

Wisconsin's 2003 open water sportfishing effort and harvest from Lake Michigan and Green Bay

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Abstract - This paper documents the sport fishery in Wisconsin waters of Lake Michigan and Green Bay from March 1, 2003 through December 31, 2003. 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. Anglers spent an estimated 2,701,811 hours fishing on Lake Michigan and Green Bay during 2003 with boat-angler effort at 2,016,717 hours, or 75% of the total hours. The estimated harvest of 666,949 fish was dominated by Chinook salmon (317,619) and yellow perch (156,321), followed by coho salmon (50,625) and rainbow trout (48,548). The boat fishery, comprised of launched-boat, moored-boat and charter-boat anglers, dominated the fishery by harvesting an estimated 587,522 fish, which was 88% of the total harvest and was dominated by Chinook salmon (282,685), yellow perch (137,783), coho salmon (48,326), and rainbow trout (41,817). Pier, shore and stream anglers harvested primarily Chinook salmon, yellow perch, brown trout, and rainbow trout. Overall harvest-rates were highest for Chinook salmon at 0.1176 fish/hour and yellow perch at 0.0579 fish/hour.



Before the 1920s, fish biomass and abundance in Lake Michigan was dominated by lake whitefish (*Coregonus clupeaformis*), lake trout (*Salvelinus namaycush*), bloater chubs (*C. hoyi*), and yellow perch (*Perca flavescens*). During the 1920s to 1950s, the accidental introductions of several exotic species, including the rainbow smelt (*Osmerus mordax*), sea lamprey (*Petromyzon marinus*) and alewife (*Alosa pseudoharengus*), had a major impact on the fish populations in Lake Michigan. These exotic species, along with a deterioration of spawning habitat and increased commercial fishing pressure, were responsible for the decline of native fish populations (Hansen *et al.* 1990).

In response to the increasing alewife population and declining Lake Michigan fishery, the Wisconsin Department of Natural Resources (WDNR) in 1963 experimentally introduced 9,000 rainbow trout into several Door Co. tributaries with a twofold purpose: 1) to control or limit the abundant alewife population and 2) to provide a sport fishery. This initial stocking, and efforts by other states (see Keller *et al.* 1990) proved to be very successful and Wisconsin's Lake Michigan stocking program expanded to include trouts (*Salmo* spp.), chars (*Salvelinus* spp.) and other pacific salmon (*Oncorhynchus* spp.). The stocking of non-native salmonids provided a practical way to control the alewife population and created a valuable sport fishery.

In order to manage the Lake Michigan sport fishery, assessments are conducted on both forage and predator-fish stocks. Since 1973, the US Fish and Wildlife Service has conducted bottom-trawl surveys in Lake Michigan to estimate the abundance of forage fish. These trawl estimates are based on a series of ten-minute tows along the contour of nine depths at each of seven index-stations (Eck 1992). Since 1969, WDNR has monitored the Lake Michigan sport fishery with a contact creel-survey. This provides a continuous record of harvest, harvest-rates and biological data of the harvest.

This paper reports the results of the annual survey of anglers fishing the Wisconsin waters of Lake Michigan. Data were collected from anglers at ramps, piers, shores and streams and from moored-boat and charter-boat anglers. Estimates

were then calculated for fishing effort, harvest and harvest-rates for 2003.

STUDY AREA AND METHODS

Geographical Area

Wisconsin's share of Lake Michigan is second only to Michigan and encompasses 495 miles of shoreline and 25 tributaries (Figure 1). The Wisconsin waters of Lake Michigan include Green Bay and portions of distinct north and south lake basins. For a complete description see Eggold (1995).

Creel-Survey Design

The open-water creel survey was conducted using a modified access-point design called the Wisconsin Hybrid. It differs from a true access-point design in that creel clerks visit several sites per site group. The fishing season for the open-water creel survey from March 15th to October 31st is stratified by statistical management unit (SMU) (i.e. counties), fishery types (i.e. ramp, pier, shore and stream), statistical survey periods (i.e. months or groups of months) and day type (i.e. weekday, weekend/holiday). Statistical management units were assigned based primarily on county lines and include units such as Kenosha, Racine, Milwaukee, etc. Survey sites within each SMU were placed into site groups. There may be one or several site groups in each SMU, depending on the time of year and SMU size. Site groups were selected randomly without replacement on a daily basis, and survey sites within a site group were visited randomly. Surveys were conducted on every weekend day and holiday and on two randomly chosen days during the week. Each workday was comprised of two shifts, an AM and PM shift. Combined together, the two shifts covered the entire angling day. The clerk worked one shift per workday. The shifts were equal in duration, did not overlap and were sampled with equal probability. An example follows.

EXAMPLE:

Statistical Management Unit:	MILWAUKEE
Site Groups	MILW. SOUTH MILW. NORTH
Survey Sites	S. Shore Ramps McKinley Ramps
	S. Shore Pier McKinley Pier

Oak Creek	Milwaukee River
Grant Park	Riverfront Ramp
S. Metro Pier	N. City Shoreline

summed across day types to estimate harvest. The harvest-rate was obtained by dividing harvest by effort. For a detailed description see Eggold (1995).

Three types of data were collected for each site sampled: counts of anglers, boat trailers or cars for effort, interviews of anglers or parties for harvest-rates and biological data on harvested fish.

Instantaneous counts were made by creel clerks at all sites in the survey. The type of count was dependent on the type of fishery. At most ramp sites, boat trailers were counted. At most pier, shore and stream sites, anglers were counted. However, due to poor access points on some tributaries, car counts were used. Car and trailer counts were corrected by the average number of anglers per car or boat from interview data. The time the count was completed and the count per site were recorded on the activity-count form.

Angler parties were interviewed at the completion of their fishing trips. Anglers were asked if they were state residents, what time they started their fishing trip, what they fished for and the number of caught and harvested fish. Biological information was taken on harvested fish, including species, length, weight, fin clip and tag numbers. Standard-weight calculations follow Hansen (1986).

Fishing-effort calculations. Fishing-effort estimates (expressed in angler hours) were derived from instantaneous counts of anglers at pier, breakwater, shore and stream sites and from counts of boat trailers at boat ramps and from counts of cars at stream sites. Counts were made at randomly-computed times at each site during each visit. We estimated angler effort and its variance within each stratum (SMU, fishery type, month and day type). The variance of angler effort includes variability among days and variability within days. Formulas for two-stage surveys were used to calculate variance. For a complete description see Eggold (1995).

Harvest and harvest-rate calculations. Harvest estimates were derived from interviews of anglers at all sites. The number of fish harvested and the hours fished from each interview were summed over all interviews in a stratum. The ratio of the two sums and the variance of the ratio were then calculated. The ratio was expanded by effort and

Moored-Boat Survey Design

Anglers who moored their boat on Lake Michigan (including Green Bay) were surveyed by questionnaire beginning in 1988. The earlier surveys (1982-1985) were based on voluntary information from moored-boat owners who received their survey form from sport-fishing clubs. However, during 1988, creel clerks were asked to compile a list of boat-registration numbers from boats moored on Lake Michigan during a day of bad weather. These numbers were used to develop a list of boat owners from the WDNR master file of registered boats. Beginning in 1988, a mail survey was sent to all moored-boat owners to obtain information on 1) whether they moored their boat on Lake Michigan; 2) the port of call; 3) whether the boat was used for fishing during that week; 4) the number of days fished; 5) number of anglers in the fishing party; 6) number of hours fished; and 7) the number of each species caught on each day during the past seven-day period.

