

Wisconsin's 2001 open water sportfishing effort and harvest from Lake Michigan and Green Bay



PUB-FH-830-2002

Plymouth Field Station
Wisconsin Department of Natural Resources
Box 408
Plymouth WI 53073-0408

Wisconsin's 2001 open water sportfishing effort and harvest from Lake Michigan and Green Bay.

John Kubisiak

***Wisconsin Department of Natural Resources
Bureau of Fisheries Management and Habitat Protection
Plymouth Field Station
P.O. Box 408
Plymouth, Wisconsin 53073***

February, 2002

Abstract - This paper documents the sport fishery in Wisconsin waters of Lake Michigan and Green Bay from March 1, 2001 through December 31, 2001. 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 2,740,250 hours fishing on Lake Michigan and Green Bay during 2001 with boat-angler effort at 1,903,517 hours or 69% of the total hours. The estimated harvest of 774,057 fish was dominated by yellow perch (339,769), chinook salmon (191,378), rainbow trout (72,854) and coho salmon (47,474). The boat fishery, comprised of launched-boat, moored-boat and charter-boat anglers, dominated the fishery by harvesting an estimated 612,207 fish which was 79% of the total harvest and was dominated by yellow perch (255,003), chinook salmon (155,149), rainbow trout (64,009) and coho salmon (45,403). Pier, shore and stream anglers harvested primarily yellow perch, chinook salmon, brown trout and rainbow trout. Overall harvest-rates were highest for yellow perch at 0.1240 fish/hour and chinook salmon at 0.0698 fish/hour.

Cover photo: Dave O'Blenes of Green Bay with a 36" catch-and-release northern pike.

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 2001.

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 either two or three days during the week, depending on the month. 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 is shown below.

EXAMPLE:

Statistical Management Unit:

MILWAUKEE

Site Groups MILW. SOUTH
Survey Sites S. Shore Ramps
S. Shore Pier

MILW. NORTH
McKinley Ramps
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 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

It is appropriate to note that boat effort and harvest from 2000 is slightly lower than reported in the 2000 creel report (Kubisiak 2001). This slight change is due to corrections to raw data from Manitowoc County.

Fishing effort in Wisconsin waters of Lake Michigan and Green Bay was estimated at 2,740,250 (\pm 51,873) hours during the 2001 open-water season of March 1 - December 31 (Table 1). Effort showed a slight increase over 2000, but was 9% below the ten-year average (Figure 2). Effort was 30% below the average in Green Bay, while in Lake Michigan, effort was less than 0.2% below the average. Despite the decline, Green Bay anglers had the most fishing effort of any SMU, at 668,297 (\pm 28,669) hours or 24% of all angler hours for 2001. Milwaukee anglers were second at 360,474 (\pm 12,942) hours.

Angler hours were disproportionately spread among the four fishery types. Boat anglers spent 1,903,517 (\pm 47,733) hours or 69% of all angler hours fishing on Lake Michigan or Green Bay (Figure 2). Stream anglers fished the second most at 395,351 (\pm 14,466) hours or 14% of the total. Shore and pier anglers reversed long-term downward trends by fishing 260,253 (\pm 12,113) and 181,129 (\pm 7,508) hours respectively. These were the highest effort-estimates since 1993 for shore and 1995 for pier.

Anglers harvested an estimated 378,798 (\pm 9,462) salmonids during the 2001 season (Table 2, Figure 3). Chinook salmon dominated the 2001 salmonid harvest, comprising 191,378 (\pm 8,281) fish or 51% of the total. This was the highest chinook harvest since 1987, but harvest of other salmonids was below average. Rainbow trout harvest was second to chinook at 72,854 (\pm 2,957), 19% of the total. Coho salmon harvest was 47,474 (\pm 2,296) fish or 13% of the total. Lake trout harvest was 40,408 (\pm 1,894), 11% of the total. Brown trout declined to 7% of the harvest at a record-low 26,421 (\pm 1,827), followed by brook trout at 263 (\pm 90). The combined harvest-rate for salmonids of 0.1382 was lower than the record 0.1625 posted during 2000, but was similar to the ten-year average of 0.1376 (Table 2, Figure 3).

Anglers harvested an estimated 339,769 (\pm 23,759) yellow perch during 2001 (Table 3). Anglers harvested 206,109 (\pm 21,110) yellow perch in Green Bay, continuing a long-term decline (Table 3, Figure 4). The harvest rate was 0.3084 fish/hour. Lake Michigan anglers harvested 133,660 (\pm 10,903) yellow perch and had a harvest rate of 0.0645 fish/hour (Table 3, Figure 4). Yellow perch

comprised the majority of the harvest from all areas combined with an overall harvest-rate of 0.1240 fish/hour (Table 4). Yellow perch were the most numerous species harvested for the boat, pier and shore fisheries. As usual, the majority of the harvest (75%) was from boats, but pier and shore harvests increased substantially over recent years. The pier fishery had the highest general harvest rate for perch at 0.2321 fish/hour. The majority of the harvest took place in the summer months from June through September.

Perch harvest continued a pattern of increase since 1997, but remained well (57%) below the ten-year average of 790,532 (\pm 52,133, Table 3, Figure 4). Perch harvest increased 79% over 2000 on Lake Michigan to 133,660. Green Bay experienced a 5% decline in perch harvest to 206,109, despite a slight increase in Green Bay effort compared to 2000.

Perch harvest is increasingly focused on the 1998 yearclass, which first recruited to the sport fishery during 2000 at age 2. Age was assigned using the anal spines of 519 Lake Michigan and 461 Green Bay angler-caught yellow perch during 2001. The 1998 yearclass represented 84.8% of the total on Green Bay and 86.5% on Lake Michigan. This is corroborated by DNR's 2001 assessment catches of Lake Michigan perch, where 89.5% were from 1998.

