

Wisconsin's 2006 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, 2006 through December 31, 2006. 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 2,775,737 hours fishing on Lake Michigan and Green Bay during 2006 with boat-angler effort at 2,141,651 hours, or 77% of the total hours. The estimated harvest of 1,399,466 fish was dominated by yellow perch (825,358) and Chinook salmon (398,905), followed by coho salmon (56,136) and rainbow trout (48,420). The boat fishery, comprised of launched-boat, moored-boat and charter-boat anglers, dominated the fishery by harvesting an estimated 1,316,428 fish, which was 94% of the total harvest and was dominated by yellow perch (801,032), Chinook salmon (361,119), coho salmon (55,090), and rainbow trout (42,458). Pier, shore and stream anglers harvested primarily Chinook salmon, yellow perch, brown trout, and rainbow trout. Overall harvest-rates were highest for yellow perch at 0.2973 fish/hour and Chinook salmon at 0.1437 fish/hour.



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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 2006.

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 |

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

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 Sturgeon Bay Service Center. 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 Sturgeon Bay Service Center, entered and checked for errors.

RESULTS

Fishing effort in Wisconsin waters of Lake Michigan and Green Bay was estimated at 2,775,737 (\pm 47,519) hours during the 2006 open-water season of March 1 - December 31 (Table 1). Effort showed a slight decrease from 2005, but was 1% above the ten-year average (Figure 2). Effort was 15% above the average in Green Bay, while in Lake Michigan, effort was 14% below the average. Green Bay anglers had the most fishing effort of any SMU, at 880,607 (\pm 33,282) hours or 32% of all angler hours for 2006. Kewaunee County anglers were second at 401,030 (\pm 17,521) hours.

Angler hours were disproportionately spread among

the four fishery types. Boat anglers spent 2,141,651 (\pm 44,836) hours, or 77% of all angler hours, fishing on Lake Michigan or Green Bay (Figure 2). Stream anglers fished the second most at 292,074 (\pm 10,755) hours or 11% of the total. Shore and pier anglers fished 169,737 (\pm 7,371) and 172,275 (\pm 8,820) hours respectively.

Anglers harvested an estimated 531,885 (\pm 9,306) salmonids during the 2006 season (Table 2, Figure 3). Chinook salmon dominated the 2006 salmonid harvest, comprising 398,905 (\pm 8,658) fish or 75% of the total. This was the second highest Chinook harvest ever recorded, following the record set in 2005. Coho salmon harvest was second to Chinook at 56,136 (\pm 2,693), or 11% of the total. Rainbow trout harvest was 48,420 (\pm 1,700) fish, or 9% of the total, followed by brown trout at 17,769 (\pm 1,102), or 3% of the total. Lake trout comprised just 2% of the harvest at 10,638 (\pm 533), followed by brook trout harvest at 17 (\pm 8).

The combined harvest-rate for salmonids of 0.1916 was well above the ten-year average of 0.1677 (Table 2, Figure 3).

Anglers harvested an estimated 825,358 (\pm 55,995) yellow perch during 2006 (Table 3). Anglers harvested 757,698 (\pm 55,221) yellow perch in Green Bay, the highest harvest in the Bay since 1995 (Table 3, Figure 4). The harvest-rate was 0.8604 fish/hour. Lake Michigan anglers harvested 67,660 (\pm 9,285) yellow perch and had a harvest-rate of 0.0357 fish/hour (Table 3, Figure 4). Yellow perch harvest from all areas combined topped the salmonid harvest, with an overall harvest-rate of 0.2973 fish/hour (Table 4). As usual, the majority of the perch harvest (97%) was from boats, with a harvest-rate at 0.3740 fish/hour. The majority of the harvest took place in the summer months from June through August.

Overall perch harvest was 825,358 (\pm 55,995), or 172% higher than the ten-year average of 303,315 (\pm 22,811, Table 3, Figure 4). On Lake Michigan perch harvest was 67,660 (\pm 9,285), which was 31% above the ten-year average and 106% above the 2005 harvest. Green Bay experienced a 176% increase in perch harvest over 2005. The 2006 harvest increased to 757,698 (\pm 55,220) from 274,956 (\pm 19,231) a year before. This was also 202% above the ten-year average harvest (Table 3).

Perch harvest in Lake Michigan is becoming less focused on the 1998 year-class, which first recruited to the sport fishery during 2000 at age 2. The 2002 year-class recruited to the fishery in 2004 and is now being caught by sport anglers. Age was assigned using the anal spines of 382 Lake Michigan angler-caught yellow perch during 2006. The 2002 year-class represented 57% of the total on Lake Michigan, and the 1998 year-class represented 26%. The 2003 year-class also made up an additional 8% of the sport harvest, and the 2001 year-class contributed 6% to the fishery. This is corroborated by DNR's winter 2006-07 assessment catch of Lake Michigan perch, where 41% were from 2002, 23% from 1998, 12% from 2003, 8% from 2005, and 6% from the 2001 year-classes.

The majority of yellow perch harvested in 2006 in Green Bay were from the 2003 year-class. The anal spines of 244 Green Bay angler-caught perch were aged, and 75% were from 2003.

Management actions currently in place to protect the remaining Lake Michigan yellow perch population include: 1) closure of the Lake Michigan commercial season for yellow perch; and 2) a drop in the sport bag to five per day with a May 1 to June 15 closure. These measures are intended to protect the remaining yellow perch stocks by decreasing harvest of pre-spawn and spawning perch.

The commercial and sport regulations on Green Bay changed in 2006, reflecting the success of reasonably strong year-classes in 2002, 2004 and 2005, as well as an exceptionally strong year-class in 2003. 1) The Green Bay commercial quota was raised from 20,000 pounds to 60,000 pounds (which is still down from 200,000 pounds in 2000); and 2) as of May 20, 2006, the sport bag limit increased from 10 perch per day to 15 per day with continuation of the March 16 to May 19 closure.