Fishing effort and harvest calculations. Fishing effort was calculated by harbor and month for each month of the survey. Party size and number of hours fished on each trip were multiplied, summed for each month and harbor, and divided by the number of responses received for the month. This total was multiplied by the boat count and the number of days in the month to obtain estimated angler-hours for the entire moored-boat population. Harvest estimates were calculated by harbor and month for each species based on harvest per boat. The harvest data were expanded similarly to effort estimates.

Harvest-rate calculations. Harvest-rate, the number of fish harvested per angler hour, was obtained by dividing the reported harvest of each species by fishing effort.

This type of survey is biased because interested and successful anglers tend to return the survey at a higher rate than other moored-boat owners. Therefore, estimated harvest will tend to be an overestimate of actual harvest but should be

comparable among years and locations. For a detailed description of the calculations and formulas see Eggold (1993).

Charter-Boat Census Design

At the beginning of the fishing season, a packet of information was sent to each licensee. This packet included instructions on how to properly report chartered trips, a sample of a completed monthly report, grid map of Lake Michigan, list of wardens, coded-wire tag collection stations, fin clip list, sea lamprey information and a supply of monthly report forms.

Each license holder was required by law to report all paid charters. The report for each calendar month was due by the 10th of the following month to the WDNR Plymouth Field Station. If a report was late or incorrectly filled out a warning letter was sent. Subsequent violations were referred directly to a Wisconsin Conservation Warden.

The information obtained from each trip included: license number, fishing port, date of fishing trip, grid fished, number of resident and nonresident anglers, number of fish harvested, time trip started (a.m., p.m., evening), number of lines fished and number of hours fished. This information had to be recorded within half an hour after completing each trip and returning to the dock or shore. The number of lake trout, coho salmon, brown trout, steelhead, Chinook salmon and other species harvested, any tag numbers and the number of lampreys attached to Chinook salmon and lake trout had to be recorded prior to midnight of the day of each trip. The data were received at the Plymouth Field Station, entered and checked for errors.

RESULTS

Fishing effort in Wisconsin waters of Lake Michigan and Green Bay was estimated at 2,701,811 (\pm 52,254) hours during the 2003 open-water season of March 1 - December 31 (Table 1). Effort showed a slight decrease from 2002, and was 6.7% below the ten-year average (Figure 2). Effort was 24% below the average in Green Bay, while in Lake Michigan, effort was nearly equal to the average. Despite the decline, Green Bay anglers had the most fishing effort of any SMU, at 650,571 (\pm

40,727) hours or 24% of all angler hours for 2003. Kewaunee County anglers were second at 401,840 (\pm 20,958) hours.

Angler hours were disproportionately spread among the four fishery types. Boat anglers spent 2,016,717 (\pm 49,325) hours, or 75% of all angler hours, fishing on Lake Michigan or Green Bay (Figure 2). Stream anglers fished the second most at 306,701 (\pm 13,429) hours or 11% of the total. This was the lowest stream effort-estimate since 1988, and is likely due to low water levels in the tributaries, which caused poor returns of Chinook and coho salmon during their upstream spawning migration in the fall. Shore and pier anglers fished 227,609 (\pm 8,943) and 150,784 (\pm 6,105) hours respectively.

Anglers harvested an estimated 464,453 (\pm 10,106) salmonids during the 2003 season (Table 2, Figure 3). Chinook salmon dominated the 2003 salmonid harvest, comprising 317,619 (\pm 9,385) fish or 68% of the total. This was the highest Chinook harvest since 1987. Coho salmon harvest was second to Chinook at 50,625 (\pm 2,052), or 11% of the total. Rainbow trout harvest was 48,548 (\pm 2,077) fish, or 10% of the total. Lake trout harvest declined to 23,881 (\pm 1,142), 5% of the total. Brown trout also comprised 5% of the harvest at 23,654 (\pm 2,056), followed by brook trout at 126 (\pm 54).

The combined harvest-rate for salmonids of 0.1719 was well above the ten-year average of 0.1508 (Table 2, Figure 3).

Anglers harvested an estimated 156,321 (\pm 14,700) yellow perch during 2003 (Table 3). Anglers harvested 67,543 (\pm 6,819) yellow perch in Green Bay, continuing a long-term decline (Table 3, Figure 4). The harvest-rate was 0.1038 fish/hour. Lake Michigan anglers harvested 88,778 (\pm 13,023) yellow perch and had a harvest-rate of 0.0433 fish/hour (Table 3, Figure 4). Yellow perch harvest from all areas combined was second only to Chinook salmon, with an overall harvest-rate of 0.0579 fish/hour (Table 4). As usual, the majority of the perch harvest (88%) was from boats, with a harvest-rate at 0.0683 fish/hour. The majority of the harvest took place in the summer months from June through September.

Perch harvest remained well (67%) below the ten-year average of 474,761 (\pm 36,431, Table 3, Figure

4). On Lake Michigan perch harvest was 88,778 (\pm 13,023), which was 21% below the ten-year average and 34% below the 2001 harvest. Green Bay experienced a 53% decline from 2002 perch harvest to 67,543 (\pm 6,819). This was the lowest Green Bay perch harvest of the last ten years, and was 81% below average (Table 3). For the first time in recent history, perch harvest in Lake Michigan exceeded the harvest in Green Bay.

Perch harvest in Lake Michigan continues to be focused on the 1998 year-class, which first recruited to the sport fishery during 2000 at age 2. Age was assigned using the anal spines of 447 Lake Michigan angler-caught yellow perch during 2003. The 1998 year-class represented 92% of the total on Lake Michigan. This is corroborated by DNR's winter 2003-04 assessment catch of Lake Michigan perch, where 87% were from 1998.

The 1998 year-class of yellow perch in Green Bay made up a relatively small proportion of the 2003 harvest. The anal spines of 26 Green Bay angler-caught perch were aged, and only 23% were from 1998. The majority (58%) was age 2 fish, which first recruited to the sport fishery in 2003.

Management actions currently in place to protect the dwindling yellow perch population include: 1) closure of the Lake Michigan commercial season for yellow perch; 2) a 20,000 pound commercial quota for yellow perch in Green Bay (down from 200,000 pounds in 2000); and 3) a drop in the sport bag to five per day with a May 1 to June 15 closure on Lake Michigan and ten per day with a March 16 to May 19 closure on Green Bay. These measures are intended to protect the remaining yellow perch stocks by decreasing harvest of pre-spawn and spawning perch.