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 drop in the sport bag to five per day with a June closure on Lake Michigan and ten per day with a March 16 to May 19 closure on Green Bay; and 3) a 20,000 pound commercial quota for yellow perch in Green Bay (down from 200,000 pounds in 2000). These measures are intended to protect the remaining yellow perch stocks by decreasing harvest.

Additional management actions are under consideration. The spring, 2001 perch harvest was much higher than previous years (primarily in Milwaukee and Kenosha Counties). During March 15 to April 30, an estimated 9,971 perch were harvested in Lake Michigan (7.5% of the 2001 Lake Michigan total). During May, another 9,401 perch were harvested (7.0% of the total). Angler reports and creel observations indicate that most of the perch were large, pre-spawn females. This

compares with 1996 to 2000 average harvest of 241 (0.4%) during March/April and 2,066 (3.8%) during May. The increased harvest of mature females during spring, 2001 and concerns of anglers and biologists prompted a proposed change in the closed season: perch fishing in Lake Michigan is currently closed during June, a traditional high-harvest month, but most spawning is complete by early June. The proposed change would close the season from May 1 through June 15, to protect more pre-spawn and spawning perch while allowing harvest in late June, after the perch have laid their eggs.

The estimated harvest of 12 major species was 774,057 (\pm 27,574) fish for 2001 (Table 4). The majority of the harvest came from boat anglers (Table 5) who harvested 612,207 (\pm 26,338) fish or 79% of the total. Pier, shore and stream anglers accounted for 52,764 (\pm 5,396), 61,838 (\pm 4,995) and 47,248 (\pm 3,545) fish respectively or 6.8%, 8.0% and 6.1% of the total (Tables 6-8). The 21% of harvest contributed by non-boat anglers was more than double the 10% they contributed during 2000.

The coho harvest of 47,474 was the lowest of the ten-year period and 42% below the ten-year average. Coho follow an annual clockwise migration pattern around Lake Michigan's southern basin. They congregate in southern waters of Indiana and Illinois in early spring. As the season progresses and water temperature increases, most coho follow the Illinois and Wisconsin shore north. Good numbers of coho are typically caught in Sheboygan and Manitowoc, with few coho from more northerly ports. During 2001, Indiana and Illinois anglers reported a long, productive period of coho fishing, but few coho were caught north of Milwaukee, indicating that for some reason the fish did not follow their usual migration pattern up the Wisconsin shore. Fall coho returns to Wisconsin rivers were also below normal, although Michigan reported strong coho runs. Overall coho salmon harvest-rates were 0.0173 (Table 4). Boat anglers harvested 96% of all coho salmon (45,403) and had a harvest rate of 0.0239 fish/hour (Table 5). The remaining harvest was divided among the pier, shore and stream anglers at 214, 1,070 and 787 fish, respectively (Tables 6-8). Biological data collected on angler-caught coho salmon during 2001 show a mean weight of 4.7 (\pm 2.0) pounds, 15% above the ten-year average (Table 9). Mean length was 22.7 (\pm 3.1) inches, while standard

weight of a 22-inch coho was 4.0 pounds, both 4% above the ten-year average (Table 9).

Anglers harvested 191,378 (\pm 8,281) chinook salmon during 2001, the highest harvest since 1987 and 38% above the ten-year average of 138,933 (Table 2). The overall harvest-rate was 0.0698 fish/hour. Boat anglers harvested 155,149 (\pm 7,764) fish or 81% of all chinook (Table 5). Boat-angler harvest rates were 0.0815. Pier, shore and stream anglers also saw strong harvests of chinook, primarily during the fall run. Average weight and length for chinook salmon were the highest of the last ten years, at 13.1 (\pm 6.2) pounds and 31.0 (\pm 6.1) inches (Table 9). Standard weight of 9.9 pounds for a 30-inch chinook was similar to the ten-year average.

Rainbow trout contributed strongly to the salmonid fishery. Harvest was lower than average but similar to 2000 levels. Rainbow trout were the second-most abundant salmonid and third-most abundant species harvested during 2001 at 72,854 (\pm 2,957) fish (Table 4). The majority (88%) of the harvest occurred in the boat fishery with 64,009 (\pm 2,790) fish (Table 5). Stream anglers harvested 6,378 (\pm 901) steelhead with a harvest rate of 0.0161 fish/hour (Table 8). Rainbow trout were similar in size to the ten-year average, at 6.9 (\pm 3.0) pounds and 25.7 (\pm 4.7) inches (Table 9). However, the standard weight of a 22-inch rainbow was equal to 4.4 pounds, the highest standard weight of the last ten years.

Wisconsin anglers harvested 40,408 (\pm 1,894) lake trout in Lake Michigan, 30% above the record low of 2000, but still 23% below the ten-year average of 52,555. The overall harvest-rate was 0.0147 fish/hour (Table 4). Boat anglers harvested all but 72 lake trout (reported from pier and shore), with 40,336 (\pm 1,893). The boat harvest-rate was 0.0212 fish/hour (Table 5). Lake trout average size was 8.8 (\pm 3.9) pounds and 27.7 (\pm 3.7) inches with a standard weight of 6.1 pounds for a 25-inch lake trout (Table 9). These values are similar to the 10-year averages.

An estimated 26,421 (\pm 1,827) brown trout were harvested during 2001 from all surveyed areas, with an overall harvest-rate of 0.0096 fish/hour (Table 4).

This was a record-low harvest, 39% below the ten-year average. Although all fishery types except

stream experienced below-average harvest, the decline is mainly attributable to a low harvest of 13,778 (\pm 1,203) brown trout by boat anglers (Table 5), 51% below the ten-year average for boats. Pier anglers harvested 3,425 (\pm 979) brown trout and had a harvest rate of 0.0189 fish/hour (Table 6). This total was the highest of any species in the pier fishery except yellow perch. Brown trout harvest by shore anglers was behind yellow perch and chinook salmon, at 5,486 (\pm 869) brown trout or 28% of the non-yellow perch shore harvest (Table 7). Shore harvest-rates were 0.0211 fish/hour. Brown trout biological data for 2001 were the highest of the past ten years, with a mean size of 7.2 (\pm 4.6) pounds, 23.5 (\pm 5.6) inches (Table 9). The 2001 standard weight of 3.8 pounds for a 20-inch fish is slightly below the average.