The estimated harvest of 12 major species was 1,399,466 (\pm 56,973) fish for 2005 (Table 4). The majority of the harvest came from boat anglers (Table 5) who harvested 1,316,428 (\pm 56,845) fish or 94% of the total. Pier, shore and stream anglers accounted for 22,665 (\pm 2,015), 24,146 (\pm 1,585) and 36,277 (\pm 2,824) fish respectively (Tables 6-8).

The coho harvest of 56,136 (\pm 2,693) was similar to

the 2005 harvest and 24% below the ten-year average. Coho salmon were the second-most abundant salmonid and third-most abundant species harvested during 2006. Overall coho salmon harvest-rates were 0.0202 fish/hour (Table 4). Boat anglers harvested 98% of all coho salmon, with 55,090 (\pm 2,688) and had a harvest-rate of 0.0257 fish/hour (Table 5). The remaining harvest was divided among the pier, shore and stream anglers at 259 (\pm 77), 518 (\pm 117) and 269 (\pm 82) fish, respectively (Tables 6-8). Biological data collected on angler-caught coho salmon during 2006 show a mean weight of 3.8 (\pm 1.4) pounds, 12% below the ten-year average (Table 9). Mean length was 3% below the ten-year average at 21.6 (\pm 2.1) inches, while the standard weight of a 22-inch coho was 3.9 pounds, 2% above the ten-year average (Table 9).

Anglers harvested 398,905 (\pm 8,658) Chinook salmon during 2006, 58% above the ten-year average but 5% below the 2005 record harvest of 418,918 (Table 2). The harvest-rate in 2006 was 0.1437 fish/hour. Boat anglers in 2006 harvested 361,119 (\pm 8,196) fish or 91% of all Chinook (Table 5). Boat angler harvest-rates were 0.1686. The 2006 average weight of 10.2 (\pm 4.7) pounds was 6% below the ten-year average for Chinook salmon, and the average length of 29.4 (\pm 5.0) inches was nearly equal to the ten-year average (Table 9). The standard weight of 9.7 pounds for a 30-inch Chinook was 1% below the ten-year average.

Rainbow trout harvest was 48,420 (\pm 1,700), 29% below the ten-year average (Table 2). The majority (88%) of the harvest occurred in the boat fishery with 42,458 (\pm 1,579) fish (Table 5). Stream anglers harvested 3,911 (\pm 570) steelhead with a harvest-rate of 0.0134 fish/hour (Table 8). Rainbow trout were 4% above of their ten-year average weight, at 6.8 (\pm 2.5) pounds and just shy of their ten-year average length at 25.8 (\pm 3.8) inches (Table 9). The standard weight of a 22-inch rainbow was 4.3 pounds, 9% above the ten-year average.

Wisconsin anglers harvested 10,638 (\pm 533) lake trout in Lake Michigan, 70% below the ten-year average of 35,431 and the lowest harvest since 1970. The overall harvest-rate was 0.0038 fish/hour (Table 4). Boat anglers almost all of the lake trout, with 10,573 (\pm 532). The boat harvest-rate was 0.0049 fish/hour (Table 5). Lake trout

average size was 5.4 (\pm 2.1) pounds and 24.2 (\pm 3.1) inches, 24% and 7% below their ten-year averages, respectively. The standard weight was 5.6 pounds for a 25-inch lake trout, which is just 3% below the ten-year average (Table 9).

An estimated 17,769 (\pm 1,102) brown trout were harvested during 2006 from all surveyed areas, with an overall harvest-rate of 0.0064 fish/hour (Table 4). This was 41% below the ten-year average and the lowest harvest since 1973. Boat anglers harvested the majority of brown trout with 9,999 (\pm 835), or 56% of the total harvest (Table 5). The remaining harvest was divided among the pier, shore and stream anglers at 1,916 (\pm 357), 3,692 (\pm 492) and 2,162 (\pm 383) fish, respectively (Tables 6-8). Brown trout biological data for 2006 were slightly above the ten-year average, with a mean size of 6.3 (\pm 3.6) pounds and 22.7 (\pm 4.7) inches (Table 9). The 2006 standard weight of 3.9 pounds for a 20-inch fish is 5% above average.

Walleye harvest during the 2006 open-water fishing season was 30,165 (\pm 4,367, Table 4), 51% above the ten-year average and 221% above 2005 harvest. The overall harvest-rate for walleye was 0.0109 fish/hour. Boat anglers harvested 25,435 (\pm 4,263) walleyes (Table 5), followed by stream anglers with 4,558 (\pm 946, Table 6).

Smallmouth bass harvest has declined considerably since 1997, and that trend continued in 2006. Harvest was 61% below the ten-year average at 8,444 (\pm 2,063) fish (Table 4). Overall harvest-rates were 0.0030 fish/hour. Again, boat anglers harvested the majority of the smallmouth bass, with 7,559 (\pm 2,052) fish or 90% of the total (Table 5). The boat harvest-rate was 0.0035 fish/hour.

Northern pike harvest was 3,308 (\pm 718), 14% above the ten-year average (Table 4). Most of the northern pike harvest came from the boat fishery, at 93% (Table 5). The shore and stream fisheries accounted for 6% and 1% of the harvest, respectively (Tables 7 and 8).

White perch harvest in 2006 remained low at 294 (\pm 139), or 96% below the ten-year average harvest (Table 4). This is likely due to a cyclical drop in white perch population levels. Of the white perch harvested in 2006, 60% were in the stream fishery and the remaining 40% were split between the boat and shore fisheries (Tables 5, 7 and 8).

Harvest of the remaining species, brook trout and splake, was insignificant in 2006, with only 17 (\pm 8) and 12 (\pm 12) fish harvested, respectively (Table 4).

SUMMARY

In 2006 Lake Michigan anglers spent an estimated 2,775,737 hours fishing on Lake Michigan and Green Bay, with a boat-angler effort of 2,141,651 hours, or 77% of the total hours. The estimated harvest of 1,399,466 fish was dominated by yellow perch (825,358) and Chinook salmon (398,905).

Fishing effort during 2006 was just over the ten-year average (Table 1). Effort was 15% above average in Green Bay and was the highest recorded since 1998. Lake Michigan effort was 4% below the ten-year average.