The estimated harvest of 12 major species was 666,949 (\pm 18,400) fish for 2003 (Table 4). The majority of the harvest came from boat anglers (Table 5) who harvested 587,522 (\pm 17,737) fish or 88% of the total. Pier, shore and stream anglers accounted for 17,166 (\pm 1,229), 26,771 (\pm 1,807) and 35,490 (\pm 4,381) fish respectively or 3%, 4% and 5% of the total (Tables 6-8).

The coho harvest of 50,625 (\pm 2,052) was a 51% decline from 2002 harvest and 38% below the ten-year average. Coho salmon were the second-most abundant salmonid and third-most abundant

species harvested during 2003. Overall coho salmon harvest-rates were 0.0187 fish/hour (Table 4). Boat anglers harvested 95% of all coho salmon, with 48,326 (\pm 2,017) and had a harvest-rate of 0.0240 fish/hour (Table 5). The remaining harvest was divided among the pier, shore and stream anglers at 327 (\pm 112), 1,499 (\pm 327) and 473 (\pm 158) fish, respectively (Tables 6-8). Biological data collected on angler-caught coho salmon during 2003 show a mean weight of 4.7 (\pm 1.9) pounds, 12% above the ten-year average (Table 9). Mean length was 6% above the ten-year average at 23.1 (\pm 3.0) inches, while the standard weight of a 22-inch coho was 3.7 pounds, just 2% below the ten-year average (Table 9).

Anglers harvested 317,619 (\pm 9,385) Chinook salmon during 2003, 77% above the ten-year average of 179,147 (Table 2). The 2003 Chinook harvest was the best harvest since the record-high of 396,478 in 1987. Angler effort in 2003 was 44% lower than in 1987, and therefore the 2003 Chinook harvest-rate was actually higher. The harvest-rate in 2003 was 0.1176 fish/hour compared to 1987, which was 0.0829 fish/hour. Boat anglers in 2003 harvested 282,685 (\pm 8,322) fish or 89% of all Chinook (Table 5). Boat angler harvest-rates were 0.1402. Pier, shore, and stream anglers saw mediocre harvests of Chinook, primarily during the fall run. Sparse rainfall and low fall streamflows in the tributaries caused poor returns of both Chinook and coho salmon. The 2003 average weight of 9.8 (\pm 5.8) pounds was 9% below the ten-year average for Chinook salmon, but the average length of 28.5 (\pm 5.7) inches was even with the ten-year average (Table 9). The standard weight of 9.7 pounds for a 30-inch Chinook was 3% below the ten-year average.

Rainbow trout harvest was 48,548 (\pm 2,077), 44% below the ten-year average, and the lowest harvest since 1986. The majority (86%) of the harvest occurred in the boat fishery with 41,817 (\pm 1,902) fish (Table 5). Stream anglers harvested 4,576 (\pm 780) steelhead with a harvest-rate of 0.0149 fish/hour (Table 8). Rainbow trout were similar in size to the ten-year average, at 6.1 (\pm 3.0) pounds and 25.2 (\pm 4.9) inches (Table 9). The standard weight of a 22-inch rainbow was 3.9 pounds.

Wisconsin anglers harvested 23,881 (\pm 1,142) lake trout in Lake Michigan, 50% below the ten-year average of 47,550 and the lowest harvest since

1970. The overall harvest-rate was 0.0088 fish/hour (Table 4). Boat anglers harvested all but 194 lake trout, with 23,687 (\pm 1,140). The boat harvest-rate was 0.0117 fish/hour (Table 5). Lake trout average size was 5.9 (\pm 3.2) pounds and 24.7 (\pm 3.8) inches, 25% and 8% below their ten-year averages, respectively. The standard weight was 5.9 pounds for a 25-inch lake trout, which is equal to the ten-year average (Table 9).

An estimated 23,654 (\pm 2,056) brown trout were harvested during 2003 from all surveyed areas, with an overall harvest-rate of 0.0088 fish/hour (Table 4). This was 37% below the ten-year average and the lowest brown trout harvest since 1973. Although all fishery types experienced below-average harvest, the decline is mainly attributable to a low harvest of 10,828 (\pm 1,811) brown trout by boat anglers (Table 5), 55% below the ten-year average for boats. Pier anglers harvested 3,824 (\pm 504) brown trout and had a harvest-rate of 0.0254 fish/hour (Table 6). Shore anglers harvested 6,574 (\pm 699) brown trout and had a harvest-rate of 0.0289 fish/hour (Table 7). The brown trout harvest totals for both pier and shore were the highest of any species other than yellow perch. Brown trout biological data for 2003 were slightly above the ten-year average, with a mean size of 6.0 (\pm 3.8) pounds and 22.0 (\pm 4.9) inches (Table 9). The 2003 standard weight of 3.9 pounds for a 20-inch fish is also just above average.

Smallmouth bass harvest has declined considerably since 1997 and was 39% below the ten-year average at 19,253 (\pm 2,532) fish (Table 4). Overall harvest-rates were 0.0071 fish/hour. Again, boat anglers harvested the majority of the smallmouth bass, with 17,297 (\pm 2,479) fish or 90% of the total (Table 5). The boat harvest-rate was 0.0086 fish/hour.

White perch harvest was the lowest of the last ten years, at 356 (\pm 210), or 97% below the ten-year average harvest of 11,982 (Table 4). This is likely due to a cyclical drop in white perch population levels. Of the white perch harvested in 2003, 66% were in the stream fishery and the remaining 34% in the boat fishery (Tables 5 and 8).

Walleyes were the last species harvested in large numbers during the open-water fishing season. An estimated 22,806 (\pm 3,569) walleyes were harvested (Table 4), 2% above the ten-year average. Overall harvest-rates for walleye were

similar to brown trout and lake trout at 0.0084 fish/hour. Boat anglers harvested 21,391 (\pm 3,548) walleyes (Table 5), followed by stream anglers with 1,318 (\pm 381, Table 8).

The remaining species, brook trout, splake and northern pike, comprised less than 0.6% of the total harvest and 0.8% of the non-yellow perch harvest (Table 4).

SUMMARY

Lake Michigan anglers spent an estimated 2,701,811 hours fishing on Lake Michigan and Green Bay, with a boat-angler effort of 2,016,717 hours, or 75% of the total hours. The estimated harvest of 666,949 fish was dominated by Chinook salmon (317,619) and to a lesser degree by yellow perch (156,321).

Fishing effort during 2003 was 7% below the ten-year average (Table 1). Effort was 24% below average in Green Bay but Lake Michigan effort was consistent with the ten-year norm. Green Bay has more shallow areas that are impacted by current low water levels, and reduced catch rates for yellow perch may have also contributed to the reduction in effort.

Harvest of Chinook salmon was 77% above the ten-year average and was the highest since 1987 (Table 2). The harvest of other salmonids was below average. Mean lengths and weights of coho and brown trout were slightly above their ten-year average, whereas the other salmonids were just below average. The standard weights for all salmonids were within 3% of their ten-year averages (Table 9).

Harvest of smallmouth bass in 2003 remained 39% below the ten-year average, while walleye harvest was 2% above average (Table 4).