Smallmouth bass harvest has declined steadily since 1997 and was the lowest of the last ten years, 53% below the average at 17,723 (\pm 2,782) fish (Table 4). Overall harvest-rates were 0.0065 fish/hour. Again, boat anglers harvested the majority of the smallmouth bass, with 15,101 (\pm 2,680) fish or 85% of the total (Table 5). The boat harvest-rate was slightly higher (0.0098) than the overall harvest-rate.

White perch were also present in the harvest at 9,633 (\pm 3,032). Overall harvest-rates were fairly low at 0.0035 fish/hour (Table 4). Similar to 2000, the harvest was spread among stream (48%), boat (46%), and pier (6%) anglers.

Walleyes were the last species harvested in large numbers during the open-water fishing season. An estimated 25,038 (\pm 9,433) walleyes were harvested (Table 4). This is consistent with recent years after a low harvest of 11,319 during 2000. Like smallmouth bass, walleye harvest-rates were lower than most salmonids at 0.0091 fish/hour. Boat anglers harvested 17,215 (\pm 9,303) walleyes (Table 5) while stream anglers harvested 6,555 (\pm 1,277) (Table 8).

The remaining species, brook trout, splake and northern pike, comprised less than 0.5% of the total harvest and 0.8% of the non-yellow perch harvest (Table 4).

Further range expansion of round goby (*Neogobius melanostomus*), an exotic species to Lake

Michigan, was documented during 2001. Round gobys' first appearance in the Great Lakes was in the Saint Claire River in 1990. They showed up in southern Lake Michigan near the Illinois-Indiana border in 1993 and were first reported from Wisconsin waters of both Milwaukee and Sturgeon Bay in 1999 (Lyons et al. 2000). Anecdotal reports of goby catches in Port Washington during fall, 2000 were received from anglers, and on June 27, 2001 a creel clerk obtained a freshly-caught specimen from a Port Washington angler, confirming the goby's presence. Similar to its range expansion in other areas, it is likely that the goby will continue to colonize shallow, rocky habitat to the north of Port Washington.

been very poor, suggesting a continued recruitment problem for yellow perch and few fish entering the fishery in the near future.

SUMMARY

Lake Michigan anglers spent an estimated 2,740,250 hours fishing on Lake Michigan and Green Bay with boat-angler effort of 1,903,517 hours or 69% of total hours. The estimated harvest of 774,057 fish was dominated by yellow perch (339,769) and to a lesser degree by chinook salmon (191,378) and rainbow trout (72,854).

Fishing effort during 2001 was 21% higher than the record low observed during 2000, but still 9% below the ten-year average. Green Bay was 30% below the average and Eastern Door County was 18% below. Other SMU's ranged from 11% below average to 16% above average effort. 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.

Mean lengths and weights of salmonids were generally above average, most notably for brown trout weight (+29%) and chinook weight (+24%) but standard weights were similar to the ten-year averages except for rainbow trout (+15%) (Table 9). Harvest of all salmonids except chinook was below average, but chinook harvest was the highest since 1987. Harvest of smallmouth bass continued a downward trend, while walleye harvest was 12% above average following a poor year during 2001.

Perch harvest, although greatly reduced compared to the early 1990s, appears to be stable or slightly decreasing on Green Bay, and has doubled in each of the last two years on Lake Michigan, probably due to the 1998 yearclass entering the fishery. Assessment catches of recent year-classes have

REFERENCES

- Eck, G.W. 1992. Status of alewives, bloaters, rainbow smelt, slimy sculpins, deepwater sculpins and yellow perch in Lake Michigan. U.S. Fish and Wildlife Service. Ann Arbor.
- Eggold, B.T. 1993. Wisconsin's 1993 Lake Michigan Moored-Boat Fishery. Wisconsin Department of Natural Resources, Bureau of Fisheries Management, Madison, Wisconsin. 20 pages.
- Eggold, B. T. 1995. Wisconsin's 1995 open water sportfishing effort and catch from Lake Michigan and Green Bay. Wisconsin Department of Natural Resources, Plymouth, Wisconsin. 19 pages.
- Hansen, M.J. 1986. Size and condition of trout and salmon from the Wisconsin waters of Lake Michigan, 1969-84. Fish Management Report 126. Wisconsin Department of Natural Resources, Fisheries Management, Madison, Wisconsin. 28 pages.
- Hansen, M.J., Schultz, P.T., and Lasee, B.A. 1990. Changes in Wisconsin's Lake Michigan salmonid sport fishery, 1969-1985. North American Journal of Fisheries Management 10:442-457.
- Keller, M., K. D. Smith and R. W. Rybicki [Editors]. 1990. Review of salmon and trout management in Lake Michigan. Michigan Department of Natural Resources, Fisheries Special Report No. 14. Charlevoix, Michigan. 254 pages.
- Kubisiak, J. 2001. Wisconsin's 2000 open water sportfishing effort and harvest from Lake Michigan and Green Bay. Publication number PUB-FH-830-2001. Wisconsin Department of Natural Resources, Plymouth, Wisconsin. 20 pages.
- Lyons, J., P. A. Cochran and D. Fago. 2000. Wisconsin Fishes 2000: Status and Distribution. University of Wisconsin Sea Grant, Madison, Wisconsin. 100 pages.

Table 1. Estimated angler effort (hours) by location in Wisconsin waters of Lake Michigan and Green Bay during March through December of 1992 through 2001. Standard deviations are in brackets.

Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Average
Kenosha Co.	196,298 [10,102]	195,609 [9,665]	189,877 [8,195]	164,111 [9,934]	157,607 [6,705]	188,561 [8,937]	174,437 [8,351]	183,774 [11,478]	112,930 [4,728]	197,660 [9,626]	176,086 [8,959]
Racine Co.	411,704 [21,114]	327,379 [19,740]	315,927 [13,911]	335,535 [18,995]	238,052 [13,846]	302,364 [15,472]	232,660 [15,844]	260,600 [15,917]	201,774 [13,269]	256,390 [14,248]	288,239 [16,445]
Milwaukee Co.	491,750 [19,696]	368,467 [13,736]	404,704 [14,303]	343,545 [12,115]	280,704 [9,625]	283,356 [10,492]	295,991 [9,162]	244,605 [8,620]	212,570 [8,106]	360,474 [12,942]	328,617 [12,337]
Ozaukee Co.	211,667 [11,331]	139,075 [8,437]	206,470 [11,873]	232,899 [16,115]	242,963 [11,915]	229,387 [12,796]	244,186 [13,831]	233,549 [14,891]	169,828 [8,650]	250,035 [13,942]	216,006 [12,602]
Sheboygan Co.	211,947 [11,732]	152,770 [8,747]	244,500 [13,999]	249,426 [16,183]	262,948 [14,697]	216,834 [13,730]	219,642 [12,123]	244,929 [14,004]	156,989 [10,983]	225,484 [10,826]	218,547 [12,874]
Manitowoc Co.	303,214 [15,706]	298,533 [15,475]	266,866 [11,121]	235,990 [9,038]	204,487 [9,673]	227,955 [11,713]	196,492 [9,398]	204,714 [11,257]	191,168 [8,107]	213,887 [10,491]	234,331 [11,459]
Kewaunee Co.	295,724 [13,318]	342,852 [17,627]	338,864 [18,617]	329,637 [16,500]	334,736 [23,955]	327,253 [19,421]	342,260 [28,589]	355,612 [19,833]	329,938 [16,718]	337,767 [23,521]	333,464 [20,252]
E. Door Co.	390,178 [38,245]	310,454 [16,293]	331,851 [19,768]	304,201 [17,298]	278,601 [15,113]	205,964 [16,043]	259,020 [12,907]	240,897 [13,553]	247,268 [18,263]	230,256 [20,757]	279,869 [20,046]
Green Bay	1,188,588 [38,041]	1,112,877 [39,002]	1,191,252 [34,804]	1,078,522 [32,379]	972,938 [34,570]	886,873 [35,678]	905,762 [35,986]	856,591 [29,469]	645,608 [22,318]	668,297 [28,669]	950,731 [33,436]
Total Effort	3,701,072 [67,348]	3,248,017 [56,181]	3,490,310 [53,615]	3,273,866 [53,193]	2,973,036 [52,708]	2,868,547 [53,164]	2,870,450 [55,770]	2,825,271 [49,492]	2,268,073 [40,453]	2,740,250 [51,873]	3,025,889 [53,757]

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 1992 through 2001. Standard deviations are in brackets.

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Average
Coho Salmon	70,876 [3,890]	74,304 [4,151]	110,001 [5,857]	65,647 [3,107]	104,715 [4,546]	138,423 [6,039]	59,203 [2,706]	56,297 [2,929]	87,927 [3,769]	47,474 [2,296]	81,487 [4,109]
Chinook Salmon	103,568 [6,571]	87,366 [3,707]	99,754 [4,424]	162,888 [5,953]	183,254 [7,746]	130,152 [5,050]	136,653 [4,702]	157,934 [5,740]	136,379 [7,753]	191,378 [8,281]	138,933 [6,174]
Rainbow Trout	79,525 [6,029]	104,765 [3,998]	114,774 [4,455]	117,508 [4,416]	77,099 [4,192]	94,470 [4,436]	110,888 [4,268]	84,248 [4,362]	71,829 [3,177]	72,854 [2,957]	92,796 [4,301]
Brown Trout	51,554 [2,794]	64,546 [3,735]	52,398 [2,695]	49,654 [2,630]	38,093 [2,160]	43,224 [3,411]	27,371 [2,062]	37,187 [4,362]	40,966 [2,289]	26,421 [1,827]	43,141 [2,900]
Brook Trout	4,432 [458]	1,967 [311]	7,482 [797]	1,914 [332]	419 [112]	299 [76]	159 [40]	574 [472]	199 [60]	263 [90]	1,771 [361]
Lake Trout	52,854 [2,504]	60,943 [2,776]	53,989 [2,337]	69,332 [2,797]	36,849 [1,806]	57,954 [2,371]	82,247 [3,624]	39,819 [2,168]	31,151 [1,614]	40,408 [1,894]	52,555 [2,453]
Total Harvest	362,809 [10,438]	393,891 [8,290]	438,397 [9,332]	466,943 [8,913]	440,429 [10,304]	464,522 [9,945]	416,521 [8,064]	376,059 [9,193]	368,451 [9,605]	378,798 [9,462]	410,682 [9,384]
Harvest Rate	0.098	0.1213	0.1256	0.1426	0.1481	0.1619	0.1451	0.1331	0.1625	0.1382	0.1376

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 1992 through 2001. Standard deviations are in brackets.

Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Average
Green Bay	1,275,392 [83,981]	775,117 [67,693]	1,091,837 [69,029]	802,668 [57,516]	429,466 [34,274]	204,267 [16,429]	219,366 [20,528]	235,400 [22,037]	216,832 [22,625]	206,109 [21,110]	545,645 [47,976]
	1.073	0.6965	0.9165	0.7442	0.4414	0.2303	0.2422	0.2748	0.3359	0.3084	0.5263
Lake Michigan	959,925 [43,456]	545,901 [30,016]	289,905 [18,389]	246,945 [20,677]	95,100 [14,985]	31,146 [4,103]	37,831 [3,527]	33,605 [4,186]	74,843 [14,679]	133,660 [10,903]	244,886 [20,398]
	0.3821	0.2557	0.1261	0.1125	0.0475	0.0157	0.0193	0.0171	0.0461	0.0645	0.1087
Total Harvest	2,235,317 [94,558]	1,321,018 [74,049]	1,381,742 [71,436]	1,049,613 [61,119]	524,566 [37,407]	235,413 [16,934]	257,197 [20,829]	269,005 [22,432]	291,675 [26,971]	339,769 [23,759]	790,532 [52,133]
Harvest Rate	0.604	0.4067	0.3959	0.3206	0.1764	0.0821	0.0896	0.0952	0.1286	0.1240	0.2423

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 2001. Standard deviations are in brackets.

Species	Harvest								
	per Hour	Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0173	175 [83]	10,994 [1,418]	16,573 [1,240]	11,437 [1,084]	4,368 [493]	3,779 [544]	148 [48]	47,474 [2,296]
Chinook Salmon	0.0698	0 [0]	835 [136]	5,325 [484]	64,327 [3,730]	55,798 [3,546]	64,544 [6,468]	549 [82]	191,378 [8,281]
Rainbow Trout	0.0266	5,149 [843]	2,730 [478]	7,932 [948]	22,002 [1,703]	21,507 [1,588]	12,814 [1,212]	720 [114]	72,854 [2,957]
Brown Trout	0.0096	10,255 [1,533]	319 [73]	806 [165]	2,236 [313]	4,139 [534]	6,974 [720]	1,692 [234]	26,421 [1,827]
Brook Trout	0.0001	112 [72]	24 [22]	5 [4]	19 [12]	16 [12]	87 [46]	0 [0]	263 [90]
Lake Trout	0.0147	74 [47]	3,276 [934]	8,122 [583]	16,900 [1,247]	9,590 [837]	2,412 [338]	34 [0]	40,408 [1,894]
Splake	0.0002	296 [229]	0 [0]	0 [0]	38 [28]	0 [0]	185 [108]	0 [0]	519 [254]
Northern Pike	0.0009	1,085 [403]	312 [168]	365 [214]	311 [192]	146 [52]	358 [161]	0 [0]	2,577 [550]
White Perch	0.0035	0 [0]	834 [402]	1,244 [802]	5,691 [2,787]	1,029 [650]	835 [446]	0 [0]	9,633 [3,032]
Smallmouth Bass	0.0065	0 [0]	2,635 [729]	2,723 [1,003]	4,695 [799]	5,460 [2,244]	2,210 [730]	0 [0]	17,723 [2,782]
Yellow Perch	0.1240	9,971 [2,646]	9,892 [1,920]	32,389 [10,634]	155,408 [15,399]	75,720 [11,706]	56,389 [8,160]	0 [0]	339,769 [23,759]
Walleye	0.0091	3,283 [1,550]	8,037 [1,823]	2,062 [756]	10,197 [9,084]	972 [347]	487 [207]	0 [0]	25,038 [9,433]
Total Harvest	0.2825	30,400 [3,563]	39,888 [3,296]	77,546 [10,881]	293,261 [18,648]	178,745 [12,607]	151,074 [10,565]	3,143 [276]	774,057 [27,574]
Angler Hours		242,456 [14,525]	205,307 [14,721]	309,427 [12,440]	810,897 [31,463]	551,342 [27,524]	597,073 [18,890]	23,748 [2,027]	2,740,250 [51,873]

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 2001. Standard deviations are in brackets.

Species	Harvest								
	per hour	Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0239	120 [71]	10,944 [1,418]	16,524 [1,240]	11,420 [1,084]	4,368 [493]	2,021 [472]	6 [0]	45,403 [2,279]
Chinook Salmon	0.0815	0 [0]	823 [135]	5,325 [484]	64,269 [3,730]	55,723 [3,545]	28,819 [5,792]	190 [0]	155,149 [7,764]
Rainbow Trout	0.0336	208 [190]	2,265 [322]	7,833 [946]	21,719 [1,698]	21,232 [1,584]	10,735 [1,164]	17 [0]	64,009 [2,790]
Brown Trout	0.0072	5,046 [948]	71 [17]	383 [96]	1,953 [297]	4,081 [533]	2,163 [408]	81 [0]	13,778 [1,203]
Brook Trout	0.0001	73 [60]	0 [0]	1 [0]	7 [0]	16 [12]	1 [0]	0 [0]	98 [62]
Lake Trout	0.0212	74 [47]	3,212 [933]	8,118 [583]	16,896 [1,247]	9,590 [837]	2,412 [338]	34 [0]	40,336 [1,893]
Splake	0.0001	203 [215]	0 [0]	0 [0]	38 [28]	0 [0]	0 [0]	0 [0]	241 [217]
Northern Pike	0.0008	521 [392]	135 [136]	365 [214]	265 [188]	52 [52]	125 [62]	0 [0]	1,463 [510]
White Perch	0.0023	0 [0]	0 [0]	190 [165]	2,756 [1,796]	805 [632]	660 [428]	0 [0]	4,411 [1,958]
Smallmouth Bass	0.0079	0 [0]	2,092 [691]	2,033 [865]	3,855 [709]	5,339 [2,242]	1,782 [653]	0 [0]	15,101 [2,680]
Yellow Perch	0.1340	652 [464]	4,749 [1,669]	31,948 [10,629]	93,752 [14,127]	69,851 [11,663]	54,051 [8,120]	0 [0]	255,003 [22,749]
Walleye	0.0090	3,031 [1,544]	2,855 [1,290]	943 [378]	9,013 [9,066]	972 [347]	401 [199]	0 [0]	17,215 [9,303]
Total Harvest	0.3216	9,928 [1,935]	27,146 [2,819]	73,663 [10,815]	225,943 [17,468]	172,029 [12,565]	103,170 [10,099]	328 [0]	612,207 [26,338]
Angler Hours		84,288 [11,610]	152,532 [14,281]	252,396 [11,080]	676,302 [30,426]	495,897 [27,329]	240,853 [12,016]	1,249 [0]	1,903,517 [47,733]

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 2001. Standard deviations are in brackets.