Perch harvest in 2006 rebounded in both Lake Michigan and Green Bay, with each area producing its highest perch harvest since 1995. The harvest in Green Bay was 202% above the ten-year average and that in Lake Michigan was 31% above average (Table 3).

Differential year-classes (2003 in Green Bay, 2002 in Lake Michigan, 1998 in Green Bay and Lake Michigan) play a large role in the harvests in these areas. A potential 2005 year-class of yellow perch in Lake Michigan could have a strong positive effect on the harvest in 2007 and 2008.

Harvest of Chinook salmon was 58% above the ten-year average and was the second highest Chinook harvest since the beginning of the creel survey (Table 2). The harvest of other salmonids was below average. The 2006 standard weights of all salmonids were above 2005 values (Table 9).

Since 1983 stocking of lake trout has been heavily concentrated on the midlake reef in Wisconsin waters of Lake Michigan. It appears those lake trout stocked nearshore between 1970 and 1982 are depleted, which is corroborated by a significant drop in lake trout harvest since 1999. When more lake trout became available in the late 1990s, nearshore stocking of lake trout was resumed at historical stocking and spawning locations. These include numerous onshore areas from Door to Kenosha County. Hopefully, with the resumption of

nearshore stocking in 1997, lake trout harvest will increase in the 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 continued to show up in the creel survey. Both Arlees and Kamloops will be stocked annually through 2007, 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 1997 through 2006. Standard deviations are in Italics.

| Location | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|---------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Kenosha Co. | 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> | 178,733 <i>6,785</i> | 149,044 <i>6,744</i> | 160,145 <i>7,114</i> | 176,575 <i>8,747</i> |
| Racine Co. | 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> | 166,653 <i>9,197</i> | 157,571 <i>8,415</i> | 148,919 <i>9,293</i> | 210,657 <i>12,443</i> |
| Milwaukee Co. | 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> | 323,797 <i>10,194</i> | 277,583 <i>13,694</i> | 289,698 <i>11,476</i> | 300,962 <i>11,158</i> |
| Ozaukee Co. | 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> | 199,405 <i>10,273</i> | 219,929 <i>11,199</i> | 190,431 <i>10,156</i> | 223,561 <i>12,460</i> |
| Sheboygan Co. | 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> | 183,880 <i>10,713</i> | 224,373 <i>13,536</i> | 236,400 <i>12,525</i> | 223,527 <i>13,051</i> |
| Manitowoc Co. | 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> | 244,227 <i>13,142</i> | 246,770 <i>12,523</i> | 208,400 <i>12,619</i> | 215,075 <i>11,056</i> |
| Kewaunee Co. | 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> | 428,023 <i>18,769</i> | 463,532 <i>22,719</i> | 401,030 <i>17,521</i> | 381,029 <i>21,109</i> |
| E. Door Co. | 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> | 222,330 <i>11,613</i> | 233,079 <i>15,585</i> | 260,107 <i>12,469</i> | 240,323 <i>15,599</i> |
| Green Bay | 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> | 671,652 <i>25,288</i> | 819,005 <i>42,854</i> | 880,607 <i>33,282</i> | 768,851 <i>31,749</i> |
| Total Effort | 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> | 2,618,700 <i>41,882</i> | 2,790,886 <i>58,007</i> | 2,775,737 <i>47,519</i> | 2,740,557 <i>50,006</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 1997 through 2006. Standard deviations are in Italics.

| Species | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|-------------------------|--------------------------|-------------------------|-------------------------|
| Coho Salmon | 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> | 76,944 <i>2,792</i> | 59,244 <i>2,690</i> | 56,136 <i>2,693</i> | 73,459 <i>3,330</i> |
| Chinook Salmon | 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> | 360,991 <i>8,260</i> | 418,918 <i>10,781</i> | 398,905 <i>8,658</i> | 252,438 <i>7,741</i> |
| Rainbow Trout | 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> | 25,529 <i>1,194</i> | 48,490 <i>3,539</i> | 48,420 <i>1,700</i> | 67,931 <i>3,193</i> |
| Brown Trout | 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> | 20,918 <i>1,457</i> | 27,489 <i>6,235</i> | 17,769 <i>1,102</i> | 30,022 <i>3,085</i> |
| Brook Trout | 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 <i>0</i> | 18 <i>12</i> | 17 <i>8</i> | 180 <i>158</i> |
| Lake Trout | 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> | 14,209 <i>709</i> | 14,139 <i>737</i> | 10,638 <i>533</i> | 35,431 <i>1,855</i> |
| Total Harvest | 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> | 498,592 <i>8,948</i> | 568,298 <i>13,244</i> | 531,885 <i>9,306</i> | 459,461 <i>9,706</i> |
| Harvest-Rate | 0.1619 | 0.1451 | 0.1331 | 0.1625 | 0.1382 | 0.1789 | 0.1719 | 0.1904 | 0.2036 | 0.1916 | 0.1677 |

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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 1997 through 2006. Standard deviations are in Italics.

| Location | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| Green Bay | 204,267 <i>16,429</i> | 221,502 <i>20,528</i> | 245,634 <i>22,037</i> | 275,410 <i>22,625</i> | 218,838 <i>21,110</i> | 153,857 <i>15,661</i> | 89,889 <i>6,819</i> | 66,343 <i>6,261</i> | 274,956 <i>19,231</i> | 757,698 <i>55,220</i> | 250,839 <i>20,592</i> |
| Harvest-Rate | 0.2303 | 0.2445 | 0.2868 | 0.4266 | 0.3275 | 0.2187 | 0.1382 | 0.0988 | 0.3357 | 0.8604 | 0.3167 |
| Lake Michigan | 31,147 <i>4,103</i> | 25,695 <i>3,527</i> | 23,371 <i>4,186</i> | 16,265 <i>14,679</i> | 120,931 <i>10,903</i> | 88,452 <i>7,578</i> | 66,432 <i>13,023</i> | 41,950 <i>5,105</i> | 32,848 <i>8,472</i> | 67,660 <i>9,285</i> | 51,475 <i>8,086</i> |
| Harvest-Rate | 0.0157 | 0.0131 | 0.0119 | 0.0100 | 0.0584 | 0.0394 | 0.0324 | 0.0215 | 0.0167 | 0.0357 | 0.0255 |
| Total Harvest | 235,414 <i>16,934</i> | 257,197 <i>20,829</i> | 269,005 <i>22,432</i> | 291,675 <i>26,971</i> | 339,769 <i>23,759</i> | 242,309 <i>17,398</i> | 156,321 <i>14,700</i> | 108,293 <i>8,078</i> | 307,804 <i>21,015</i> | 825,358 <i>55,995</i> | 303,315 <i>22,811</i> |
| Harvest-Rate | 0.0821 | 0.0896 | 0.0952 | 0.1286 | 0.1240 | 0.0823 | 0.0579 | 0.0414 | 0.1103 | 0.2973 | 0.1109 |