Perch harvest in 2003 declined again in both Green Bay and Lake Michigan. The harvest in Green Bay was 81% below average and that in Lake Michigan was 21% below average (Table 3). Assessment catches of recent year-classes have been very poor in Lake Michigan, suggesting a continued recruitment problem for yellow perch and few fish entering the fishery in the near future.

Nearshore fishing opportunities in Lake Michigan have declined with reduced yellow perch abundance and salmon and trout moving farther offshore. To augment the fishery, two different strains of nearshore rainbow trout have been stocked on an experimental basis in Lake Michigan in recent years. Arlee strain rainbows were first stocked in 2001 and Kamloops in 2003. Kenosha, Milwaukee, Sheboygan, Manitowoc, Algoma, and Sister Bay are the targeted stocking locations, with each receiving approximately 10,000 of both strains. These fish were given a specific fin clip, and they have begun to show up in the creel survey. Both Arlees and Kamloops will be stocked annually through at least 2006, and the extent these strains contribute to the fishery will be evaluated in coming years.

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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 1994 through 2003. Standard deviations are in Italics.

Location	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average
Kenosha Co.	189,877 <i>8,195</i>	164,111 <i>9,934</i>	157,607 <i>6,705</i>	188,561 <i>8,937</i>	174,437 <i>8,351</i>	183,774 <i>11,478</i>	112,930 <i>4,728</i>	197,660 <i>9,626</i>	206,959 <i>9,676</i>	213,504 <i>11,531</i>	178,942 <i>9,131</i>
Racine Co.	315,927 <i>13,911</i>	335,535 <i>18,995</i>	238,052 <i>13,846</i>	302,364 <i>15,472</i>	232,660 <i>15,844</i>	260,600 <i>15,917</i>	201,774 <i>13,269</i>	256,390 <i>14,248</i>	225,067 <i>10,421</i>	154,568 <i>8,671</i>	252,294 <i>14,327</i>
Milwaukee Co.	404,704 <i>14,303</i>	343,545 <i>12,115</i>	280,704 <i>9,625</i>	283,356 <i>10,492</i>	295,991 <i>9,162</i>	244,605 <i>8,620</i>	212,570 <i>8,106</i>	360,474 <i>12,942</i>	382,873 <i>13,579</i>	338,672 <i>11,663</i>	314,749 <i>11,251</i>
Ozaukee Co.	206,470 <i>11,873</i>	232,899 <i>16,115</i>	242,963 <i>11,915</i>	229,387 <i>12,796</i>	244,186 <i>13,831</i>	233,549 <i>14,891</i>	169,828 <i>8,650</i>	250,035 <i>13,942</i>	253,817 <i>12,917</i>	245,038 <i>14,336</i>	230,817 <i>13,270</i>
Sheboygan Co.	244,500 <i>13,999</i>	249,426 <i>16,183</i>	262,948 <i>14,697</i>	216,834 <i>13,730</i>	219,642 <i>12,123</i>	244,929 <i>14,004</i>	156,989 <i>10,983</i>	225,484 <i>10,826</i>	272,311 <i>14,403</i>	254,426 <i>16,480</i>	234,749 <i>13,865</i>
Manitowoc Co.	266,866 <i>11,121</i>	235,990 <i>9,038</i>	204,487 <i>9,673</i>	227,955 <i>11,713</i>	196,492 <i>9,398</i>	204,714 <i>11,257</i>	191,168 <i>8,107</i>	213,887 <i>10,491</i>	229,205 <i>10,329</i>	187,928 <i>9,940</i>	215,869 <i>10,161</i>
Kewaunee Co.	338,864 <i>18,617</i>	329,637 <i>16,500</i>	334,736 <i>23,955</i>	327,253 <i>19,421</i>	342,260 <i>28,589</i>	355,612 <i>19,833</i>	329,938 <i>16,718</i>	337,767 <i>23,521</i>	423,035 <i>20,511</i>	401,840 <i>20,958</i>	352,094 <i>21,150</i>
E. Door Co.	331,851 <i>19,768</i>	304,201 <i>17,298</i>	278,601 <i>15,113</i>	205,964 <i>16,043</i>	259,020 <i>12,907</i>	240,897 <i>13,553</i>	247,268 <i>18,263</i>	230,256 <i>20,757</i>	249,042 <i>15,121</i>	255,264 <i>17,303</i>	260,236 <i>16,788</i>
Green Bay	1,191,252 <i>34,804</i>	1,078,522 <i>32,379</i>	972,938 <i>34,570</i>	886,873 <i>35,678</i>	905,762 <i>35,986</i>	856,591 <i>29,469</i>	645,608 <i>22,318</i>	668,297 <i>28,669</i>	703,539 <i>25,846</i>	650,571 <i>32,738</i>	855,995 <i>31,545</i>
Total Effort	3,490,310 <i>53,615</i>	3,273,866 <i>53,193</i>	2,973,036 <i>52,708</i>	2,868,547 <i>53,164</i>	2,870,450 <i>55,770</i>	2,825,271 <i>49,492</i>	2,268,073 <i>40,453</i>	2,740,250 <i>51,873</i>	2,945,848 <i>46,743</i>	2,701,811 <i>52,254</i>	2,895,746 <i>51,099</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 1994 through 2003. Standard deviations are in Italics.

Species	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average
Coho Salmon	110,001 <i>5,857</i>	65,647 <i>3,107</i>	104,715 <i>4,546</i>	138,423 <i>6,039</i>	59,203 <i>2,706</i>	56,297 <i>2,929</i>	87,927 <i>3,769</i>	47,474 <i>2,296</i>	102,313 <i>3,546</i>	50,625 <i>2,052</i>	82,263 <i>3,915</i>
Chinook Salmon	99,754 <i>4,424</i>	162,888 <i>5,953</i>	183,254 <i>7,746</i>	130,152 <i>5,050</i>	136,653 <i>4,702</i>	157,934 <i>5,740</i>	136,379 <i>7,753</i>	191,378 <i>8,281</i>	275,454 <i>6,522</i>	317,619 <i>9,385</i>	179,147 <i>6,744</i>
Rainbow Trout	114,774 <i>4,455</i>	117,508 <i>4,416</i>	77,099 <i>4,192</i>	94,470 <i>4,436</i>	110,888 <i>4,268</i>	84,248 <i>4,362</i>	71,829 <i>3,177</i>	72,854 <i>2,957</i>	74,031 <i>2,250</i>	48,548 <i>2,077</i>	86,625 <i>3,769</i>
Brown Trout	52,398 <i>2,695</i>	49,654 <i>2,630</i>	38,093 <i>2,160</i>	43,224 <i>3,411</i>	27,371 <i>2,062</i>	37,187 <i>4,362</i>	40,966 <i>2,289</i>	26,421 <i>1,827</i>	35,220 <i>2,290</i>	23,654 <i>2,056</i>	37,419 <i>2,680</i>
Brook Trout	7,482 <i>797</i>	1,914 <i>332</i>	419 <i>112</i>	299 <i>76</i>	159 <i>40</i>	574 <i>472</i>	199 <i>60</i>	263 <i>90</i>	144 <i>61</i>	126 <i>54</i>	1,158 <i>317</i>
Lake Trout	53,989 <i>2,337</i>	69,332 <i>2,797</i>	36,849 <i>1,806</i>	57,954 <i>2,371</i>	82,247 <i>3,624</i>	39,819 <i>2,168</i>	31,151 <i>1,614</i>	40,408 <i>1,894</i>	39,865 <i>1,463</i>	23,881 <i>1,142</i>	47,550 <i>2,228</i>
Total Harvest	438,398 <i>9,332</i>	466,943 <i>8,913</i>	440,429 <i>10,304</i>	464,522 <i>9,945</i>	416,521 <i>8,064</i>	376,059 <i>9,193</i>	368,451 <i>9,605</i>	378,798 <i>9,462</i>	527,027 <i>8,220</i>	464,453 <i>10,106</i>	434,160 <i>9,341</i>
Harvest-Rate	0.1256	0.1426	0.1481	0.1619	0.1451	0.1331	0.1625	0.1382	0.1789	0.1719	0.1508

