

# Charter Boat Catch and Effort from the Michigan Waters of the Great Lakes, 2010

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## **Introduction**

The charter fishing industry provides Michigan with significant economic benefits. Michigan's charter boat industry increased from 250 operations in 1979 to nearly 900 in 1989. During the 1990s and through the early 2000s, the number of charter boats used for sport fishing excursions on Michigan's Great Lakes waters declined to approximately 500. During the 2010 fishing season, there were 571 boats operated by 550 businesses; a number similar to the 580 charter boats reporting in 2009.

Reporting of sport catch and fishing effort by the charter fishing industry is required under Public Act 451 (Part 445) of 1994. Similar legislation was first enacted during 1989 (Act 22, Public Acts of 1989) and was supported by the Michigan Charter Boat Association (MCBA) and the Michigan Department of Natural Resources (MDNR). The law stipulates that charter operators keep an up-to-date daily log of their fishing activity onboard their vessel at all times.

The objective of the catch reporting system is to obtain a continuous annual record of (1) charter fishing effort and (2) number, type, and location of fish caught by charter anglers. These data assist MDNR's Great Lakes fishery management efforts because they are used to track changes in fishing catch and catch rates over time. These changes in catch help MDNR evaluate the status of fish stocks. Annual reports also provide a measure of the health and welfare of the charter industry.

## **Methods**

In 1989, a committee of two members each from MDNR and MCBA developed the Michigan Charter Boat Daily Catch Report form (MDNR form PR8206). Charter businesses have used this form to report their monthly charter fishing activity since 1990. The form was revised in January 2006 when the following changes were made: 1) a "total number of anglers" column replaced the "resident and non-resident" angler columns, and 2) recording columns for smallmouth bass and muskellunge

harvest were added. Further revision in February 2010 included additions of: 1) a second line for each trip to record released fish by species, and 2) the designation of trip target species, or species group. In March of each year, all known charter operators are mailed a packet of information which includes an instructional letter, an annual supply of catch report forms, and copies of Great Lakes grid maps (for use in identifying fishing location).

Charter operators are identified from (1) a list of operators who submitted catch reports the previous year, (2) review of MDNR Law Enforcement Division's list of individuals who applied for and received a certificate of inspection for a fishing vessel, and (3) review of the list of individuals who applied for and received a Sport Trolling License. It is up to new charter operators to inform Fisheries Division they are now an active charter fishing operation.

In recent years, some charter operators expressed an interest in submitting their monthly reports using the internet. MDNR Fisheries Division and Michigan Department of Information Technology developed a program for online charter reporting; the prototype was completed in early summer 2007. In the late summer of 2007, seven charter operators were selected to test the prototype reporting system in preparation for having the online system available starting in 2008. The online reporting system is an option for charter operators to use, but is not mandatory. The number of businesses using the online reporting system has increased each year. During the initial reporting season in 2008, 14% of the operators were either using or had recently signed up to use the online system. By the end of the 2010 reporting season, 140 operators reporting for 152 boats (26%) were using the online system.

Charter operators are required by law to complete the paper version of the catch report form each time they fish, or to use the alternate online reporting method. Regardless of method used, the completed monthly form is to be submitted to the MDNR Charlevoix Fisheries Research Station by the tenth of each month following the month of fishing. If a charter operator owns more than one boat, or fishes in

multiple Great Lakes, he/she must fill out a monthly report for each boat and each lake fished. The report form requires the following information, regardless of fishing success or method used to submit data (paper forms or online version): a MDNR assigned reporting identification number for each boat, lake fished, date fished, port of origin, grid where a majority of the fishing occurred on that excursion, hours fished (dock to dock), total number of anglers (resident + non-resident anglers), catch (number harvested and number released) of major species, fish specie(s) targeted, and number of sea lamprey seen attached to Chinook salmon and lake trout. Space is provided at the bottom of the form for comments and observations. For those chartering in major rivers, river fished is used in lieu of lake fished, and grid fished is omitted.

Charlevoix Fisheries Research Station personnel organize and review forms as they are received. Incomplete forms are returned to the charter operator with an explanation of why the report was returned and a request that the operator correct/complete the report. Data is then entered into a database and summarized to describe port-specific and lake-wide trends in fishing effort and harvest of major sport fish.

The majority of charter businesses operate during late spring through early fall. If MDNR personnel do not receive a report for a given month, it is assumed an operator is delinquent, because one cannot distinguish those operators who did not fish from those who failed to submit a report. For months June through November, MDNR issues postcard notices to charter operators who do not file a catch report from the previous month. Prior to 2005, two notices were sent each month, the first after an operator was delinquent for 10 days and the second after 30 days. Starting with 2005, the frequency of the monthly postcard notices changed due to budget and staffing constraints; the first monthly (after 10 days) reminder was omitted. Another change was made in 2006; the postcard notice now informed the operator of all months currently delinquent for the reporting year to date. Late in the year, those operators who do not file reports for one or more months during the period April

through October are sent a final postcard to notify them of all missing reports. If reports are not received, those operators with one delinquent report are sent one final letter via first class mail and those with two or more delinquent reports are sent letters via certified mail. These letters inform the operator that he or she is receiving the final request to submit their reports. If the recipient does not respond by the date indicated, his or her name may be submitted to MDNR Law Enforcement Division, recommending non-issuance of an inspection certificate for the following season.

Charter data are used to summarize three types of fishing effort: angler hours, angler trips, and charter excursions. Angler hours are the total number of hours fished by all anglers in an excursion, dock to dock. An angler trip is one completed fishing outing by one individual (angler) on the boat. A charter excursion is one completed boat trip. For example, if a charter operator took four anglers out for a six hour fishing trip, total fishing effort is 24 angler hours (4 anglers each fishing 6 hours), 4 angler trips (anglers), and one charter excursion.

Charter data are also used to summarize the harvest, catch, harvest rate, and catch rate of those sport-fish listed on the form. Catch is the number of fish caught by an angler. Catch rate is the number of fish caught in a given amount of time (e.g., number/hour). Harvest is the number of fish caught and kept by an angler and harvest rate is the number of fish harvested in a given amount of time (e.g., number/hour). For most charter trips, it is possible to separate fishing effort between "groups" of fish - such as salmonine group (salmon and trout species) or a percid plus other species group (walleye, perch, smallmouth bass, muskellunge, and other) - since fishing trips usually target one or the other group. However, it is usually not possible to separate fishing effort between species within the salmonine group (i.e., fishing trips often target more than one species within the group). From 1990-2003, charter effort was reported as total fishing effort, regardless of target group or species. Starting with 2004 reporting, an improved method to calculate targeted harvest rates was implemented; this method separated

salmonine effort from percid effort and used one of these two efforts to calculate the harvest rates of individual species within each group. In 2005, effort for the 'other' category was combined with percid effort. The improved methodology had the greatest effect on percid harvest rates when effort for "percids + other" was a small percent of the total effort. For Lakes Michigan, Huron, and Superior, a majority of the effort is targeted at salmonines, not percids + other; if this total effort is used to calculate the harvest rate of percids + other, the actual rates will in most cases be greatly underestimated. Starting in 2010, reporting requirements include recording the target species for each fishing trip. Fishing target and effort is still reported for the salmonines as a group, while trips for the other recorded species is target and effort specific. Targeted harvest rate data are contained in this report.

Charter operators also record the number of sea lamprey observed attached on lake trout and Chinook salmon. These data (number of lamprey attached per 100 fish) are collected by request of the U.S. Fish and Wildlife Service's (USFWS) Sea Lamprey Control Station in Marquette, Michigan, and used with other data sets as an index of sea lamprey abundance in the Great Lakes.

## **Results**

### *Compliance*

During the 2010 fishing season, rate of compliance varied each month; when averaged over all reporting months, 73% of all charter boat operators complied with the law by submitting their catch reports within 30 days of the due date. Overall monthly rate of compliance in 2010 was 2% less than 2009. In December 2010, at the time of sending final notification letters for one or more delinquent reports, 79% of the operators were in compliance; this compliance rate was 1% less than in 2009. By January 2011, 91% of all charter operators had complied with the law; this rate of compliance is 2% less than that observed in 2009.

### *Reporting of results*

Starting with the 2004 charter fishing harvest and effort data, results are inclusive of any month of the year for which charter trips were reported. For reports prior to 2004, only fishing trips conducted in months April-October were included in results. Tables, graphs, and comparisons in this report include fishing harvest, catch, and effort from the Great Lakes, inclusive of tributaries.

### *Fishing effort*

In 2010, charter anglers participated in 13,481 charter excursions on the Michigan waters of Lakes Michigan, Huron, Erie, Superior, and the St. Clair system, including major tributaries (Tables 1-6). From 2009 to 2010, there was a 7% increase in the number of total excursions; the number of excursions increased on all lakes except for Lake Huron (Table 6). Excursions on Lake Michigan increased 5%, from 9,750 (2009) to 10,204 (2010); excursions on Lake Erie increased 7%, from 689 (2009) to 738 (2010); excursions on the St. Clair system increased 69%, from 425 (2009) to 719 (2010); and Lake Superior excursions increased 53%, from 244 (2009) to 374 (2010). Excursions on Lake Huron decreased 2%, from 1,470 (2009) to 1,446 (2010). The distribution of charter fishing excursions in 2010 by lake was: 76% Lake Michigan, 11% Lake Huron, 5% Lake Erie, 5% St. Clair System, and 3% Lake Superior. Comparing the distribution of effort to 2009, there was a 2% increase in the proportion of excursions on the St. Clair system, a 1% increase on Lake Superior, a 2% decrease on Lake Michigan, and a 1% decrease on Huron. Effort on Lake Erie as a percent of great lake excursions was unchanged. The increase in excursions on the St. Clair system in 2010 was anticipated due to the addition of catch and release charter fishing data collection.

A total of 316,843 hours were spent fishing by 55,273 charter anglers in Michigan's waters and tributaries of the Great Lakes (Tables 1-5, Figures 1-2b). Angler hours and total number of charter anglers increased 9% and 7% respectively compared to 2009, corresponding

with the 7% increase in excursions for 2010. Based on charter operator's comments throughout the season, unemployment and the struggling economy remained factors into 2010 for the charter industry; some of the repeat or normal customers didn't have the income to spend on recreation. In addition, windy weather was reported by Lake Michigan operators as a reason for numerous canceled excursions from July through September, at the height of the salmon season. Operators on Lakes Huron and Erie reported a slow start to the fishing season (May-June) due to inclement and windy weather which then reappeared late summer, while warm water temperatures in mid-summer negatively affected the walleye fishery. If weather conditions had been more favorable for fishing in 2010, charter excursions would have likely increased more than 7% (relative to 2009). The charter industry continued to recover from the 2008 season which had experienced a 12% decrease in effort (compared to 2007); businesses were influenced by high gasoline prices for consumers (over \$4.00 per gallon for some of the year), in conjunction with high unemployment rates and a struggling economy in the state of Michigan (Table 6).

### *Harvest*

Both total and targeted harvest numbers by species are included in this report. Charter operators reported a total of 143,565 fish harvested from the Michigan waters of the Great Lakes and its major tributaries in 2010 (Tables 1-5); this is a 7% increase compared to 2009 total harvest (134,535). Most of these fish were harvested from Lake Michigan (64%), followed by Lake Erie (19%), Lake Huron (9%), the St. Clair system (5%), and Lake Superior (3%). In comparison to 2009, total harvest decreased on lakes Michigan (3%) and Huron (2%), was unchanged for the St. Clair system, and increased on lakes Erie (4%) and Superior (1%).

Historically, the most abundant species in the charter harvest has been yellow perch; however over the last several years, the number of Chinook salmon harvested increased as harvest of yellow perch decreased. Since 2003, Chinook salmon has been the most abundant

species in the harvest. In 2010, Chinook salmon accounted for 41% of the total harvest. Percent of total harvest for other species were as follows: yellow perch 19%, lake trout 16%, walleye 14%, rainbow trout 4%, coho salmon 4%, smallmouth bass 1%, and brown trout <1%. The "other" species category accounted for about 1% of the harvest. The species composition of this 'other' category is not fully known because MDNR does not require it to be identified; the category included smallmouth bass and muskellunge, in addition to other species not defined on the report form. Changes to the reporting form in 2010 allow for smallmouth bass and muskellunge to be recorded and reported on separately.