Note: Table 3 has been updated to reflect that the Door County ramp and shore sites have been changed from Lake Michigan to Green Bay sites 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 2006. Standard deviations are in *Italics*.

| Species | Harvest per Hour | Mar/Apr | May | June | July | August | Sept/Oct | Nov/Dec | Season |
|-----------------|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------|----------------------------|
| Coho Salmon | 0.0202 | 300 <i>143</i> | 20,800 <i>2,094</i> | 19,536 <i>1,415</i> | 10,357 <i>756</i> | 3,570 <i>479</i> | 1,491 <i>206</i> | 82 <i>24</i> | 56,136 <i>2,693</i> |
| Chinook Salmon | 0.1437 | 23 <i>0</i> | 5,889 <i>820</i> | 42,442 <i>2,169</i> | 155,454 <i>6,019</i> | 118,462 <i>4,117</i> | 75,603 <i>4,050</i> | 1,032 <i>86</i> | 398,905 <i>8,658</i> |
| Rainbow Trout | 0.0174 | 3,610 <i>566</i> | 2,735 <i>306</i> | 10,266 <i>723</i> | 22,153 <i>1,241</i> | 6,941 <i>551</i> | 2,490 <i>327</i> | 225 <i>47</i> | 48,420 <i>1,700</i> |
| Brown Trout | 0.0064 | 6,652 <i>759</i> | 532 <i>126</i> | 270 <i>76</i> | 2,262 <i>349</i> | 2,179 <i>306</i> | 5,321 <i>629</i> | 553 <i>74</i> | 17,769 <i>1,102</i> |
| Brook Trout | 0.0000 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 1 <i>0</i> | 7 <i>0</i> | 9 <i>8</i> | 0 <i>0</i> | 17 <i>8</i> |
| Lake Trout | 0.0038 | 137 <i>75</i> | 680 <i>126</i> | 2,745 <i>277</i> | 3,521 <i>298</i> | 2,766 <i>258</i> | 728 <i>175</i> | 61 <i>0</i> | 10,638 <i>533</i> |
| Splake | 0.0000 | 12 <i>12</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> | 12 <i>12</i> |
| Northern Pike | 0.0012 | 248 <i>161</i> | 219 <i>176</i> | 101 <i>72</i> | 190 <i>142</i> | 2,222 <i>628</i> | 328 <i>196</i> | 0 <i>0</i> | 3,308 <i>718</i> |
| White Perch | 0.0001 | 19 <i>19</i> | 72 <i>72</i> | 47 <i>47</i> | 0 <i>0</i> | 156 <i>108</i> | 0 <i>0</i> | 0 <i>0</i> | 294 <i>139</i> |
| Smallmouth Bass | 0.0030 | 0 <i>0</i> | 2,249 <i>753</i> | 915 <i>399</i> | 3,125 <i>1,799</i> | 1,801 <i>502</i> | 354 <i>193</i> | 0 <i>0</i> | 8,444 <i>2,063</i> |
| Yellow Perch | 0.2973 | 1,080 <i>733</i> | 8,162 <i>2,723</i> | 160,526 <i>17,190</i> | 270,650 <i>35,660</i> | 280,433 <i>32,225</i> | 104,507 <i>22,845</i> | 0 <i>0</i> | 825,358 <i>55,995</i> |
| Walleye | 0.0109 | 4,098 <i>874</i> | 10,000 <i>3,614</i> | 4,449 <i>1,154</i> | 6,025 <i>1,616</i> | 3,356 <i>876</i> | 2,237 <i>735</i> | 0 <i>0</i> | 30,165 <i>4,367</i> |
| Total Harvest | 0.5042 | 16,179 <i>1,500</i> | 51,338 <i>5,125</i> | 241,297 <i>17,444</i> | 473,738 <i>36,277</i> | 421,893 <i>32,520</i> | 193,068 <i>23,227</i> | 1,953 <i>125</i> | 1,399,466 <i>56,973</i> |
| Angler Hours | | 209,613 <i>13,447</i> | 216,449 <i>13,245</i> | 386,316 <i>14,683</i> | 847,564 <i>30,375</i> | 591,766 <i>21,077</i> | 512,875 <i>17,863</i> | 11,154 <i>598</i> | 2,775,737 <i>47,519</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 2006. Standard deviations are in *Italics*.