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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 1994 through 2003. Standard deviations are in Italics.

Location	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average
Green Bay	1,091,837 <i>69,029</i>	802,668 <i>57,516</i>	429,466 <i>34,274</i>	204,267 <i>16,429</i>	219,366 <i>20,528</i>	235,400 <i>22,037</i>	216,832 <i>22,625</i>	206,109 <i>21,110</i>	144,562 <i>15,661</i>	67,543 <i>6,819</i>	361,805 <i>34,167</i>
Harvest-Rate	0.9165	0.7442	0.4414	0.2303	0.2422	0.2748	0.3359	0.3084	0.2055	0.1038	0.3803
Lake Michigan	289,905 <i>18,389</i>	246,945 <i>20,677</i>	95,100 <i>14,985</i>	31,146 <i>4,103</i>	37,831 <i>3,527</i>	33,605 <i>4,186</i>	74,843 <i>14,679</i>	133,660 <i>10,903</i>	97,747 <i>7,578</i>	88,778 <i>13,023</i>	112,956 <i>12,643</i>
Harvest-Rate	0.1261	0.1125	0.0475	0.0157	0.0193	0.0171	0.0461	0.0645	0.0436	0.0433	0.0536
Total Harvest	1,381,742	1,049,613	524,566	235,413	257,197	269,005	291,675	339,769	242,309	156,321	474,761

	71,436	61,119	37,407	16,934	20,829	22,432	26,971	23,759	17,398	14,700	36,431
Harvest-Rate	0.3959	0.3206	0.1764	0.0821	0.0896	0.0952	0.1286	0.1240	0.0823	0.0579	0.1553

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 2003. Standard deviations are in Italics.

Species	Harvest per Hour	Harvest								
		Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season	
Coho Salmon	0.0187	370 <i>120</i>	3,000 <i>435</i>	15,063 <i>1,118</i>	16,413 <i>1,262</i>	9,960 <i>817</i>	5,765 <i>705</i>	54 <i>11</i>	50,625 <i>2,052</i>	
Chinook Salmon	0.1176	96 <i>51</i>	174 <i>50</i>	11,687 <i>737</i>	89,596 <i>4,434</i>	114,748 <i>5,065</i>	100,775 <i>6,498</i>	543 <i>10</i>	317,619 <i>9,385</i>	
Rainbow Trout	0.0180	4,208 <i>682</i>	159 <i>72</i>	4,813 <i>525</i>	11,674 <i>907</i>	18,080 <i>1,370</i>	9,470 <i>932</i>	144 <i>21</i>	48,548 <i>2,077</i>	
Brown Trout	0.0088	6,084 <i>695</i>	1,199 <i>204</i>	1,069 <i>217</i>	1,742 <i>228</i>	2,439 <i>353</i>	10,656 <i>1,865</i>	465 <i>53</i>	23,654 <i>2,056</i>	
Brook Trout	0.0000	19 <i>20</i>	0 <i>0</i>	0 <i>0</i>	24 <i>11</i>	61 <i>46</i>	21 <i>18</i>	1 <i>0</i>	126 <i>54</i>	
Lake Trout	0.0088	234 <i>118</i>	767 <i>355</i>	6,166 <i>582</i>	8,112 <i>700</i>	6,003 <i>480</i>	2,583 <i>327</i>	16 <i>0</i>	23,881 <i>1,142</i>	
Splake	0.0002	416 <i>232</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>	416 <i>232</i>	
Northern Pike	0.0012	37 <i>0</i>	581 <i>284</i>	25 <i>26</i>	0 <i>0</i>	1,848 <i>876</i>	853 <i>499</i>	0 <i>0</i>	3,344 <i>1,048</i>	
White Perch	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	356 <i>210</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	356 <i>210</i>	
Smallmouth Bass	0.0071	0 <i>0</i>	3,043 <i>921</i>	5,946 <i>1,262</i>	4,914 <i>1,018</i>	4,712 <i>1,686</i>	638 <i>306</i>	0 <i>0</i>	19,253 <i>2,532</i>	
Yellow Perch	0.0579	5,736 <i>1,927</i>	1,473 <i>843</i>	26,331 <i>3,413</i>	54,197 <i>5,533</i>	37,309 <i>5,206</i>	31,275 <i>11,929</i>	0 <i>0</i>	156,321 <i>14,700</i>	
Walleye	0.0084	5,240 <i>2,747</i>	7,317 <i>1,353</i>	3,197 <i>1,058</i>	1,658 <i>1,081</i>	2,370 <i>806</i>	3,024 <i>653</i>	0 <i>0</i>	22,806 <i>3,569</i>	
Total Harvest	0.2469	22,440 <i>3,506</i>	17,713 <i>1,957</i>	74,297 <i>4,100</i>	188,686 <i>7,448</i>	197,530 <i>7,740</i>	165,060 <i>13,793</i>	1,223 <i>58</i>	666,949 <i>18,400</i>	

Angler Hours	224,749	169,983	367,223	679,579	639,514	612,148	8,615	2,701,811
	<i>21,284</i>	<i>14,450</i>	<i>14,332</i>	<i>25,176</i>	<i>29,170</i>	<i>19,449</i>	<i>502</i>	<i>52,254</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 2003. Standard deviations are in *Italics*.