Charter anglers harvested 58,817 Chinook salmon in 2010, which is a 6% increase relative to 2009 (55,528). Total harvest (all lakes combined) in 2010 increased for lake trout, brown trout, and yellow perch; harvest of coho salmon, rainbow trout, and walleye decreased. Harvest numbers in 2010 for species were: 27,379 yellow perch, 22,584 lake trout, 19,315 walleye, 5,872 rainbow trout, 5,738 coho salmon, 1,493 smallmouth bass, and 537 brown trout (Tables 1-5).

The total number of salmonines (Chinook salmon, coho salmon, lake trout, rainbow trout, and brown trout) harvested from Michigan's Great Lakes waters in 2010 was 93,548, which is a 3% increase (2,395 fish) from 2009 harvest (91,153).

The St. Clair system has had the highest number of "other" species in the charter harvest. In general, species categorized as "other" are not differentiated. Starting with 2006, two species targeted in the St. Clair system, smallmouth bass and muskellunge, were listed individually on the charter form. However, due to low harvest of these two species, compiled harvest results grouped these species into the "other" fish category. While harvest of smallmouth bass and muskellunge can be small in number, the St. Clair system supports a popular "catch and release" fishery for these species. Changes to reporting in 2010 allows for reporting on the catch and release fishery for these species. Consequently the number of 'other' species

decreased due to smallmouth bass and muskellunge being removed from the category and recorded separately. In 2010, 1,827 'other' fish were recorded as harvested in relation to the 2,656 recorded in 2009 (Tables 1-5).

#### *Harvest rates*

In 2010, charter anglers harvested 0.45 fish (all species from all lakes combined) per hour; almost the same as for 2009 (0.46 fish). Total harvest rates are lake-specific rates per hour and per excursion for all species in the charter harvest based on total fishing effort in that lake, regardless of species targeted. Targeted harvest rates per hour and per excursion are based on targeted effort for an individual species or fish group in that lake. The following discussion will focus on targeted harvest rates (Tables 1-5 and Figures 3-10).

Most charter excursions that took place on Michigan's Great Lakes waters during 2010 targeted the various species of salmonines. Comparing targeted harvest rates (fish per 5 angler hours) to 2009 data, Lake Michigan angler harvest rates increased slightly for both lake trout and Chinook salmon. Brown trout harvest rates remained unchanged, while coho salmon and rainbow trout harvest rates decreased slightly (Figures 3-7). The targeted harvest rate reported in 2010 for Chinook salmon in Lake Michigan (1.23 fish per 5 hours of angler fishing) is similar to 2009; the harvest rate remains high in relation to the average for the 1990-2010 data series (Figure 3).

Targeted harvest rates (fish per 5 angler hours) on Lake Huron in 2010 increased compared to 2009 for rainbow trout, was unchanged for coho salmon, and decreased for Chinook salmon, lake trout, brown trout, and walleye (Figures 3-8). Although the harvest rate for walleye (2.20 fish per 5 angler hours) decreased, the harvest rate remains high in relation to the 1990-2010 data series for Lake Huron (Figure 8).

Lake trout continues to be the most important salmonine in the charter harvest from Lake Superior. Compared to 2009, targeted harvest rates for lake trout increased slightly (Figure 4); the four remaining salmonids (coho

salmon, Chinook salmon, rainbow trout, and brown trout, combined) make up a minor portion (13%) of the Lake Superior salmonine harvest (Table 5).

Walleye and yellow perch play an important role in charter fisheries on Lake Erie and the St. Clair system. Lake-wide management objectives led to a change in the walleye harvest season for Lake Erie in 2004 and 2005; walleye harvest was not permitted during the months of April and May. Regulation changes in 2006 allowed for walleye harvest for the entire year from Lake Erie; this regulation remained in place through 2010. Targeted harvest rates for walleye (3.46 fish per 5 angler hours) increased (Figure 9) on Lake Erie for 2010, in comparison to 2009. Targeted harvest rates also increased for walleye (2.23 fish per 5 angler hours) on the St. Clair system in 2010, compared to 2009 (Figure 10). Changes in 2010 reporting requirements include recording the target species (or fish group) for each fishing trip; now both walleye and yellow perch fishing is target and effort specific. The affect this has on targeted harvest rates is most evident in yellow perch harvest rates. Targeted harvest rates for yellow perch (26.08 fish per 5 angler hours) is greatly increased in relation to the 1990-2009 data series for Lake Erie; the same increase is evident for the St. Clair System (15.90 fish per 5 angler hours). The 2010 data recording changes allow for more accurate reporting of harvest rates for these species.

#### *Catch and Catch rates*

Catch is the number of fish caught by an angler regardless of whether the fish is harvested or released back to the water. Catch rate is the number of fish caught in a given amount of time (e.g., number/hour). Targeted catch per hour, targeted catch per excursion, targeted released number of fish per year, and total released number of fish per year, by species, is reported beginning with 2010 data (Tables 1-5). Smallmouth bass and muskellunge ("musky") are popular species caught but not harvested; charter operations on the St. Clair system generally offer excursions for these species. Catch rates on the St. Clair system for smallmouth bass and musky were 28.5 and 5.6 fish per excursion, respectively. As more years of

data are collected, additional reporting will be included in the annual charter reports.

#### *Sea Lamprey Incidence*

For 2010, sea lamprey incidence on Chinook salmon decreased in lakes Michigan and Huron, compared to 2009 levels. Lake Huron's incidence of 4.5 lampreys attached per 100 Chinook salmon is the lowest incidence rate since 2002 (Figure 11).

Sea lamprey incidence on lake trout increased on Lake Huron but decreased on Lake Michigan. The occurrence of lamprey on lake trout in Lake Superior (0.9 lamprey/100 fish) decreased slightly compared to 2009 (Figure 12).

#### *Online Information*

Previous annual reports and information on charter fishing effort and harvest at individual fishing ports can be found on the MDNR website <http://www.michigan.gov/dnr>. Click on the following links to find the data: 'Fishing' link, then listed under the 'Related Resources' is the 'Charter Fishing Online Reporting' link.

### **Acknowledgments**

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Table 1.—Targeted harvest & catch rates per hour, per excursion, and number of fish harvested or released by species for charter boats fishing Michigan waters of Lake Michigan and its tributaries, 2010. Targeted harvest & catch of any salmon or trout is based on total salmonine effort; other species are trip target specific. Catch Rates = harvested (kept) fish + released fish. Bottom lines show total fishing effort (angler hours, anglers, and charter excursions).

| SPECIES            | Targeted harvest & catch per hour | Targeted harvest & catch per excursion |                 |                   |       |       |        |        |        |        |        |       |       |     | TARGETED harvest & released for Year | TOTAL (target+non-target) harvest & released for Year |
|--------------------|-----------------------------------|--|-----------------|-------------------|-------|-------|--------|--------|--------|--------|--------|-------|-------|-----|--------------------------------------|---|
|                    |                                   |  | Harvest= Line 1 | Released = Line 2 | Jan   | Feb   | Mar    | Apr    | May    | Jun    | Jul    | Aug   | Sep   | Oct |                                      |   |
| Coho salmon        | 0.023                             | 0.549                                  | 0               | 0                 | 0     | 848   | 1,712  | 681    | 381    | 1,267  | 411    | 62    | 14    | 0   | 5,376                                | 5,376   |
| Released           | 0.023                             | 0.556                                  | 0               | 0                 | 0     | 11    | 35     | 3      | 5      | 16     | 1      | 1     | 0     | 0   | 72                                   | 72  |
| Chinook salmon     | 0.246                             | 5.931                                  | 0               | 0                 | 4     | 207   | 5,402  | 3,528  | 15,592 | 28,369 | 4,650  | 312   | 43    | 0   | 58,107                               | 58,111  |
| Released           | 0.249                             | 6.002                                  | 0               | 0                 | 7     | 0     | 266    | 214    | 104    | 65     | 25     | 13    | 0     | 0   | 694                                  | 694   |
| Rainbow trout      | 0.022                             | 0.539                                  | 68              | 188               | 226   | 275   | 620    | 537    | 858    | 791    | 731    | 603   | 351   | 31  | 5,279                                | 5,295   |
| Released           | 0.023                             | 0.551                                  | 0               | 3                 | 3     | 10    | 24     | 14     | 5      | 4      | 4      | 43    | 9     | 2   | 121                                  | 121   |
| Brown trout        | 0.002                             | 0.049                                  | 2               | 3                 | 7     | 188   | 51     | 37     | 70     | 91     | 23     | 4     | 5     | 0   | 481                                  | 486   |
| Released           | 0.002                             | 0.056                                  | 0               | 0                 | 0     | 32    | 5      | 12     | 19     | 0      | 0      | 2     | 0     | 0   | 70                                   | 70  |
| Lake trout         | 0.065                             | 1.557                                  | 1               | 0                 | 0     | 18    | 2,293  | 2,699  | 4,125  | 4,660  | 1,448  | 7     | 3     | 0   | 15,254                               | 15,262  |
| Released           | 0.079                             | 1.900                                  | 0               | 0                 | 0     | 223   | 290    | 491    | 1,155  | 848    | 294    | 49    | 8     | 0   | 3,358                                | 3,362   |
| Yellow perch       | 3.210                             | 55.614                                 | 0               | 0                 | 0     | 323   | 54     | 507    | 2,857  | 1,498  | 230    | 148   | 0     | 0   | 5,617                                | 5,740   |
| Released           | 3.330                             | 57.703                                 | 0               | 0                 | 0     | 61    | 0      | 10     | 108    | 12     | 0      | 20    | 0     | 0   | 211                                  | 229   |
| Walleye            | 0.352                             | 5.650                                  | 5               | 15                | 3     | 67    | 84     | 166    | 214    | 288    | 98     | 123   | 53    | 14  | 1,130                                | 1,191   |
| Released           | 0.541                             | 8.690                                  | 0               | 0                 | 0     | 0     | 55     | 144    | 148    | 117    | 22     | 50    | 49    | 23  | 608                                  | 613   |
| Smallmouth Bass    | 0.024                             | 0.370                                  | 0               | 0                 | 0     | 0     | 0      | 0      | 4      | 0      | 13     | 0     | 0     | 0   | 17                                   | 38  |
| Released           | 1.134                             | 17.652                                 | 0               | 0                 | 0     | 0     | 0      | 45     | 263    | 309    | 128    | 50    | 0     | 0   | 795                                  | 876   |
| Musky              | 0                                 | 0                                      | 0               | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0     | 0     | 0   | 0                                    | 0   |
| Released           | 0                                 | 0                                      | 0               | 0                 | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0     | 0     | 0   | 0                                    | 0   |
| Other              | 0.018                             | 0.250                                  | 0               | 0                 | 0     | 15    | 0      | 0      | 0      | 0      | 0      | 0     | 0     | 0   | 15                                   | 167   |
| Released           | 0.475                             | 6.550                                  | 0               | 0                 | 0     | 64    | 142    | 139    | 20     | 13     | 0      | 0     | 0     | 0   | 378                                  | 611   |
| Lamprey on:        |                                   |  |                 |                   |       |       |        |        |        |        |        |       |       |     |                                      |   |
| Chinook salmon     |                                   |  | 0               | 0                 | 0     | 3     | 28     | 34     | 139    | 210    | 10     | 1     | 0     | 0   | 425                                  | 426   |
| Lake trout         |                                   |  | 0               | 0                 | 0     | 1     | 24     | 31     | 73     | 57     | 15     | 0     | 0     | 0   | 201                                  | 201   |
| Total Angler hours |                                   |  | 410             | 1,225             | 1,309 | 4,693 | 23,003 | 23,162 | 59,193 | 99,253 | 23,821 | 4,169 | 2,342 | 353 |                                      | 242,933   |
| Total Anglers      |                                   |  | 57              | 171               | 182   | 751   | 3,775  | 3,947  | 10,642 | 17,743 | 4,309  | 662   | 343   | 53  |                                      | 42,635  |
| Charter excursions |                                   |  | 20              | 52                | 56    | 187   | 872    | 939    | 2,512  | 4,169  | 1,078  | 196   | 105   | 18  |                                      | 10,204  |



Table 2.—Targeted harvest & catch rates per hour, per excursion, and number of fish harvested or released by species for charter boats fishing Michigan waters of Lake Huron and its tributaries, 2010. Targeted harvest & catch of any salmon or trout is based on total salmonine effort; other species are trip target specific. Catch Rates = harvested (kept) fish + released fish. Bottom lines show total fishing effort (angler hours, anglers, and charter excursions).