| Species | Harvest per hour | Mar/Apr | May | June | July | August | Sept/Oct | Nov/Dec | Season |
|-----------------|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------|----------------------------|
| Coho Salmon | 0.0257 | 300 <i>143</i> | 20,631 <i>2,093</i> | 19,528 <i>1,415</i> | 10,357 <i>756</i> | 3,570 <i>479</i> | 680 <i>146</i> | 24 <i>0</i> | 55,090 <i>2,688</i> |
| Chinook Salmon | 0.1686 | 23 <i>0</i> | 5,798 <i>817</i> | 42,442 <i>2,169</i> | 153,727 <i>6,003</i> | 117,037 <i>4,098</i> | 41,223 <i>2,997</i> | 869 <i>0</i> | 361,119 <i>8,196</i> |
| Rainbow Trout | 0.0198 | 322 <i>189</i> | 2,625 <i>295</i> | 10,266 <i>723</i> | 21,963 <i>1,239</i> | 6,492 <i>538</i> | 763 <i>154</i> | 27 <i>0</i> | 42,458 <i>1,579</i> |
| Brown Trout | 0.0047 | 3,534 <i>567</i> | 334 <i>109</i> | 112 <i>43</i> | 1,693 <i>257</i> | 1,900 <i>279</i> | 2,252 <i>468</i> | 174 <i>0</i> | 9,999 <i>835</i> |
| Brook Trout | 0.0000 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 1 <i>0</i> | 7 <i>0</i> | 1 <i>0</i> | 0 <i>0</i> | 9 <i>0</i> |
| Lake Trout | 0.0049 | 127 <i>74</i> | 680 <i>126</i> | 2,745 <i>277</i> | 3,521 <i>298</i> | 2,766 <i>258</i> | 673 <i>172</i> | 61 <i>0</i> | 10,573 <i>532</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 | 0.0014 | 208 <i>157</i> | 173 <i>173</i> | 101 <i>72</i> | 177 <i>141</i> | 2,208 <i>628</i> | 215 <i>177</i> | 0 <i>0</i> | 3,082 <i>711</i> |
| White Perch | 0.0000 | 0 <i>0</i> | 72 <i>72</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 72 <i>72</i> |
| Smallmouth Bass | 0.0035 | 0 <i>0</i> | 2,136 <i>751</i> | 902 <i>399</i> | 2,763 <i>1,794</i> | 1,579 <i>489</i> | 179 <i>177</i> | 0 <i>0</i> | 7,559 <i>2,052</i> |
| Yellow Perch | 0.3740 | 1,080 <i>733</i> | 7,875 <i>2,718</i> | 155,240 <i>17,166</i> | 257,291 <i>35,615</i> | 276,102 <i>32,214</i> | 103,444 <i>22,843</i> | 0 <i>0</i> | 801,032 <i>55,952</i> |
| Walleye | 0.0119 | 3,068 <i>789</i> | 8,985 <i>3,595</i> | 3,350 <i>941</i> | 5,366 <i>1,597</i> | 3,083 <i>832</i> | 1,583 <i>703</i> | 0 <i>0</i> | 25,435 <i>4,263</i> |
| Total Harvest | 0.6147 | 8,662 <i>1,252</i> | 49,309 <i>5,106</i> | 234,686 <i>17,408</i> | 456,859 <i>36,229</i> | 414,744 <i>32,504</i> | 151,013 <i>23,057</i> | 1,155 <i>0</i> | 1,316,428 <i>56,845</i> |
| Angler Hours | | 104,713 <i>11,964</i> | 182,867 <i>12,907</i> | 331,808 <i>14,149</i> | 756,160 <i>29,637</i> | 530,929 <i>20,688</i> | 232,524 <i>13,928</i> | 2,650 <i>0</i> | 2,141,651 <i>44,836</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 2006. Standard deviations are in *italics*.

| Species | Harvest | Mar/Apr | May | June | July | August | Sept/Oct | Season |
|-----------------|----------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| | per hour | | | | | | | |
| Coho Salmon | 0.0015 | 0 <i>0</i> | 169 <i>67</i> | 8 <i>8</i> | 0 <i>0</i> | 0 <i>0</i> | 82 <i>37</i> | 259 <i>77</i> |
| Chinook Salmon | 0.0331 | 0 <i>0</i> | 84 <i>69</i> | 0 <i>0</i> | 1,550 <i>447</i> | 1,318 <i>388</i> | 2,757 <i>381</i> | 5,709 <i>707</i> |
| Rainbow Trout | 0.0054 | 45 <i>45</i> | 0 <i>0</i> | 0 <i>0</i> | 190 <i>76</i> | 433 <i>118</i> | 259 <i>93</i> | 927 <i>174</i> |
| Brown Trout | 0.0111 | 486 <i>210</i> | 174 <i>60</i> | 96 <i>52</i> | 489 <i>223</i> | 261 <i>125</i> | 410 <i>109</i> | 1,916 <i>357</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 | 0.0001 | 10 <i>10</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 14 <i>9</i> | 24 <i>13</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 | 0.0000 | 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> |
| 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 | 0.0018 | 0 <i>0</i> | 90 <i>58</i> | 13 <i>13</i> | 135 <i>75</i> | 54 <i>55</i> | 21 <i>25</i> | 313 <i>113</i> |
| Yellow Perch | 0.0777 | 0 <i>0</i> | 24 <i>27</i> | 2,196 <i>666</i> | 7,412 <i>1,492</i> | 3,620 <i>834</i> | 139 <i>114</i> | 13,391 <i>1,838</i> |
| Walleye | 0.0007 | 0 <i>0</i> | 121 <i>67</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 5 <i>5</i> | 126 <i>68</i> |
| Total Harvest | 0.1316 | 541 <i>215</i> | 662 <i>146</i> | 2,313 <i>668</i> | 9,776 <i>1,577</i> | 5,686 <i>937</i> | 3,687 <i>425</i> | 22,665 <i>2,015</i> |
| Angler Hours | | 9,642 <i>1,225</i> | 12,170 <i>1,225</i> | 21,417 <i>2,383</i> | 51,068 <i>5,816</i> | 37,767 <i>3,240</i> | 40,211 <i>4,980</i> | 172,275 <i>8,820</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 2006. Standard deviations are in *Italics*.