Species	Harvest	Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
	per hour								
Coho Salmon	0.0240	300 <i>112</i>	2,975 <i>434</i>	15,046 <i>1,118</i>	16,377 <i>1,262</i>	9,920 <i>816</i>	3,687 <i>598</i>	21 <i>0</i>	48,326 <i>2,017</i>
Chinook Salmon	0.1402	72 <i>49</i>	174 <i>50</i>	11,687 <i>737</i>	89,385 <i>4,433</i>	114,191 <i>5,062</i>	66,662 <i>4,840</i>	514 <i>0</i>	282,685 <i>8,322</i>
Rainbow Trout	0.0207	158 <i>74</i>	49 <i>19</i>	4,284 <i>365</i>	11,482 <i>905</i>	17,888 <i>1,367</i>	7,913 <i>888</i>	43 <i>0</i>	41,817 <i>1,902</i>
Brown Trout	0.0054	1,823 <i>397</i>	762 <i>185</i>	613 <i>175</i>	686 <i>130</i>	1,803 <i>315</i>	5,006 <i>1,715</i>	135 <i>0</i>	10,828 <i>1,811</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	12 <i>0</i>	61 <i>46</i>	3 <i>0</i>	1 <i>0</i>	77 <i>46</i>
Lake Trout	0.0117	221 <i>117</i>	767 <i>355</i>	6,134 <i>581</i>	8,112 <i>700</i>	5,976 <i>480</i>	2,461 <i>322</i>	16 <i>0</i>	23,687 <i>1,140</i>
Splake	0.0002	394 <i>232</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>	394 <i>232</i>
Northern Pike	0.0015	37 <i>0</i>	408 <i>271</i>	25 <i>26</i>	0 <i>0</i>	1,835 <i>876</i>	810 <i>497</i>	0 <i>0</i>	3,115 <i>1,043</i>
White Perch	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	122 <i>122</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	122 <i>122</i>
Smallmouth Bass	0.0086	0 <i>0</i>	2,054 <i>808</i>	5,384 <i>1,241</i>	4,763 <i>1,015</i>	4,531 <i>1,682</i>	565 <i>303</i>	0 <i>0</i>	17,297 <i>2,479</i>
Yellow Perch	0.0683	3,649 <i>1,846</i>	1,473 <i>843</i>	22,954 <i>3,340</i>	47,364 <i>5,437</i>	32,604 <i>5,142</i>	29,739 <i>11,913</i>	0 <i>0</i>	137,783 <i>14,601</i>
Walleye	0.0106	4,939 <i>2,744</i>	7,260 <i>1,352</i>	3,122 <i>1,056</i>	1,658 <i>1,081</i>	2,370 <i>806</i>	2,042 <i>550</i>	0 <i>0</i>	21,391 <i>3,548</i>
Total Harvest	0.2913	11,593	15,922	69,249	179,961	191,179	118,888	730	587,522

	<i>3,344</i>	<i>1,901</i>	<i>4,013</i>	<i>7,372</i>	<i>7,693</i>	<i>13,045</i>	<i>0</i>	<i>17,737</i>
Angler Hours	105,998	135,776	307,056	607,134	574,146	284,486	2,121	2,016,717
	<i>20,190</i>	<i>14,211</i>	<i>13,271</i>	<i>24,729</i>	<i>28,759</i>	<i>14,443</i>	<i>0</i>	<i>49,325</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 2003. Standard deviations are in Italics.

Species	Harvest	Mar/Apr	May	June	July	August	Sept/Oct	Season
	per hour							
Coho Salmon	0.0022	39 <i>39</i>	11 <i>8</i>	0 <i>0</i>	36 <i>26</i>	30 <i>28</i>	211 <i>98</i>	327 <i>112</i>
Chinook Salmon	0.0228	13 <i>12</i>	0 <i>0</i>	0 <i>0</i>	211 <i>98</i>	551 <i>161</i>	2,656 <i>226</i>	3,431 <i>294</i>
Rainbow Trout	0.0050	85 <i>48</i>	7 <i>8</i>	34 <i>20</i>	162 <i>52</i>	100 <i>33</i>	361 <i>124</i>	749 <i>148</i>
Brown Trout	0.0254	833 <i>214</i>	88 <i>33</i>	251 <i>93</i>	508 <i>135</i>	450 <i>143</i>	1,694 <i>399</i>	3,824 <i>504</i>
Brook Trout	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	12 <i>11</i>	0 <i>0</i>	0 <i>0</i>	12 <i>11</i>
Lake Trout	0.0008	13 <i>12</i>	0 <i>0</i>	32 <i>32</i>	0 <i>0</i>	27 <i>13</i>	49 <i>41</i>	121 <i>55</i>
Splake	0.0001	22 <i>18</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	22 <i>18</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>	43 <i>44</i>	43 <i>44</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	0.0041	0 <i>0</i>	192 <i>122</i>	306 <i>183</i>	0 <i>0</i>	98 <i>99</i>	28 <i>30</i>	624 <i>243</i>
Yellow Perch	0.0527	877 <i>0</i>	0 <i>0</i>	1,565 <i>476</i>	2,812 <i>667</i>	2,211 <i>565</i>	483 <i>281</i>	7,948 <i>1,034</i>
Walleye	0.0004	22 <i>18</i>	0 <i>0</i>	43 <i>43</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	65 <i>47</i>
Total Harvest	0.1138	1,904	298	2,231	3,741	3,467	5,525	17,166

	225	127	521	690	614	564	1,229
Angler Hours	2,197	6,871	19,327	32,772	31,782	51,735	150,784
	<i>1,352</i>	<i>743</i>	<i>2,030</i>	<i>3,346</i>	<i>2,845</i>	<i>3,388</i>	<i>6,105</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 2003. Standard deviations are in *italics*.

Species	Harvest	Mar/Apr	May	June	July	August	Sept/Oct	Season
	per hour							
Coho Salmon	0.0066	31 <i>20</i>	14 <i>10</i>	17 <i>17</i>	0 <i>0</i>	10 <i>10</i>	1,427 <i>325</i>	1,499 <i>327</i>
Chinook Salmon	0.0239	6 <i>6</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	6 <i>6</i>	5,420 <i>763</i>	5,432 <i>763</i>
Rainbow Trout	0.0062	275 <i>86</i>	42 <i>22</i>	7 <i>7</i>	30 <i>21</i>	92 <i>75</i>	960 <i>230</i>	1,406 <i>259</i>
Brown Trout	0.0289	1,771 <i>312</i>	309 <i>77</i>	205 <i>87</i>	548 <i>131</i>	186 <i>70</i>	3,555 <i>597</i>	6,574 <i>699</i>
Brook Trout	0.0002	19 <i>20</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	18 <i>18</i>	37 <i>26</i>
Lake Trout	0.0002	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	47 <i>37</i>	47 <i>37</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	0.0008	0 <i>0</i>	173 <i>84</i>	0 <i>0</i>	0 <i>0</i>	13 <i>15</i>	0 <i>0</i>	186 <i>85</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	0.0057	0 <i>0</i>	753 <i>423</i>	256 <i>139</i>	151 <i>73</i>	83 <i>47</i>	45 <i>36</i>	1,288 <i>455</i>
Yellow Perch	0.0451	1,210 <i>551</i>	0 <i>0</i>	1,812 <i>511</i>	4,021 <i>776</i>	2,174 <i>564</i>	1,053 <i>563</i>	10,270 <i>1,342</i>
Walleye	0.0001	0	0	32	0	0	0	32

		<i>0</i>	<i>0</i>	<i>32</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>32</i>
Total Harvest	0.1176	3,312 <i>640</i>	1,291 <i>438</i>	2,329 <i>538</i>	4,750 <i>791</i>	2,564 <i>575</i>	12,525 <i>1,190</i>	26,771 <i>1,807</i>
Angler Hours		23,033 <i>2,374</i>	11,524 <i>1,013</i>	20,478 <i>2,052</i>	31,741 <i>2,372</i>	21,170 <i>1,900</i>	119,663 <i>7,738</i>	227,609 <i>8,943</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 2003. Standard deviations are in *Italics*.