| SPECIES                 | Targeted harvest & catch per hour | Targeted harvest & catch per excursion |     |     |     |     |       |       |       |       |       |     |     |     | TARGETED harvest & released for Year | TOTAL (target+non-target) harvest & released for Year |
|-------------------------|-----------------------------------|--|-----|-----|-----|-----|-------|-------|-------|-------|-------|-----|-----|-----|--------------------------------------|---|
|                         |                                   |  | Jan | Feb | Mar | Apr | May   | Jun   | Jul   | Aug   | Sep   | Oct | Nov | Dec |                                      |   |
| Coho salmon             | 0.003                             | 0.056                                  | 0   | 0   | 0   | 0   | 2     | 10    | 20    | 8     | 5     | 0   | 0   | 0   | 45                                   | 47  |
| Released                | 0.003                             | 0.057                                  | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 1     | 0     | 0   | 0   | 0   | 1                                    | 1   |
| Chinook salmon          | 0.043                             | 0.802                                  | 0   | 0   | 0   | 0   | 17    | 62    | 181   | 284   | 98    | 4   | 0   | 0   | 646                                  | 649   |
| Released                | 0.045                             | 0.831                                  | 0   | 0   | 0   | 0   | 2     | 2     | 12    | 7     | 0     | 0   | 0   | 0   | 23                                   | 23  |
| Rainbow trout           | 0.032                             | 0.602                                  | 0   | 0   | 0   | 26  | 21    | 34    | 165   | 172   | 52    | 15  | 0   | 0   | 485                                  | 499   |
| Released                | 0.034                             | 0.625                                  | 0   | 0   | 0   | 0   | 2     | 14    | 1     | 0     | 1     | 0   | 0   | 0   | 18                                   | 24  |
| Brown trout             | 0.003                             | 0.055                                  | 0   | 0   | 0   | 2   | 5     | 0     | 4     | 10    | 12    | 11  | 0   | 0   | 44                                   | 44  |
| Released                | 0.006                             | 0.113                                  | 0   | 0   | 0   | 0   | 0     | 33    | 1     | 0     | 4     | 9   | 0   | 0   | 47                                   | 54  |
| Lake trout              | 0.289                             | 5.374                                  | 0   | 0   | 0   | 8   | 411   | 687   | 1,595 | 1,326 | 299   | 0   | 0   | 0   | 4,326                                | 4,332   |
| Released                | 0.327                             | 6.067                                  | 0   | 0   | 0   | 0   | 68    | 74    | 229   | 135   | 34    | 18  | 0   | 0   | 558                                  | 559   |
| Yellow perch            | 1.768                             | 46.905                                 | 0   | 0   | 0   | 0   | 0     | 38    | 25    | 392   | 505   | 25  | 0   | 0   | 985                                  | 1,295   |
| Released                | 2.364                             | 62.714                                 | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 210   | 122   | 0   | 0   | 0   | 332                                  | 343   |
| Walleye                 | 0.440                             | 9.216                                  | 0   | 0   | 0   | 34  | 982   | 2,311 | 1,681 | 399   | 42    | 16  | 0   | 0   | 5,465                                | 5,713   |
| Released                | 0.571                             | 11.941                                 | 0   | 0   | 0   | 6   | 594   | 714   | 285   | 17    | 0     | 0   | 0   | 0   | 1,616                                | 1,636   |
| Smallmouth Bass         | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0   | 0                                    | 9   |
| Released                | 0.400                             | 2.000                                  | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 2     | 0     | 0   | 0   | 0   | 2                                    | 27  |
| Musky                   | 0                                 | 0                                      | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0   | 0                                    | 0   |
| Released                | 0                                 | 0                                      | 0   | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0   | 0                                    | 0   |
| Other                   | 0.058                             | 0.923                                  | 0   | 0   | 0   | 0   | 10    | 8     | 0     | 0     | 6     | 0   | 0   | 0   | 24                                   | 844   |
| Released                | 0.253                             | 4.038                                  | 0   | 0   | 0   | 0   | 22    | 7     | 47    | 5     | 0     | 0   | 0   | 0   | 81                                   | 843   |
| Lamprey on:             |                                   |  |     |     |     |     |       |       |       |       |       |     |     |     |                                      |   |
| Chinook salmon          |                                   |  | 0   | 0   | 0   | 0   | 1     | 4     | 10    | 9     | 5     | 0   | 0   | 0   | 29                                   | 29  |
| Lake trout              |                                   |  | 0   | 0   | 0   | 0   | 7     | 12    | 24    | 17    | 7     | 0   | 0   | 0   | 67                                   | 68  |
| Totals for Angler hours |                                   |  | 0   | 0   | 0   | 252 | 3,721 | 6,830 | 9,527 | 6,362 | 1,510 | 141 | 0   | 0   |                                      | 28,343  |
| Anglers                 |                                   |  | 0   | 0   | 0   | 43  | 645   | 1,250 | 1,731 | 1,169 | 280   | 30  | 0   | 0   |                                      | 5,148   |
| Charter excursions      |                                   |  | 0   | 0   | 0   | 16  | 194   | 340   | 470   | 331   | 85    | 10  | 0   | 0   |                                      | 1,446   |

Table 3.— Targeted harvest & catch rates per hour, per excursion, and number of fish harvested or released by species for charter boats fishing Michigan waters of Lake Erie and its tributaries, 2010. Targeted harvest & catch of any salmon or trout is based on total salmonine effort; other species are trip target specific. Catch Rates = harvested (kept) fish + released fish. Bottom lines show total fishing effort (angler hours, anglers, and charter excursions).

| SPECIES                 | Targeted harvest & catch per hour | Targeted harvest & catch per excursion |                 |                   |     |     |       |       |       |       |       |       |     |     | TARGETED harvest & released for Year | TOTAL (target+non-target) harvest & released for Year |     |
|-------------------------|-----------------------------------|--|-----------------|-------------------|-----|-----|-------|-------|-------|-------|-------|-------|-----|-----|--------------------------------------|---|-----|
|                         |                                   |  | Harvest= Line 1 | Released = Line 2 | Jan | Feb | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep | Oct |                                      |   | Nov |
| Coho salmon             | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Chinook salmon          | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Rainbow trout           | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 3   |
| Brown trout             | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 2   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Lake trout              | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Yellow perch            | 5.361                             | 122.766                                | 0               | 0                 | 0   | 0   | 151   | 0     | 1,199 | 4,718 | 6,566 | 4,185 | 0   | 0   | 16,819                               | 16,998  |     |
| Released                | 5.894                             | 134.956                                | 0               | 0                 | 0   | 0   | 22    | 0     | 10    | 331   | 742   | 565   | 0   | 0   | 1,670                                | 1,679   |     |
| Walleye                 | 0.692                             | 16.250                                 | 0               | 0                 | 0   | 234 | 2,204 | 5,115 | 2,148 | 0     | 0     | 0     | 0   | 0   | 9,701                                | 9,702   |     |
| Released                | 0.726                             | 17.057                                 | 0               | 0                 | 0   | 29  | 92    | 290   | 71    | 0     | 0     | 0     | 0   | 0   | 482                                  | 483   |     |
| Smallmouth Bass         | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 20  |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 37  |
| Musky                   | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 5   |
| Other                   | 0.065                             | 1.000                                  | 0               | 0                 | 0   | 0   | 0     | 4     | 0     | 0     | 0     | 0     | 0   | 0   | 4                                    | 487   |     |
| Released                | 4.016                             | 62.250                                 | 0               | 0                 | 0   | 0   | 170   | 75    | 0     | 0     | 0     | 0     | 0   | 0   | 245                                  | 2,144   |     |
| Lamprey on:             |                                   |  |                 |                   |     |     |       |       |       |       |       |       |     |     |                                      |   |     |
| Chinook salmon          |                                   |  | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Lake trout              |                                   |  | 0               | 0                 | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0     | 0   | 0   | 0                                    | 0   | 0   |
| Totals for Angler hours |                                   |  | 0               | 0                 | 0   | 397 | 3,601 | 7,068 | 3,355 | 1,066 | 1,123 | 617   | 0   | 0   |                                      | 17,227  |     |
| Anglers                 |                                   |  | 0               | 0                 | 0   | 75  | 666   | 1,362 | 647   | 212   | 233   | 127   | 0   | 0   |                                      | 3,322   |     |
| Charter excursions      |                                   |  | 0               | 0                 | 0   | 24  | 161   | 293   | 137   | 46    | 47    | 30    | 0   | 0   |                                      | 738   |     |

Table 4.—Targeted harvest & catch rates per hour, per excursion, and number of fish harvested or released by species for charter boats fishing Michigan waters of the St. Clair System (Lake St. Clair, St. Clair River, and Detroit River), 2010. Targeted harvest & catch of any salmon or trout is based on total salmonine effort; other species are trip target specific. Catch Rates= harvested (kept) fish + released fish. Bottom lines show total fishing effort (angler hours, anglers, and charter excursions).

| SPECIES                 | Targeted harvest & catch per hour | Targeted harvest & catch per excursion |     |     |     |       |       |       |       |       |     |       |     |     | TARGETED harvest & released for Year | TOTAL (target+non-target) harvest & released for Year |   |
|-------------------------|-----------------------------------|--|-----|-----|-----|-------|-------|-------|-------|-------|-----|-------|-----|-----|--------------------------------------|---|---|
|                         |                                   |  | Jan | Feb | Mar | Apr   | May   | Jun   | Jul   | Aug   | Sep | Oct   | Nov | Dec |                                      |   |   |
| Coho salmon             | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Released                | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Chinook salmon          | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Released                | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Rainbow trout           | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Released                | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Brown trout             | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Released                | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Lake trout              | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Released                | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Yellow perch            | 3.172                             | 76.314                                 | 0   | 0   | 0   | 0     | 275   | 1,348 | 299   | 0     | 377 | 372   | 0   | 0   | 2,671                                | 3,112   |   |
| Released                | 3.994                             | 96.086                                 | 0   | 0   | 0   | 0     | 0     | 300   | 0     | 0     | 101 | 291   | 0   | 0   | 692                                  | 875   |   |
| Walleye                 | 0.455                             | 9.134                                  | 0   | 0   | 0   | 1,281 | 743   | 95    | 109   | 128   | 0   | 101   | 0   | 0   | 2,457                                | 2,537   |   |
| Released                | 0.493                             | 9.900                                  | 0   | 0   | 0   | 164   | 31    | 4     | 1     | 0     | 0   | 6     | 0   | 0   | 206                                  | 216   |   |
| Smallmouth Bass         | 0.278                             | 6.025                                  | 0   | 0   | 0   | 0     | 0     | 101   | 469   | 544   | 97  | 0     | 0   | 0   | 1,211                                | 1,419   |   |
| Released                | 1.314                             | 28.483                                 | 0   | 0   | 0   | 177   | 1,942 | 830   | 748   | 459   | 165 | 193   | 0   | 0   | 4,514                                | 5,185   |   |
| Musky                   | 0.000                             | 0.009                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 1     | 1   | 0   | 2                                    | 3   |   |
| Released                | 0.186                             | 5.618                                  | 0   | 0   | 0   | 0     | 0     | 429   | 382   | 246   | 52  | 75    | 5   | 0   | 1,189                                | 1,244   |   |
| Other                   | 0.000                             | 0.000                                  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 283   |   |
| Released                | 1.780                             | 44.500                                 | 0   | 0   | 0   | 0     | 89    | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 89                                   | 862   |   |
| Lamprey on:             |                                   |  |     |     |     |       |       |       |       |       |     |       |     |     |                                      |   |   |
| Chinook salmon          |                                   |  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Lake trout              |                                   |  | 0   | 0   | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0     | 0   | 0   | 0                                    | 0   | 0 |
| Totals for Angler hours |                                   |  | 0   | 0   | 0   | 2,508 | 2,649 | 3,117 | 3,447 | 3,384 | 918 | 1,001 | 30  | 0   |                                      | 17,054  |   |
| Anglers                 |                                   |  | 0   | 0   | 0   | 459   | 449   | 458   | 494   | 475   | 145 | 156   | 5   | 0   |                                      | 2,641   |   |
| Charter excursions      |                                   |  | 0   | 0   | 0   | 130   | 140   | 127   | 129   | 113   | 37  | 42    | 1   | 0   |                                      | 719   |   |

Table 5.—Targeted harvest & catch rates per hour, per excursion, and number of fish harvested or released by species for charter boats fishing Michigan waters of Lake Superior and its tributaries, 2010. Targeted harvest & catch of any salmon or trout is based on total salmonine effort; other species are trip target specific. Catch Rates = harvested (kept) fish + released fish. Bottom lines show total fishing effort (angler hours, anglers, and charter excursions).