| Species | Harvest | Mar/Apr | May | June | July | August | Sept/Oct | Season |
|-----------------|----------|------------------------|---------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| | per hour | | | | | | | |
| Coho Salmon | 0.0031 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 518 <i>117</i> | 518 <i>117</i> |
| Chinook Salmon | 0.0479 | 0 <i>0</i> | 7 <i>5</i> | 0 <i>0</i> | 177 <i>4</i> | 107 <i>98</i> | 7,831 <i>839</i> | 8,122 <i>845</i> |
| Rainbow Trout | 0.0066 | 230 <i>77</i> | 28 <i>19</i> | 0 <i>0</i> | 0 <i>0</i> | 16 <i>19</i> | 850 <i>187</i> | 1,124 <i>204</i> |
| Brown Trout | 0.0218 | 1,546 <i>339</i> | 24 <i>18</i> | 62 <i>35</i> | 80 <i>79</i> | 18 <i>18</i> | 1,962 <i>345</i> | 3,692 <i>492</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> | 8 <i>8</i> | 8 <i>8</i> |
| Lake Trout | 0.0000 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 8 <i>8</i> | 8 <i>8</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 | 0.0011 | 6 <i>5</i> | 46 <i>32</i> | 0 <i>0</i> | 13 <i>13</i> | 14 <i>12</i> | 105 <i>84</i> | 184 <i>92</i> |
| White Perch | 0.0003 | 0 <i>0</i> | 0 <i>0</i> | 47 <i>47</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 47 <i>47</i> |
| Smallmouth Bass | 0.0032 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 227 <i>124</i> | 168 <i>99</i> | 154 <i>75</i> | 549 <i>175</i> |
| Yellow Perch | 0.0580 | 0 <i>0</i> | 263 <i>161</i> | 2,304 <i>622</i> | 5,947 <i>956</i> | 654 <i>185</i> | 680 <i>311</i> | 9,848 <i>1,207</i> |
| Walleye | 0.0003 | 46 <i>41</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 46 <i>41</i> |
| Total Harvest | 0.1423 | 1,828 <i>350</i> | 368 <i>166</i> | 2,413 <i>625</i> | 6,444 <i>967</i> | 977 <i>233</i> | 12,116 <i>991</i> | 24,146 <i>1,585</i> |
| Angler Hours | | 16,925 <i>2,048</i> | 8,305 <i>849</i> | 13,285 <i>1,306</i> | 24,211 <i>2,240</i> | 15,657 <i>1,356</i> | 91,354 <i>6,392</i> | 169,737 <i>7,371</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 2006. Standard deviations are in *Italics*.

| Species | Harvest | Mar/Apr | May | June | July | August | Sept/Oct | Nov/Dec | Season |
|-----------------|----------|------------------------|------------------------|------------------------|------------------------|-----------------------|-------------------------|---------------------|--------------------------|
| | per hour | | | | | | | | |
| Coho Salmon | 0.0009 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 211 <i>78</i> | 58 <i>24</i> | 269 <i>82</i> |
| Chinook Salmon | 0.0820 | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 23,792 <i>2,563</i> | 163 <i>86</i> | 23,955 <i>2,565</i> |
| Rainbow Trout | 0.0134 | 3,013 <i>526</i> | 82 <i>78</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 618 <i>200</i> | 198 <i>47</i> | 3,911 <i>570</i> |
| Brown Trout | 0.0074 | 1,086 <i>309</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 697 <i>214</i> | 379 <i>74</i> | 2,162 <i>383</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> | 33 <i>30</i> | 0 <i>0</i> | 33 <i>30</i> |
| Splake | 0.0000 | 12 <i>12</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> | 12 <i>12</i> |
| Northern Pike | 0.0001 | 34 <i>32</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 8 <i>8</i> | 0 <i>0</i> | 42 <i>33</i> |
| White Perch | 0.0006 | 19 <i>19</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 156 <i>108</i> | 0 <i>0</i> | 0 <i>0</i> | 175 <i>110</i> |
| Smallmouth Bass | 0.0001 | 0 <i>0</i> | 23 <i>17</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 0 <i>0</i> | 23 <i>17</i> |
| Yellow Perch | 0.0037 | 0 <i>0</i> | 0 <i>0</i> | 786 <i>0</i> | 0 <i>0</i> | 57 <i>0</i> | 244 <i>81</i> | 0 <i>0</i> | 1,087 <i>81</i> |
| Walleye | 0.0156 | 984 <i>373</i> | 894 <i>355</i> | 1,099 <i>669</i> | 659 <i>248</i> | 273 <i>273</i> | 649 <i>216</i> | 0 <i>0</i> | 4,558 <i>946</i> |
| Total Harvest | 0.1240 | 5,148 <i>716</i> | 999 <i>364</i> | 1,885 <i>669</i> | 659 <i>248</i> | 486 <i>294</i> | 26,252 <i>2,591</i> | 798 <i>125</i> | 36,227 <i>2,824</i> |
| Angler Hours | | 78,333 <i>5,655</i> | 13,107 <i>2,570</i> | 19,806 <i>2,829</i> | 16,125 <i>2,329</i> | 7,413 <i>1,972</i> | 148,786 <i>7,709</i> | 8,504 <i>598</i> | 292,074 <i>10,755</i> |

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 1997 through 2006, 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 | | | | | |
| 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 |
| 2004 | 4.8908 | 2.1299 | 23.7228 | 3.1697 | 3.7264 |
| 2005 | 3.5859 | 1.7365 | 21.5351 | 2.5803 | 3.7625 |
| 2006 | 3.7539 | 1.3560 | 21.6351 | 2.1038 | 3.8924 |
| Chinook salmon | | | | | |
| 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 |
| 2004 | 10.8366 | 4.8605 | 30.3981 | 5.2144 | 9.1496 |
| 2005 | 8.6770 | 4.3969 | 27.9173 | 5.2664 | 9.1806 |
| 2006 | 10.2487 | 4.7178 | 29.4031 | 4.9557 | 9.6769 |
| Rainbow trout | | | | | |
| 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 |
| 2004 | 6.6084 | 2.5308 | 25.8536 | 4.3064 | 4.3897 |
| 2005 | 6.2049 | 2.4847 | 25.9888 | 3.7545 | 3.8343 |
| 2006 | 6.7922 | 2.5199 | 25.7703 | 3.8482 | 4.3479 |
| Brown trout | | | | | |
| 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 |
| 2004 | 5.5489 | 3.6353 | 21.5438 | 5.1509 | 3.6234 |
| 2005 | 5.4529 | 3.8649 | 21.2167 | 5.6031 | 3.7473 |
| 2006 | 6.3170 | 3.5998 | 22.6715 | 4.7363 | 3.9029 |
| Lake trout | | | | | |
| 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 |
| 2004 | 5.6370 | 2.7429 | 24.5108 | 3.5812 | 5.6315 |
| 2005 | 4.7568 | 2.0300 | 23.4632 | 2.8051 | 5.4412 |
| 2006 | 5.3567 | 2.0533 | 24.2254 | 3.1010 | 5.5616 |

Figure 1. Outline of Lake Michigan, with Wisconsin waters bounded by a dashed line.