Species	Harvest per hour	Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0015	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	440 <i>157</i>	33 <i>11</i>	473 <i>158</i>
Chinook Salmon	0.0850	5 <i>4</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	26,037 <i>4,261</i>	29 <i>10</i>	26,071 <i>4,261</i>
Rainbow Trout	0.0149	3,690 <i>670</i>	61 <i>65</i>	488 <i>378</i>	0 <i>0</i>	0 <i>0</i>	236 <i>105</i>	101 <i>21</i>	4,576 <i>780</i>
Brown Trout	0.0079	1,657 <i>426</i>	40 <i>24</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	401 <i>147</i>	330 <i>53</i>	2,428 <i>455</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	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	26 <i>25</i>	0 <i>0</i>	26 <i>25</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	0.0000	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>
White Perch	0.0008	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	234 <i>171</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	234 <i>171</i>
Smallmouth Bass	0.0001	0 <i>0</i>	44 <i>39</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	44 <i>39</i>
Yellow Perch	0.0010	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	320 <i>148</i>	0 <i>0</i>	0 <i>0</i>	320 <i>148</i>
Walleye	0.0043	279	57	0	0	0	982	0	1,318

		136	51	0	0	0	352	0	381
Total Harvest	0.1157	5,631	202	488	234	320	28,122	493	35,490
		806	95	378	171	148	4,283	58	4,381
Angler Hours		87,421	15,812	20,362	7,932	12,416	156,264	6,494	306,701
		6,157	2,294	4,577	2,346	3,484	9,915	502	13,428

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 1994 through 2003, 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					
1994	3.3084	2.2217	20.1049	3.2844	3.8168
1995	3.1598	1.9908	20.3647	3.4795	3.6060
1996	4.6377	2.0180	22.5823	3.1358	3.8673
1997	3.0543	1.4843	20.2170	2.7918	3.5368
1998	3.3491	1.6776	21.0745	2.6494	3.5612
1999	7.1347	3.6900	25.1350	5.1092	4.2368
2000	4.0721	2.1511	22.0099	2.8268	4.1604
2001	4.7353	1.9752	22.6677	3.0532	4.0207
2002	3.5174	2.0263	21.0377	3.5987	3.5289
2003	4.6807	1.8751	23.0807	2.9682	3.7452
Chinook salmon					
1994	10.4453	8.3485	27.0273	8.7192	9.9749
1995	9.8882	8.1733	26.3952	8.1126	10.4336
1996	8.0482	6.7959	25.7176	7.1099	9.7475
1997	9.1569	6.2956	27.3781	6.7461	9.7349
1998	9.9393	6.1881	27.9896	6.3117	9.8589
1999	12.5209	6.0866	31.0947	5.7288	9.9412
2000	12.2476	6.7192	29.3772	6.8487	10.7068
2001	13.1640	6.1913	31.0019	6.1715	9.9143
2002	12.2901	6.6454	30.7430	7.1419	9.4467
2003	9.7510	5.7925	28.5172	5.6862	9.6825
Rainbow trout					
1994	6.2132	3.0697	25.5027	4.3581	3.8532
1995	6.2328	2.9497	25.4630	4.1472	3.8015
1996	6.7903	2.8603	25.8947	4.0637	3.8888
1997	6.8474	2.8552	26.6210	4.0443	3.7207
1998	6.1913	2.6461	25.9667	3.6238	3.5888
1999	7.2340	3.3254	25.9069	5.2089	3.9814
2000	6.1574	3.1588	25.4504	4.2857	3.9674
2001	6.9539	3.0306	25.6720	4.7128	4.4443
2002	6.2470	2.8717	25.8321	4.4530	3.7924
2003	6.1235	2.9715	25.2357	4.8806	3.8857
Brown trout					
1994	5.5798	3.9554	21.1341	4.7054	3.9035
1995	5.2797	3.4391	21.1004	3.9226	3.9589
1996	5.5350	3.8506	21.1594	4.2634	3.8506
1997	4.8983	2.8484	21.1254	4.0540	3.4188
1998	5.9500	3.9901	21.9235	5.1606	3.7211
1999	6.0660	3.4702	22.1970	4.5156	3.9397
2000	6.2217	3.5200	22.7410	3.8632	3.6338
2001	7.2119	4.6059	23.4689	5.5950	3.8042
2002	5.4742	3.2102	21.5383	4.6496	3.6206
2003	5.9883	3.7869	22.0368	4.8654	3.9051
Lake trout					
1994	7.1624	3.8173	26.3183	4.0057	5.7156
1995	8.7428	4.3848	27.3754	3.9492	6.5910
1996	7.5237	4.5938	26.3436	4.8990	5.4196
1997	7.3469	3.7751	26.5681	3.9708	5.6513
1998	8.4252	4.0276	27.4861	3.8883	5.6712
1999	9.2469	3.9323	28.0260	3.8194	6.0907
2000	8.1437	3.5085	27.4146	3.4736	5.7744
2001	8.8205	3.9134	27.6734	3.7005	6.1112
2002	7.3412	3.2020	26.9199	3.3907	5.3355

2003	5.8656	3.1534	24.7221	3.8386	5.8727
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Figure 1. Outline of Lake Michigan, with Wisconsin waters bounded by a dashed line.