Species	Harvest							Season
	per hour	Mar/Apr	May	June	July	August	Sept/Oct	
Coho Salmon	0.0012	55 [41]	21 [15]	28 [19]	17 [17]	0 [0]	93 [31]	214 [60]
Chinook Salmon	0.0160	0 [0]	12 [11]	0 [0]	58 [34]	55 [26]	2,765 [626]	2,890 [627]
Rainbow Trout	0.0041	13 [14]	0 [0]	76 [56]	247 [123]	149 [73]	261 [128]	746 [201]
Brown Trout	0.0189	2,544 [945]	88 [36]	209 [110]	181 [86]	46 [27]	357 [212]	3,425 [979]
Brook Trout	0.0002	39 [39]	3 [3]	0 [0]	0 [0]	0 [0]	0 [0]	42 [39]
Lake Trout	0.0001	0 [0]	6 [4]	0 [0]	4 [4]	0 [0]	0 [0]	10 [6]
Splake	0.0000	0 [0]						
Northern Pike	0.0010	0 [0]	93 [86]	0 [0]	30 [34]	0 [0]	60 [64]	183 [112]
White Perch	0.0030	0 [0]	482 [252]	43 [31]	24 [25]	0 [0]	0 [0]	549 [255]
Smallmouth Bass	0.0077	0 [0]	280 [211]	539 [498]	451 [210]	93 [78]	25 [23]	1,388 [586]
Yellow Perch	0.2321	3,181 [1,809]	3,262 [754]	303 [315]	32,071 [4,691]	3,158 [734]	74 [78]	42,049 [5,147]
Walleye	0.0070	0 [0]	1,154 [891]	114 [128]	0 [0]	0 [0]	0 [0]	1,268 [900]
Total Harvest	0.2913	5,832 [2,041]	5,401 [1,216]	1,312 [616]	33,083 [4,698]	3,501 [743]	3,635 [682]	52,764 [5,396]
Angler Hours		13,555 [1,928]	17,156 [1,618]	18,142 [1,648]	62,031 [4,669]	27,285 [1,799]	42,960 [4,720]	181,129 [7,508]

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 2001. Standard deviations are in brackets.

Species	Harvest							
	per hour	Mar/Apr	May	June	July	August	Sept/Oct	Season
Coho Salmon	0.0041	0 [0]	29 [28]	21 [15]	0 [0]	0 [0]	1,020 [222]	1,070 [224]
Chinook Salmon	0.0380	0 [0]	0 [0]	0 [0]	0 [0]	20 [21]	9,879 [1,882]	9,899 [1,882]
Rainbow Trout	0.0066	268 [159]	62 [31]	23 [23]	36 [22]	126 [82]	1,206 [269]	1,721 [326]
Brown Trout	0.0211	2,065 [716]	160 [61]	214 [75]	102 [49]	12 [8]	2,933 [480]	5,486 [869]
Brook Trout	0.0003	0 [0]	0 [0]	4 [4]	12 [12]	0 [0]	54 [29]	70 [31]
Lake Trout	0.0002	0 [0]	58 [57]	4 [4]	0 [0]	0 [0]	0 [0]	62 [57]
Splake	0.0008	20 [19]	0 [0]	0 [0]	0 [0]	0 [0]	185 [108]	205 [110]
Northern Pike	0.0032	553 [93]	84 [52]	0 [0]	16 [17]	0 [0]	173 [134]	826 [172]
White Perch	0.0001	0 [0]	0 [0]	0 [0]	21 [21]	0 [0]	0 [0]	21 [21]
Smallmouth Bass	0.0016	0 [0]	159 [81]	78 [95]	170 [175]	20 [21]	0 [0]	427 [216]
Yellow Perch	0.1616	6,093 [1,874]	1,800 [570]	45 [25]	29,585 [3,943]	2,695 [680]	1,833 [748]	42,051 [4,517]
Walleye	0.0000	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Total Harvest	0.2376	8,999 [2,015]	2,352 [585]	389 [127]	29,942 [3,947]	2,873 [686]	17,283 [2,117]	61,838 [4,995]
Angler Hours		33,313 [4,454]	14,880 [1,416]	14,393 [1,513]	59,789 [5,912]	22,285 [1,893]	115,593 [9,168]	260,253 [12,113]

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 2001. Standard deviations are in brackets.

Species	Harvest								
	per hour	Mar/Apr	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0020	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	645 [154]	142 [48]	787 [161]
Chinook Salmon	0.0593	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	23,081 [2,086]	359 [82]	23,440 [2,088]
Rainbow Trout	0.0161	4,660 [806]	403 [352]	0 [0]	0 [0]	0 [0]	612 [161]	703 [114]	6,378 [901]
Brown Trout	0.0094	600 [215]	0 [0]	0 [0]	0 [0]	0 [0]	1,521 [276]	1,611 [234]	3,732 [420]
Brook Trout	0.0001	0 [0]	21 [22]	0 [0]	0 [0]	0 [0]	32 [36]	0 [0]	53 [42]
Lake Trout	0.0000	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Splake	0.0002	73 [75]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]	73 [75]
Northern Pike	0.0003	11 [12]	0 [0]	0 [0]	0 [0]	94 [0]	0 [0]	0 [0]	105 [12]
White Perch	0.0118	0 [0]	352 [313]	1,011 [785]	2,890 [2,131]	224 [154]	175 [125]	0 [0]	4,652 [2,301]
Smallmouth Bass	0.0020	0 [0]	104 [51]	73 [30]	219 [246]	8 [0]	403 [325]	0 [0]	807 [412]
Yellow Perch	0.0017	45 [33]	81 [81]	93 [94]	0 [0]	16 [0]	431 [275]	0 [0]	666 [303]
Walleye	0.0166	252 [141]	4,028 [931]	1,005 [642]	1,184 [573]	0 [0]	86 [55]	0 [0]	6,555 [1,277]
Total Harvest	0.1195	5,641 [850]	4,989 [1,047]	2,182 [1,019]	4,293 [2,220]	342 [154]	26,986 [2,163]	2,815 [276]	47,248 [3,545]
Angler Hours		111,300 [7,254]	20,739 [2,851]	24,496 [5,195]	12,775 [2,724]	5,875 [1,971]	197,667 [10,302]	22,499 [2,027]	395,351 [14,466]