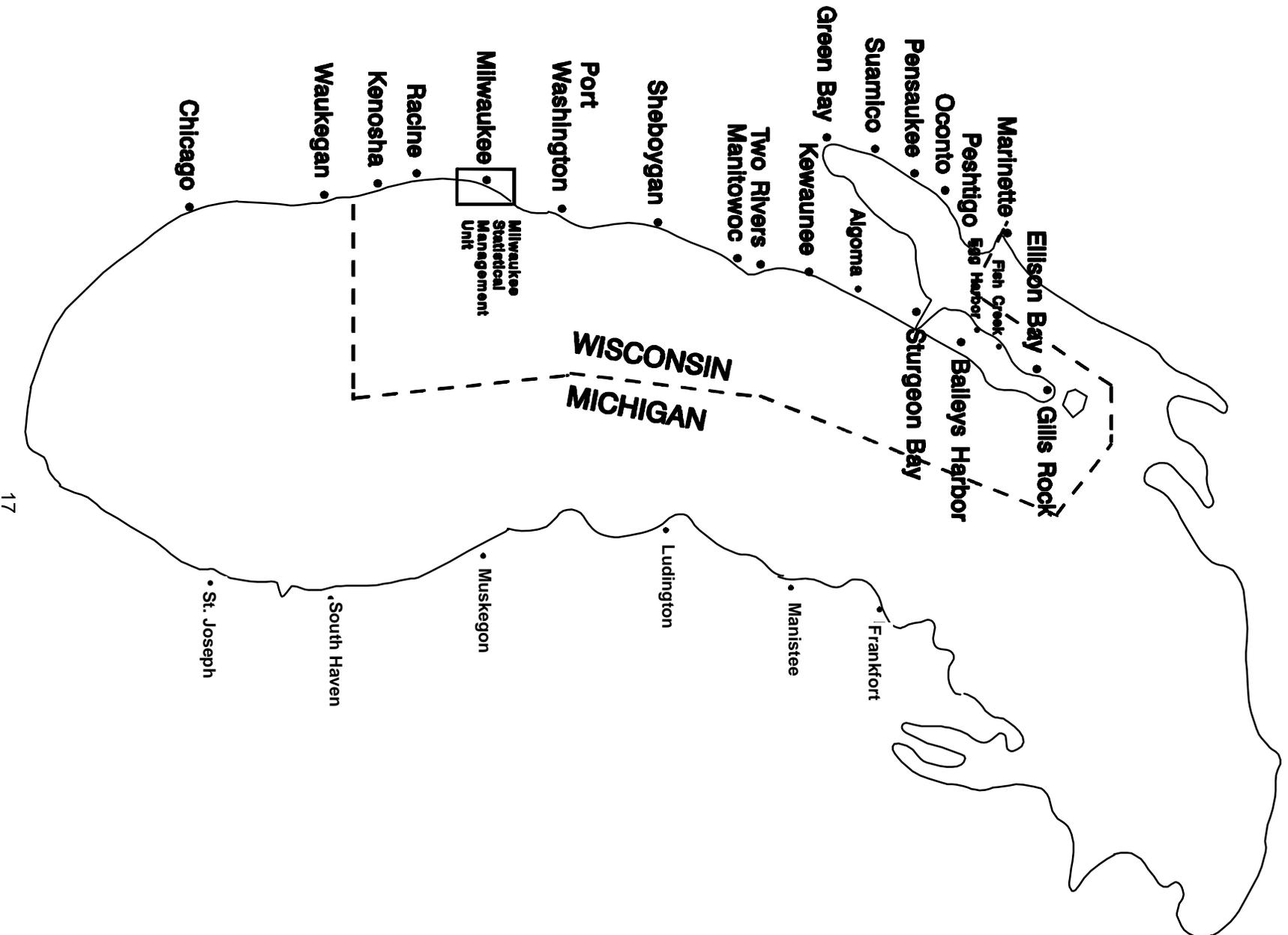


Figure 2. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay from 1997 through 2006.

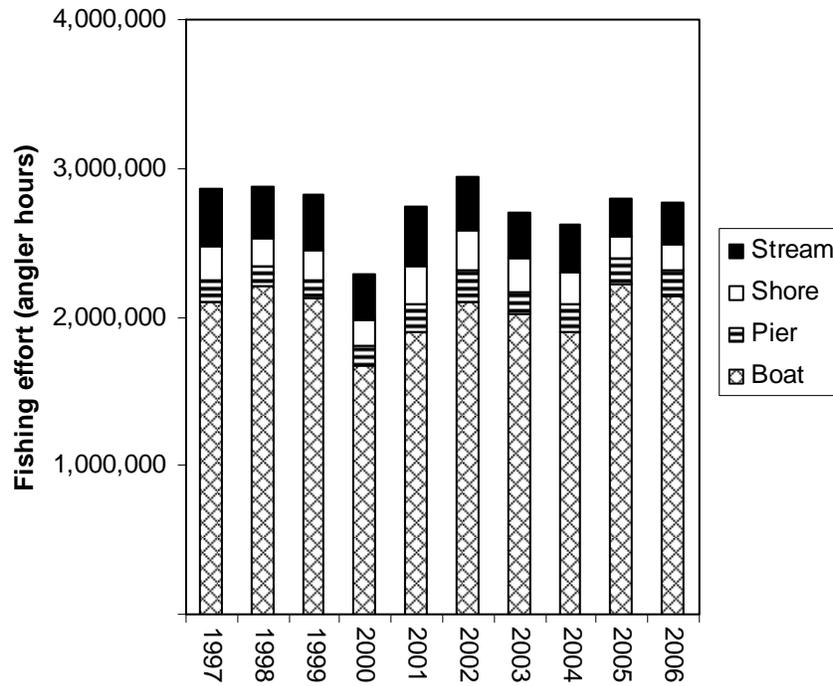


Figure 3. Trout and salmon harvest and harvest-rate from Wisconsin waters of Lake Michigan and Green Bay from 1997 through 2006.