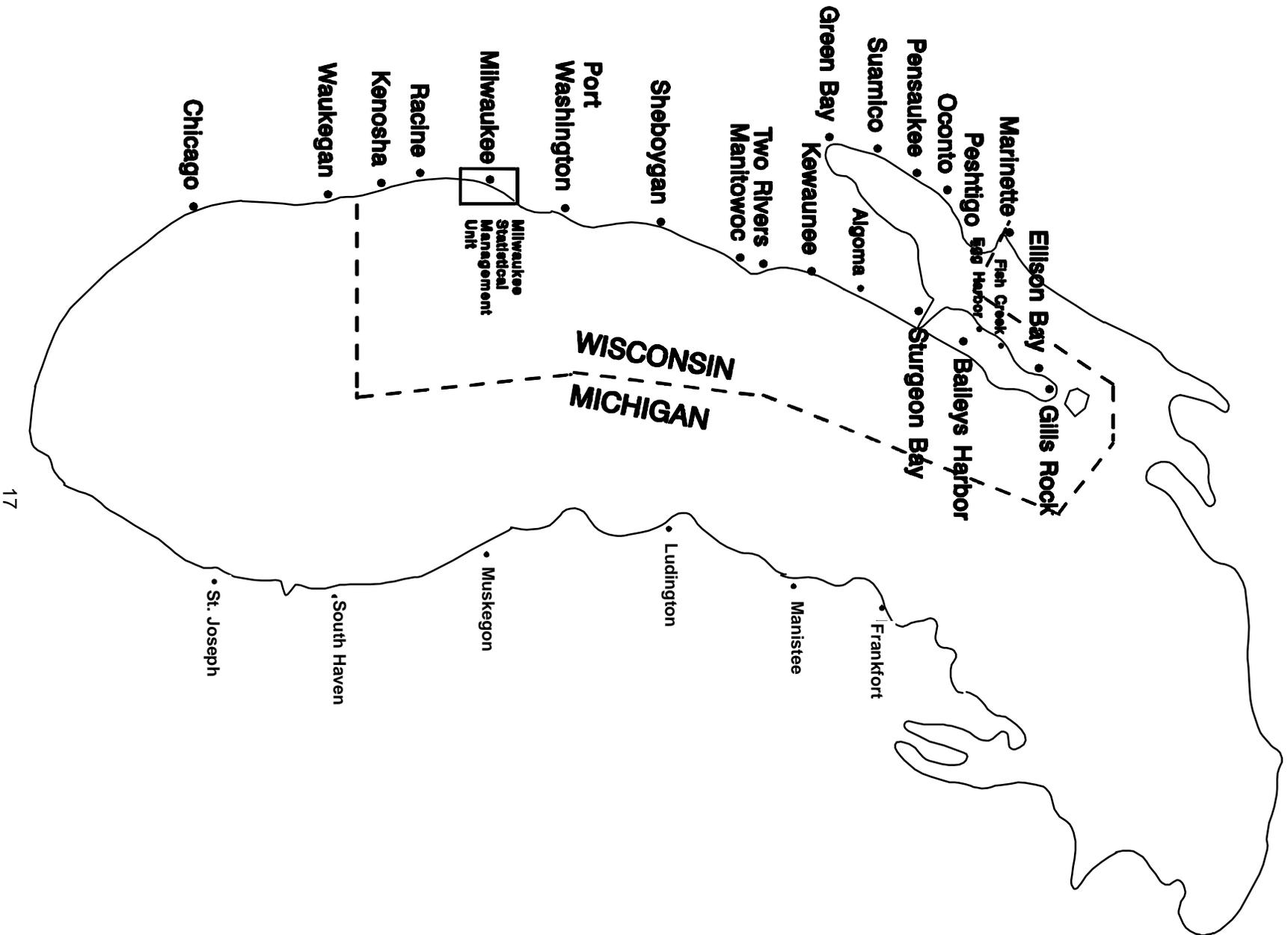


Figure 2. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay from 1994 through 2003.

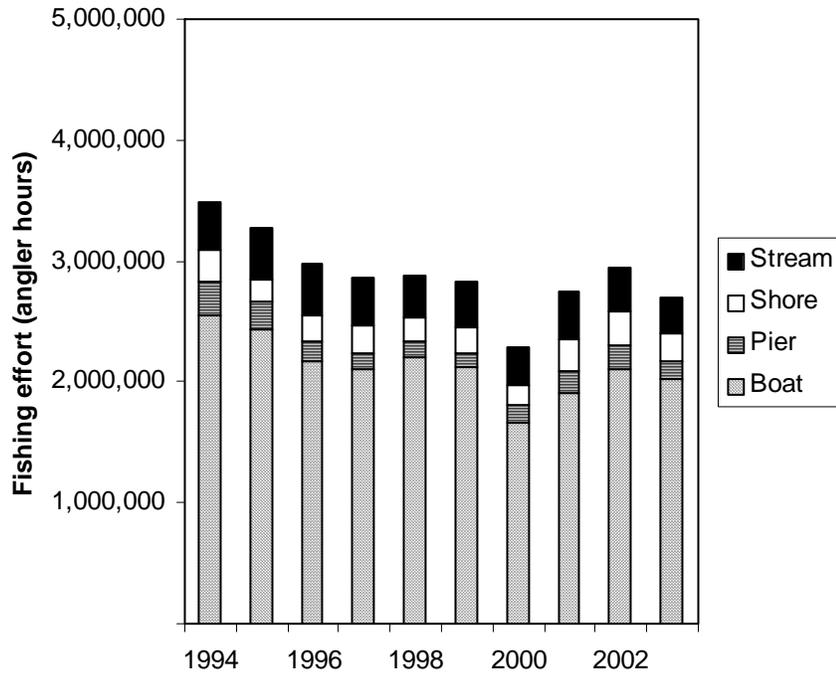


Figure 3. Trout and salmon harvest and harvest-rate from Wisconsin waters of Lake Michigan and Green Bay from 1994 through 2003.

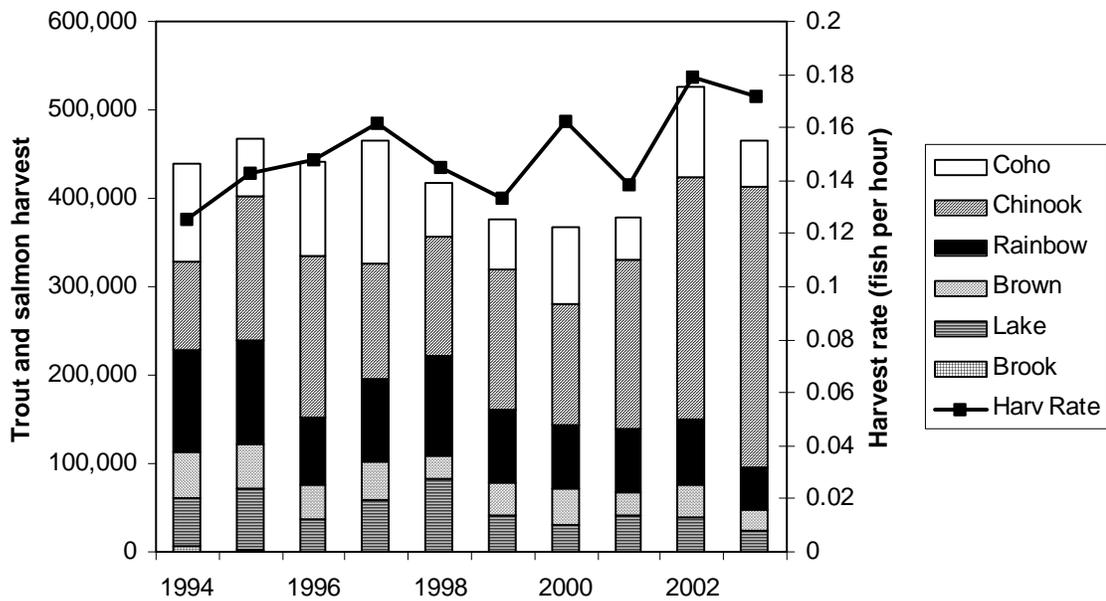


Figure 4. Yellow perch angler-harvest and harvest-rate from Wisconsin waters of Green Bay and Lake Michigan from 1994 through 2003.

