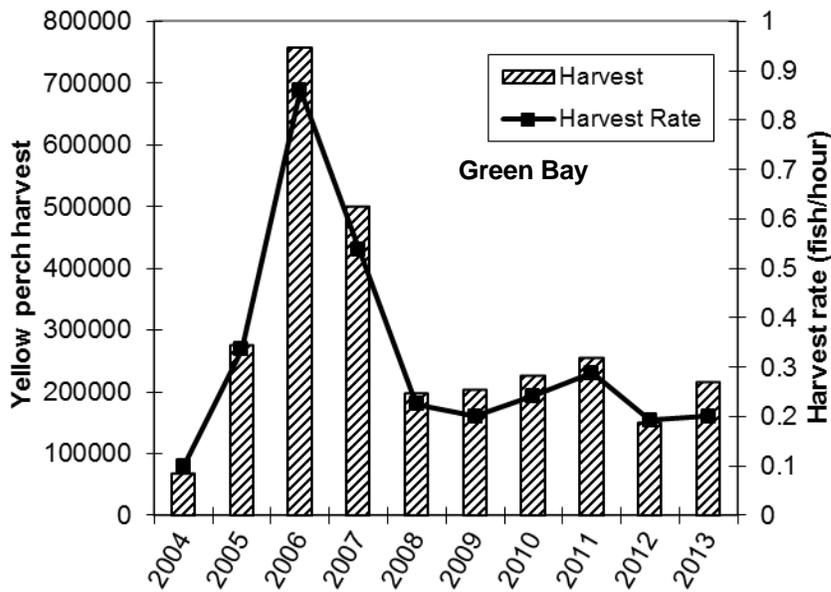


Figure 3. Yellow perch angler-harvest and harvest-rate from Wisconsin waters of Green Bay and Lake Michigan from 2004 through 2013. Note: Figure 3 reflects that some Door County sites represent Green

Bay for yellow perch harvest statistics.