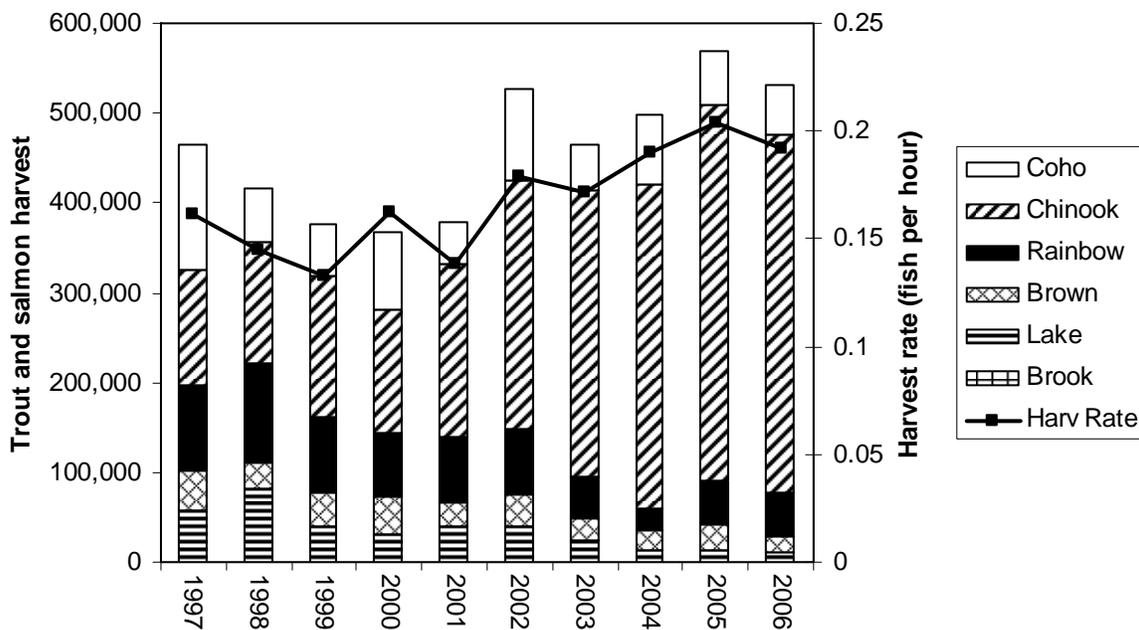
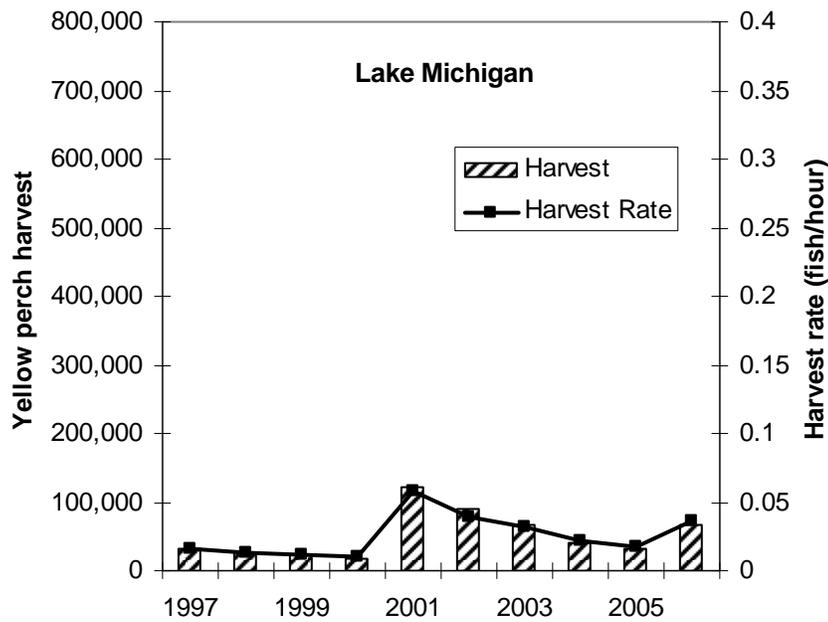
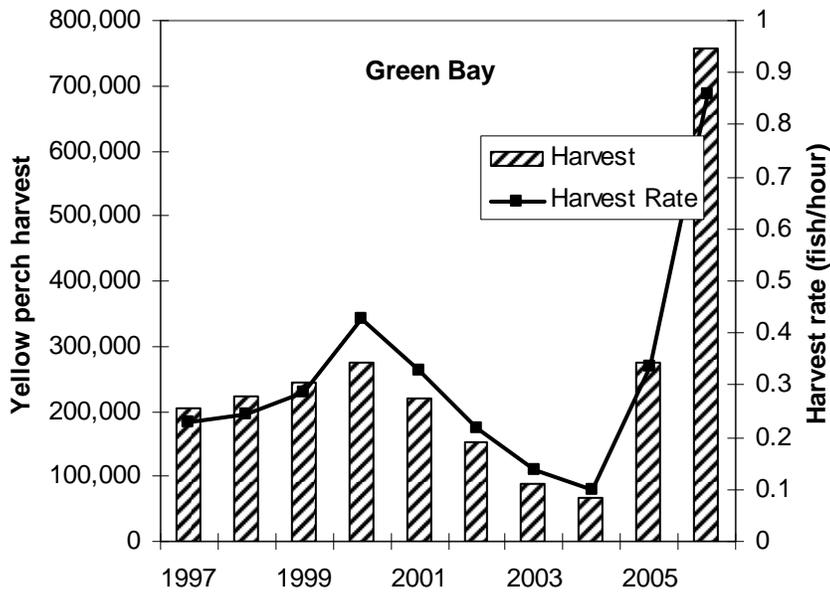


Figure 4. Yellow perch angler-harvest and harvest-rate from Wisconsin waters of Green Bay and Lake Michigan from 1997 through 2006.



Note: Figure 4 has been updated to reflect that the Door County ramp and shore sites have been changed from Lake Michigan to Green Bay sites for yellow perch harvest statistics.