| SPECIES                 | Targeted harvest & catch per hour | Targeted harvest & catch per excursion |                 |                   |     |     |     |       |       |       |     |     |     |     | TARGETED harvest & released for Year | TOTAL (target+non-target) harvest & released for Year |
|-------------------------|-----------------------------------|--|-----------------|-------------------|-----|-----|-----|-------|-------|-------|-----|-----|-----|-----|--------------------------------------|---|
|                         |                                   |  | Harvest= Line 1 | Released = Line 2 | Jan | Feb | Mar | Apr   | May   | Jun   | Jul | Aug | Sep | Oct |                                      |   |
| Coho salmon             | 0.030                             | 0.994                                  | 0               | 0                 | 0   | 0   | 5   | 90    | 136   | 65    | 19  | 0   | 0   | 0   | 315                                  | 315   |
| Released                | 0.038                             | 1.224                                  | 0               | 0                 | 0   | 0   | 0   | 2     | 31    | 3     | 36  | 1   | 0   | 0   | 73                                   | 73  |
| Chinook salmon          | 0.006                             | 0.180                                  | 0               | 0                 | 0   | 0   | 4   | 28    | 19    | 3     | 2   | 1   | 0   | 0   | 57                                   | 57  |
| Released                | 0.007                             | 0.224                                  | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 14  | 0   | 0   | 0   | 14                                   | 14  |
| Rainbow trout           | 0.007                             | 0.237                                  | 0               | 0                 | 0   | 0   | 7   | 7     | 45    | 8     | 7   | 1   | 0   | 0   | 75                                   | 75  |
| Released                | 0.009                             | 0.284                                  | 0               | 0                 | 0   | 1   | 0   | 1     | 0     | 2     | 9   | 2   | 0   | 0   | 15                                   | 15  |
| Brown trout             | 0.000                             | 0.016                                  | 0               | 0                 | 0   | 0   | 1   | 1     | 0     | 1     | 2   | 0   | 0   | 0   | 5                                    | 5   |
| Released                | 0.000                             | 0.016                                  | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 0   | 0   | 0   | 0   | 0                                    | 0   |
| Lake trout              | 0.289                             | 9.432                                  | 0               | 0                 | 0   | 0   | 117 | 487   | 1,228 | 996   | 129 | 33  | 0   | 0   | 2,990                                | 2,990   |
| Released                | 0.331                             | 10.801                                 | 0               | 0                 | 0   | 0   | 13  | 49    | 158   | 121   | 93  | 0   | 0   | 0   | 434                                  | 434   |
| Yellow perch            | 1.304                             | 15.000                                 | 0               | 0                 | 0   | 0   | 0   | 18    | 28    | 0     | 0   | 74  | 0   | 0   | 120                                  | 234   |
| Released                | 1.978                             | 22.750                                 | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 2     | 0   | 60  | 0   | 0   | 62                                   | 62  |
| Walleye                 | 0.255                             | 4.256                                  | 0               | 0                 | 0   | 0   | 21  | 34    | 40    | 71    | 0   | 0   | 0   | 0   | 166                                  | 172   |
| Released                | 0.374                             | 6.231                                  | 0               | 0                 | 0   | 0   | 4   | 40    | 0     | 15    | 18  | 0   | 0   | 0   | 77                                   | 79  |
| Smallmouth Bass         | 0.000                             | 0.000                                  | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 0   | 0   | 0   | 0   | 0                                    | 7   |
| Released                | 0.222                             | 8.000                                  | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 8   | 0   | 0   | 0   | 8                                    | 66  |
| Musky                   | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 0   | 0   | 0   | 0   | 0                                    | 0   |
| Released                | 0                                 | 0                                      | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 0   | 0   | 0   | 0   | 0                                    | 0   |
| Other                   | 0.062                             | 1.111                                  | 0               | 0                 | 0   | 0   | 0   | 10    | 0     | 0     | 0   | 0   | 0   | 0   | 10                                   | 46  |
| Released                | 0.500                             | 9.000                                  | 0               | 0                 | 0   | 0   | 12  | 0     | 0     | 18    | 0   | 41  | 0   | 0   | 71                                   | 207   |
| Lamprey on:             |                                   |  |                 |                   |     |     |     |       |       |       |     |     |     |     |                                      |   |
| Chinook salmon          |                                   |  | 0               | 0                 | 0   | 0   | 0   | 0     | 0     | 0     | 0   | 0   | 0   | 0   | 0                                    | 0   |
| Lake trout              |                                   |  | 0               | 0                 | 0   | 0   | 0   | 5     | 13    | 7     | 2   | 0   | 0   | 0   | 27                                   | 27  |
| Totals for Angler hours |                                   |  | 0               | 0                 | 0   | 8   | 421 | 2,148 | 4,380 | 3,165 | 973 | 191 | 0   | 0   |                                      | 11,286  |
| Anglers                 |                                   |  | 0               | 0                 | 0   | 1   | 59  | 279   | 598   | 438   | 120 | 32  | 0   | 0   |                                      | 1,527   |
| Charter excursions      |                                   |  | 0               | 0                 | 0   | 1   | 17  | 70    | 132   | 102   | 39  | 13  | 0   | 0   |                                      | 374   |

Table 6.—Number of charter excursions on the Michigan waters of the Great Lakes (including tributaries); April – October for years 1990-2003 and January – December for years 2004-2010.

| Lake      | Year   |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   | 1998   | 1999   |
| Michigan  | 13,467 | 13,604 | 10,995 | 10,298 | 10,116 | 9,996  | 10,344 | 10,627 | 12,333 | 11,382 |
| Huron     | 4,010  | 3,442  | 2,521  | 2,307  | 2,182  | 2,599  | 2,592  | 2,684  | 3,210  | 3,123  |
| Erie      | 1,684  | 1,445  | 1,679  | 1,881  | 1,661  | 1,781  | 1,775  | 1,727  | 1,679  | 2,380  |
| St. Clair | 779    | 643    | 509    | 414    | 299    | 336    | 407    | 394    | 432    | 389    |
| Superior  | 755    | 791    | 743    | 618    | 455    | 515    | 524    | 497    | 517    | 607    |
| Total     | 20,695 | 19,925 | 16,447 | 15,518 | 14,713 | 15,227 | 15,642 | 15,929 | 18,171 | 17,881 |

Table 6 (continued)

| Lake      | Year   |        |        |        |        |        |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|           | 2000   | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   |
| Michigan  | 11,714 | 11,224 | 11,924 | 12,094 | 11,966 | 12,526 | 12,064 | 12,704 | 11,326 | 9,750  | 10,204 |
| Huron     | 2,760  | 2,867  | 2,874  | 2,771  | 2,622  | 2,085  | 1,765  | 1,537  | 1,345  | 1,470  | 1,446  |
| Erie      | 1,836  | 1,947  | 1,870  | 1,695  | 718    | 694    | 1,554  | 1,039  | 870    | 689    | 738    |
| St. Clair | 348    | 433    | 246    | 466    | 339    | 319    | 366    | 493    | 440    | 425    | 719    |
| Superior  | 482    | 477    | 430    | 505    | 455    | 479    | 398    | 359    | 245    | 244    | 374    |
| Total     | 17,140 | 16,948 | 17,344 | 17,531 | 16,100 | 16,103 | 16,147 | 16,132 | 14,226 | 12,578 | 13,481 |

Figure 1.—Total number of charter anglers (trips) on the Michigan waters of the Great Lakes (including tributaries), 1990-2010.

| Year | Number of anglers (trips) |
|------|---------------------------|
| 1990 | 85,079                    |
| 1991 | 85,902                    |
| 1992 | 68,545                    |
| 1993 | 67,615                    |
| 1994 | 66,047                    |
| 1995 | 72,427                    |
| 1996 | 74,864                    |
| 1997 | 74,431                    |
| 1998 | 83,862                    |
| 1999 | 82,181                    |
| 2000 | 81,940                    |
| 2001 | 79,083                    |
| 2002 | 76,352                    |
| 2003 | 76,151                    |
| 2004 | 66,845                    |
| 2005 | 67,224                    |
| 2006 | 68,572                    |
| 2007 | 67,513                    |
| 2008 | 59,840                    |
| 2009 | 51,568                    |
| 2010 | 55,273                    |

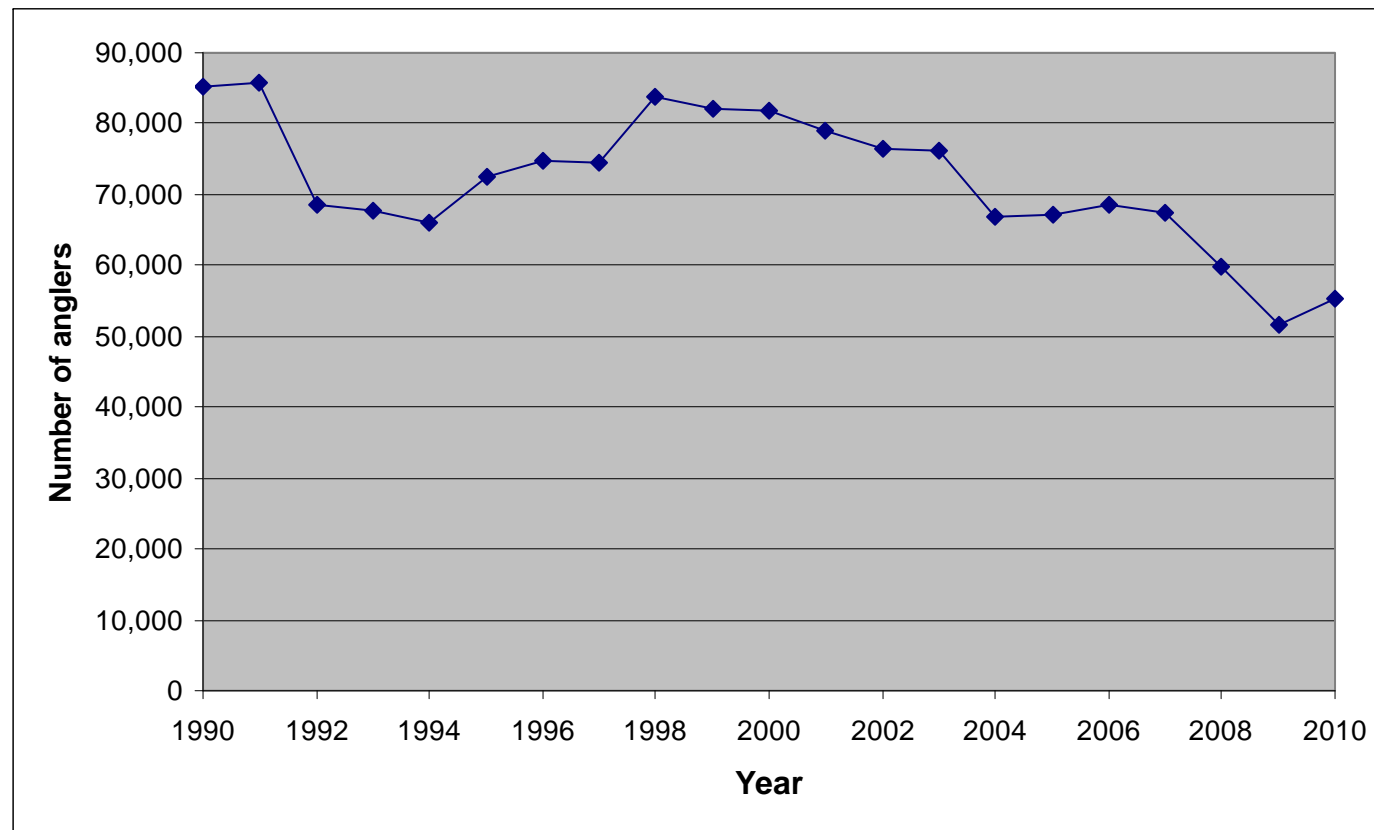


Figure 2(a).—Total number of charter anglers (trips) on the Michigan waters of Lake Michigan and Lake Huron (including tributaries), 1990-2010.

| Year | Lake Michigan | Lake Huron |
|------|---------------|------------|
| 1990 | 57,140        | 14,604     |
| 1991 | 62,578        | 12,012     |
| 1992 | 47,145        | 8,965      |
| 1993 | 46,510        | 8,069      |
| 1994 | 46,759        | 7,613      |
| 1995 | 51,515        | 9,432      |
| 1996 | 52,527        | 9,612      |
| 1997 | 52,805        | 9,684      |
| 1998 | 60,250        | 11,913     |
| 1999 | 55,578        | 11,861     |
| 2000 | 57,006        | 11,009     |
| 2001 | 53,645        | 11,555     |
| 2002 | 53,213        | 10,742     |
| 2003 | 52,972        | 10,318     |
| 2004 | 49,959        | 9,947      |
| 2005 | 52,665        | 7,812      |
| 2006 | 50,903        | 6,521      |
| 2007 | 53,337        | 5,635      |
| 2008 | 47,977        | 4,951      |
| 2009 | 40,472        | 5,303      |
| 2010 | 42,635        | 5,148      |