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 1992 through 2001, all areas and fishery types combined. std = standard deviation.

Year	Average weight	± 1 std	Average length	± 1 std	Standard weight
Coho salmon					
1992	4.1493	1.8694	21.9365	3.2360	3.8052
1993	3.7333	1.7396	21.2199	2.6774	3.9410
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
Chinook salmon					
1992	10.2518	7.2367	27.9216	7.7320	9.8032
1993	10.5038	8.3701	27.4037	8.3374	10.1905
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	13.1556	6.1871	30.9881	6.1560	9.9568
Rainbow trout					
1992	7.1852	2.8828	27.0546	4.4753	3.7915
1993	6.8907	3.4246	26.2585	4.6655	3.5624
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
Brown trout					
1992	4.3926	2.7494	19.7675	4.0670	3.8560
1993	4.8219	2.9352	20.3673	3.9857	3.7333
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
Lake trout					
1992	9.0558	3.9286	28.6493	3.4675	5.6921
1993	7.7916	4.0955	26.8924	3.8634	5.8126
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

Figure 1. Outline of Lake Michigan, with Wisconsin waters bounded by a dashed line. (Not included in Internet version)

Figure 2. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay during 1992 through 2001.

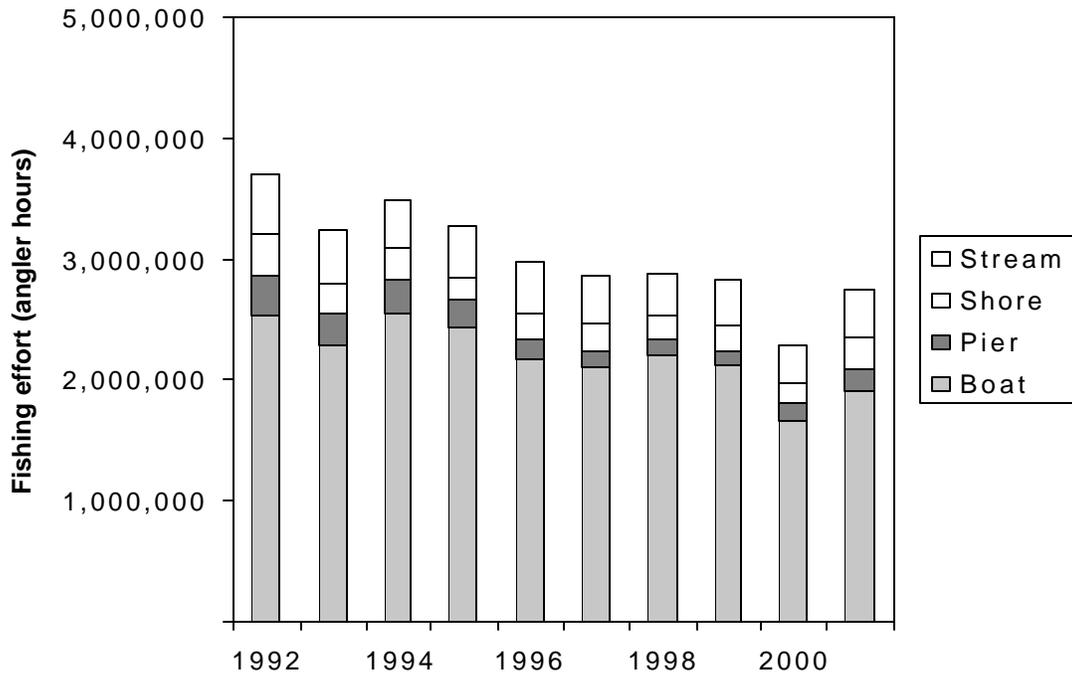


Figure 3. Trout and salmon harvest and harvest rate from Wisconsin waters of Lake Michigan and Green Bay during 1992 through 2001.