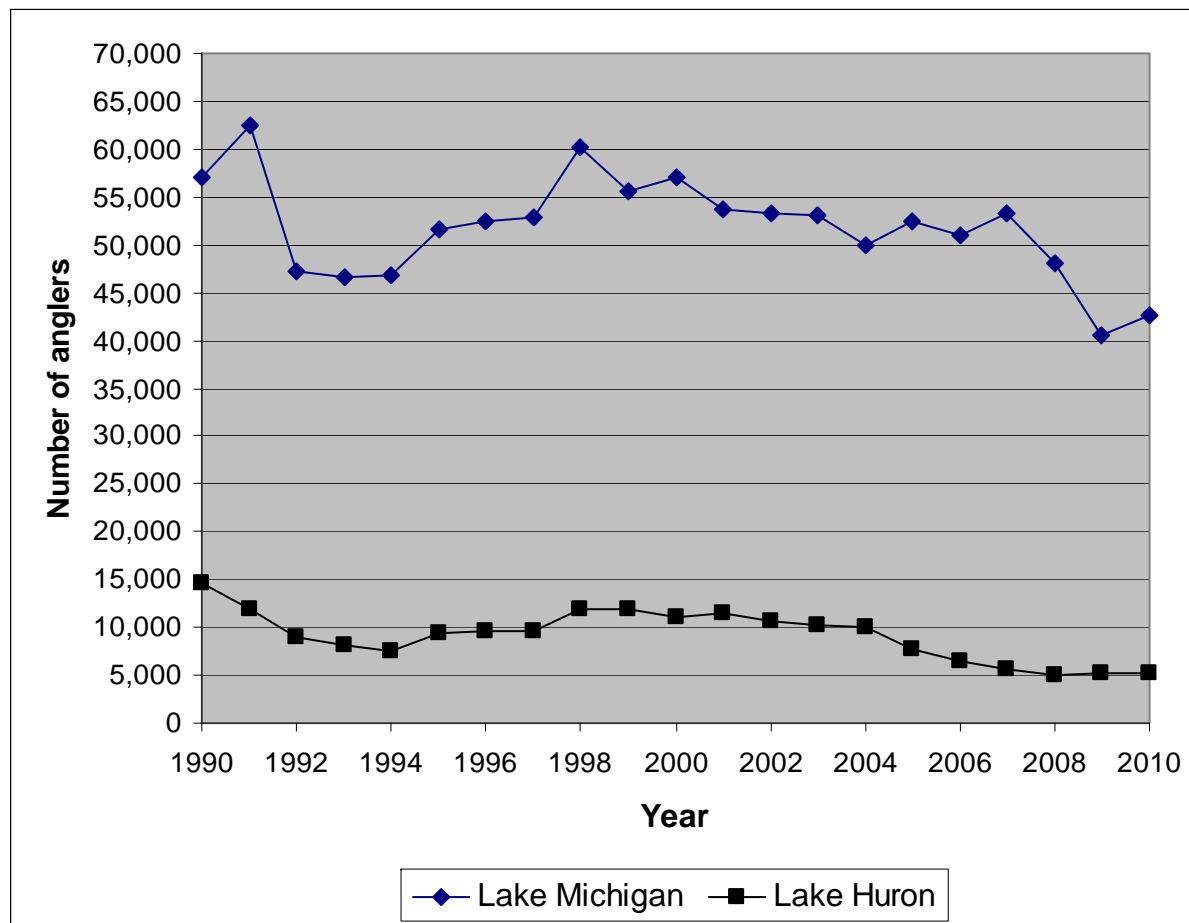




Figure 2 (b).—Total number of charter anglers (trips) on the Michigan waters of Lakes Erie, Superior, and the St. Clair System (including tributaries), 1990-2010.

| Year | Lake Erie | Lake Superior | St. Clair System |
|------|-----------|---------------|------------------|
| 1990 | 8,073     | 3,337         | 1,925            |
| 1991 | 6,139     | 3,588         | 1,585            |
| 1992 | 7,202     | 3,399         | 1,834            |
| 1993 | 8,829     | 2,858         | 1,349            |
| 1994 | 7,564     | 3,053         | 1,058            |
| 1995 | 8,144     | 2,411         | 925              |
| 1996 | 8,873     | 2,569         | 1,283            |
| 1997 | 8,280     | 2,481         | 1,181            |
| 1998 | 8,148     | 2,303         | 1,248            |
| 1999 | 10,645    | 2,869         | 1,228            |
| 2000 | 10,153    | 2,335         | 1,437            |
| 2001 | 10,226    | 2,222         | 1,435            |
| 2002 | 9,232     | 2,104         | 1,061            |
| 2003 | 8,514     | 2,446         | 1,901            |
| 2004 | 3,603     | 2,044         | 1,292            |
| 2005 | 3,392     | 2,171         | 1,184            |
| 2006 | 7,807     | 1,836         | 1,505            |
| 2007 | 5,031     | 1,630         | 1,880            |
| 2008 | 4,063     | 1,191         | 1,658            |
| 2009 | 3,162     | 1,091         | 1,540            |
| 2010 | 3,322     | 1,527         | 2,641            |

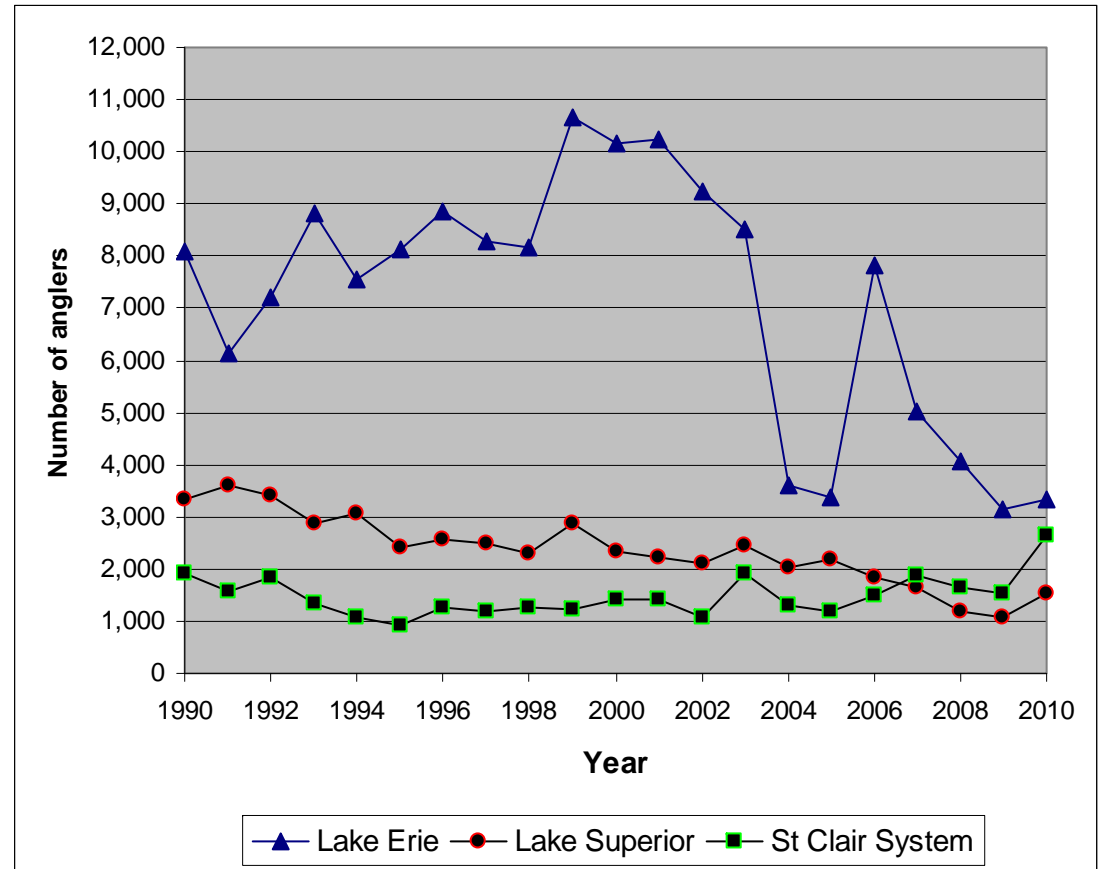


Figure 3. - Charter angler targeted harvest rates (fish per 5 angler hours) for Chinook salmon on Lake Michigan and Lake Huron, 1990-2010.

| Year | Lake Michigan | Lake Huron |
|------|---------------|------------|
| 1990 | 0.37          | 0.35       |
| 1991 | 0.39          | 0.40       |
| 1992 | 0.27          | 0.41       |
| 1993 | 0.21          | 0.45       |
| 1994 | 0.22          | 0.50       |
| 1995 | 0.29          | 0.72       |
| 1996 | 0.50          | 0.71       |
| 1997 | 0.53          | 1.04       |
| 1998 | 0.44          | 0.93       |
| 1999 | 0.48          | 0.96       |
| 2000 | 0.67          | 0.75       |
| 2001 | 0.62          | 0.75       |
| 2002 | 0.84          | 1.04       |
| 2003 | 0.97          | 0.86       |
| 2004 | 1.23          | 0.63       |
| 2005 | 1.39          | 0.32       |
| 2006 | 1.47          | 0.37       |
| 2007 | 1.47          | 0.40       |
| 2008 | 1.23          | 0.37       |
| 2009 | 1.22          | 0.27       |
| 2010 | 1.23          | 0.22       |

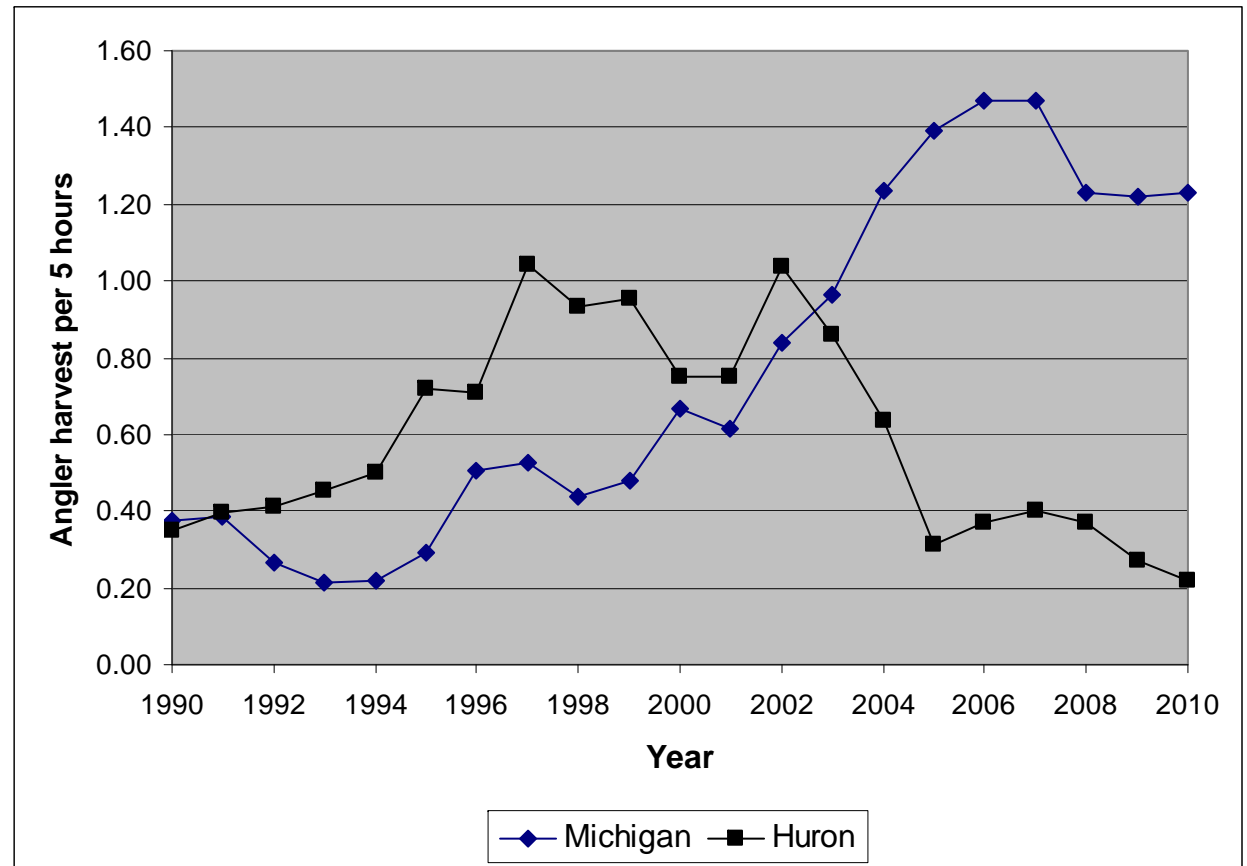


Figure 4.—Charter angler targeted harvest rates (fish per 5 angler hours) for lake trout on Lakes Michigan, Huron, and Superior, 1990-2010.

| Year | Lake Michigan | Lake Huron | Lake Superior |
|------|---------------|------------|---------------|
| 1990 | 0.42          | 0.60       | 1.42          |
| 1991 | 0.48          | 0.53       | 1.40          |
| 1992 | 0.41          | 0.43       | 1.33          |
| 1993 | 0.52          | 0.26       | 1.44          |
| 1994 | 0.57          | 0.39       | 1.33          |
| 1995 | 0.61          | 0.41       | 1.31          |
| 1996 | 0.42          | 0.57       | 1.43          |
| 1997 | 0.39          | 0.56       | 1.34          |
| 1998 | 0.50          | 0.75       | 1.27          |
| 1999 | 0.34          | 0.71       | 1.32          |
| 2000 | 0.32          | 0.80       | 1.36          |
| 2001 | 0.26          | 0.65       | 1.51          |
| 2002 | 0.17          | 0.71       | 1.38          |
| 2003 | 0.14          | 1.08       | 1.36          |
| 2004 | 0.10          | 1.49       | 1.49          |
| 2005 | 0.11          | 1.52       | 1.50          |
| 2006 | 0.15          | 1.54       | 1.45          |
| 2007 | 0.19          | 1.38       | 1.47          |
| 2008 | 0.31          | 1.29       | 1.40          |
| 2009 | 0.29          | 1.54       | 1.44          |
| 2010 | 0.33          | 1.45       | 1.45          |

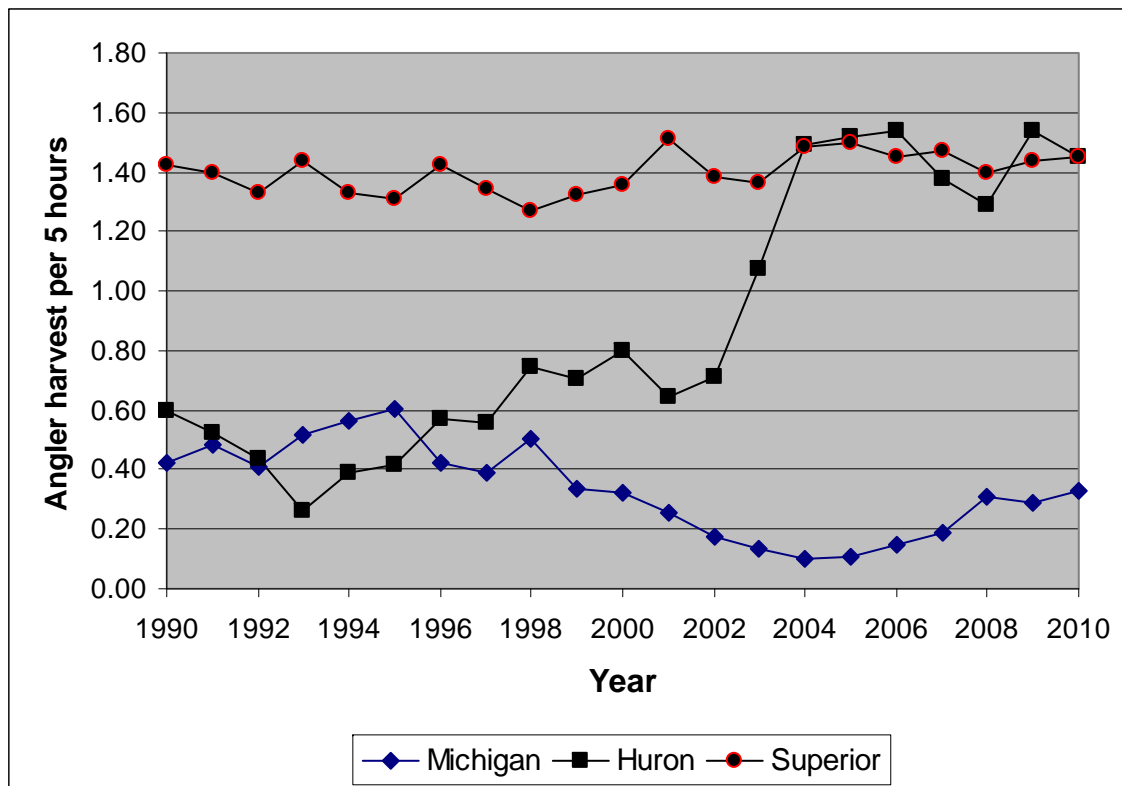


Figure 5.—Charter angler targeted harvest rates (fish per 5 angler hours) for coho salmon on Lakes Michigan, Huron, and Superior, 1990-2010.

| Year | Lake Michigan | Lake Huron | Lake Superior |
|------|---------------|------------|---------------|
| 1990 | 0.20          | 0.01       | 0.06          |
| 1991 | 0.16          | 0.02       | 0.16          |
| 1992 | 0.18          | 0.01       | 0.06          |
| 1993 | 0.24          | 0.02       | 0.05          |
| 1994 | 0.14          | 0.02       | 0.07          |
| 1995 | 0.13          | 0.01       | 0.08          |
| 1996 | 0.17          | 0.02       | 0.09          |
| 1997 | 0.21          | 0.01       | 0.06          |
| 1998 | 0.26          | 0.02       | 0.04          |
| 1999 | 0.18          | 0.06       | 0.12          |
| 2000 | 0.31          | 0.04       | 0.05          |
| 2001 | 0.19          | 0.03       | 0.09          |
| 2002 | 0.26          | 0.12       | 0.11          |
| 2003 | 0.18          | 0.03       | 0.03          |
| 2004 | 0.17          | 0.02       | 0.07          |
| 2005 | 0.09          | 0.02       | 0.06          |
| 2006 | 0.11          | 0.03       | 0.05          |
| 2007 | 0.18          | 0.02       | 0.07          |
| 2008 | 0.12          | 0.04       | 0.10          |
| 2009 | 0.16          | 0.02       | 0.02          |
| 2010 | 0.12          | 0.02       | 0.15          |

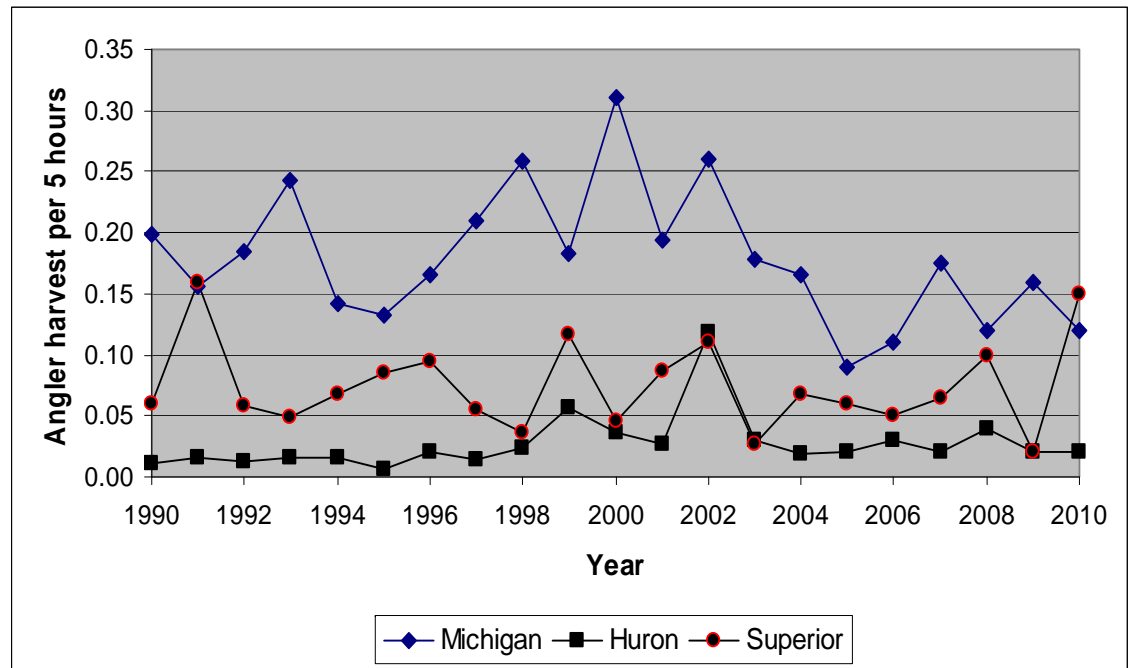


Figure 6.—Charter angler targeted harvest rates (fish per 5 angler hours) for rainbow trout (steelhead) on Lake Michigan and Lake Huron, 1990-2010.

| Year | Lake Michigan | Lake Huron |
|------|---------------|------------|
| 1990 | 0.22          | 0.02       |
| 1991 | 0.42          | 0.04       |
| 1992 | 0.37          | 0.05       |
| 1993 | 0.28          | 0.09       |
| 1994 | 0.29          | 0.08       |
| 1995 | 0.19          | 0.16       |
| 1996 | 0.39          | 0.17       |
| 1997 | 0.29          | 0.12       |
| 1998 | 0.24          | 0.08       |
| 1999 | 0.22          | 0.08       |
| 2000 | 0.18          | 0.08       |
| 2001 | 0.26          | 0.10       |
| 2002 | 0.19          | 0.09       |
| 2003 | 0.18          | 0.04       |
| 2004 | 0.12          | 0.05       |
| 2005 | 0.15          | 0.06       |
| 2006 | 0.14          | 0.07       |
| 2007 | 0.13          | 0.06       |
| 2008 | 0.14          | 0.09       |
| 2009 | 0.18          | 0.11       |
| 2010 | 0.11          | 0.16       |

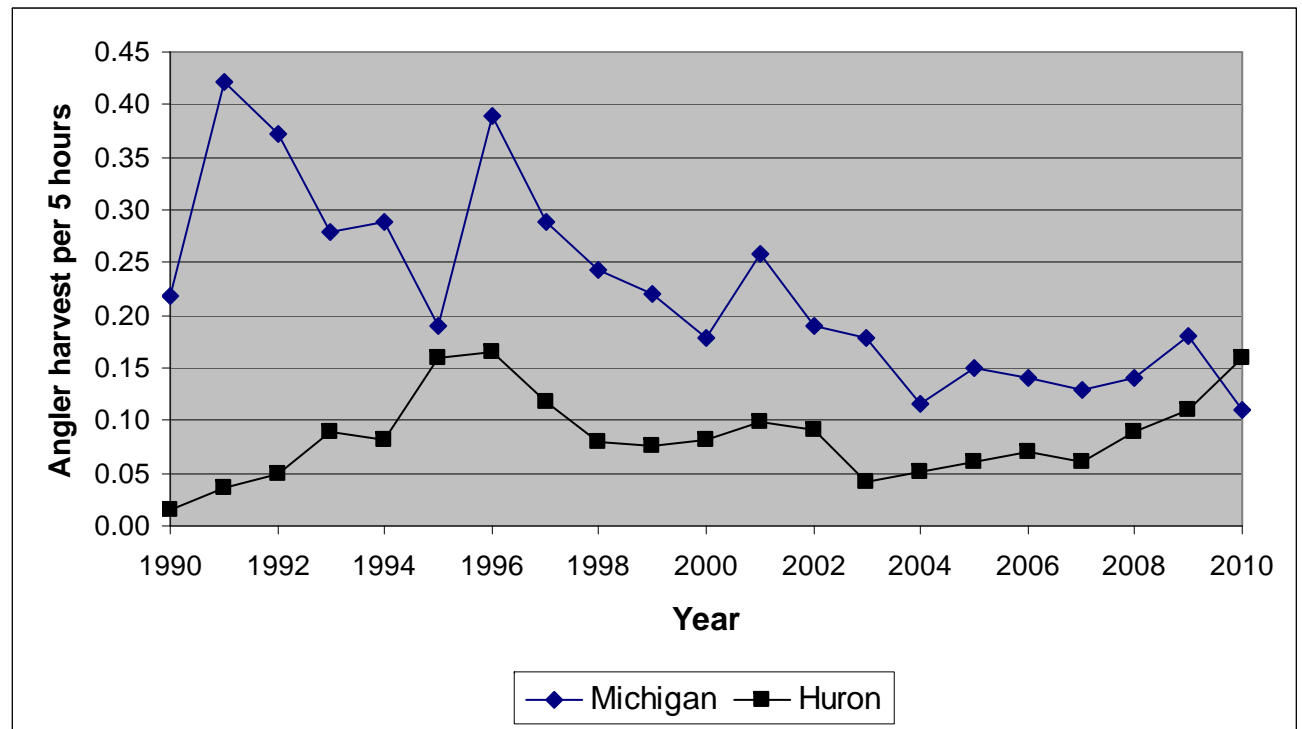


Figure 7.—Charter angler targeted harvest rates (fish per 5 angler hours) for brown trout on Lake Michigan and Lake Huron, 1990-2010.