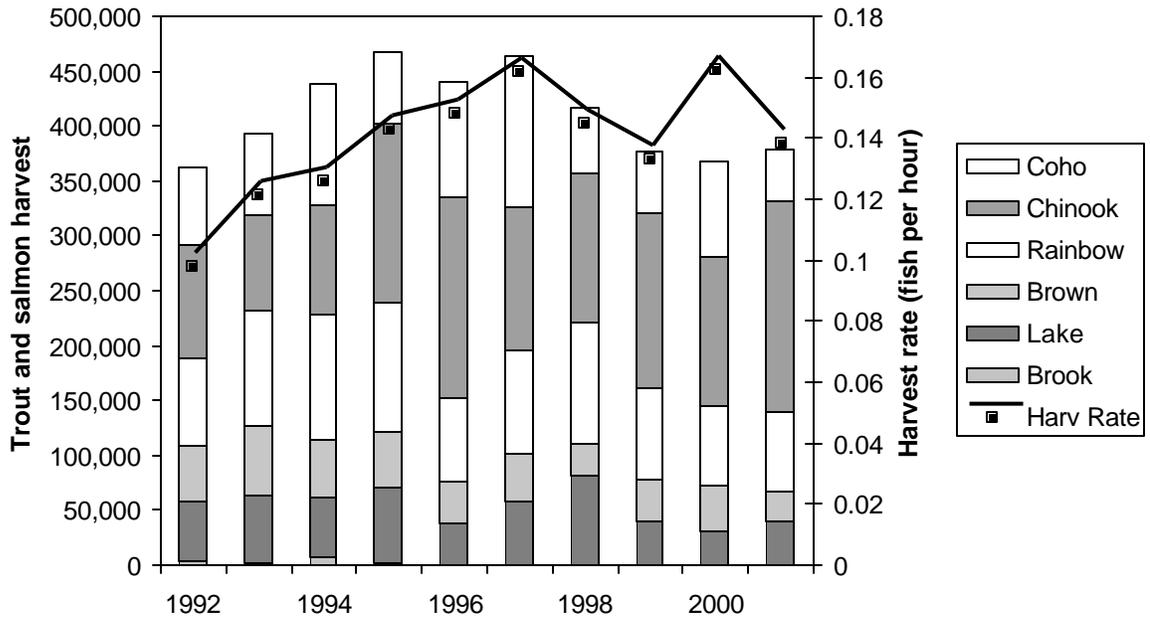
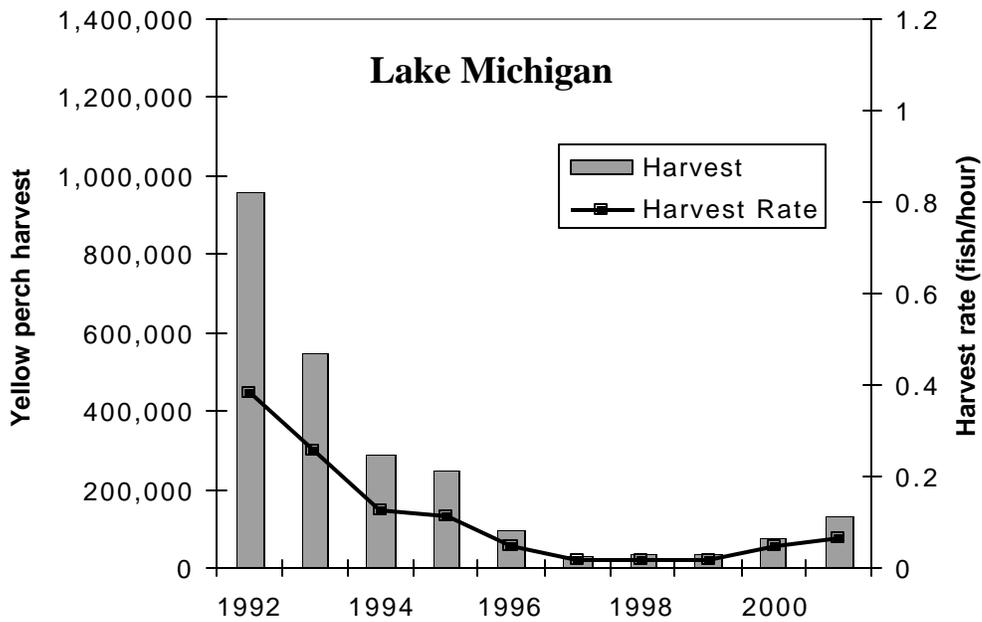
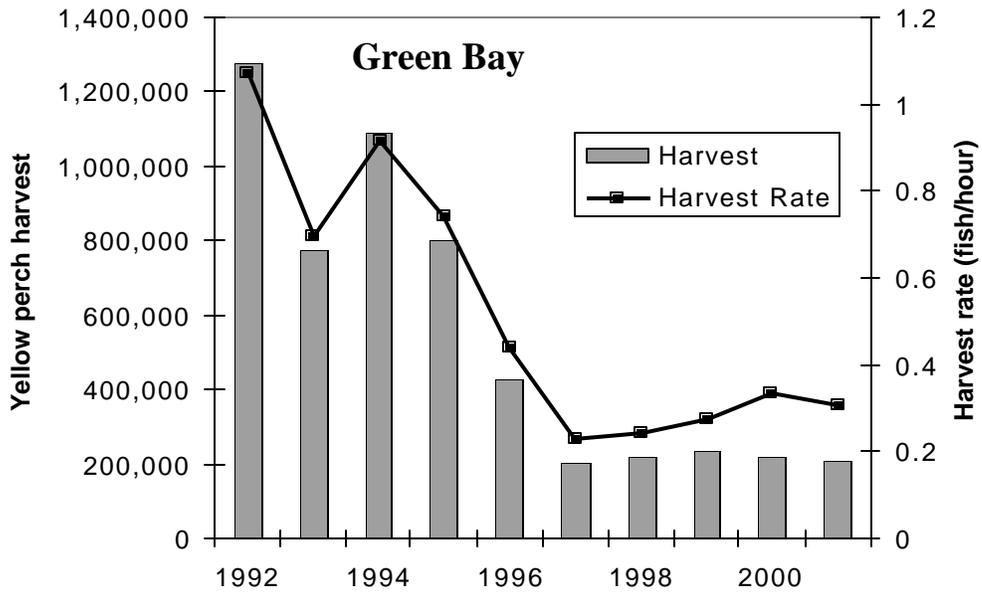


Figure 4. Yellow perch angler-harvest and harvest rate from Wisconsin waters of Green Bay and Lake Michigan during 1992 through 2001.





Funding provided by
Great Lakes Salmon and Trout Stamp.

The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240.

This publication can be made available in alternative format (large print, Braille, audio tape, etc.) upon request. Please call Bureau of Fisheries Management and Habitat Protection at 608-267-7498 for more information.