| Year | Lake Michigan | Lake Huron |
|------|---------------|------------|
| 1990 | 0.03          | 0.01       |
| 1991 | 0.05          | 0.01       |
| 1992 | 0.02          | 0.04       |
| 1993 | 0.04          | 0.10       |
| 1994 | 0.06          | 0.12       |
| 1995 | 0.05          | 0.11       |
| 1996 | 0.06          | 0.05       |
| 1997 | 0.08          | 0.02       |
| 1998 | 0.04          | 0.03       |
| 1999 | 0.04          | 0.01       |
| 2000 | 0.07          | 0.01       |
| 2001 | 0.03          | 0.01       |
| 2002 | 0.04          | 0.02       |
| 2003 | 0.02          | 0.03       |
| 2004 | 0.01          | 0.02       |
| 2005 | 0.02          | 0.01       |
| 2006 | 0.01          | 0.00       |
| 2007 | 0.01          | 0.01       |
| 2008 | 0.01          | 0.00       |
| 2009 | 0.01          | 0.08       |
| 2010 | 0.01          | 0.02       |

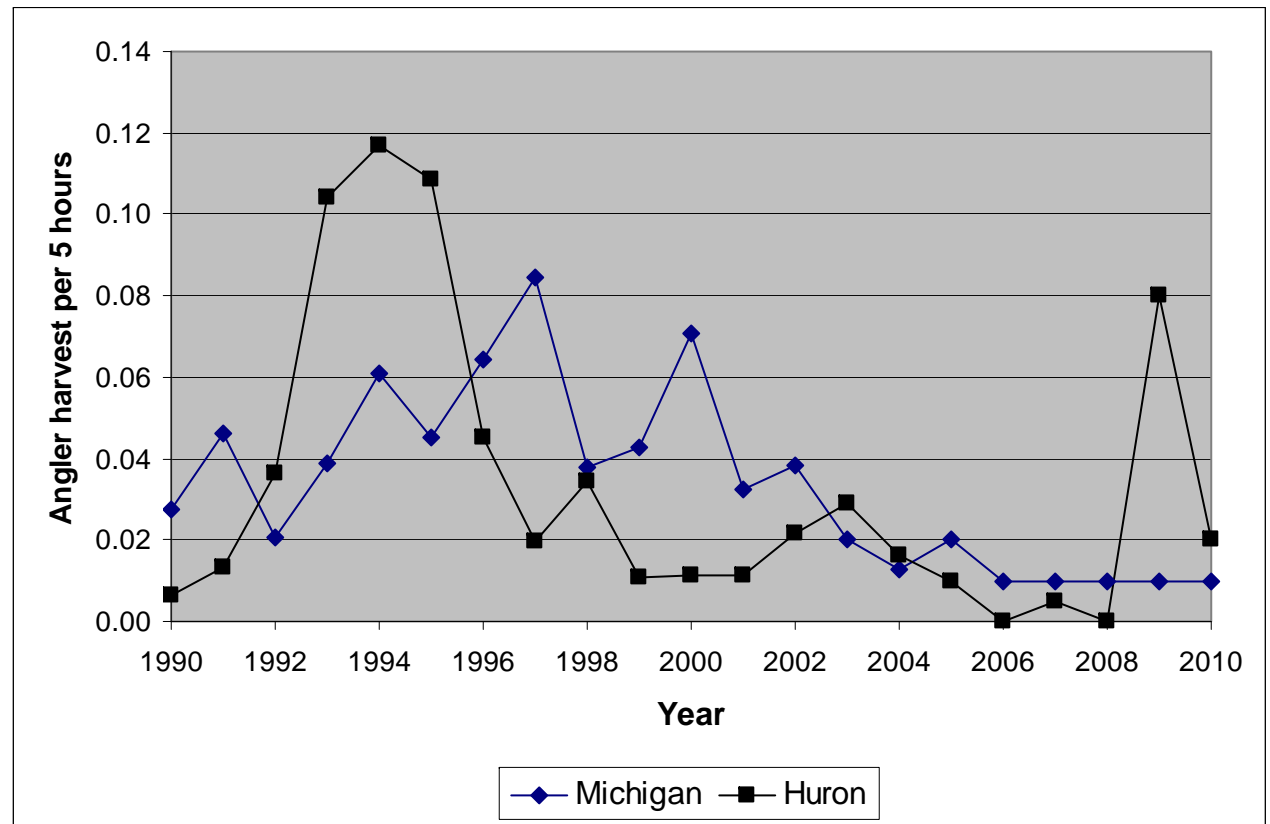


Figure 8.—Charter angler targeted harvest rates (fish per 5 angler hours) for walleye on Lake Huron, 1990-2010.

| Year | Walleye |
|------|---------|
| 1990 | 1.57    |
| 1991 | 1.47    |
| 1992 | 1.56    |
| 1993 | 1.62    |
| 1994 | 1.77    |
| 1995 | 0.87    |
| 1996 | 1.06    |
| 1997 | 1.22    |
| 1998 | 1.28    |
| 1999 | 0.98    |
| 2000 | 1.21    |
| 2001 | 1.13    |
| 2002 | 0.98    |
| 2003 | 1.20    |
| 2004 | 1.18    |
| 2005 | 1.42    |
| 2006 | 2.42    |
| 2007 | 3.01    |
| 2008 | 3.28    |
| 2009 | 3.00    |
| 2010 | 2.20    |

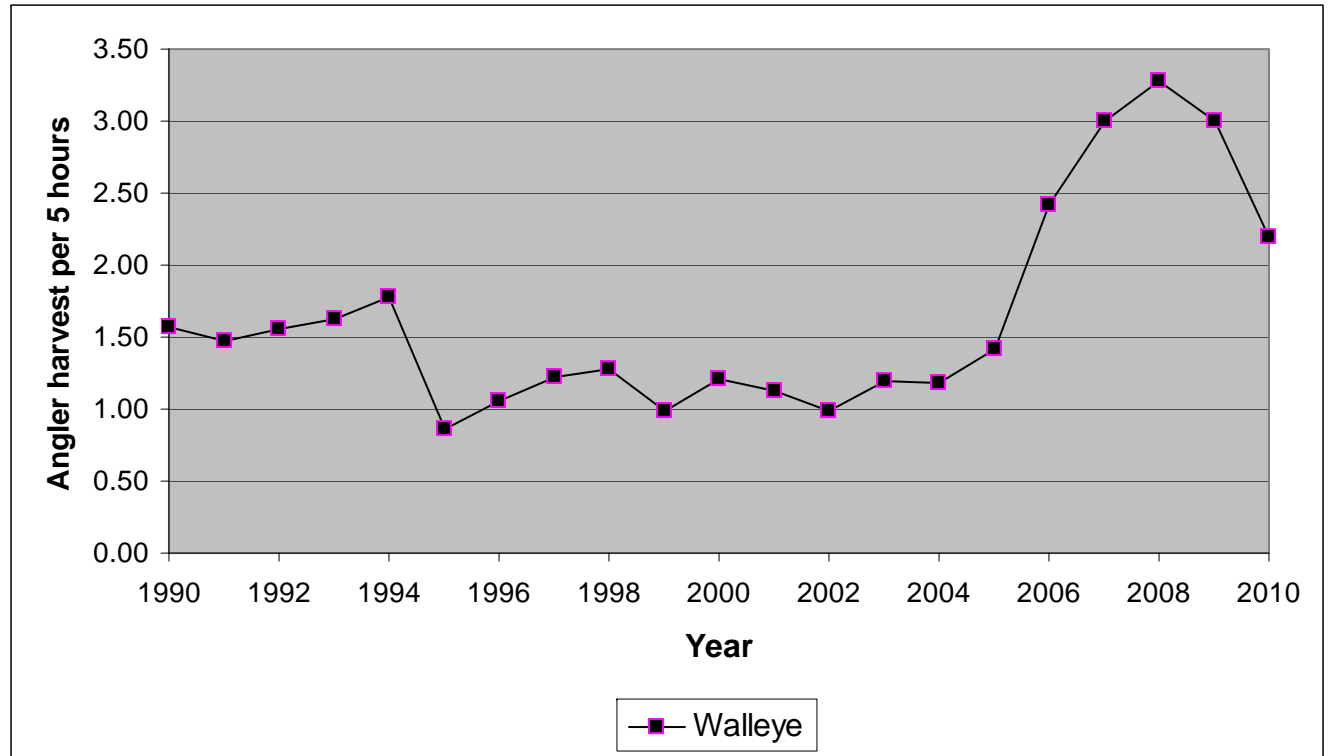


Figure 9.—Charter angler targeted harvest rates (fish per 5 angler hours) for yellow perch and walleye on Lake Erie, 1990-2010.

| Year | Yellow perch | Walleye |
|------|--------------|---------|
| 1990 | 1.52         | 3.77    |
| 1991 | 1.99         | 3.21    |
| 1992 | 2.51         | 4.21    |
| 1993 | 2.30         | 4.05    |
| 1994 | 1.70         | 3.48    |
| 1995 | 2.59         | 4.17    |
| 1996 | 3.95         | 4.12    |
| 1997 | 3.77         | 4.21    |
| 1998 | 3.52         | 5.37    |
| 1999 | 3.72         | 4.22    |
| 2000 | 3.34         | 3.89    |
| 2001 | 2.85         | 4.27    |
| 2002 | 5.01         | 3.71    |
| 2003 | 3.13         | 4.30    |
| 2004 | 2.19         | 3.00    |
| 2005 | 3.85         | 1.57    |
| 2006 | 1.59         | 4.56    |
| 2007 | 1.91         | 3.81    |
| 2008 | 1.61         | 2.89    |
| 2009 | 2.96         | 3.04    |
| 2010 | 26.08        | 3.46    |

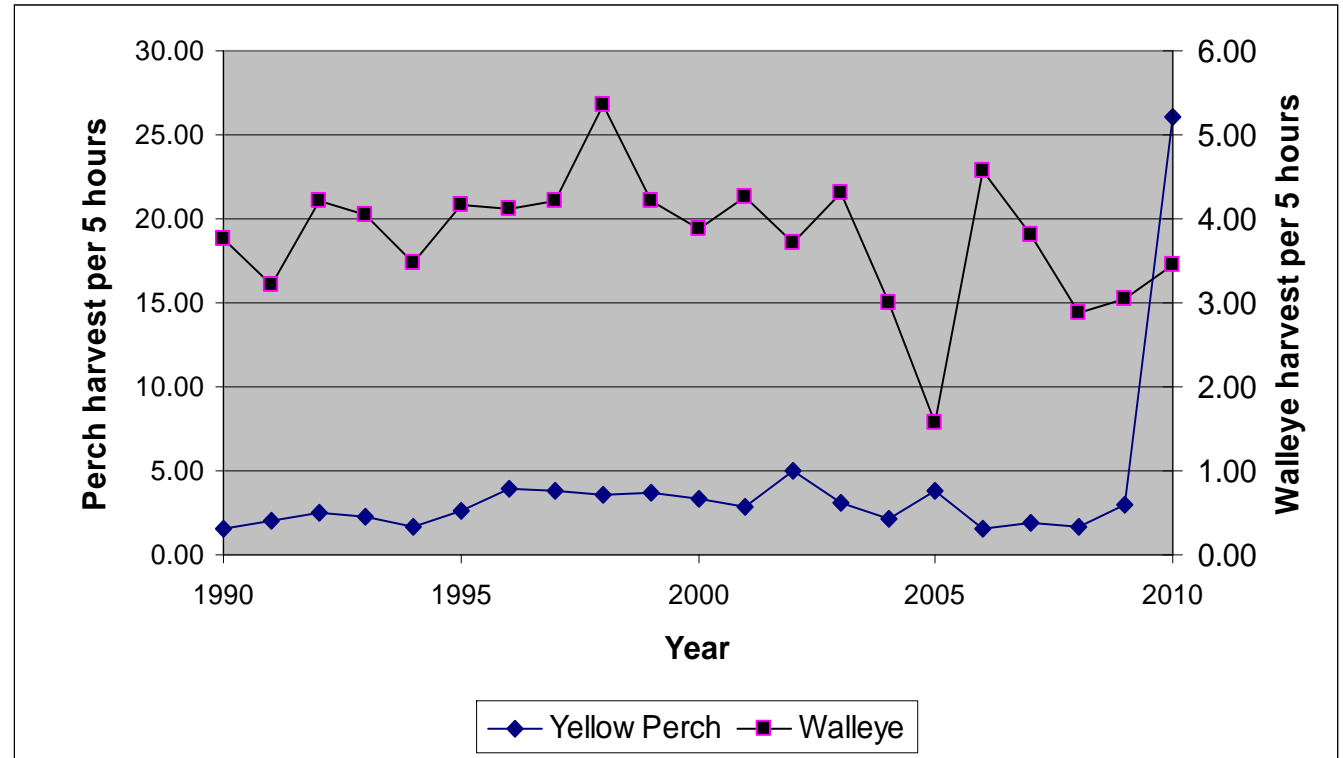




Figure 10.—Charter angler targeted harvest rates (fish per 5 angler hours) for yellow perch and walleye on the St. Clair system, 1990-2010.

| Year | Yellow perch | Walleye |
|------|--------------|---------|
| 1990 | 1.25         | 1.42    |
| 1991 | 1.52         | 0.88    |
| 1992 | 0.93         | 0.79    |
| 1993 | 1.39         | 1.13    |
| 1994 | 3.79         | 0.59    |
| 1995 | 3.39         | 1.07    |
| 1996 | 5.06         | 0.81    |
| 1997 | 3.86         | 0.95    |
| 1998 | 2.28         | 1.03    |
| 1999 | 2.40         | 0.99    |
| 2000 | 2.54         | 1.01    |
| 2001 | 3.43         | 1.35    |
| 2002 | 6.12         | 0.76    |
| 2003 | 2.44         | 1.24    |
| 2004 | 2.13         | 1.29    |
| 2005 | 2.85         | 1.98    |
| 2006 | 3.80         | 1.68    |
| 2007 | 4.90         | 2.19    |
| 2008 | 1.96         | 1.10    |
| 2009 | 0.86         | 2.07    |
| 2010 | 15.90        | 2.23    |

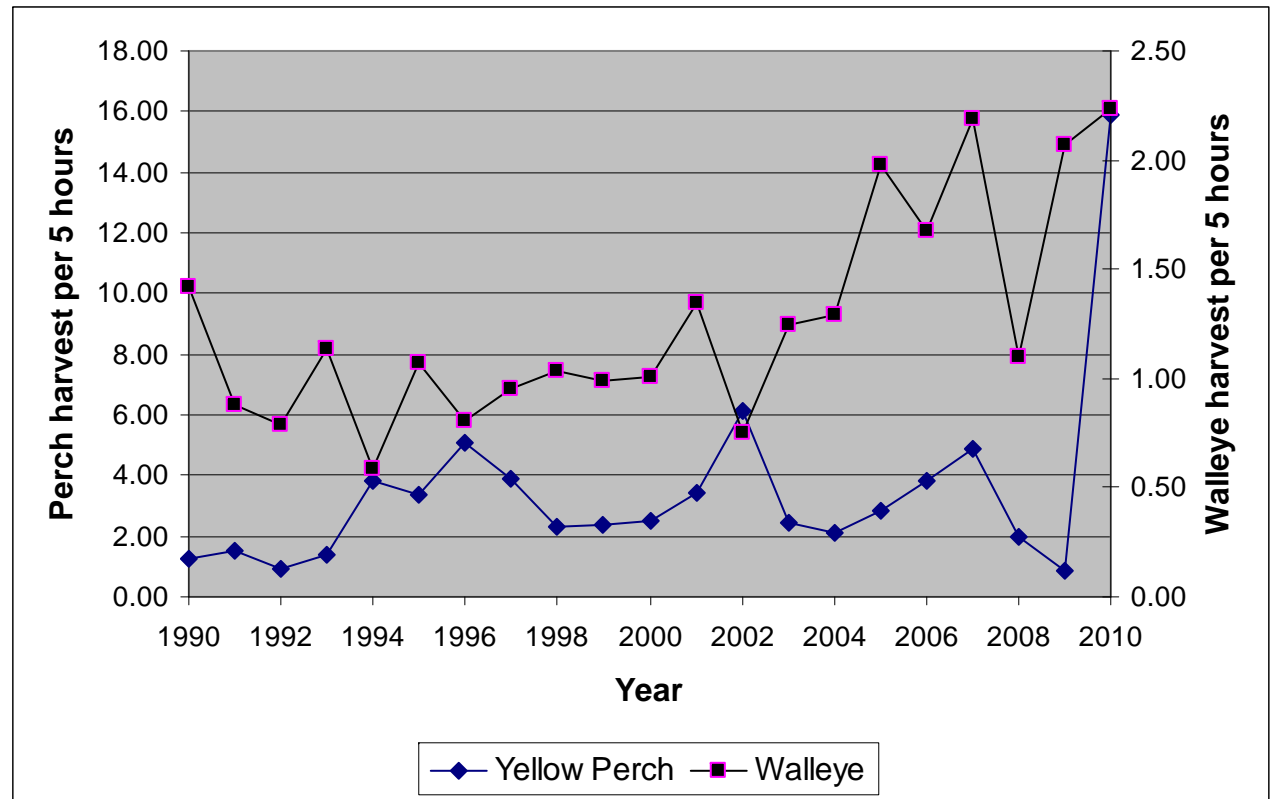


Figure 11.—Sea lamprey incidence (number attached per 100 fish) on Chinook salmon harvested by charter anglers on Lake Michigan and Lake Huron, 1990-2010.

| Year | Lake Michigan | Lake Huron |
|------|---------------|------------|
| 1990 | 0.5           | 18.6       |
| 1991 | 0.3           | 13.9       |
| 1992 | 0.2           | 13.6       |
| 1993 | 0.1           | 7.6        |
| 1994 | 0.3           | 7.1        |
| 1995 | 0.3           | 6.2        |
| 1996 | 0.1           | 3.9        |
| 1997 | 0.2           | 4.7        |
| 1998 | 0.4           | 5.2        |
| 1999 | 0.2           | 4.6        |
| 2000 | 0.4           | 7.3        |
| 2001 | 0.5           | 4.6        |
| 2002 | 0.8           | 4.2        |
| 2003 | 1.2           | 6.0        |
| 2004 | 1.0           | 5.8        |
| 2005 | 1.3           | 6.4        |
| 2006 | 1.3           | 12.5       |
| 2007 | 1.4           | 9.3        |
| 2008 | 0.8           | 9.6        |
| 2009 | 1.0           | 6.3        |
| 2010 | 0.7           | 4.5        |

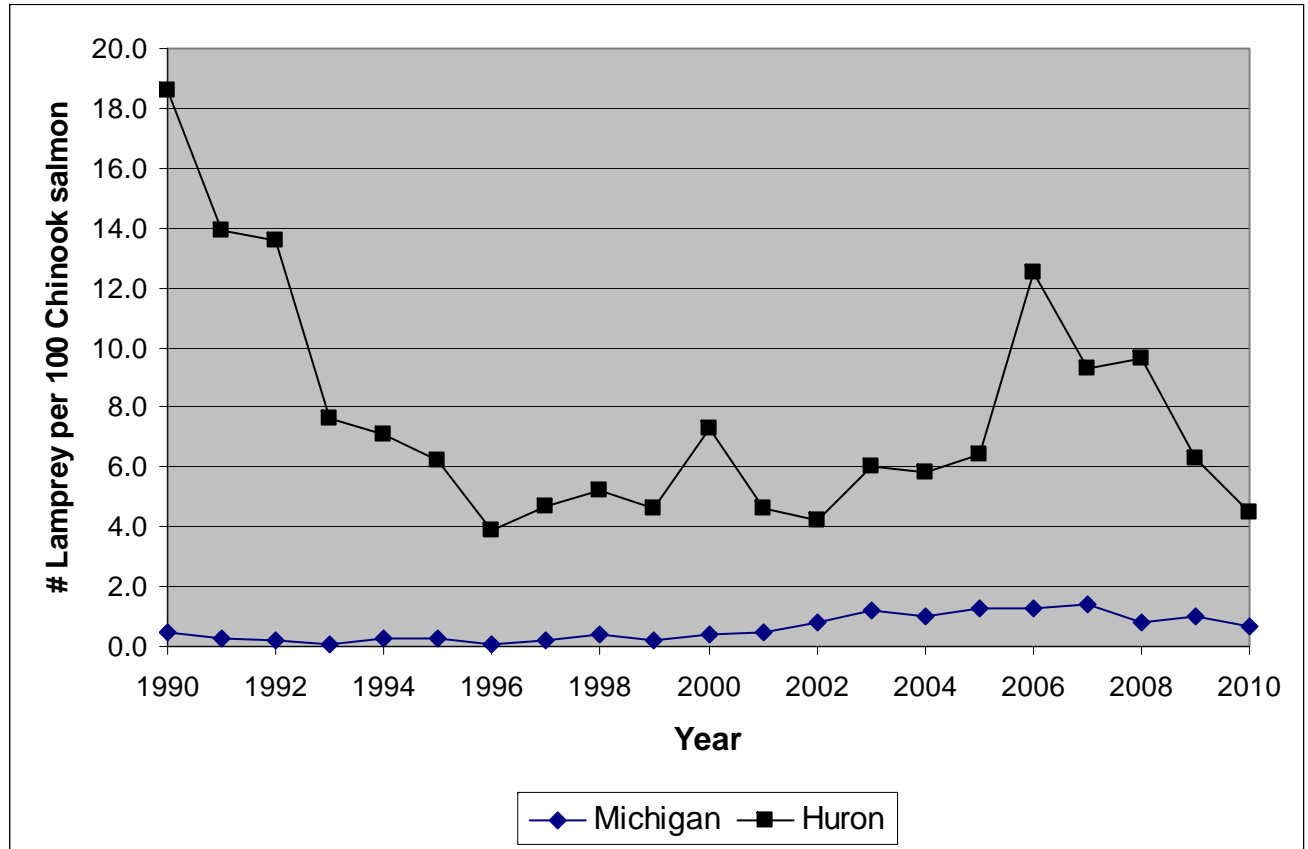


Figure 12.—Sea lamprey incidence (number attached per 100 fish) on lake trout harvested by charter anglers on Lakes Michigan, Huron, and Superior, 1990-2010.

| Year | Lake Michigan | Lake Huron | Lake Superior |
|------|---------------|------------|---------------|
| 1990 | 1.8           | 6.6        | 1.8           |
| 1991 | 1.2           | 5.7        | 1.6           |
| 1992 | 0.8           | 4.6        | 0.8           |
| 1993 | 0.6           | 2.1        | 0.5           |
| 1994 | 0.6           | 3.3        | 1.1           |
| 1995 | 1.0           | 2.7        | 0.7           |
| 1996 | 0.7           | 1.9        | 1.0           |
| 1997 | 1.1           | 3.0        | 0.6           |
| 1998 | 1.1           | 2.1        | 0.5           |
| 1999 | 1.2           | 1.8        | 0.5           |
| 2000 | 1.3           | 2.2        | 0.4           |
| 2001 | 1.3           | 2.0        | 0.7           |
| 2002 | 2.2           | 1.5        | 0.4           |
| 2003 | 2.4           | 1.3        | 0.7           |
| 2004 | 2.6           | 1.4        | 0.8           |
| 2005 | 2.8           | 1.1        | 1.2           |
| 2006 | 2.7           | 1.8        | 3.0           |
| 2007 | 2.3           | 1.9        | 1.6           |
| 2008 | 1.2           | 2.0        | 1.1           |
| 2009 | 1.7           | 1.3        | 1.1           |
| 2010 | 1.3           | 1.6        | 0.9           |

